

# Tax benefits of debt: a case of Pakistani firms essay



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Supervisor's Certificate This is certified that Ms. Mahjabeen (4426) and Ms. Saima Mushtaq (4370) of MBA-19 have completed their project report entitled " Tax Benefit of Debt" under my supervision. I have checked this report and found it bonafide work of authors. \_\_\_\_\_ Dr. Taqadus Bashir SUPERVISOR Lecturer Faculty of Management Sciences International Islamic University Islamabad \_\_\_\_\_ Ms. Hameeda Toor Head of Finance Faculty of Management Sciences International Islamic University Islamabad \_\_\_\_\_ Ms. Tasneem Fatima Chairperson Faculty of Management Sciences International Islamic University Islamabad

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We are also thankful to our family members and friends whose silent support led us to complete our project. TABLE OF CONTENTS 1. INTRODUCTION9 OBJECTIVES OF THE STUDY12 2. LITERATURE REVIEW13 3. MATERIAL AND METHODS18 3. 1. SELECTION OF VARIABLES18 3. 2. THEORETICAL FRAME WORK: 22 3. 3. Sample Selection Criteria: 23 3. 4. Sources of Data: 24 3. 5 Problems in Data Collection24 3. 6. Research Methodology: 25 4. RESULTS & ANALYSIS27 4. 1. DESCRIPTIVE STATISTICS28 4. 2. PEARSON CORRELATIONS28 4. 3. REGRESSION ANALYSIS30 4. 4. COEFFICIENTS (A)31 5.

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OF DEBT A CASE OF PAKISTAN ABSTRACT: Intensive debate is being made on the advantages of debt, this study also attempted to analyze the tax benefit of debt particularly in the case of Pakistan. This research investigated the impact of firm operating income and debt on value of the firm. The sample of 30 firms has taken from Karachi stock exchange 100 index for the period of 2007-2010.

In panel data analysis, the study used the pooled regression and correlation coefficient model to find relationship between the variables. It is found that the variables have the strong positive correlation among them and the value of firm is significantly and positively influenced by the firm operating income and debt or tax benefits of debt greatly influence the market value of firm and it is supported theoretically and empirically. Key words: market value of firm, firm operating income, debt CHAPTER 1 INTRODUCTION

Tax is the compulsory financial obligation imposed by the government, may be levied on income, property or sale to support the smooth running of the functions of state. Income tax is the very important type of tax which is imposed by government on the financial income generated entities under their jurisdictions. First the income tax is imposed by the America during the First World War in 1812 to repay the debt of dollar one billion incurred on the war expenses. Later the income tax becomes compulsory in 20th century.

Now a days there are many purposes of tax.

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It is collected to meet the expenditure of war, build infrastructure, enforce law and order, repayment of debt, fund the public services and establish health and education system, fund unemployment and public transportation to fulfill many public needs and operations of government itself. For this, government uses different kinds of taxes and different tax rates to distribute the burden of tax among individuals or entities. There are two major types of tax. One is progressive and the other is regressive and rates of these tax types are directly linked with the income of tax payers.

The progressive term of tax is defined as the tax whose rate increases with the increase of income of tax payer. It means that the person who has the greater income, have to pay more tax or tax rate and income are directly correlated. On the other hand in regressive tax type, the rate of tax increase with the decrease in payer's income. It means tax rate and the income is indirectly correlated. The example of progressive tax is the income tax where individual pays more tax on greater income. The sale tax comes under the regressive tax.

Here the main consideration is the consumption not the income as the people having the low income have to pay larger proportion of their income in the form of sale tax. Now the thing is that why corporations want to avoid tax and get tax shield. Tax avoidance and tax evasion are as old as the tax itself. It is obvious that the firm has less income after paying the tax. So tax avoidance is natural as tax payer has to pay from his pocket. Second the insufficiency of tax system prevail in Pakistan third the lack of good governance and low credibility of government bodies also contribute in the tendency of tax avoidance.

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Mainly poor rule and regulation system and nonpayment of tax by the authoritative and rich people also shake the confidence of other tax payers. Now particularly if we talk about the tax benefits of debts and why companies tend to use the mix of debt to get optimal capital structure, the answer is the tax benefit of debt. In this current arena of market changes, corporate world is in effort to capitalize the resources and lower the cost. They want to use every possible mean to get the advantages and cost benefits.

Debt tax shield is also a factor to get tax benefits from the debt financing. Tax benefits of debt is directly linked with how much you have financed with debt or thus with the capital structure because on debt firms have to pay interest expense which is tax deductible expense. So capital structure decision is very much important for every organization. Basically capital structure is the composition of external and internal sources of funds. Internal sources include retain earning and equity and external sources includes debt.

A firm can use any possible level or percentage of debt and equity. For debt it can go for bonds, debentures, warrants, short term or long term loans and dozens of other securities in various combinations. First Modigliani and Miller (1958) described the concept of tax benefits of debt. In their first proposition they said that the value of firm does not affect by their source of finance if there is no tax. It means if we assume that there is no tax provisions then whether you finance from debt or equity or any combination of it, it does not affect firm value. The equation will be

$V_L = V_U$  So value of the levered firm is equal to value of unlevered firm. Their first assumption is under very strict restrictions so they revised it and made second proposition in which they said that the firm value is correlated with debt when there are tax provisions. So tax is the basic factor which makes the difference  $V_L = V_U + DTC$  So debt is positively correlated with firm value and firm value increases as you increase the debt in your capital structure and you can get optimal capital structure with the use of debt.

Many people have tested these equations mostly the second equation as the tax is mandatory for all corporation. But huge literature is also available on the view that the debt should be used to the certain extent because it makes the business riskier. So there should be the certain limits of debt financing as higher risk leads to pay higher premium to investor. So every firm is trying to find out the optimal capital structure where the overall cost of financing could be minimal but the limits of debt financing is not fixed and it varies from company to company.

The companies who are risk averse try to use less debt to finance its assets, the firm who have neutral behavior with risk use the average level of debt financing and the firms who are risk takers, use the large portion of debt to finance their business as higher the risk, higher return. This paper tried to find out the tax benefits of debt or debt tax shield about which the whole debate is being made and it is investigated whether the tax benefits of debt increases the value of firm or not particularly in the context of Pakistan. We have regressed the firm value on firm profitability and debt to find out their relation on firm value.

For this a sample of 30 firms has taken from Karachi stock exchange 100 index and three year analysis (2007-2010) of these firms has been made. This research is divided into five main chapters. Chapter one includes the introduction and objective of the study. Chapter 2 includes the theoretical basis for analysis. Chapter 3 describes the details regarding the research methodology, data and sampling, description of variable and the analytical models. Chapter 4 includes the results of this study and chapter 5 contains the findings and conclusion.

### 1 OBJECTIVES OF THE STUDY

The objectives of this study are to analyze the debt benefits of tax especially in the context of Pakistan. It is analyzed whether the firms of Pakistan are getting the tax benefits of debt to increase the value of firm. On this topic very limited study has been made in the context of Pakistan. Some researchers has made contribution to research in regards of Pakistan regarding the capital structure but not any authentic study has made on this particular topic and hence it is our contribution to the literature.

This study focused on the sample of 30 firms from KSE 100 index and three year analyses of these firms has made to find the tax benefit of debt in Pakistan.

### CHAPTER 2 LITERATURE REVIEW

Modigliani and Miller (1958) provided the foundation and empirical basis of modern capital structure theory. They argued that the capital market which is friction less and perfect and where riskless debt can be issued by the firm then the capital structure will irrelevant. That is the amount of debt in firm capital structure did not affect the value of firm. In results firm cannot have optimal capital structure.

They proved that under restrictive assumption of perfect capital market with no arbitrage, no tax and transaction cost and equal interest on debt and

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equity, the value of the company is independent of management's financial decision. If these assumptions are relaxed it helps to obtain optimal capital structure of firms. Cooper (2007) suggested that there should be exact and accurate measurement of tax benefits of debt especially because the concept of leverage is being practice rapidly in corporations now a days and debt tax shield represent the major chunk of firm, project or corporation value.

There are different approaches to measure the tax benefits of debts and each approach is based on a certain assumptions especially regarding the riskiness of tax benefits of debt. He insisted that adopting particular approach bases on certain assumption according to situations and remaining consistent with that approach is very much crucial for the correct measurement of debt tax shield. Desai and Dharmapala (2007) Stated that extensive research has been made and vast literature is available on how firm respond to tax but little literature you will find on tax avoidance activities of firm.

So their paper is the milestone in this emerging literature. The presumption is not validated in data that the tax reducing shows the shift of value from the state to share holder but the trends in data are more associated with the agency perspective which also inculcate the intervening role of corporate governance. The variables they used are tax, tax sheltering, book tax gap, firm value, tax avoidance and governance. The main result they found that the firm having the higher quality of governance leads to more impact of tax avoidance on firm value.



Baxter (1967) investigated that when firm's debt financing increases than equity financing its chances of bankruptcy also get increase. He justified his statement by saying that debt will increase the risk of business and creditors will demand higher risk premium and cost of equity will also get increase. He also emphasize that to get the debt tax shield benefit from the debt financing, the firm must not finance the business by debt beyond the limit where firms cost of debt becomes greater than tax benefit. Rafique, Iqal and Atiq (2008) analyzed the capital structure of chemical industry in Pakistan.

The variables they used are leverage as a dependent variable. Independent variables include profitability, tangibility of asset, size, and non debt tax shield and income variation. By applying the pooled regression, they concluded that capital structure determinants are industry specific and relationship between the leverage and profitability is chemical industry of Pakistan follows the pecking order theory. They emphasized that the specific industry shows unique attributes which we cannot analyze in combine study so separate study should be made for each sector for more solid results.

Cooper and Nyborj (2005) reconciled the Fernandez findings with standard valuation formula for the tax saving from debt. The variables they used are value of tax shield, leverage policy, adjusted present value, unlevered beta and cost of capital. They concluded that in a complete market as we can expect, the value of debt tax shield is the present value of tax saving from interest. Mio (2005) analyzed the impact of studied model that is idiosyncratic technology shocks effects, the exit and entry of firms from industry and financial decision of firms.

He concluded that the impact of capital structure is based on the tradeoff between the debt and tax benefit along with the agency and associated bankruptcy cost. They also find that the equilibrium output price has an important feedback effect and this effect has a number of testable implications for example high growth industries have relatively lower level leverage and turnover rates. Graham (2000) investigated tax benefits of debt. He found that the saving of a typical firm are \$15 million per year.

And if the firm want that its interest deduction benefits function's slope become downward they have to obtain \$15 gross tax benefit of firm value. He also concluded that the firm with high growth and unique product production they are making, they use debt conservatively and the firm who are large, profitable with high liquidity use the debt sparingly and now a day's firms are using debt more aggressively than before 1980s. Finally he said that he has not inculcated the cost and non tax benefit of debt in his study which should be study in future.

Adlegan (2007) examined the relationship between firm value, dividend and debt policy and measure the effects of tax on business financing decision and firm value. The variables he used are firm value dividend and debt policy. He divided his sample into small and large firms and applied separate equation on sub sample and found that positive relationship exist between dividend and value and there is negative relation between debt and value in all large and small firms. And finally they said that both debt and dividend provide signals or information about the value of firm.

Koziol (2006) investigated the ability of puttable debt to enhance firm value. He concluded that it is not necessary that put by the debt holder occur only at the time of redemption of bond at the put price but it can also trigger the default. The value of the firm is always higher under the puttable debt than under straight debt even along with the power of arbitrary negotiation and renegotiation of equity and debt holder. Further they explained that bankruptcy cost and volatility of asset value return are important parameters which make the firm's value effect differently under straight and puttable debt.

Finally they said that firm value supposed to be high if firm use the puttable bond rather than just puttable debt. Pareja (2010) argued that in earlier literature, conditions for risky debt were being related to EBIT but it should be related to the cash flow to debt as it does not contain the accruals. They concluded that tax shields are not correlated with the interest payment but it relates or correlate with the income before interest and taxes plus other income. As dividends are calculated based on the previous year income therefore debt tax shield is not correlated with the cash flow to equity.

Forsberg and Paterson (2010) described that they have been unable to find a researcher who has tested the MM equations exactly as specified by the MM so in their paper they tested the MM setting exactly as specified. They have tested the both proposition of MM. proposition one "no tax" and proposition two "tax provision". They used the three basic variables which are value of firm, firm profitability and debt and tax along with other control variables. They found that neither the tax nor the non tax dimensions of MM equation are the true predictor of firm value.

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Katharina and Lewellen (2005) argued that a firm overall cost of capital not just have the mix of debt and equity like in the traditional theory of trade off, but have the combination of both external and internal source of finance. They conclude that for tax reason, the internal equity is more cheaper than external equity as the dividend enhance the personal taxes so retaining the cash inside the firm will defer the taxes and hence helps to overcome the disadvantages of tax of equity.

They find that the retained earnings cost critically depends on tax rate of capital gain whether firm pay dividend or not. Grinblatt and Liu (2002) provided the solutions for the valuations of assets which are levered and their related tax benefit of debt. To get present value they used the APV approach instead of WAAC. They said if cash flow process and debt policy are known both techniques provide the equivalent results. They also provide the benchmark to see the impact of debt on the market value of assets. Kemsley and Nissim (2002) analyzed the debt tax shield. They used the sample of 2964 firms from 1963-1993. They used cross sectional regression model and used the reverse regressions, linear and non linear regression and found that along the nontax dimension, debt and value of operations are correlated and net debt tax shield is approximately 40% of debt balances and firm value is strong and positively correlated with debt.

CHAPTER 3 MATERIAL AND METHODS In this chapter we provide the information about the variables, hypothesis, and theoretical frame work, source of data, and sample selection criteria and barriers

3. . SELECTION OF VARIABLES Dependent Variable Market Value of the Firm: Market value is represented by the VL here. Capital structure or the mix of debt and equity has direct relation with the market

value of debt. MM theory specifies in their second proposition that tax benefits of debt influences the value of firm. The tax adjusted valuation equation given by MM is  $V_L = V_U + TD$ . Here  $V_L$  is the market value of firm,  $V_U$  is the market value of unlevered firm,  $T$  is the tax benefits of debt and  $D$  shows the market value of debt.

In another study made by Olatundun Adlegan (2007), they also said that both debt and dividend provide signals or information about the value of firm. In this paper we measure the  $V_L$  as market value of common equity plus book value of preferred stock plus book value of debt. The market value of common equity or the capitalization is calculated by multiplying the outstanding shares with the market price of common share at the end of the fiscal year the equation will be: Market value of firm = no. of outstanding share \* market price per share. The book value of preferred stock is computed by adding the preferred stock dividend in arrears in the value of preferred stock and subtracting the preferred treasury stock or Book value of preferred stock = preferred stock + preferred stock dividend in arrears - treasury preferred stock. Independent Variables Firm Operating Income/ Profitability: Firm operating income is represented by the FOI. Firm operating always has the impact on value of firm. Mostly the profitability of firm is showed by the firm operating income.

In many previous studies, earnings before interest and taxes (EBIT) after dividing it with total assets (TA) is used as a measure of profitability because it is independent of leverage affects. Monson (1939) concluded that firm's profitability depends upon the industry structure. For the long term survival of any firm, one of the main objectives is to achieve profitability. Profitability <https://assignbuster.com/tax-benefits-of-debt-a-case-of-pakistani-firms-essay/>

is important for sustainability of any organization. That's the reason that profitability differs from organization to organization.

It also one of the important and fundamental questions to be studied and analyzed that why this difference occurs between the organizations. In this paper we have calculated the FOI by adding the interest expense \_ after multiplying it with  $(1-T_c)$  \_ into net income or  $FOI = \text{net income (NI)} + \text{interest expense (1-Tc)}$  Net Operating Asset: Net operating assets are represented by NOA. Total assets include both fixed and current assets. Fixed assets determine the operating leverage of a firm. Operating leverage varies from corporation to corporation. The firms who are manufacturing concern have higher operating leverage as compare to trading concerns. On the other hand current assets determine the liquidity of firm or their ability to pay short term liabilities. Again the firms who are manufacturing concern have less liquidity requirements than the trading concerns. Many other factors also contribute to determine the portion of fixed and current assets in total assets as size, level and scope. In this paper NOA is calculated by subtracting the operating liabilities from the total assets. Operating liabilities are those liabilities which usually don't generate the tax deductible expenses.

Operating Liabilities: Operating liabilities are represented by the OL. It includes the non debt liabilities. Liabilities may be of two kinds the one who generate the interest expense on which tax shield can be obtain and the other who don't generate the tax deductible interest expense. All current liabilities are not the operating liabilities as usually consider. Current

liabilities may include the notes pay able which have the interest expense on <https://assignbuster.com/tax-benefits-of-debt-a-case-of-pakistani-firms-essay/>

which tax shield can be obtained, so to calculate the operating liabilities we have to exclude all those liabilities which generate the tax deductible interest expense from the current liabilities.

In the Pakistani context and the sample which we choose we only find the notes payable from current liabilities which generate the tax deductible interest expense. So Operating liabilities = current liabilities - notes payable

Unlevered Beta:  $B_u$  represents the unlevered beta. The levered market beta first computed. Every firm has its unique market beta. The beta of the firm shows the variations in the stock returns of particular firm with respect to the market returns. It is the measurement of systematic risk. If the value of beta is zero than it shows the independency of the firm returns with market return.

The positive value shows the positive correlation between stock and market return. The negative beta shows that the stock and market return moves in opposite direction. In respect to the volatility the beta equals to one indicates the that the security is equal volatile to the market and beta less than one shows that the security is less volatile and beta greater to one indicates that the security is more volatile than the market. Beta is calculated by the daily stock returns during three years of our sample firms.

For market index we used the Karachi stock exchange hundred indexes (KSE 100). Then we convert the levered beta into unlevered beta to remove the financial effects from leverage. The formula used by the Deen Kemsley and Doron Nissim (2002) to convert the levered beta into unlevered beta we used the same formula which is  $B_U = B_L [(V_L - D) / (V_L - D * TC)]$  Debt: Debt is

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represented by the D. according to MM firm can use any level or percentage of debt to enhance its firm value as in the world of taxes it provides the tax benefits or debt tax shield.

On the other hand Baxter (1967) investigated that when firm's debt financing increases than equity financing its chances of bankruptcy also get increase. He justified his statement by saying that debt will increase the risk of business and creditors will demand higher risk premium and cost of equity will also get increase. He also emphasize that to get the debt tax shield benefit from the debt financing, the firm must not finance the business by debt beyond the limit where firms cost of debt becomes greater than tax benefit.

So there should be the optimal capital structure or specific percentage of debt and equity finances to minimize the cost of capital. Merely Long term liabilities do not mean debt. The book value of debt is calculated by adding the debt in current liabilities into long term debt. It means that from the current liabilities we will also take that sort of debt which has tax deductible interest expense like note payables as it generate explicit interest expense which is tax deductible.

So equation will be  $\text{Debt} = \text{long term debt} + \text{current liabilities} - \text{operating liabilities}$  After removing the operating liabilities from debt we will be able to maintain the MM relationship of second proposition which is  $V_L = V_U + TD$ .

2. THEORETICAL FRAME WORK: Hypothesis: Hypothesis 1: H1: value of firm significantly depends upon the firm operating income. Ho: value of firm does not significantly depends upon the firm operating income. Hypothesis 2: H1:



value of firm and debt are positively correlated.  $H_0$ : value of firm and debt are not positively correlated. 3. 3. Sample Selection Criteria:

To make the research more authentic, certain criteria are specified which will increase the validity of study. First the company must be listed on the Karachi stock exchange and from the KSE100 index. It is so because the data will be reliable and obtainable. Secondly, the company must not be the financial institution because the financial statements of financial institutions are totally different than non financial institution. For example debt is treated as the liability in non financial institutions and in financial institutions they grant the debt and took it as assets. So this sector will be excluded.

Third outstanding common share, price per share and financial statements of sample firms must available for the study period which is three year from 2007 to 2010. Forth and very crucial, the firm must have tax deductible interest expense or sufficient amount of debt on which tax has to be paid and tax shield can be obtain. Under these criteria the sample of thirty firms has been taken as all these firms are fulfilling the above mentioned criteria.

3. 4. Sources of Data: Authenticity of data and credibility of source of data is very much essential for every sort of research.

In this study all the data is secondary in nature. The market data is collected from the official website of KSE100 index and the daily stock prices of shares and their capitalization are collected from business recorder and KSE100 index. The other firm's data is obtained from the financial statement of sample firm 3. 5 Problems in Data Collections: Data is the base and main input for every research so it should be calculated very carefully. Certain

limitations and problems have to face in data collection as it is not as easier to fulfill the above criteria.

There are many firms who are lacking in one or more points of the criteria specifications. We have taken the firm randomly from the KSE100 index. Initially we have also taken some firms from the oil and gas marketing sector then we have to exclude them because the whole sector is not using the debt financing instead of heavy need of capital investment. Similarly we have to exclude the oil and gas exploring and refinery sector as this whole sector is not using the debt financing which are the basic criteria of our research.

The other very important limitation which we have to face in data collection is that now days the concept of using Islamic modes of financing is increasing rapidly. The Islamic theme of financing is not based on interest. The word interest is replaced by the Riba or usury which is totally forbidden in Islam. After the failing of capitalist economy, now the people are intending to use the Islamic modes of finance which are totally interest free. So in Pakistan Islamic modes of financing is being prevail like Ijara, Musharka , Mudarbah etc. so we have to exclude all those firms who are using the Islamic modes of financing.

For example “ Ghani Ghlash” is using Islamic modes of financing which is not fulfilling our criteria that the firm must have tax deductible interest expense and we can find this trend in many other firms in Muslims and non Muslims countries as a whole. 3. 6. Research Methodology: We are using the research methodology used by the Deen Kemsley and Doron Nissim (2002). Where we

will apply the following analytical techniques Linear Regression Model:

Regression is conducted to see the effects of one variable on another or to predict one variable from one or more than one other variables.

To analyze the debt effects on the firm value, linear regression has been applied on our sample of 30 firms from 2007-2010. This study uses the cross sectional and time series data and panel regression analysis. Panel data analysis facilitates analysis of cross sectional and time series data. Pooled regression also known as constant coefficient model, is a type of regression in which both intercept and slopes are assumed constant. The cross section firm data and time series data are pooled together in a single column assuming that there is no significant cross section or inter temporal effects.

Panel Data:

Panel data follows a given sample of individuals over time, and thus provides multiple observations on each individual in the sample. Panel data combines the features of time series and cross section. It provides information on a number of statistical units for a number of years. Panel data for the economic research has several advantages over cross section or time series. Panel data usually provides the researcher a large number of data points, increasing the degree of freedom and reducing the co linearity among explanatory variables, hence improving the efficiency of econometric estimates. Basic Equation:  $V_L = V_U + TD$

The basic equation is the same given by the MM. in which it is described that the value of a firm depends on the firm profitability and tax benefit of debt. It means that if tax provisions are available, firm can increase its value by

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getting the optimal capital structure. Optimal capital structure is the best combination of debt and equity where the cost of financing the business is minimum. Derived Equations:  $VL/TA = \beta_0 + \beta_1 FOI/TA + \beta_2 D/TA + \beta_3$  All the dependent and independent variables are deflated by the total assets for more accurate measurement and certain constant and change coefficient are Where: VL= value of firm

TA= total assets FOI = firm operating income D = debt  $\beta_0$  = the intercept of equation  $\beta_1$  = change coefficient for profitability  $\beta_2$  = change coefficient for the tax benefit of debt  $\beta_3$  = the error term

#### CHAPTER 4 RESULTS & ANALYSIS

In this chapter we analyzed the results, provided table and interpreted the empirical results.

4. 1. Descriptive Statistics Table I: Descriptive Statistics (3-year summary)

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error			
DVL	90	.08	8.44	1.1817	1.54270	3.227	.254	10.57	.503	DFOI	90	-.24	.73	.0973	.13194	2.486	.254	10.375	.503
DNOA	90	.29	.99	.7863	.12674	-1.230	.254	2.602	.503	DOL	90	.01	6.41	.4647	.77952	5.867	.254	40.709	.503
Unlevered Market Beta	90	-.59	1.05	.3248	.34048	-.339	.254	.502	.503	DD	90	.00	.63	.2647	.15679	.208	.254	-.573	.503

Valid N (list wise) 90

DVL presents the market value of the firm deflated by total assets. DFOI represents the deflated firm operating income by total assets. DNOA presents the deflated net operating income by total assets.

DOL presents the deflated operating liabilities by total assets. BU stands for the unlevered market beta which is not deflated. DD presents the total debt deflated by total assets. In table 1, the distribution of variables is presented.

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All the variables are deflated by total assets (TA) except unlevered beta (BU). Found out the minimum, maximum, mean standard deviation, skewness and kurtosis. It is evident from the results that on average all the 90 firms are financing their business 26% by debt and 46% by operating liabilities and market value of the firm is 118% of the book value of total assets. . 2. PEARSON CORRELATIONS TABLE 2: Weighted Pearson

Correlations among Deflated Variables DVL presents the market value of the firm deflated by total assets. DFOI represents the deflated firm operating income by total assets. DNOA presents the deflated net operating income by total assets. DOL presents the deflated operating liabilities by total assets.

BU stands for the unlevered market beta which is not deflated. DD presents the total debt deflated by total assets. | | DVL| DFOI| DNOA| DOL| Unlevered Mkt Beta| DD| DVL| Pearson Correlation| | . 796(\*\*)| . 013| . 335(\*\*)| -. 31| -. 034| | Sig. (2-tailed)| | . 000| . 900| . 001| . 772| . 751| | N| 90| 90| 90| 90| 90| 90| 90| DFOI| Pearson Correlation| . 796(\*\*)| | . 003| . 499(\*\*)| . 068| -. 344(\*\*)| | Sig. (2-tailed)| . 000| | . 977| . 000| . 523| . 001| | N| 90| 90| 90| 90| 90| 90| 90| DNOA| Pearson Correlation| . 013| . 003| | -. 209(\*)| . 141| . 156| | Sig. (2-tailed)| . 900| . 977| | . 049| . 185| . 143| | N| 90| 90| 90| 90| 90| 90| 90| DOL| Pearson Correlation| . 335(\*\*)| . 499(\*\*)| -. 209(\*)| | . 012| -. 178| | Sig. (2-tailed)| . 001| . 000| . 049| | . 911| . 094| | N| 90| 90| 90| 90| 90| 90| 90|

Unlevered Mkt Beta| Pearson Correlation| -. 031| . 068| . 141| . 012| | . 049| | Sig. (2-tailed)| . 772| . 523| . 185| . 911| | . 649| | N| 90| 90| 90| 90| 90| 90| 90| DD| Pearson Correlation| -. 034| -. 344(\*\*)| . 156| -. 178| . 049| | | | | | | | | Sig. (2-tailed)| . 751| . 001| . 143| . 094| . 649| | | N| 90| 90| 90| 90| 90| 90| 90| \*\*

Correlation is significant at the 0. 01 level (2-tailed) \*correlation is significant

at the 0.05 level (2-tailed) In table 2, to check the possible multicollinearity among the variables the Pearson's coefficient of correlation has been applied for variables.

By applying the Pearson's correlation coefficient it is found out that debt is significantly negatively correlated with value of firm and firm operating income (FOI) is positively correlated with the value of firm. Regression analysis: Regression analysis is done to estimate the impact of independent variables on dependent variables. Here regression is applied on the value of firm, firm operating income and debt to check whether these independent variables (FOI, D) have significant explanatory power on the dependent variable. The results are provided in tables 3 and 4.

### 3. REGRESSION ANALYSIS

TABLE 3: Cross Sectional Regression Model Summary DVL presents the market value of the firm deflated by total assets. DFOI represents the deflated firm operating income by total assets. DNOA presents the deflated net operating income by total assets. DOL presents the deflated operating liabilities by total assets. BU stands for the unlevered market beta which is not deflated. DD presents the total debt deflated by total assets.  $VL/TA = \beta_0 + \beta_1 DFOI/TA + \beta_2 D/TA + \beta_3 Model$  | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | R Square Change | F Change | df1 | df2 | Sig.

F Change | R Square Change | F Change | df1 | df2 | 1 | .836(a) | .699 | .692 | .85592 | .699 | 101.061 | 2 | 87 | .000 | a Predictors: (Constant), DD, DFOI Table 4: ANOVA (b) Model | | Sum of Squares | df | Mean Square | F | Sig. | 1 |

Regression| 148. 075| 2| 74. 038| 101. 061| . 000(a)| | Residual| 63. 737| 87| . 733| | | Total| 211. 812| 89| | | a. Predictors: (Constant), DD, DFOI b. Dependent Variable: DVL Table 4 shows the analysis of variables and provides the statistical model to analyze the data. The significance level is within the acceptable range so the null hypothesis is rejected and H1 is accepted. . 4. COEFFICIENTS (A) Table 5: DVL presents the market value of the firm deflated by total assets. DFOI represents the deflated firm operating income by total assets. DNOA presents the deflated net operating income by total assets. DOL presents the deflated operating liabilities by total assets. BU stands for the unlevered market beta which is not deflated. DD presents the total debt deflated by total assets

Model	Un standardized Coefficients	Standardized Coefficients	t	Sig.	B	Std. Error	Beta	B	Std. Error
(Constant)	-. 538	. 219	-2. 462	. 016	DFOI	10. 02	. 732	. 890	14. 205
	. 000				DD	2. 674	. 616	. 272	4. 340

a. Dependent Variable: dvl

From the above table it is clear that the equation will become as:  $VL = -0.538 + 10.402FOI/TA + 2.674D/TA \dots\dots\dots$  Un standardized coefficient  $VL = -0.2462 + 14.205FOI/TA + 4.340D/TA \dots\dots\dots$  Standardized coefficient

The coefficient analysis shows that the independent variables have impact on the dependent variable as coefficient values are significant ( $|t| > 2$ ). The value of p of independent variables is zero and of dependent variable is 0.016 which is under the significant level ( $p < .05$ ). The value of R2 is 0.836 and has the significant level ( $R^2 > 60\%$ ) and within the range ( $0 < R^2 < 1$ ) which shows that 83% variation in dependent variable caused by the independent variables or independent variables are causing 83% change in the dependent variables. Technically, coefficient of firm operating income (FOI) with the value of 10.402 and having the standard error equal to zero shows

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that our first hypothesis is accepted (H1: value of firm significantly depends upon the firm operating income). The other independent variable debt (D) has the coefficient of 2.74 with the zero p value also shows that our second hypothesis is accepted (H1: value of firm and debt are positively correlated). The value of R<sup>2</sup> is also much greater (83%) than the significant level of 60% so both independent variables show the strong positive relation with the independent variables. CHAPTER 5 FINDINGS In this chapter we stated the findings and conclusion of the research paper. 5. 1. FINDINGS: As observed from the above tables, in linear regression and coefficient model the value of R<sup>2</sup> is much above the significant level at 83%.

This shows that our independent variables significantly determine the value of dependent variable. It means that 83% variation in dependent variable is explained by the independent variable taken into study. As per the significance of individual variables concerns, the empirical results show that the market value of firm is significantly and positively correlated with the firm operating income and debt as found by using the Pearson correlation coefficient. And both of our hypotheses are accepted under the light of results and it is proved that tax benefit of debt greatly influence the firm value.

So these results are supported theoretically, statistically and empirically.

CONCLUSION: for many years, huge debate is being made to find out the best mix of debt and equity due to the tax benefits and utilities of debt but no one has till reached the standardized and best mix of debt and equity to lower the cost of capital and increase the value of firm. Our research paper is a milestone to the destination. In this research we evaluate the tax benefit of <https://assignbuster.com/tax-benefits-of-debt-a-case-of-pakistani-firms-essay/>



debt by taking the sample of 30 random firms listed on KSE100 index who fulfill the selection criteria and three year analysis (2007-2010) has been made.

We applied the pooled regression model to get empirical results. This study is the attempted to find out the tax benefit of debt in the context of Pakistan. Market value of the firm is the dependent variable while firm operating income and debt are the independent variables. Systematically analyzed empirical results showed that both the hypotheses are accepted and market value of firm is mainly determined by the firm operating income and debt or independent variable significantly and positively affect the market value of firm and hence tax benefits of debt shows significant portion of firm value.

**FUTURE RESEARCH DIMENSIONS:** Literature shows that capital structure determination is industry specific. This study is done by using the sample of 30 firms which is randomly taken from KSE100 index. If the analysis of tax benefits of debt is made industry wise, it will increase the credibility and implications of the study. So the area to measure the tax benefits of debt industry wise is open for future research. **MANAGERIAL IMPLICATIONS:** The impact of debt and profitability on firm value has been measured and positive relationship has been found.

So this study will help the managerial bodies to determine the right mix of debt and equity to get debt tax shield or obtain tax benefits of debt as significant chunk of firm value shows tax benefits of debt. **BIBLIOGRAPHY**  
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VARIABLES 2008| | Company names| VL| OL| NOA| FOI| BU| D| TA| 1| DG Khan Cement| 34128137168| 4704976000| 48973122000| 916086400| 0. 38| 16605381000| 53678098000| 2| Cherat Cement Company| 3466638909| 1100829000| 3281444000| 63160000| 0. 68| 877374000| 4382273000| 3| Fuji Cement| 9214807740| 1076396000| 11378097000| 505597050| 0. 96| <https://assignbuster.com/tax-benefits-of-debt-a-cese-of-pakistani-firms-essay/>

1703365000| 12454493000| 4| Lucky Cement| 36032356750| 4080187000|  
30158887000| 4493260400| 0. 8| 10240043000| 34239074000| 5| Gul  
Ahmed| 9772058000| 1875327000| 10456375000| 352829300| 0. 02|  
7564102000| 12331702000| 6| Nishat Textile Mill| 23960088629|  
2546087000| 35370492000| 6652594100| 0. 71| 10223312000|  
37916579000| 7| Kohinoor Textile Mill| 8764005168| 1483048000|  
12032274000| 393686550| 0. 31| 6445554000| 13515322000| 8| PIA|  
57797044474| 42028339000| 100409065000| -33637050700| 0. 15|  
49971473000| 142437404000| 9| Dawood Hercules Chemicals Ltd|  
30469802233| 1506981271| 24123158478| 3648601818| 0. 81|  
6372639213| 25630139749| 10| Ittehad Chemicals| 1605329000|  
1150047000| 2340864000| 164826600| 0. 1| 344969000| 3490911000| 11|  
Wah Nobel Chemicals Ltd| 628621151| 166161060| 403936982| 110526135|  
0. 68| 87091151| 570098042| 12| Sitara Chemicals| 6949950471|  
2319045993| 6269682192| 768308075| 0. 33| 1797673176| 8588728185|  
13| Al Abbbas Sugar Mill| 3018343048| 828845000| 2939867000|  
186400400| 0. 08| 1633526000| 3768712000| 14| Mir Pur Khas Sugar mill|  
933022880| 520294000| 732115000| 70685250| -0. 09| 277532000|  
1252409000| 15| Tariq Glass Industries| 642675320| 274959494|  
890388738| 2640878| 0. 58| 292710320| 1165348232| 16| Berger Paint|  
1942538929| 1099675000| 1816567000| -84349950| 0. 4| 1366510000|  
2916242000| 17| Atlas Battery LTD| 1396000400| 251813000| 954923000|  
131750150| 0. 55| 313002000| 1206736000| 18| Fuji Fertilizer|  
30932517000| 7962387000| 38809284000| 3915377300| 0. 49|  
18882498000| 46771671000| 19| Rafhan Maize Products Co Ltd|  
22489456688| 1190542000| 2387899000| 1511339800| 0. 05| 493709000|  
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3578441000| 20| National Food| 2661822990| 497369000| 1249286000|  
171068300| 0. 37| 636341000| 1746655000| 21| Pakistan Engineering  
Company| 2558745400| 210786000| 333074000| 114783500| -0. 30|  
175932000| 543860000| 22| Siemens Engineering| 12520622600|  
17473125000| 7302257000| 1747286800| 0. 7| 926990000| 24775382000|  
23| Crescent Steel & Allied Products Ltd| 4455882229| 453733000|  
4392957000| 507686550| 0. 05| 1287448000| 4846690000| 24| Pakistan  
Tobacco Company| 27731387940| 303537000| 3304794000| 2549203450| 0.  
49| 572397000| 3608331000| 25| Security Papers Ltd| 2633649722|  
310448000| 2477025000| 297691400| -0. 59| 4848000| 2787473000| 26|  
Hub Power Company| 53713491840| 13592610000| 49104139000|  
3883273500| 0. 39| 20618876000| 62696749000| 27| Colgate Palmolive Ltd|  
11987744421| 789345000| 2348979000| 689146350| 0. 17| 48070000|  
3138324000| 28| Singer| 1784658468| 524578000| 1335365000|  
126757200| 0. 4| 791978000| 1859943000| 29| Packages Limited|  
21742990605| 2011904000| 33022729000| 460580750| 0. 32|  
14892219000| 35034633000| 30| Pakistan Cables Limited| 3744208736|  
536638000| 2809262000| 144565050| 0. 57| 1363257000| 3345900000|  
ANNEXURE VARIABLES 2009| | Company names| VL| OL| NOA| FOI| BU| D| TA|  
1| DG Khan Cement| 13338019580| 6974835000| 36892937000|  
2005259850| 0. 43| 5320523000| 43867772000| 2| Cherat Cement  
Company| 2883125753| 568557000| 4174953000| 233619050| 0. 46|  
1589927000| 4743510000| 3| Fuji Cement| 12062495805| 1862232000|  
19584269000| 1149475750| 0. 8| 6990005000| 21446501000| 4| Lucky  
Cement| 23845929750| 2910737000| 35481625000| 5372831650| 1. 05|  
4918791000| 38392362000| 5| Gul Ahmed| 10042729508| 2417410000|  
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11166324000| 705640000| 0. 02| 7898812000| 13583734000| 6| Nishat  
Textile Mill| 18741655652| 2259665000| 29253021000| 1432658350| 0. 63|  
9677011000| 31512686000| 7| Kohinoor Textile Mill| 7672268688|  
1952056000| 9869467000| 192760550| 0. 15| 6729042000| 11821523000|  
8| PIA| 54624721893| 43932158000| 118819707000| -1822881800| 0. 13|  
48535273000| 162751865000| 9| Dawwod Hercules Chemicals Ltd|  
27167332727| 1786495789| 27820912195| -498360736| 0. 6| 7499103573|  
29607407984| 10| Ittehad Chemicals| 1516893000| 1101690000|  
2703997000| 287646300| 0. 12| 148893000| 3805687000| 11| Wah Nobel  
Chemicals Ltd| 586586669| 114109278| 426355681| 108862280| 0. 70|  
60536669| 540464959| 12| Sitara Chemicals| 5969555983| 2343210710|  
7770200515| 833921389| 0. 25| 2785751983| 10113411225| 13| Al Abbbas  
Sugar Mill| 2729635077| 871317000| 2861258000| 454184750| 0. 09|  
1358187000| 3732575000| 14| Mir Pur Khas Sugar mill| 757178800|  
354273000| 958862000| 181234700| -0. 08| 303574000| 1313135000| 15|  
Tariq Glass Industries| 557776942| 293788901| 954469310| 2208051| 0. 4|  
396538942| 1248258211| 16| Berger Paint| 2025913000| 995088000|  
2237564000| 75146950| 0. 29| 1514263000| 3232652000| 17| Atlas Battery  
LTD| 1110536000| 405581000| 894575000| 204711500| 0. 62| 103616000|  
1300156000| 18| Fuji Fertilizer| 32347216300| 9016803000| 27208379000|  
4635547150| 0. 81| 7938922000| 36225182000| 19| Rafhan Maize Products  
Co Ltd| 14209763000| 1036473000| 2971257000| 1324640650| 0. 05|  
493709000| 4007730000| 20| National Food| 2972791587| 630375000|  
1281401000| 150004000| 0. 39| 545536000| 1911776000| 21| Pakistan  
Engineering Company| 1064177870| 366390000| 3381267000| 187592500| -  
0. 0| 76317000| 3747657000| 22| Siemens Engineering| 10092280000|  
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15474699000| 8783746000| 1404897650| 0. 34| 1696834000|  
24258445000| 23| Crescent Steel & Allied Products Ltd| 1973281200|  
505396000| 3604297000| -111361650| 0. 04| 958695000| 4109693000| 24|  
Pakistan Tobacco Company| 27317664000| 1328496000| 2931738000|  
3119698000| 0. 49| 490815000| 4260234000| 25| Security Papers Ltd|  
2064185000| 337016000| 2632875000| 333076050| -0. 59| 6685000|  
2969891000| 26| Hub Power Company| 46270470696| 45715162000|  
44470509000| 5534637050| 0. 2| 14923158000| 90185671000| 27| Colgate  
Palmolive Ltd| 6689041000| 1072926000| 2867494000| 777132100| 0. 17|  
625000| 3940420000| 28| Singer| 1746413000| 487162000| 1382669000|  
27315130| 0. 33| 816035000| 1869831000| 29| Packages Limited|  
24387721000| 1656197000| 33951832000| 4677868500| 0. 58|  
8057073000| 35608029000| 30| Pakistan Cables Limited| 1588684096|  
601347000| 2406387000| 209806350| 0. 44| 858104000| 3007734000|  
VARIABLES 2010| | Company names| VL| OL| NOA| FOI| BU| D| TA| 1| DG  
Khan Cement| 22856109828| 4611120000| 43881524000| 1415893300| 0.  
7| 15169739000| 48492644000| 2| Cherat Cement Company| 2971776522|  
508289000| 4349130000| -13650404| 0. 33| 2090528000| 4857419000| 3|  
Fuji Cement| 16449658225| 3119188000| 23660811000| 272000150| 0. 34|  
12774757000| 26779999000| 4| Lucky Cement| 28020234500| 3374579000|  
34935665000| 3482867650| 0. 98| 7925712000| 38310244000| 5| Gul  
Ahmed| 9143637311| 2829952000| 11769739000| 730557450| 0. 01|  
7967377000| 14599691000| 6| Nishat Textile Mill| 24791124376|  
3918968000| 42263346000| 3537770350| 0. 75| 9630141000|  
46182314000| 7| Kohinoor Textile Mill| 8816360368| 2098703000|  
14958596000| 956296300| 0. 6| 7698502000| 17057299000| 8| PIA|  
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55771731456| 52841986000| 74018371000| -17949311450| 0. 12|  
50012066000| 126860357000| 9| Dawood Hercules Chemicals Ltd|  
28954757248| 2274200000| 24952107000| 2542522950| 0. 84|  
5087725000| 27226307000| 10| Ittehad Chemicals| 1616208000|  
665834000| 3088596000| 249610150| 0. 10| 434688000| 3754430000| 11|  
Wah Nobel Chemicals Ltd| 39611942| 102921699| 393803912| 80284765| 0.  
74| 661942| 496725611| 12| Sitara Chemicals| 6151026368| 1466503557|  
8843954380| 747302766| 0. 22| 3397239998| 10310457937| 13| Al Abbas  
Sugar Mill| 3055062700| 1244794000| 2800222000| 297860800| 0. 9|  
1509818000| 4045016000| 14| Mir Pur Khas Sugar mill| 659704044|  
432680000| 1054760000| 150699750| -0. 08| 250768000| 1487440000| 15|  
Tariq Glass Industries| 602582164| 392518233| 972260732| 168547483| 0.  
61| 255620164| 1364778965| 16| Berger Paint| 1574361096| 1056809000|  
1927376000| -52402700| 0. 24| 1253553000| 2984185000| 17| Atlas Battery  
LTD| 1808558770| 370156000| 1143784000| 233981800| 0. 59| 285844000|  
1513940000| 18| Fuji Fertilizer| 39028474300| 9736303000| 25599689000|  
7056477500| 0. 88| 5652724000| 35335992000| 19| Rafhan Maize Products  
Co Ltd| 20122063268| 1319848000| 3634037000| 1853644900| 0. 5|  
634460000| 4953885000| 20| National Food| 3029963184| 637058000|  
2037302000| 93265050| 0. 31| 1209769000| 2674360000| 21| Pakistan  
Engineering Company| 1729890098| 238057000| 3747816000| 132352300| -  
0. 31| 12887000| 3985873000| 22| Siemens Engineering| 21608690320|  
4165596000| 20375539000| 1050426950| 0. 19| 13035439000|  
24541135000| 23| Crescent Steel & Allied Products Ltd| 2197998600|  
961810000| 3474487000| 490899200| 0. 05| 780288000| 4436297000| 24|  
Pakistan Tobacco Company| 30415299574| 46789000| 3555298000|  
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953571300| 0. 7| 2252218000| 3602087000| 25| Security Papers Ltd|  
1778473500| 367021000| 2743664000| 348999700| -0. 59| 9435000|  
3110685000| 26| Hub Power Company| 67170771624| 62569223000|  
60126291000| 8061034150| 0. 36| 30188117000| 122695514000| 27|  
Colgate Palmolive Ltd| 17119044920| 1011144000| 3795426000|  
1152672500| 0. 16| 1010461000| 4806570000| 28| Singer| 1686957780|  
521497000| 2026865000| 136836950| 0. 27| 997857000| 2548362000| 29|  
Packages Limited| 23129569495| 2280057000| 37344747000| 169253450|  
0. 57| 8097522000| 39624804000| 30| Pakistan Cables Limited|  
2635223472| 632098000| 3008851000| 140691350| 0. 42| 1475610000|  
3640949000|