Analysis of the determinants of Capital Structure in sugar and allied industry

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Abstract

This paper attempts to determine the capital structure of listed firms in the sugar and allied industry of Pakistan. The study finds that a specific industry's capital structure exhibits unique attributes, which are usually not apparent in the combined analysis of many sectors as done by Shah & Hijazi (2005). The study took 33 firms in the sugar sector, listed at the Karachi Stock Exchange for the period 1999-2004 and analyzed the data by using pooled regression in a panel data analysis. Following the model developed by Rajan & Zingle (1995) it has chosen four independent variables i.e. firm size (measured by natural log of sales), tangibility of assets, profitability and growth and further analyzed the effects on leverage. The results, except for firm size and growth were found highly significant.

Keywords*:* Capital Structure, sugar and allied industry, Karachi Stock Exchange, Pakistan

Introduction

Capital structure contributes a lot in determining the over all market value of the firm. Firms use different mix of financing options to finance their assets and most of the times it is based on the nature of the industry and the operations. Miller & Modigliani (1958) regrets the role of capital structure and dividend payout in determining the firms' market value and showed that it is determined by its earning power and the risk of its underlying assets. A firm can choose a mix of three modes of financing: issuing shares, borrowing from the market, and use of retained earnings. The ratio of this mix of funds is purely depending up on the firm and known as optimal capital structure of the firm. This leads to the different capital structure theories. These theories explain their point of view about optimal capital structure, how an optimal capital structure can increase the value of the firm and its impact on the cost of capital of the firm.

The theory of capital structure presented by M&M is based on the assumption that firm is indifferent in selection of debt or equity financing. This theory of M&M is based on many unrealistic assumptions but is used as the base of further research on the determinants of capital structure and provides a strong theoretical background. During this period many theories regarding optimum mix of capital structure are presented by different theorists, some of them explaining the behavior of firm in choosing its capital structure are Modigliani and Miller (Irrelevance of Capital Structure), Agency cost theory of capital structure, The static trade-off theory, Pecking order theory, and the Signaling Theory.This study focuses on firms of the Sugar & Allied industry of Pakistan and the purpose is two fold. One is to see whether the determinants identified by Rajan & Zingale (1996) provide an explanation for the choice of capital structure of firms in the Pakistani Sugar & Allied industry. Second, we attempt to see whether Sugar & Allied industry of Pakistan exhibits unique attributes that are not apparent in the combined analysis of non-financial firms of Pakistan made by Shah & Hijazi (2005) who analyzed 445 firms listed in Karachi Stock Exchange. The remainder of this paper is divided into four main sections. Section 2 presents the theoretical basis for the analysis presented in this paper. Section 3 then provides a detailed description of the methodology, operational definitions of the variables and model used. Section 4 then details the results of this analysis, comparing the results with the past findings. Finally, section 5 summarizes and concludes.

Literature Review

The modern work on capital structure theory began by Modigliani and Miller (1958). M&M proof that the value of the firm is independent from its capital structure. They proof their hypothesis based on different assumptions. These assumptions are not applicable in the real world so as the literature, their work considered best but it cannot be applicable in the practical life.M&M further published the correction for their previous work as "A Correction" in (1963). In that study, they have described that the value of the firm is independent from its capital structure but the interest expenses on the debt create the difference. They further explained that point by sayings that as the interest expenses are tax deductible due to the income tax law prevailing in different countries so the firms working in these countries decreases the tax liability and increases the after tax cash flows. On the other hand, dividend payments are not tax deductible; firms have to pay the tax on all their incomes and this procedure make equity a costly source of financing. Therefore, this differential treatment encourages corporations to use debt in their capital structures. Their work provides the basis for other researchers for further research. As a result different other theories of capital structure developed by other researchers like static trade-off theory, pecking order theory and agency cost theory.Agency theory states that the owners have to bear cost due to the separation of ownership and management in the corporation form of business. The shareholders have to provide incentives to the managers for the efficient working and increased output. The cost, which is paid by owners to managers or agents, is known as agency cost.

If the firm takes loans then the managers have to act as the agent of owners as well as to the debt providers. Therefore, agency cost theory of capital structure states that the optimal capital structure is that point where the agency cost of all the interested parties is at the minimum level (Jensen and Meckling, 1976).The static trade-off theory states that the value of the leveraged and un-leveraged firm is not same. In the case of debt financing the firm can save the amount of interest payments on the debts from the tax purposes. However, at the same time due to debt finance the cost of financial distress and the agency cost of the debt financing of the firm increases. This theory further states that the optimal capital structure is that where the tax benefit on the interest payments for the firm and the financial distress and the agency cost of the debt financing balanced with each other (Baxter, 1967 and Altman 1984, 2002). This theory focus on the three points these are tax advantage, financial distress costs, and the agency cost.

This theory states that the firm save tax on the interest payments of the debt finance. As suggested by MM (1963), that value of the firm is only depend on the capital structure due to the fact that interest expenses on the debts are tax deducible but the same is not applicable on the dividend payments. The second point is financial distress costs. As the firm increases its leverage position the chances of bankruptcy increases as suggested by Jensen and Meckling (1976). Therefore, with the continues inclusion of debt financing the bankruptcy cost is also increases for the firm. As discussed in the agency cost of capital structure that the owners have to pay incentives to their agents (managers) in the corporation form of business. If the corporation also financed by debts then these agents (managers) have to work as the agents of the debt providers so it increases the agency cost of capital structure.

Jensen and Meckling (1976) suggest that the optimal capital structure is that point where the tax advantage on interest payments must balanced out with the cost of bankruptcy and agency cost of capital structure. Pecking order theory proposed by Myers (1984) and states that the firm has to make the hierarchy of the desired funds. He proposed that first of all the firm finance its projects by their own internally generated funds (retained earnings). If the firm needs more funds to match its growth then it should generate funds by issuing debts. Firms utilize new equity for the generation of funds at the last option because it is the most expensive form of financing. Bevan and Danbolt (2002) further work on this idea and proof that the firm which earns huge profits they have less debts due to the use of internally generated funds.This approach, originally developed by Ross (1977), explains that debt is considered as a way to highlight investors' trust in the company, that is if a company issues the debt it provides a signal to the markets that the firm is expecting positive cash flows in the future, as the principal and interest payments on debt are a fixed contractual obligation which a firm has to pay out of its cash flows. Thus the higher level of debt shows the manager's confidence in future cash flows. Another impact of the signaling factor as we have already discussed it in the pecking order theory is the problem of the under pricing of equity.

If a firm issues equity instead of debt for financing its new projects, investors will interpret the signal negatively: since managers have superior information about the firm than investors, they might issue equity when it is overpriced.Among other explanations about a firm's behavior in choosing its capital structure is the agency theory. Jensen and Meckling (1976) identify the possible conflict between shareholders and a manager's interests because the manager's share is less than 100% in the firm. Furthermore, acting as an agent to shareholders, the manager tries to appropriate wealth from bondholders to shareholders by incurring more debt and investing in risky projects. This is consistent with the work of Myers (1977) who argues that, due to information asymmetries, companies with high gearing would have a tendency to pass up positive NPV (net present value) investment opportunities (under investment problems). Myers therefore argues that companies with large amounts of investment opportunities (also known as growth options) would tend to have low gearing ratios.

A manager having a less than 100% stake in the business may try to use these free cash flows sub-optimally or use it to their own advantage rather than use it to increase the value of the firm. Jensen (1986) suggests that this problem can be somehow controlled by increasing the stake of the manager in the business or by increasing debt in the capital structure, thereby reducing the amount of "free" cash available to managers to engage in their own pursuits (Jensen, 1986, Stulz, 1990). Here the reduction in the cash flow because of debt financing is considered to be a benefit. Stutz (1990) suggests that the agency problem can be solved to some extent if the management stake is increased or the proportion of debt in the capital structure is increased.

Methodology

This paper is based on the data, which is published by State Bank of Pakistan as "Balance Sheet Analysis of Joint Stock Companies Listed on the Karachi Stock Exchange Volume-II 1996-2001" and "Balance Sheet Analysis of Joint Stock Companies Listed at the Karachi Stock Exchange (1999-2004)" published by state bank of Pakistan statistics department source of the data is www.sbp.org.pk As this study has focused on the Sugar Sector, all the firms (which are listed on the Karachi Stock Exchange) in the Sugar sector (whose published data was available) were selected. Then after screening the firms with incomplete data, we were left with only 33 firms. So we have 198 firm-years for panel data analysis.

This study will focus on firms of the Sugar & Allied industry of Pakistan and the purpose is two fold. One is to see whether the determinants identified by Rajan & Zingale (1996) provide an explanation for the choice of capital structure of firms in the Pakistan's sugar & Allied industry. Second, I will attempt to see whether Sugar & Allied industry of Pakistan exhibits unique attributes that are not apparent in the combined analysis on non financial firms of Pakistan made by Shah & Hijazi (2005) who analyzed 445 firms listed in Karachi Stock Exchange.This study follows the framework of Rajan & Zingles (1995) and Shah & Hijazi (2005) that use tangibility of assets, firm size, growth and profitability of the firm as independent variables to determine the degree of Leverage (dependent variable).

The study tied to find the answers of the following research questions

- What are the major determinants of capital structure?
- What are the variables which have major effect on the leverage of the firm?
- Tangibility is positively related with leverage or not?

This study follows the framework of Rajan & Zingles (1995) and Shah & Hijazi (2005) that use tangibility of assets, firm size, growth and profitability of the firm as explanatory variables to determine the degree of leverage (the response variable). In this section we present the description of these variables, how they are measured and what empirical evidence was found by previous studies.

Leverage (LG) (Dependent Variable)

Leverage refers to the percentage of assets financed by debt. Previous research studies have used different measures of leverage. Frank and Goyal (2003b) state that the difference between a debt ratio based on market value and one based on book values is that the former tends to regard the firm's future situation whereas the latter reflects the past situation. Fama and French (2002) point out some inconsistencies arising from the use of two different debt ratios. According to them, both theories (pecking order and static tradeoff) apply to the debt book value, and there are doubts if the predictions may be extended to the debt market value.

While measuring the level of leverage the researchers based their measures of leverages on two approaches. One is used by Titman and Wessels (1988). In this approach, they calculate the amount of leverage dividing book value of debt by book value of debt plus market value of equity. Rajan and Zingales (1995), Shah and Hijazi (2005) have used the second approach. They divide the book value of debt by book value of debt plus the book value of equity. In this paper, I used the book value total assets and book value of debts for the calculation of leverage due to two reasons. Firstly, the payment of debts was depending upon the book value of the loans and not on the market value of debt (Banerjee, S.et al 2000). Secondly, the capital structure of firms in developing countries like Pakistan primarily based on the short-term debt as compared to the long-term debts Booth el al (1999).

Tangibility of Assets (TG) (Independent Variable)

The firms which have enough fixed assets can generate external finance easily and on less rate of interest because they can secure these loans as collateral Rajan and Zingales (1995). According to the static tradeoff approach, firms with higher ratio of fixed assets serve as collateral for new loans, favoring debt. However, the Pecking Order Theory is of the view, as argued by Harris and Raviv (1991) that firms with low levels of fixed assets would have more problems of asymmetric information, making them issue more debt, since equity issues would only be possible by under pricing them. On the other hand, firms with higher levels of asset tangibility are generally larger firms that can issue equity at fair prices, so they do not need to issue debt to finance new investment. According to them, the expected relationship between asset tangibility and debt should then be negative. I denote tangibility as (TG) and measure the tangibility as a ratio of fixed assets divided by total assets.
A firm having a large amount of fixed assets can easily raise debt at cheaper rates because of the collateral value of those fixed assets. The companies with a higher ratio of tangible assets have an incentive to borrow more because loans are available to them at a relatively cheaper rate. Therefore we expect a positive relationship between tangibility of assets and leverage.

Hypothesis 1: **A firm with higher percentage of fixed assets will have higher debt ratio.**

Size (SZ) (Independent Variable)

The size of a firm can affect the leverage of the firm negatively. As Rajan and Zingales (1995) stated that:

"The effect of size on equilibrium leverage is more ambiguous. Larger firms tend to be more diversified and fail less often, so size (computed as the logarithm of net sales) may be an inverse proxy for the probability of bankruptcy."

For the Static Tradeoff approach, the larger the firm, the lesser the possibility it has of issuing debt, resulting in a positive relationship between debt and size. One of the reasons for this is that the larger the firm the lower is the risk of bankruptcy. Large firms do not consider the direct bankruptcy costs as an active variable in deciding the level of leverage as these costs are fixed by the Constitution and constitute a smaller proportion of the total firm's value and also because larger firms, being more diversified, have less chances of bankruptcy (Titman and Wessels 1988). Shah A (2005), and Rajan and Zingales (1995), also expecting the negative relationship between size and leverage of the firm. I denote size as (SZ) of the firm. For the measurement of size, the natural log of the sales is used in this paper to smoothen any variation in the figure of sales over the period.

Hypothesis 2: There is negative relationship between size and leverage of the firm.

Growths (GT) (Independent Variable)

The empirical evidence regarding the relationship between gearing and growth opportunities is rather mixed. Titman and Wessels (1988), Chung (1993) and Barclay *et. al.* (1995) Rajan and Zingales (1995) and Shah and Hijazi (2005) find a negative correlation, whereas Kester (1986) does not find any support for the predicted negative relationship between growth opportunities and gearing. This is therefore consistent with the hypotheses of Jensen and Mekling (1976) and Myers (1977), and lends weight to the notion that companies with high levels of growth opportunities can be expected to have low levels of gearing.Pecking order theory by Myers and Majluf (1984) states that the firms finance its projects from the internally generated funds. Normally the growing firms are not capable to finance all its growth by the internally generated funds.

These growing firms need external finance and so the leverage of the growing firms is higher (Drobetz and Fix 2003). When the leverage of the firm is higher than the cost of new debts will go up. In this way, the growing firms have to be depending upon the equity than on debts. So we can say that there is negative relationship between the growth and leverage the same is contributed by Rajan and Zingales (1995). Different researchers used different measures of growth but I measure the growth (GT) as Shah and Hijazi (2005), measures in their work. They measure growth as a percentage increase in total assets, as the data was taken from the State Bank of Pakistan publication, which does not contain information on annual stock prices and research expenditure of the listed firms.

Hypothesis 3: Firms with higher growth rate will have higher leverage.

Profitability (PF) (Independent Variable)

There are some conflicting viewpoints about the profitability and the leverage of the firm. Modigliani and Miller (1963) state that if companies generate funds by debts then they will get the advantage of tax deduction on the interest payments. So according to Modigliani and Miller (1963) there is a positive relationship between leverage and profitability.On the other hand, pecking order theory by Myers and Majluf (1984) states that when the firms need funds, they will prefer internally generated funds instead of external sources of capital. So there must be a negative relationship between profits and leverage of the firm. Rajan and Zingales (1995) also found the negative relationship between leverage and profitability In previous studies, the measure of profitability used was operating earnings before interest payments and income tax (EBIT). But following Shah and Hijazi (2005) we measure profitability (PF) as the ratio of net income before taxes divided by total assets because the data taken from the State Bank of Pakistan publication does not permit us to calculate EBIT.

Hypothesis 4: **Firms with higher profitability will have lesser leverage**

The Regression Model

This study uses panel regression analysis. Panel data analysis facilitates analysis of cross-sectional and time series data. We use the pooled regression type of panel data analysis. The pooled regression, also called the Constant Coefficients model, is one where both intercepts and slopes are assumed constant. The cross section company data and time series data are pooled together in a single column assuming that there is no significant cross section or inter temporal effects.Therefore, the equation for our regression model will be:

$$LG = \beta_0 + \beta_1 (TG) + \beta_2 (SZ) + \beta_3 (GT) + \beta_4 (PF) + \varepsilon$$

Where

LG = Leverage
TG = Tangibility of assets
SZ = Firm Size measure by Log of sales
GT = Growth
PF = Profitability
ε = the error term

Analysis

The following table presents some of the descriptive statistics of the listed Pakistani sugar and allied firms from 1999-2004

Table-1: Descriptive Statistics

	Leverage	Size	Profitability	Tangibility	Growth
Mean	0.08304	1.06180	-0.01615	2.94739	0.80253
Median	0.01540	1.05094	-0.00022	2.94729	0.67040
Mode	0.00000	1.02952	0.00000	3.12493	0.98061
Std. deviation	0.27092	0.35773	0.12782	0.25255	0.54269

Pearson's co-efficient of correlation is used to check the multi-co linearity among the independent variables. Following are the results of correlation

Table-2 Correlations

	Size	Profitability	Tangibility	Growth
Size	1			
Profitability	.443	1		
Tangibility	.026	.047	1	
Growth	.055	-.026	-.328	1

With the help of the above table, it is clear that there is no severe problem of multi-co linearity among independent variables except profitability and tangibility and it is tolerable. However, the table explains some interesting facts about the correlation among these independent variables. Firstly, there is a positive correlation of size with profitability of the firm. It is the fact that whenever the size (log of sales) of the company increases than it will increases the profitability of the company. There is positive relationship between size and tangibility and it is common because the growing companies always heading toward tangibility. As we also know there is a great demand of products in the world so if a firm is doing well than it definitely need more tangibility for meeting the requirements of the customers.Size and growth are also positively correlated with each other. It can also be seen anywhere that as the size (log of sales) increases the company need more growth (percentage increase in the fixed assets).

There is a positive relationship between profitability and tangibility it shows that for increasing profits the manufacturing firms have to increase their tangibility (ratio of fixed assets as compared to total assets). Profit and growth are negatively correlated with each other.There is negative relationship between tangibility and growth. It shows there is growth (percentage change in the total assets) but this growth is not in the Tangibility (percentage change in the fixed assets). It can be interpreted that the growth is in the current assets or the tangibility is decreasing. Both can be possible because the firm can purchase more assets as compared to fixed assets. The meaning of decrease in tangibility is that the fixed assets are decreasing and we know it is happening everywhere in the form of depreciation. Instead of all these factors, the negative growth is also possible.

Results

The value of the R square is around 46%. It suggests that size, profitability, tangibility, and growth show around 46% variation in the leverage. The remaining variability in the leverage is due to some other factors which are not included in the model. The R square of the Shah and Hijazi (2005) was around 26% that shows that these variables are capable to show 26% variation on the leverage of the Pakistani listed firms except the non-financial firms. In their paper, they have suggested that these variables are not predicting the major effect on leverage. However, the result of my paper is better than the work of Shah and Hijazi (2005), this model is capable to show the major variability on the listed firms of sugar and allied industries of Pakistan.

The results of this paper are also inline with the Rajan and Zingales (1995) who have applied the same model on the G-7 countries to check the affect of these variables on the leverage. The F-statistics shows that the model is significant on both 5% and even on the 1% and shows that the model is statistically significant. The coefficients of individual independent variables for size, profitability, tangibility, and growth are as follows. Size is measured by taking the log of sales and it has negative relation with leverage. The negative sign provide the evidence about the negative relationship of size and leverage. The value of size is not statistically significant even on 10%. Based on this insignificant result I am not in a position to confirm that there is a negative relationship between size and leverage. On these grounds, I am rejecting my hypothesis that there is negative relationship between size and leverage of the Pakistani listed firms of sugar and allied industries. The result about the size and leverage of this paper can not be compared with any other paper due to their insignificance. However, the results of Rajan and Zingales (1995), shows the negative relationship and the results of Shah and Hijazi (2005) suggest the positive relationship between size and leverage of the Pakistani listed non-financial firms.

Profitability has the negative relation with leverage. The negative sign confirm our hypothesis about profitability. Profitability is also statistically significant even on 1% so I am accepting my hypothesis that there is negative relationship between profitability and leverage. The results about the relationship between profitability and leverage are same as contributed by Shah A (2005) and also inline with the pecking order theory of Myers and Majluf (1984) Tangibility has a positive relationship with leverage. The positive sign confirm that our hypothesis about the tangibility and leverage is correct and the results of tangibility are also significant on 1% so we are accepting our hypothesis about tangibility and leverage. The results are also not consistent with Shah and Hijazi (2005) they have find a positive but insignificant relationship between tangibility and leverage for the non-financial listed Pakistani firms. The result of growth is positive but it is also insignificant so we are rejecting our hypothesis that there is positive relationship between growth and leverage. The results are conflicting with Shah A (2005), who stated that:

"Growing firms in Pakistan use more of equity and less debt to finance the new investment opportunities. This confirm to our earlier hypothesis about growth opportunities. This also supports the simple version of pecking order theory that suggest growing firms will resort first to the internally generated funds for fulfilling their financing needs. However, this does not support the extended version of pecking order theory that suggests that internally generated funds may not be sufficient for a growing firms and next option for such firm would be to use debt financing."

Table-3 Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.681	.464	.454	.40089

Table-4 ANOVA

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	32.354	4	8.089	50.330	.000
Residual	37.446	233	.161		
Total	69.800	237			

Table-5 Coefficient

	Un standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.445	.350		1.271	.205
Size	-.162	.115	-.075	-1.404	.162
Profitability	-1.946	.228	-.458	-8.548	.000
Tangibility	.754	.077	.497	9.769	.000
Growth	.044	.102	.022	.431	.667

Comparison Tables

Coefficient

Variables	G-7 countries Rajan and zingales	KSE (shah & Hijazi)	Energy Sector (Saeed Abubakar)	Sugar Sector (Tariq Awan)	Cement Sector (Intikhab Alam)
Size	Positive	0.0180	0.1161	-0.075	-0.359
Growth		-0.0398	0.0379	0.022	-1.391
Profitability	Negative	-1.1069	-0.839	-0.458	-0.831
Tangibility	Positive	0.0279		0.497	0.280

Model Summary

	KSE (shah & Hijazi)	Energy Sector (Saeed Abubakar)	Sugar Sector (Tariq Awan)	Cement Sector (Intikhab Alam)
R square	0.25580	0.2398	0.464	0.468

Summary of Theories

Variable	Definition	Static Trade-off theory	Pecking Order theory	Agency Cost theory
Size	The natural Log of Sales	Positive	Negative	Positive
Growth	Percentage change in total assets	Negative	Positive	Negative
Profitability	Ratio of net income before income tax over total assets	Positive	Negative	Negative
Tangibility	Ratio of fixed assets to total assets	Negative	Negative	Positive

Discussion

Size is found to have statistically significant and positive impact on the firm's leverage in the study of Rajan and Zingale (G-7) countries, Shah and Hijazi (KSE companies) and Abubakar Saeed energy sector. This suggests that larger firms in Pakistan tend to have higher leverage ratios and large firms borrow more then smaller firms. This result is consistent with the implementation of static trade-off theory, which suggests that for obtaining the optimal capital structure if firm needs a change in the capital structure. Further, larger listed firms in energy sector of Pakistan have state ownership (partial or complete state controlled) that facilitates them with less chance of bankruptcy and easy access to bank debts. Therefore high cost of bankruptcy is not a big threat for state-owned firms in Pakistan to have high leverage level. Majority of empirical studies that include the data from developing countries find a positive relation between size and financial leverage. For instance: Titman and Wessels [25], Rajan and Zingales [5] and Booth et al [10] provide the evidence of significant direct relationship between size and financial leverage. Larger firms use more debt rather than equity to raise their financing.

Where as it shows negative trend in the study of Sugar sector and cement sector of Pakistan has negative relation with leverage. The negative sign provide the evidence about the negative relationship of size and leverage. The value of size is not statistically significant even on 10%. Based on this insignificant result I am not in a position to confirm that there is a negative relationship between size and leverage. We may conclude that results of size prove the static trade-off and Agency cost theory.

Conclusion

The data used in this study has been taken from the "Balance Sheet Analysis of Joint Stock Companies listed on the Karachi Stock Exchange Volume II" which is published by the State Bank of Pakistan and Balance Sheet Analysis of Joint Stock Companies listed on the Karachi Stock Exchange available on the web site www.sbp.org.pk. We used pool regression model of panel data analysis. With the help of this, we have measured the determinants of capital structure in the listed Pakistani firms of sugar industry from 1996 to 2004. This study analyzed a sample of 31 firms in the sugar sector by using a pooled regression model to measure the determinants of capital structure of the firms in the sugar industry.

In the analysis, we have found the affect of size, profitability, tangibility, and growth (all are independent variables) on the leverage (dependent variables) position of the company. With the help of regression, we have found that size and profitability have the negative relationship and tangibility and growth have the positive relationship with the leverage. However, the results for size and growth are not statistically significant. Based on this we are not in a position to conclude that size and growth have the negative or positive relationship with leverage due to their insignificant results so we reject our hypothesis related with the size and growth. Profitability shows the negative sign and it is statistically significant so it may be concluded that the profitability and leverage are negatively related with each other in the case of listed Sugar and Allied firms of Pakistan and my hypothesis is also correct about the profitability. Tangibility is positively related with leverage and it is also statistically significant so hypothesis regarding tangibility is accepted and concludes that there is positive relationship between tangibility and leverage of the listed Sugar and Allied firms of Pakistan.

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