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Human Capital, Capital Structure, Employee Pay: Empirical Evidence from Pakistan

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Human Capital, Capital Structure, Employee Pay: Empirical Evidence from Pakistan

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Keywords: labor costs, capital structure, human capital.

I. Introduction

To raise capital at lowest cost is a major issue for corporate managers, with a view to maximize the value of firm. Corporate Finance literature mostly consists of developing an optimal capital structure for a company, defined as balance of debt and equity in a firm that reduces the weighted average cost of capital. As per trade off theory firms acquire debt to take advantage of tax shield benefits till the time level of debt increases bankruptcy costs of firm off-setting the benefits of tax shield. However empirical evidence shows that firms stop acquiring debt way before the point where bankruptcy costs off-sets the benefit of tax shield through debt. Thus authors have suggested indirect bankruptcy costs as a possible reason depriving firms from using debt to fully utilize tax shield benefit of debt or to acquire debt to the point where bankruptcy costs erode benefit of tax shield through debt.

Historically, managers and academicians have more focus on fundamental area of finance that are focusing on bankruptcy, firm size, leverage profitability etc. Human capital has got low attention to devise the policy about leverage. Employees are one of the biggest stakeholders and resource (factor of production) that a firm requires to move on and are always kept away from maximum studies of corporate finance. Although capital structure decision impacts almost all stakeholders especially employees as the large amounts of debt can cause bankruptcy for firm. And the bankruptcy costs borne by employees are much more still decision of capital structure is mostly done is keeping all stakeholders interest at par except shareholders and creditors. Titman (1984) argued that customers, workers and suppliers of firms are likely to suffer high costs in event of liquidation. Cost borne by employees due to bankruptcy can significantly affect firms capital structure in a setting where employees have firm specific human capital.

Formalizing Titman (1984) arguments Berk, Stanton, and Zechner (2010) developed a model that human capital costs associated with financial distress can be large enough to be a distinctive reason for firms to issue debt.

According to BSZ (2010) model as firms acquire debt the probability for bankruptcy increases and employees thus demand a premium against the increased risk of bankruptcy of the firm. This demand for premium is to cover the risk employees' face after bankruptcy of firm. Berk, Stanton, and Zechner (2010) state that this premium paid to employees off sets the tax shield benefit created by debt. This eventually leads the firm to stop acquiring debt way before the point where bankruptcy costs off sets benefits of tax shield.

II. Theoretical Background

Firms finance their assets through equity, debt, other financial arrangement or a mixture of all. This financing combination of assets to maximize overall value of firm is referred to as Capital Structure of firm. Different capital structure theories attempt to explain variation in capital structure of firms over time and across regions. There is no specific methodology realized yet which mangers can use to determine optimal debt level and financing mix. Prominent Capital structure theories include MM Irrelevance theory, Trade Off theory and Pecking Order Theory.

a) MM Irrelevance Theory

Modigliani and Miller (1958) showed that in perfect markets total value of firm remains same no matter how the capital structure of firm is divided among

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equity, debt and other claims. The support to this theory is based on the idea that both firms and investors can borrow at the same interest rate thus investors are able to substitute personal leverage for corporate financial leverage and have ability to replicate any capital structure firm might undertake. Furthermore, they argue that if value of firm depends on capital structure then in perfect capital markets arbitrage opportunities will be available. This theory is based on unrealistic assumptions which include no taxes, no transaction costs, no bankruptcy costs, same borrowing cost for investor and firm, symmetry of market information.

b) Trade-Off Theory

Since Irrelevance Theory is based on based on restrictive assumptions which do not hold in reality and when these assumptions are removed then choice of capital structure becomes important for determining value of firm. Modigliani and Miller (1963) suggested that due to tax deductible interest payments firms should use as much debt as possible. However excessive debt has its cost that is cost of bankruptcy thus based on hypothesis of Kraus and Litzenberger (1973) Trade-Off Theory evolved. Their hypotheses suggest that firms should consider a balance between tax saving benefits of debt and dead-weight costs of bankruptcy. According to Trade-Off Theory optimal leverage of firm is influenced by taxes, bankruptcy costs and agency costs and firms borrow debt up to the point where tax savings through debt equal cost associated with increase in debt and probability of financial distress.

i. *Taxes*

Since interest is a tax-deductible expense a tax paying firm receives interest tax shield in form of lower tax paid. Interest expense thereby decreases tax liability and increases after tax cash flows. Firms in regions with higher tax rates will be highly levered to increase after tax cash flows and market value.

ii. *Bankruptcy Costs*

With increase in amount of debt in capital structure of firm the possibility of the firm to default increases. If the firm is unable to pay the loan and value of assets of firm decline triggering default then to safeguard their interest bondholder's takeover the firm. This legal mechanism allowing creditors to takeover firms is referred to as Bankruptcy and Bankruptcy costs are cost associated with use of this mechanism. Bankruptcy costs are direct as well as indirect. Direct costs of bankruptcy include fees of lawyers, accountants, and other professionals administering bankruptcy. If firm is large in size then these costs are small however if firms is small in size then it has to consider direct bankruptcy cost while determining amount of leverage in its capital structure. Indirect costs include decline in sales, profits, unable to obtain credit line etc. These costs arise when firm foresees bankruptcy. To avoid bankruptcy it cut downs expense on research, advertisements, training of employees thus quality of product and service is hampered which decreases firm sales and profits and decrease in share price in market further pushing it towards bankruptcy.

iii. *Agency Theory*

Agency costs are costs that arise due to conflict of interest between managers and shareholders because of manager's share of less than 100 percent in the firm. Capital Structure or firms leverage is dependent on role of mamagers depending on situations.

a. Free cash flow theory

Managers, with less than 100 percent stake in business, after funding all projects with positive cash flow may utilize the left over cash flow (referred to as free cash flow) for their own use rather than using it to increase value of firm. This problem can be controlled by using debt in capital structure thus reducing the free cash flow available to the managers as suggested by Jensen (1986). Thus the use of debt in this case is benefiting and decreasing agency costs.

b. Overinvestment and Underinvestment problem

According to Myer and Majluf (1984) management is responsible to shareholders and tries to increase the value of equity and is not concerned with overall value of firm. Thus management may invest in projects that are risky just to increase value of equity (overinvestment) and may avoid projects with safe net present value in which value of equity may decrease (underinvestment). This leads to bondholder expropriation hypothesis which states that shareholders gains advantage at cost of bondholder as management is only working for increase in value of equity. Thus bondholders refrain from investment in such firms.

c) Pecking Order Theory

Pecking Order Theory (Myers & Majluf 1984) states that firms follow a hierarchy to finance projects. Firms prefer to use internal financing depending on availability and prefer to issue debt instead of equity when external financing is required. This theory is based on the assumption that managers are better informed of firms' future prospect than outside investors and they act in best interest of existing shareholders. Myers and Majluf (1984) state that there is an investor perception regarding managers that managers use private information to issue equity when it is overpriced. This perception leads to under pricing of new equity causing loss to existing shareholders. Thus firms avoid issuing equity for new projects and finance projects through internal funds and issue debt instead of equity if further financing is required. Issuing new equity for financing is the last resort for firms.

Further there is also a signaling effect which arises due to information on capital structure of firm. Since managers have better knowledge about income of firm issuing debt will generate a signal to outside investors that firm has suitably large income and pay off

periodic installments and interest easily increasing confidence of outside investor and value of equity. Thus to increase investor's confidence and value of equity firms use higher level of debt in capital structure.

d) Human Capital

In 1960 economist Theodre Shultz invented the term Human Capital representing value of human capacities. According to him human capital is just like any other type of capital and investment in human capital would lead to improvement in production level and quality. Investment in human capital can be done through education, trainings and enhanced benefits. This concept also reflects the fact that all labor is not equal and quality of labor can be improved by investing in them. According to Romer (1989) rate of growth of output and investments of a firm are explained by level of human capital. According to Schultz (1971) and Sakamota and Powers (1995) human capital theory rests on assumption that formal education is necessary to improve production capacity of employees. Thus to improve output, firms train and educate their employees thereby making investment in human capital.

According to Berk, Staton and Zecher (2010) firms invest in employees and thus during bankruptcy this gives a loss of this investment also which is neglected by finance mangers. This loss is counted in indirect bankruptcy costs. The larger the investment in human capital the larger the bankruptcy cost abstaining such firms from decisions leading to bankruptcy.

III. Employee Pay and Capital Structure

Trade off theory suggests that bankruptcy costs are the main reason which abstain firms from using large amount of debt. However empirical evidence suggests that direct bankruptcy costs are too low to be an important disincentive for firms to use higher high amounts of debt. Thus researchers suggest indirect bankruptcy costs a reason to abstain firms from using large amount of debt. Titman (1984) developed a model showing that bankruptcy status of firm causes firms liquidation decision. He further argued that worker, supplier and customer are to suffer high costs in event of liquidation of firm and workers suffer a much higher cost if they are in a firm-specific worker environment. Formalizing this argument Berk, Staton and Zecher (2010) developed a model showing that to compensate the cost in event of liquidation workers demand an extra premium when they perceive bankruptcy of firm occurring due to incorporation of debt in capital structure. According to BSZ 2010 model this premium cost demanded by workers is large enough to offset the tax benefit of debt. Chemmanur, Cheng and Zhang (2012) tested this model empirically and found that incremental labor expense associated with increase in debt are large enough to offset the tax benefits of debt.

IV. Problem Statement

Indirect bankruptcy costs, such as salary premium, abstain non financial firm to incorporate large amounts of debt in capital structure. However we are unaware of the fact that whether such costs also exist in Pakistan making Pakistani non financial firms to resist large amounts of debt in their capital structure.

V. Research Question

This study addresses the question that how Leverage affects Human Capital Costs of firm in context of Pakistan?

a) Research Objective

- To examine the impact of leverage on human capital.
- To examine the difference in labour intensity across the industries.
- To check the moderating role of leverage across the industries.

b) Significance of Study

Debt is used by firms to maximize the value of firm. This level of debt in capital structure is influenced by theories mentioned above. In trade off theory finance researchers are largely concerned with direct costs of leverage neglecting indirect costs of leverage which prevent firms from taking on large amounts of debt. Still the question is un-answered that why firms don't take full advantage of tax benefit shield under trade off theory, what stops them way before the point where bankruptcy cost off sets the tax benefit shield of debt. Many scholars indentify such restriction as indirect bankruptcy cost that forces firm to stop use of debt before the point where bankruptcy costs rise and offset tax shield benefit but still these indirect bankruptcy cost are not identified individually.

This study will further support Trade Off Theory and will mention Human Capital Costs as a major restriction to leverage in firm thereby identifying part of indirect bankruptcy cost. Leverage will be treated as a determinant of Human Capital Costs of firm. Further according to Chemmanur, Cheng and Zhang (2012) their empirical study to test BSZ 2010 model was first study in literature thus this study will be second one. This study will be conducted for the first time in Pakistan using data from Pakistani firms.

This study is with the aim to empirically analyze that whether capital structure is important determinant of human capital costs in context of Pakistan. Thus informing whether indirect bankruptcy costs abstain firms from using debt in capital structure. And after evaluating if there would be significant relation among Human Capital variables and Capital Structure it would be justifiable that Human Capital should be incorporated as an important component while developing or deciding optimal capital structure for the firm.

I will further explore that at existing debt level, additional labor costs associated with increase in leverage are large enough to off-set incremental tax benefits of debt thus suggest Human Capital as one of the important factors or determinant of Capital Structure and major resistant to debt incorporation in firms and also that indirect bankruptcy cost causes firms to abstain from incorporating large amount of debt in capital structure.

c) Plan of Study

Chapter 2 will provide literature review with hypothesis in end then Data and Methodology in Chapter 3 describing data, defining variables and methodology. Chapter 4 will provide Data Analysis and Results and Chapter 5 will conclude the study.

VI. Literature Review

a) Capital Structure

Capital structure defines the financing behavior of firms that is from where does a firm arrange finances for investing, decreasing the cost of capital to minimum and maximizing shareholder value. Research in capital structure is dominated by two theories: trade-off theory and pecking order theory. Modigliani and Miller (1958) proved that capital structure is irrelevant that is the cost of capital and shareholder value is not impacted under the assumption that capital market is perfect and frictionless. As the market is imperfect in reality so trade-off theory evolved based on hypothesis of Kraus and Litzenberger (1973) that considers a balance between tax saving benefits of debt and dead-weight costs of bankruptcy. Trade-off theory of capital structure refers to the idea of maintaining debt and equity by balancing the costs and benefits of debt that is creating a balance between the tax-shield benefit of debt and bankruptcy costs. Later Pecking theory emerged (Myers & Majluf, 1984) stating that firms follow a financing hierarchy.

Many researchers have found firms characteristics which determine the firms' capital structure. These include size of firm, liquidity and interest coverage ratio, median industry leverage, market-to-book assets ratio, profits, credit ratings, expected inflation and uniqueness of firm. (Titman & Wessels, 1988; Frank & Goyal, 2009; Kisgen, 2006; Kila & Mahmood, 2009).

Frank and Goyal (2009), examined the significance of various factors in the capital structure decision of public traded American firms. This study based on the data from 1950 to 2003. The most dependable factors i.e market leverage are; median industry leverage have positive effect of leverage, market to book assets ratio and profits have negative effect, tangibility, log of assets and expected inflation have positive effect on leverage. Furthermore they found that dividend paying firms tend to have lower leverage and when consider book leverage some time same effects are found. For book leverage; the impact of firm size, effect of inflation and market to book ratio are not reliable. An empirical fact appears logically reliable with some versions of the trade off theory of capital structure.

Kila and Mahmood (2009), in their study tested the determinants of capital structure for the listed firms in BMSB (Bursa Malaysia Securities Berhad) market from 2000 to 2005. Data was taken from financial statements of 17 listed companies, total observation was 102. Debt ratio is their dependent variable; while independent variables are growth, liquidity, interest rate and size. They applied pooled OLS estimations. Their result shows that their independent variables significantly negatively related to their dependent variable. Their study found insignificantly negative between capital structure and growth of the firm, by annual changes of earnings. The result of dummy variable show there are significant different in capital structure between those firms that adopt more debt and those who employ less leverage financing.

Kisgen (2006), in his study of regarding impact of Credit rating on Capital structure empirically finds that credit rating of firms directly impact their capital structure decision. As per his result firms not near a credit rating change (upward/downward) issue debt relative to equity than firms near a change of credit rating.

However these determinants of capital structure vary from country to country because country specific factors also influence determinants of leverage (Jong, Kabir & Nguyen 2008). In China, according to Chen (2004) fundamental institutional assumptions underpinning Western Models are invalid. Financial constraint in banking sector and institutional differences influence leverage decisions thus Chinese firms follow "new pecking-order" – retained profit, equity and long term debt.

Sheikh & Wang (2011) while investigating whether capital structure decisions of Pakistani firms are explained from models derived from Western Settings and the factors affecting Capital Structure decision state that Capital Structure models derived from western setting do provide explanation for financing behavior of Pakistani firm. The financing behavior is consistent with trade-off theory, pecking order theory and agency theory. Further according to them profitability, liquidity, earning volatility, tangibility and firm size impact debt ratios. Whereas non debt tax shield and growth opportunity do not impact debt ratios significantly. Results of Shah & Khan (2007) for determining factors affecting capital structure are in line also. Their results approve prediction of trade-off theory in case of tangibility, agency theory incase of growth and pecking order theory incase of profitability.

In my thesis I am exploring the relation between human capital costs and capital structure on basis of trade-off theory that indirect bankruptcy costs borne by employees associated with bankruptcy or financial distress can off-set firms decision to take over more debt.

b) Human Capital

Firms require financial capital as well as human capital to carry out business. In literal terms human capital can be simply stated as employees or workforce of a firm. Different researchers have described and measured human capital in different ways. It is taken in sense of labor intensity that is calculated by salary expense divided by sales, considered as investment made by firm on which firm makes investment in terms of salary. Human capital is also seen in terms of skills of employees and the type of contract through which they are hired that is temporary or permanent. Here we see human capital in terms of salary.

c) Human Capital, Capital Structure And Employee Pay

Modigliani and Miller (1958) suggest that capital structure is irrelevant and it does not matter how a firm finances it operations under two main assumptions that there are no taxes and no bankruptcy costs. But over years researchers and academicians have found that capital structure becomes of much importance if these two assumptions are relaxed. Thus it becomes important for firms to make choices of how to finance its operations considering the benefits debt creates due to taxes and the bankruptcy related problems and costs caused by large amount of debt incorporated. As more and more debt is incorporated in capital structure the bankruptcy risks of firms increases and bankruptcy are costly sometimes even forcing liquidation of firm.

The bankruptcy costs mainly discussed in corporate finance are kept in circle of high legal and accounting expenses or liquidation of assets of value less than they worth. According to Branch (2002) while exploring magnitude of bankruptcy costs on firm states that bankruptcy process imposes costs on wide range of parties including shareholders creditor's suppliers, customers and employees. Further Less or and all other having contracts (including employees) with bankrupt firm are likely to absorb costs and losses as a result of bankruptcy. Researchers have also found that bankruptcy costs faced by employees of the firm is much more than the liquidation or direct bankruptcy costs of firms. When a firm becomes bankrupt its employees are left of strayed and such employees who are involuntarily separated from their jobs by mass layoff, plant closure or an employer going out of business are referred as displaced workers (Kletzer, 1998). These employees after job loss have to face large amount of unemployment costs that may include decrease in consumption, long delays before reemployment and significant wage losses after reemployment. Most displaced employees usually suffer great wage losses and the displaced workers who switch sectors suffer greater wage losses than those who find job in same sector after being displaced. Neal (1995), have conducted the displaced worker surveys, the results of that survey showed that wages cost of switching industries following displacement is strongly correlated with pre-displacement measures of both work tenure and experience. Workers actually receive reward for some skills that are neither completely general nor firm specific. Furthermore, displaced workers who find new jobs in their pre-displacement industry, post-displacement returns to pre-displacement job tenure resemble cross-section estimates of the returns to current seniority. He suggested that firm-specific factors may contribute little to the experiential grade of wages tenure. And further the wage losses for switchers are strongly correlated with displaced workers experience and tenure in sector before displacement.

Thus as more and more debt is increased in capital structure of firm the bankruptcy risks of firm increases. As the bankruptcy risk increases employees risk of being displaced increases, or in others words it can be stated that as debt increases the probability of employees to become unemployed and bear the bankruptcy costs after unemployment increases. Therefore to mitigate the risk of being unemployed and bearing unemployment costs employees demand premium which is to be incorporated in their salary. So as debt is induced in capital structure employees demand compensation and thus we can infer that as debt in capital structure increases the salary of employee increases.

Berkovitch, Israel, and Spiegel (2000) investigated interaction between firms' capital structure and managerial compensation. In their model they show that risky debt affects manager's wage if he is retained by firm. As per their model's prediction managerial pay-performance sensitivity is positively correlated with leverage, expected compensation, and expected cash flows.

Berk, Stanton, and Zechner (2010) while deriving optimal compensation contract in setting including equity and debt state that capital structure decisions trade off employees risk aversion against benefit of debt. In other words the debt can be incorporated in a firm till the time the benefit of tax shield due to debt equals the premium demanded by employees for a potential job loss after incorporation of debt.

Butt-Jaggia and Thakor (1994) developed optimal dynamic wage contracting and capital structure according to them wage contracts are to end at bankruptcy thus employees in firms requiring specific skills look for leverage of firm for deciding their compensation accordingly that is with respect to

potential job loss due to bankruptcy lead by debt thus providing counter balance to tax shield benefit of debt.

Chemmanu, Cheng, and Zhang (2012) while exploring whether human capital costs limit use of debt state that indirect bankruptcy costs arising from human capital can be one disincentive to the use of debt and empirically found that firms with higher debt pay higher wages to compensate for higher financial distress risk thus the incremental compensation associated with leverage is large enough to offset tax benefits of debt.

Agrawal and Matsa (2010) estimates, a total of about 57 basis points of firm value for a BBB rated firm as the average wage compensation for unemployment risks. They state that probability of a firm that it will encounter financial distress and subject workers to costly layoffs is decreased if leverage is reduced and managers are also able to lower the premium demanded by workers as compensation for bearing unemployment risk.

Although Hanka (1998) found that capital structure affects employment terms and lower wages are paid by those Compustat having large amounts of debt. Hovakimian and Li (2011) conclude that capital structure affects employee wage in China. Firms with more debt pay lower wages. The magnitude of this affect is defined by Ownership Structure and firms characteristics. The negative affect is forceful and strong in State-Owned firms and the negative affect in these firms' increases with large size, higher leverage ratios, lower profitability and less growth opportunities. Also debt serves as monitoring device mitigating managerial agency costs resulting in negative relation between leverage and low wage. Debt has negative affect on employees wage for financially constrained firms as such firms borrow from employees by paying low wages today in exchange of future higher wages. Debt protects wealth of shareholders from threat of unionization. Committing debt payments to creditors reduces free cash flow of the firms and limits the compensation managers can demand.

Matsa (2006) state that high levels of corporate liquidity can encourage workers to raise their wage demands thus use of debt financing can improve a firm's bargaining power with workers. To reduce the impact of collective bargaining on profits, the firm has an incentive to undertake costly actions that reduce its owner's liquidity. It is also suggested by authors that firms entering distress zone lower employees wages to cover up interest payments to creditors.

As per scholars firms use debt to lower free cash flows available to managers thereby reducing agency costs and any excess demand of salary thus indicating inverse relation between leverage and employee pay. Khan, Kaleem & Nazir (2012) collected panel data of 54 manufacturing firms from non financial sector of Pakistan for the period 2006 to 2010 and examined impact of financial leverage on agency cost free cash flow. Their results, consistent with free cash flow theory, reveal that in Pakistani firms leverage plays important role in reducing free cash flow that is under control of managers thus reducing agency cost of free cash flow.

These contrasting works are ex post effect of leverage on employee pay and do not contradict with ex ante relation, on which we focus, between same variables. According to Almazan, Suarez & Titman (2004) terms of trades under which firms transacts with its customers and employees are affected by information and under normal conditions any good news improves these terms and however bad news worsens these terms of trade. Since information regarding leverage acquisitions to lower wages of employees is bad news for employees and if workers anticipate or get informed the move of equity holders to acquire debt to negotiate their wage downward then workers will demand higher expected wages to compensate them for bearing this risk as pointed out by Perotti and Spier (1993). Further they also pointed that firms are unable to use debt as bargaining tool to reduce employee pay if firms are earning large profits from existing assets. Since firm with large profits tend to be less inclined towards non bankruptcy while firms with less profit or negative profits are likely to be bankrupt we can divide are data in two parts bankrupt and non bankrupt firms. Firms falling in bankrupt zone will not pay higher wages and tend to use debt to lower down employee pay whereas firms in non bankrupt zone will not be able to use debt to lower down wages of employees.

Labor intensity is defined as the ratio between labor and pension expense over assets. Greater the salary expenses with respect to total assets more will be the firm labor intensive. Labor intensive firms in other words will be firms having much more labor or employees hired. Since more employees are hired so the unemployment costs of firm increases. Thus with increase in debt the premium to compensate unemployment risks will greater in firm that is more labor intensive than the firm which is less labor intensive. According to Agrawal and Matsa (2010) the impact of unemployment risk on financing decision is strong for firms that are more labor intensive. To reduce the premium of unemployment risks firms convert fix human cost to variable human cost that is they hire more temporary workers. Kuzmina (2011), in his study examined that how firms use of flexible contractual arrangements with a factor of production, labor affects its capital structure. They found that hiring more temporary workers lead firms to have more debt. Temporary workers, unlike permanent ones, it can be fired at a much lower cost , a firm can more easily meet its interest payments and avoid bankruptcy when faced with negative shock. They understand this result, flexible workforce decreasing operating leverage which in turn promotes financial leverage.

Pratt (2011) states that the salary given to employees by firms is like an investment done in human capital and loss of human capital creates a significant cost of financial distress. Labor intensive firms are therefore more exposed to these costs and they counter it by using less debt in capital structure. His results show that when moving from lowest to highest decile of labor intensity leverage drops by 21 percentage points significantly stating that high labor intensity leads to less use of debt. Further Anderson, Banker and Ravindran suggest that employees in non technological firms (labor intensive) earn more wages than in technological firms (capital intensive). Thus impact of debt on employee wages can be greater in labor intensive firms as compared to capital intensive firm which leads to further division of data between labor intensive firms and capital intensive firms.

d) Hypothesis

After this we reach the following hypothesis

i. Labor Intensity will increase with increase in leverage of firm.
ii. Labor Intensity will not increase in Bankrupt firms as firms will use debt as a bargaining tool.
iii. Salary premium cost caused by increase in debt causes firms to abstain from incorporating large amount of debt in capital structure.

VII. Data Description & Methodology

a) Data Description

The research is descriptive type on the empirical analysis of secondary data. The sample is selected from listed firms in Karachi Stock Exchange of Pakistan. Data is taken for five years for eighty four companies from annual reports of firms. These companies belong to almost all sectors excluding financial companies namely automobile & parts, beverages, cement, chemicals, electricity, engineering, fixed line telephone, forestry, household, media, multiutilities, oil & gas, Pharmaceutical, tobacco, travel, industrial mining and Industrial transportation. Total number of observations count to four hundred and ten.

List of companies from sector is given below:

AUTOMOBILE & PARTS	CEMENT
Sazgar Eng.	Al-Abbas Cement
PAK SUZUKI	Attock Cement
Atlas Battery Ltd.	Bestway Cement
Bal.Wheels	Cherat Cement
Exide (PAK) XD	D.G.K.Cement
General Tyre	Dandot Cement
ENGINEERING	EMCO Industries
AL-Ghazi Tractor	Fauji Cement
Bolan Casting	Fecto Cement
Ghandhara Ind.	Flying Cement
Hinopak MotorXD	Gharibwal Cement
Pak Engineering	Kohat Cement
BEVERAGES	Lafarge Cement
Murree Brewery	lucky Cement
Shezan Inter.	Maple Cement
OIL & GAS	Thatta Cement
Attock Petroleum	Frontier Creamics
Attock Refinery Ltd	Pioneer Cement
Burshane LPG	**FIXED LINES TELECOMMUNICATIONS**
Byco Petroleum	Pak Datacom
Mari Gas Company	Telecard Limited
National Refinery	WorldCall Telecom
Oil & Gas Development Corp.	**HOUSEHOLD**
Pak Petroleum	Singer Pakistan
Pak Refinery	Tariq Glass Ind.
P.S.O.	**MEDIA**
Shell Pakistan Ltd.	Hum Network Ltd
CHEMICALS	Media Times Ltd
Bawany Air Products	**INDUSTRIAL METAL & MINING**

Biafo Industries	Crescent Steel Ltd.
Fauji Fert Bin	Dost Steels Ltd.
Fauji Fertilizer	Siddiqsons Tin Plate
Nimir Ind.Chemicals	**TOBACCO**
Pak.P.V.C.	Pak Tobacco
Sitara Chemical	Philip Morris Pak.
Wah-Noble	**PHARMACUETICAL**
ELECTRICITY	Ferozsons (Lab) Ltd.
Hub Power Company	Highnoon (Lab) Ltd
Japan Power	Sanofi-Aventis Pak
Kot Addu Power	Wyeth Pak Limited
K.E.S.C.	GSK
Kohinoor Energy Ltd.	**TRAVEL & LEISURE**
Nishat Chun Power	Dreamworld
Southern Electric	P.I.A.C.(A)
FORESTRY	**INDUSTRIAL TRANSPORTATION**
Century Paper	P.N.S.C.
Security Paper	**MULTIUTILITIES**
INDUSTRIAL TRANSPORTATION	Sui North Gas
P.N.S.C.	Sui South Gas

i. *Variable Description*

a. Dependent variable: Labor Intensity (L.I)

Labor Intensity defined as total wage paid divided by total assets. Pratt (2011) used labor intensity as the factor affecting leverage. According to Pratt (2011) as labor intensity increases leverage of firm decreases. Large value of labor intensity pose a large bankruptcy cost to firms thus firms decrease leverage in order to avoid bankruptcy. We use Labor Intensity as a proxy to measure salary of firms.

b. Independent Variable: Leverage

Explanatory variable is leverage of firm defined as ratio of total debt to equity. Debt to equity ratio is the best ratio used by scholars around the world to measure leverage of a firm. According to Chemmanu, Cheng, and Zhang (2012) as debt to equity ratio increase salary of employees will rise increasing total labor cost of firm as employees demand premium against bankruptcy risk.

c. Control Variable: Size of firm, M / B Ratio, P. C Intensity, EBIT / Total Assets Ratio

- *Size of firm*

Size of firm is natural log of total assets as firm. Chemmanu, Cheng, and Zhang (2012) state that big firms pay more salary to employees as compared to small firms. Thus to cover effect of size we use size of firm as control variable.

- *M / B Ratio*

Market to Book Ratio (M/B Ratio) is calculated by dividing market value of equity with book value of equity. Book value of equity is given in annual reports of firms whereas market value of firm is calculated by multiplying total number of shares with share price as on close of business year. Market to book ratio is a proxy of growth opportunity of firm. According to Chemmanu, Cheng, and Zhang (2012) growing firms or firms with higher M/B Ratio will pay higher salaries.

- *P.C Intensity*

Physical capital intensity is computed by dividing gross property, plant and equipment to total assets. There is a prediction by researchers that there is positive correlation between capital intensity and employee wage, as physical capital intensified firms have more output.

- *EBIT/Total Assets Ratio*

Earning of firm per asset that is ratio of earnings before interest and taxes to total assets. Increased EBIT to Total Asset ratio will represent higher profits and lesser firm bankruptcy risk (Rashid & Abbas 2011) thus firms with higher earning per asset will have increased employee pay.

b) Methodology

In order to understand clearly the role of the Human Capital on the corporate capital structure and relation between human capital and Leverage, we will carry out an empirical analysis by using panel data analysis with the following form:

$$\text{Salary of employees} = F(\text{Leverage of firm})$$

The relation between average employee pay and leverage is tested through panel data analysis.

$$LI_{it} = Intercept + B1\ (L_{it}) + B3\ (FS_{it}) + B4\ (M/B_{it}) + B5\ (PCI_{it}) + B6\ (EPA_{it})$$

With

LI = Labor Intensity (Salaries/Total assets)

L = Leverage of firm (Total Debt/Total Equity)

M/B = Market to book ratio

PCI = Physical Capital Intensity

Earning per asset = Earning per asset (Earnings before Interest & Taxes / Total Assets)

t = time series

i = cross section

Further we will segregate the data in two parts bankrupt and non bankrupt firms through Z Score method and again apply panel data analysis separately on both data under same equation. According to scholars firms that are in bankrupt zone will use debt to lower down wages where as firms in non bankrupt zone will be earning profits and won't be able to use debt as a bargaining tool.

To check Z Score of our data we use Z Score model developed by Rashid and Abbas (2011). Rashid and Abbas (2011), have conducted a study to identify the Financial Ratios that are much significant in bankruptcy prediction for the non-financial sector of Pakistan. This study based on the sample of companies which became bankrupt from1996 to 2006. In these study 24 financial ratios covers four most important financial attributes i.e leverage ratios, profitability ratio, turnover ratios and liquidity ratios were examined for five years period prior bankruptcy. Their estimation provide evidence that the firms with below zero Z- value fall into bankrupt instead of these firms their Z- value is above zero fall into non bankrupt. When this model is applied to forecast of bankruptcies on underlying sample, 76.9% accuracy achieved this model. The Z Score model of Rashid and Abbas (2011) is as follows:

$$Z = 1.147 \times X1 + 0.701 \times X2 - 0.732 \times X3$$

Where:

Z = Z score Value

X1= sales to total assets ratio

X2 = Earning before Interest & taxes to Current Liability Ratio

X3 = Cash flow ratio

Sales of firm are net sales that is total sales minus discounts. Total asset is the balance sheet figure of firm. Earning before Interest & taxes is net sales minus all expenses except Interest and Taxes. Current Liability includes all short term debt and accounts payable to be paid within one year time period. Cash flow ratio is calculated as follows

Cash Flow Ratio: (Net Profit + Depreciation) / (Depreciation + Change in C.E)

Where Net profit is sales minus all expenses, interest and taxes. Depreciation is the total depreciation expense of firm of the year. Change in C.E is change in capital employed from last year. Capital employed is calculated by adding total equity of firm, long term loans (secured/unsecured), debentures and employee benefit obligations. According to Rashid and Abbas (2011) those firms having five year average Z-Score below zero are bankrupt zone and those with above zero are in safe zone. Through Z-Score calculation 125 observations (25 firms) out of a total observation of 420 are bankrupt. This means 29.76% observations of our data come under distress zone that is having Z-Score below zero whereas as 295 observations (54 firms) out of a total observation of 420 are non bankrupt. This means 70.24% observations of our data come under safe zone that is having Z-Score above zero. Following table shows the results.

The FREQ Procedure

Status	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Bankrupt	125	29.76	125	29.76
Non-Bankrupt	295	70.24	420	100.00

VIII. Data Analysis

a) Overall Data Analysis (Total Sample)

Descriptive Statistics overall sample

	LI	L	MB	P	PCI	S
Mean	0.07529	-1.8038	1.84122	0.09756	0.49581	6.87101
Median	0.04176	0.4579	0.81523	0.08247	0.47042	6.85132
Maximum	1.88101	132.563	418.38	0.65095	0.99863	8.54086
Minimum	0	-917.22	-479.29	-0.4693	0.01679	3.81585
Std. Dev.	0.13095	46.6628	31.669	0.13265	0.25802	0.79066
Skewness	9.85987	-18.241	-2.8935	0.53736	0.05573	-0.304
Kurtosis	126.425	355.725	199.124	5.45676	1.98678	3.76398
Jarque-Bera	273395	2200555	673717	125.837	18.1831	16.6837
Probability	0	0	0	0	0.00011	0.00024
Sum	31.6204	-757.58	773.311	40.977	208.239	2885.82
Sum Sq. Dev.	7.18458	912337	420227	7.37299	27.894	261.936
Observations	420	420	420	420	420	420

Mean value of Labor Intensity is 0.0753 which means that on average employees earn PKR 0.0753 against every PKR 1 of assets. Maximum value reaches to 1.88 that is against every PKR 1 assets of firm employees earn PKR 1.88. Minimum value rests at zero stating that a firm did not paid salary in a certain year. Firms in our sample vary from total assets of PKR 150 Million to PKR 350 Billion. Mean value of total assets of firms in our sample is PKR 8 Billion. Mean value of Earning per asset is about PKR 0.0976, with firms earning up to maximum of PKR 0.65 per asset and generating maximum of loss of PKR 0.47 per asset. Market to Book ratio has a mean of 1.84. On average the gross amount of property, plant and equipment is 49.58% of total assets with maximum of 99.86% and minimum of 1.7% of total assets. Mean leverage is at -1.8 that is for every PKR 1 of negative equity on average firms have a loan of PKR 1.8. Maximum leverage value is at 132.56 that is against every PKR 1 of equity firm has a debt of PKR 132.56. Descriptive Statistics table provides summary statistics of variables used in analysis of Labor Intensity.

b) Corr elation overall sample

	LI	L	MB	P	PCI	S
LI	1					
L	0.00568	1				
MB	0.03414	0.7264	1			
P	0.10329	0.05913	0.05619	1		
PCI	-0.1505	-0.029	-0.0117	-0.3531	1	
S	-0.2237	-0.0976	-0.1112	0.07006	-0.0797	1

Correlation table above shows the correlation matrix of the variables. The results state that there is positive correlation between Labor Intensity and all independent variables just as expected in literature except physical capital intensity and firm size. Labor Intensity has a higher value of positive correlation with the earnings per asset of the firm showing that with increase in earning per asset average pay will also increase. Same is the case with leverage and market to book ratio however the intensity of correlation is quite less predicting that increase in market value and leverage of firm will increase labor Intensity with a less intensity. Physical Capital Intensity and firm size however have a negative correlation with labor Intensity with a higher intensity than any other variable suggesting that as firms become more mechanized the labor intensity decreases and also increased firm size decreases labor Intensity. The correlation between Labor Intensity and Physical Intensity is opposite as expected in literature by BSZ (2010). According to BSZ (2010) prediction increase in Physical Capital Intensity average employee pay must increase thereby increasing Labor Intensity. As capital intensive firms tend to be more productive (Cronqvist, Heyman, Nillson, Svaleryd and Vlachos, 2009) the firms earning power increases thereby increasing employee benefits. However in case of Pakistan the relation is opposite. The main reason is unemployment caused by increase in Physical Capital Intensity as machines takeover the jobs of labor. This unemployment leads to increase in supply of labor in market. Unemployment rate increased from 5.2% in 2008 to 6.2% in 2012 with a growth rate of 4.5% per anum (2008-12). Table below shows the unemployment rate in Pakistan from 2008-12 as per Labour Force Survey Pakistan. This increase in supply causes wages of particular job to decrease thereby decreasing employee average salary. It is pertinent to mention that Physical Capital Intensity did not had significant impact

on average employee pay as per empirical results of Chemmanu, Cheng, and Zhang (2012). Further highly negative relation between Physical Capital Intensity and Earning per Asset can also be the reason for the negative relation between Labor Intensity and Physical Capital Intensity.

c) Umeployment Rate

Year	Unemployment Rate
2008	5.20%
2009	5.50%
2010	5.60%
2011	6.00%
2012	6.20%

Thus after analyzing correlation matrix our regression equation comes in the following form

$$LI_{it} = Intercept + B1\ (L_{it}) - B2\ (FS_{it}) + B3\ (M/B_{it}) - B4\ (PCI_{it}) + B5\ (Pt_{it})$$

With

LI = Labor Intensity (Salaries/Total Assets)

L = Leverage of firm (Total Debt/Total Equity)

M/B = Market to book ratio

PCI = Physical Capital Intensity

P = Earning per asset (Earnings before Interest & Taxes / Total Assets)

t = time series & i = cross section

Regression Table of overall analysis shows panel results of model. The results shows that the constant value of dependent variable (Labor Intensity) is 0.3790 which shows the change in non-financial Pakistani firms Salary to Total Assets ratio when there is no other independent variable effects. Leverage, firm size and Physical Capital Intensity all are negatively impacting Labor Intensity and Market to Book Ratio and Earning per asset is positively impacting Labor Intensity.

d) Panel Least Square Regression Overall

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.379073	0.05701	6.649129	0
L	-0.00016	0.00019	-0.848865	0.3964
MB	0.000182	0.00028	0.641156	0.5218
P	0.068579	0.04977	1.377803	0.169
PCI	-0.07426	0.02556	-2.904913	0.0039
S	-0.03992	0.00788	-5.067646	0
R-squared		0.08429		
Adjusted R-squared		0.073231		
F-statistic		7.62164		
Prob(F-statistic)		0.000001		

Only Size of firm and Physical capital Intensity have significant negative impact on Labor Intensity but the value of coefficient is quite small. With increase in 1 unit of Physical Capital Intensity Labor Intensity decreases by 0.074 only and with increase in one unit of Firm Size Labor Intensity decreases by 0.039. These results are opposite to scholars prediction and research as according to them with increase in firm size and physical capital intensity labor wages shall rise thereby increasing Labor Intensity. These results can be due to the fact that large firms are more stable and are more likely to survive than small firms thus pay of wages at a minimum rate whereas increase in physical capital intensity further increases the unemployed work force in the country. This excess supply of work force ultimately decreases wage rates.

However leverage has no significant impact on Labor Intensity according to the results of our total sample thus our results are not consistent with theory and also the results of Chemmanu, Cheng, and Zhang (2012). Stating that our first hypothesis that with increase in leverage of firm Labor Intensity will increase

keeping other variables constant is rejected. Thus the theory of BSZ (2010) that firms will not use large amounts of debt because of the increase in labour expenses with increase in debt offsetting benefits of debt is not applicable in Pakistani listed firms as shown by our results. These result also reject our third hypothesis that salary premium cost caused by increase in debt causes firms to abstain from incorporating large amount of debt in capital structure.

Reasons for such results include employment conditions of country, discussed earlier, firms ownership structure and level of corporate governance. In Pakistan like most developing markets firms are held by a family or are state controlled firms or are held by corporations and financial institutions while corporate governance practices are in an infancy phase. Javid and Iqbal (2008) while exploring relation of Ownership Concentration, Corporate Governance and Firm Performance in Pakistan state that firms ownership in Pakistan is concentrated in few hands. According to their results from 60 firms of Pakistan for a period of 2003-2008, this ownership concentration is negatively associated with corporate governance practices. Indicating that in Pakistan all stakeholders of a firm (shareholder, employees, customers, suppliers, financiers, and government) are not at a single page. Interests of one stakeholder are achieved at the costs of interests of another stakeholder thus interests of all stakeholders remain unbalanced. Further Hassan & Butt (2009) using multivariate regression analysis on data of 58 randomly selected non financial listed firms of Karachi Stock Exchange Pakistan for period of 2002 to 2005 to explore relationship between corporate governance, ownership structure and capital structure found that board size (representing corporate governance) and managerial holding (representing ownership structure) is negatively correlated with leverage. This indicates that firms in Pakistan have concentrated ownership in few hands have extensive leverage and lower corporate governance. Thus the increase in leverage does not impact average employees pay significantly.

f) Descriptive Statistic Non Bankrupt Sample

	LI	L	MB	P	PCI	S
Mean	0.08227	-3.4726	1.13756	0.0999	0.47283	6.88014
Median	0.04624	0.37106	0.80582	0.08353	0.45194	6.73822
Maximum	1.88101	11.8723	418.38	0.55364	0.93604	8.54086
Minimum	0	-917.22	-479.29	-0.4693	0.01679	5.6878
Std. Dev.	0.14975	55.0484	37.2452	0.12156	0.25107	0.73048
Skewness	9.23261	-15.802	-2.5177	0.40539	0.01072	0.53971
Kurtosis	103.651	259.968	148.241	5.8231	2.0335	2.34968
Jarque-Bera	128713	823925	259604	106.044	11.4877	19.5202
Probability	0	0	0	0	0.0032	5.8E-05
Sum	24.2695	-1024.4	335.58	29.4702	139.485	2029.64

Further the results conclude that model is fit as shown by value of F-Statistic. The value of R-Squared is 0.084 showing that the independent variables (leverage, Physical capital intensity, Earning per asset, Market to book ratio) explain 8.4% of the variation in our dependent variable that is Labor Intensity.

Now to check our second hypothesis that Labor Intensity will not increase with increase in Leverage in Bankrupt firms we divide our sample in two that is bankrupt observations and non bankrupt observations. Bankruptcy of firms is checked by value of Z score developed by Rashid and Abbas (2011) for Pakistani firms as discussed earlier. Panel data for both bankrupt and safe firms is created by average Z score of five years as done by Rashid and Abbas (2011). Negative average Z score states distress firm whereas positive average Z Score indicates safe firm.

g) Data analysis of Non-Bankrupt Sample:

i. *Descriptive Statistics*

Mean value of Labor Intensity is 0.0822 which means that on average employees earn PKR 0.0822 against every PKR 1 of assets. Maximum value reaches to 1.88 that is against every PKR 1 assets of firm employees earn PKR 1.88. Minimum value rests at zero stating that a firm did not paid salary in a certain year. Firms in our sample vary from total assets of PKR 150 Million to PKR 209 Billion. Mean value of total assets of firms in our sample is PKR 7 Billion. Mean value of Earning per asset is about PKR 0.099, with firms earning up to maximum of PKR 0.55 per asset and generating maximum of loss of PKR 0.46 per asset. Market to Book ratio has a mean of 1.13. On average the gross amount of property, plant and equipment is 47.28% of total assets with maximum of 93.60% and minimum of 1.68% of total assets. Mean leverage is at -3.47 that is for every PKR 1 of negative equity on average firms have a loan of PKR 3.33. Maximum leverage value is at 11.87 that is against every PKR 1 of equity firm has a debt of PKR 11.87. Descriptive Statistics Table of non bankrupt sample provides summary statistics of variables used in analysis of Labor Intensity.

Sum Sq. Dev.	6.59332	890915	407839	4.34465	18.5331	156.88
Observations	295	295	295	295	295	295

g) Correlation of variables in Non bankrupt sample

Correlation table of non bankrupt sample shows the correlation matrix of the variables in non bankrupt sample. The results state that there is positive correlation of Labor Intensity with Leverage, Market to Book Ratio Earning per asset. These correlations are justified by theory as increase in leverage will increase salary as employees demand premium against cost of bankruptcy due to leverage. Market to Book ratio represents growth of firm which also should have positive impact on salary when the M/B ratio rises. Earning per asset also increases salary as firms earning more will pay higher to employees. However all these correlations values are insignificant. Physical Capital Intensity and firm size however have a negative correlation with labor Intensity with a higher intensity than any other variable stating that there as firms become more mechanized the labor intensity decreases and also increased firm size decreases labor Intensity.

Further Physical Capital Intensity is negatively correlated with Earning per assets and firm size. Increase in Physical capital Intensity will decrease Earning per asset. Firm size is also intensely correlated with Market to Book Ratio. Increase in firm size will decrease market to book ratio. Leverage is highly positively correlated with Market to Book ratio of firm. Increase in leverage will increase Market to Book ratio showing that increase in leverage increases value of firm.

As per our results of correlation of bankrupt firms the regression equation to measure impact of independent variables on dependent variables is

$$LI_{it} = Intercept + B1\ (L_{it}) - B3\ (FS_{it}) + B4\ (M/B_{it}) - B5\ (PCI_{it}) + B6\ (Earning\ per\ asset_{it})$$

With
LI = Labor Intensity (Salaries/Total Assets)
L = Leverage of firm (Total Debt/Total Equity)
M/B = Market to book ratio
PCI = Physical Capital Intensity
Earning per asset = Earning per asset (Earnings before Interest & Taxes / Total Assets)
t = time series
i = cross section

h) Correlation Non Bankrupt Sample

	LI	L	MB	P	PCI	S
LI	1					
L	0.01171	1				
MB	0.01788	0.73567	1			
P	0.08982	0.09499	0.08387	1		
PCI	-0.1375	-0.0529	-0.0428	-0.3477	1	
S	-0.2279	-0.1245	-0.1205	-0.087	0.08724	1

Regression Table of non bankrupt sample shows panel results of model. The results shows that the constant value of dependent variable (Labor Intensity) is 0.415 which shows the change in non-financial Pakistani firms Salary to Total Assets ratio when there is no other independent variable effects. Leverage, firm size and Physical Capital Intensity all are negatively impacting Labor Intensity and Market to Book Ratio and Earning per asset is positively impacting Labor Intensity. Only Size of has significant negative impact on Labor Intensity but the value of coefficient is quite small. With increase in one unit of Firm Size Labor Intensity decreases by 0.044. These results are again opposite to scholars prediction and research as according to them with increase in firm size labor wages shall rise thereby increasing Labor Intensity. These results can be due to the fact that large firms are more stable and are more likely to survive than small firms thus pay of wages at a minimum rate.

i) Panel Least Square Regression Non Bankrupt Sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.415844	0.083643	4.971651	0
L	-7.57E-05	0.000229	-0.33095	0.7409
MB	1.79E-05	0.000338	0.053039	0.9577
P	0.0441	0.074996	0.588033	0.557

PCI	-0.06397	0.036208	-1.76677	0.0783
S	-0.04477	0.011801	-3.79352	0.0002
R-squared		0.067485		
Adjusted R-squared		0.051352		
F-statistic		4.182923		
Prob(F-statistic)		0.001099		

All independent variables except size have no significant impact on Labor Intensity according to the results of our safe firm sample thus no variable is consistent with theory and also the results of Chemmanu, Cheng, and Zhang (2012) confirming that our first hypothesis that with increase in leverage of firm Labor Intensity will increase keeping other variables constant is rejected. Thus the theory of BSZ (2010) that firms will not use large amounts of debt because of the increase in labour expenses with increase in debt offsetting benefits of debt is not applicable in Pakistani listed firms as shown by our results. These result also confirm rejection of our third hypothesis that salary premium cost caused by increase in debt causes firms to abstain from incorporating large amount of debt in capital structure.

Further the results conclude that model is fit as shown by value of F-Statistic. The value of R-Squared is 0.067 showing that the independent variables (leverage, Physical capital intensity, Earning per asset, Market to book ratio) explain 6.7% of the variation in our dependent variable that is Labor Intensity.

We further see that Auto industry has the highest employee wage per asset among the firms in safe zone as shown in Regression Table Non Bankrupt across Industry (1). Auto industry is followed by Pharmaceutical industry. Beverages industry has lowest employee wage per asset among the firms in safe zone as shown by Regression Table Non Bankrupt across Industry (2).

We further check role of size across the industries in our non bankrupt sample. Regression Table Non Bankrupt across Industry with respect to size shows the impact of size on Labor Intensity Industry wise. Expect Auto, Household and Pharmaceutical Industry in all other industries size has negative impact on labor intensity. However there is no significant impact of size on labor intensity in any industry individually.

j) Regression Table Non Bankrupt across Industry (1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.332482	0.105884	3.140058	0.0019
L	8.21E-05	0.000222	0.369705	0.7119
MB	-0.00026	0.000326	-0.78491	0.4332
P	0.043319	0.077619	0.558094	0.5772
PCI	-0.07587	0.047553	-1.59546	0.1118
S	-0.01299	0.016142	-0.80453	0.4218
CEMENT	-0.13848	0.034622	-3.99966	0.0001
CHEMICAL	-0.14744	0.041584	-3.54568	0.0005
OIL	-0.19551	0.038536	-5.07326	0
BEVERAGES	-0.11962	0.050867	-2.35162	0.0194
ELECTRIC	-0.16941	0.044872	-3.77534	0.0002
ENGINEERING	-0.17185	0.03774	-4.55338	0
TELECOM	-0.09283	0.067342	-1.3785	0.1692
FORESTRY	-0.16383	0.066896	-2.449	0.015
HOUSE HOLD	-0.04219	0.068639	-0.61459	0.5393
MEDIA	-0.12796	0.070323	-1.81957	0.0699
INDUSTIRAL MINING	-0.19237	0.05126	-3.75274	0.0002
TOBACOO	-0.08097	0.067765	-1.1949	0.2332
PHARAMA	-0.02856	0.04017	-0.71086	0.4778
TRAVEL	-0.06841	0.075894	-0.90142	0.3682
INDUSTRIAL TRANSPORTATION	-0.15096	0.069649	-2.1675	0.0311

UTILITIES	-0.1527	0.057179	-2.67058	0.008
R-squared		0.211093		
Adjusted R-squared		0.150408		
F-statistic		3.478498		
Prob(F-statistic)		0.000001		

k) Regression Table Non Bankrupt across Industry (2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.136977	0.1233	1.110924	0.2676
L	8.21E-05	0.000222	0.369705	0.7119
MB	-0.00026	0.000326	-0.78491	0.4332
P	0.043319	0.077619	0.558094	0.5772
PCI	-0.07587	0.047553	-1.59546	0.1118
S	-0.01299	0.016142	-0.80453	0.4218
AUTO	0.195506	0.038536	5.073259	0
CEMENT	0.057028	0.037542	1.519043	0.1299
CHEMICAL	0.048063	0.044887	1.07076	0.2852
OIL	0.075886	0.053399	1.421103	0.1564
ELECTRIC	0.026099	0.044318	0.588908	0.5564
ENGINEERING	0.02366	0.039228	0.603131	0.5469
TELECOM	0.102674	0.070881	1.44855	0.1486
FORESTRY	0.031678	0.067808	0.467166	0.6408
HOUSE HOLD	0.153321	0.072541	2.113564	0.0355
MEDIA	0.067547	0.074058	0.912089	0.3625
INDUSTIRAL MINING	0.003141	0.050914	0.061685	0.9509
TOBACOO	0.114533	0.066189	1.730384	0.0847
PHARAMA	0.16695	0.04339	3.847706	0.0001
TRAVEL	0.127093	0.072462	1.753924	0.0806
INDUSTRIAL TRANSPORTATION	0.044541	0.068702	0.648322	0.5173
UTILITIES	0.042804	0.049982	0.856402	0.3925
R-squared		0.211093		
Adjusted R-squared		0.150408		
F-statistic		3.478498		
Prob(F-statistic)		0.000001		

l) Regression Table Non Bankrupt across Industry w.r.t Size

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.18276	0.110698	1.65099	0.0999
L	7.08E-05	0.000223	0.31807	0.7507
MB	-0.00023	0.000325	-0.71787	0.4735
P	0.047258	0.077416	0.610444	0.5421
PCI	-0.07826	0.048807	-1.60339	0.11

AUTO*S	0.01024	0.01763	0.580854	0.5618
CEMENT *S	-0.01136	0.016971	-0.66956	0.5037
CHEMICAL*S	-0.01132	0.017625	-0.64208	0.5214
OIL*S	-0.01916	0.014676	-1.30577	0.1927
BEVERAGES*S	-0.00845	0.018683	-0.45226	0.6514
ELECTRIC*S	-0.01525	0.016452	-0.92676	0.3549
ENGINEERING*S	-0.01632	0.017464	-0.93475	0.3507
TELECOM*S	-0.00345	0.021271	-0.16197	0.8715
FORESTRY*S	-0.01506	0.019376	-0.77698	0.4378
HOUSE HOLD *S	0.004218	0.020831	0.202475	0.8397
MEDIA *S	-0.00925	0.020893	-0.44284	0.6582
INDUSTIRAL MINING *S	-0.01942	0.017846	-1.08841	0.2774
TOBACOO*S	-0.00318	0.018027	-0.17613	0.8603
PHARAMA *S	0.00619	0.01827	0.338776	0.735
TRAVEL *S	-0.00296	0.016179	-0.18283	0.8551
INDUSTRIAL TRANSPORTATION*S	-0.01299	0.017746	-0.73192	0.4648
UTILITIES*S	-0.01326	0.01491	-0.88905	0.3748
R-squared		0.211085		
Adjusted R-squared		0.150399		
F-statistic		3.478333		
Prob(F-statistic)		0.000001		

IX. Data Analysis of Bankrupt Observations

a) Descriptive Statistics

Mean value of Labor Intensity is 0.058 which means that on average employees earn PKR 0.058 against every PKR 1 of assets. Maximum value reaches to 0.28 that is against every PKR 1 assets of firm employees earn PKR 0.28. Minimum value rests at zero stating that a firm did not paid salary in a certain year. Firms in our sample vary from total assets of PKR 9 Million to PKR 209 Billion. Mean value of total assets of firms in our sample is PKR 5.5 Billion. Mean value of Earning per asset is about PKR 0.092, with firms earning up to maximum of PKR 0.65 per asset and generating maximum of loss of PKR 0.27 per asset. Market to Book ratio has a mean of 3.5. On average the gross amount of property, plant and equipment is 55% of total assets with maximum of 99.86% and minimum of 10.99% of total assets. Mean leverage is at 2.13 that is for every PKR 1 of equity on average firms have a loan of PKR 2.13. Maximum leverage value is at 132.56 that is against every PKR 1 of equity firm has a debt of PKR 132.56. Descriptive Statistic Non Bankrupt Sample table provides summary statistics of variables used in analysis of Labor Intensity.

b) Descriptive Statistic Bankrupt Sample

	LI	L	MB	P	PCI	S
Mean	0.05881	2.13461	3.50185	0.09206	0.55004	6.84944
Median	0.03132	0.71357	1.0046	0.08142	0.51751	7.10994
Maximum	0.28133	132.563	61.6848	0.65095	0.99863	8.34585
Minimum	0	-6.1262	-1.4477	-0.2738	0.10993	3.81585
Std. Dev.	0.06617	12.2677	9.79501	0.15614	0.26697	0.92009
Skewness	1.49985	9.8913	4.47924	0.70356	0.07416	-1.2697
Kurtosis	4.24003	104.338	22.885	4.62723	1.70282	4.60193

Jarque-Bera	54.8747	55525	2477.43	24.1035	8.87856	46.9503
Probability	0	0	0	6E-06	0.0118	0
Sum	7.3509	266.826	437.732	11.5068	68.7545	856.18
Sum Sq. Dev.	0.54294	18661.6	11896.9	3.02293	8.83755	104.973
Observations	125	125	125	125	125	125

Correlation Non Bankrupt Sample table shows the correlation matrix of the variables in bankrupt sample. The results state that there is positive correlation of Labor Intensity with Market to Book Ratio and Earning per asset. All other independent variables (leverage, physical capital intensity and firm size) are negatively correlated to Labor Intensity. Labor Intensity has higher value of positive correlation with market to book ratio of the firm showing that with increase in market value of firm average pay will also increase. Physical Capital Intensity and firm size however have a negative correlation with labor Intensity with a higher intensity than any other variable stating that as firms become more mechanized the labor intensity decreases and also increased firm size decreases labor Intensity. Further as expected in literature leverage of firms in bankrupt zone is negatively correlated with labor intensity as firm use debt as bargaining tool to lower salaries of employees. This relation is however very less.

Further Physical Capital Intensity is negatively correlated with Earning per assets and firm size. Leverage is positively correlated with Market to Book ratio of firm.

c) Correlation Bankrupt Sample

	LI	L	MB	P	PCI	S
LI	1					
L	-0.022652	1				
MB	0.433759	0.346376	1			
P	0.198948	-0.124945	-0.0586	1		
PCI	-0.206161	0.075271	0.190246	-0.365769	1	
S	-0.322994	-0.016132	-0.175592	0.299102	-0.371148	1

As per our results of correlation of bankrupt firms the regression equation to measure impact of independent variables on dependent variables is

$$LI_{it} = Intercept - B1\ (L_{it}) - B3\ (FS_{it}) + B4\ (M/B_{it}) - B5\ (PCI_{it}) + B6\ (Earning\ per\ asset_{it})$$

With
LI = Labor Intensity (Salaries/Total Assets)
L = Leverage of firm (Total Debt/Total Equity)
M/B = Market to book ratio
PCI = Physical Capital Intensity
Earning per asset = Earning per asset (Earnings before Interest & Taxes / Total Assets)
t = time series & i = cross section

Panel Least Square Regression Bankrupt Sample table shows panel results of model. The results shows that the constant value of dependent variable (Labor Intensity) is 0.309 which shows the change in non-financial Pakistani firms Salary to Total Assets ratio when there is no other independent variable effects. Leverage, firm size and Physical Capital Intensity all are negatively impacting Labor Intensity and Market to Book Ratio and Earning per asset is positively impacting Labor Intensity. All independent variables have significant relationship with labor Intensity. As predicted by literature that firms in distress zone will use debt as bargaining tool to reduce salary is confirmed as with increase in leverage of firm salary decreases however the intensity of decrease in wages to total assets ratio is quite less with increase in leverage. With increase in one unit of leverage labor intensity decreases by 0.0008 units only at 5% level of significance. This means there is 95% probability that with increase in leverage in distress firms labor intensity will decrease. All control variables (firm size, Market to book ratio, Physical Capital Intensity and Earning per asset) have highly significant relation with labor intensity that is they impact labor intensity at 1% level of significance.

Market to book ratio used as proxy of growth has significant relation with labor intensity however the coefficient is very small. At 1% level of significance one unit increase in market to book ratio increases labor intensity by 0.003 unit. The result is in line with theory stating that as firm maximizes its equity value showing signs of growth salary of employees also increase. Profitability has significant positive relation with labor intensity in line with theory and literature. At 1% level of significance one unit increase in profitability labor intensity increases by 0.086 units.

Physical Capital intensity however opposite of theory shows highly significant effect of firm mechanization on salary of employees. As per theory with increase in physical capital intensity output of firm increases thereby increasing sales and profitability but in case of Pakistan the results are opposite which is due to the fact of high and increasing level of unemployment. Increase in physical capital intensity by one unit at 1% level of significance labor intensity decreases by 0.093 units. Size of firm also significantly negatively impacts labor intensity. Increase in one unit of size of firm, labor intensity decreases by 0.031 units at 1% level of significance. This relation is also against theory which states bigger firms are to pay more as compared to smaller firms. This may be due to the fact that bigger firms are stable and more preferred by employees as they have more chances of survival.

Further R square value is 0.4765 showing that 47.65% of variance in labor intensity is predicted by independent variables in case where firms are in distress zone.

d) Panel Least Square Regression Bankrupt Sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.309198	0.040387	7.655802	0
L	-0.00079	0.000385	-2.04403	0.0432
MB	0.003316	0.000491	6.758463	0
P	0.086015	0.031033	2.771713	0.0065
PCI	-0.0936	0.018671	-5.01301	0
S	-0.03165	0.005286	-5.9872	0
R-squared		0.476547		
Adjusted R-squared		0.454553		
F-statistic		21.66732		
Prob(F-statistic)		0		

Negative significant impact of leverage on Labor Intensity confirms theory that firms in bankrupt zone take on debt and use it as bargaining tool to reduce salaries of employees this also confirms our second hypothesis that firms labor intensity does not increase with increase in leverage in distress zone.

We further see that Pharmaceutical industry has the highest employee wage per asset among the firms in distress zone as shown in Regression Table Bankrupt across Industry (1). Pharmaceutical industry is followed by Travel Industry. Telecom industry has lowest employee wage per asset among the firms in distress zone as shown by Regression Table Bankrupt across Industry (2).

We further check moderating role of profitability, market to book ratio, physical capital intensity and size across the industries in our bankrupt sample.

e) Regression Table Bankrupt across Industry (1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.360299	0.029488	12.2183	0
L	-8.12E-05	0.000296	-0.27411	0.7845
MB	0.000894	0.000719	1.244526	0.216
P	0.00386	0.019096	0.202147	0.8402
PCI	-0.06375	0.016275	-3.91677	0.0002
S	-0.01696	0.003479	-4.87685	0
CEMENT	-0.16429	0.013986	-11.7464	0
CHEMICAL	-0.16594	0.01358	-12.2193	0

OIL	-0.17659	0.015353	-11.5023	0
ELECTRIC	-0.19357	0.01467	-13.1944	0
TELECOM	-0.1976	0.016023	-12.3317	0
FORESTRY	-0.15801	0.017819	-8.86777	0
HOUSE HOLD	-0.16788	0.018234	-9.20707	0
MEDIA	-0.05681	0.018599	-3.05434	0.0028
INDUSTIRAL MINING	-0.18859	0.018864	-9.9975	0
TOBACCO	-0.07138	0.017387	-4.10565	0.0001
TRAVEL	-0.05313	0.034048	-1.56041	0.1216
R-squared			0.860142	
Adjusted R-squared			0.839422	
F-statistic			41.51311	
Prob(F-statistic)			0	

f) Regression Table Non Bankrupt across Industry (2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.162703	0.028106	5.788792	0
L	-8.12E-05	0.000296	-0.27411	0.7845
MB	0.000894	0.000719	1.244526	0.216
P	0.00386	0.019096	0.202147	0.8402
PCI	-0.06375	0.016275	-3.91677	0.0002
S	-0.01696	0.003479	-4.87685	0
CEMENT	0.033308	0.011887	2.801983	0.006
CHEMICAL	0.031659	0.011706	2.7044	0.008
OIL	0.021005	0.012047	1.743581	0.0841
ELECTRIC	0.00403	0.011447	0.352042	0.7255
FORESTRY	0.039584	0.016092	2.459845	0.0155
HOUSE HOLD	0.029716	0.015211	1.953531	0.0533
MEDIA	0.140789	0.016351	8.610629	0
INDUSTIRAL MINING	0.009005	0.017959	0.501439	0.6171
TOBACCO	0.197596	0.016023	12.33165	0
PHARAMA	0.126212	0.014907	8.466453	0
TRAVEL	0.144468	0.037291	3.874078	0.0002
R-squared		0.860142		
Adjusted R-squared		0.839422		
F-statistic		41.51311		
Prob(F-statistic)		0		

g) Regression Table Bankrupt across Industry w.r.t Profitability

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.203031	0.033053	6.142612	0
L	-0.00056	0.000287	-1.95564	0.0531
MB	0.002284	0.000509	4.48442	0
PCI	-0.04554	0.016454	-2.76803	0.0066
S	-0.02055	0.0041	-5.01227	0
CEMENT *P	-0.07396	0.034086	-2.16964	0.0322
CHEMICAL*P	0.071685	0.033672	2.128933	0.0355
OIL*P	0.058557	0.053171	1.101302	0.2732
ELECTRIC*P	-0.11872	0.072322	-1.64159	0.1036
TELECOM*P	-0.08778	0.151225	-0.58043	0.5628
FORESTRY*P	0.126712	0.173723	0.72939	0.4673
HOUSE HOLD *P	0.088646	0.177157	0.500379	0.6178

MEDIA *P	0.424413	0.064227	6.608043	0
INDUSTIRAL MINING *P	2.98408	1.935959	1.541396	0.1261
TOBACCO *P	0.532146	0.058607	9.079904	0
PHARAMA *P	0.529907	0.089303	5.933809	0
TRAVEL *P	3.330852	1.439251	2.314295	0.0225
R-squared			0.779489	
Adjusted R-squared			0.746821	
F-statistic			23.86077	
Prob(F-statistic)			0	

h) Regression Table Bankrupt across Industry w.r.t M/B Ratio

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.203088	0.031495	6.448319	0
L	-9.08E-05	0.000639	-0.14215	0.8872
P	-0.01166	0.023698	-0.49207	0.6237
PCI	-0.05572	0.017505	-3.1831	0.0019
S	-0.01933	0.00403	-4.79691	0
CEMENT *MB	0.000875	0.001947	0.449322	0.6541
CHEMICAL*MB	0.007846	0.003234	2.425802	0.0169
OIL*MB	-0.003	0.005986	-0.50061	0.6177
ELECTRIC*MB	-0.01244	0.006822	-1.82364	0.071
TELECOM*MB	-0.0423	0.025723	-1.64432	0.103
FORESTRY*MB	0.01134	0.013626	0.83219	0.4071
HOUSE HOLD *MB	0.002059	0.011341	0.181516	0.8563
MEDIA *MB	0.159175	0.024336	6.540635	0
INDUSTIRAL MINING *MB	-0.0155	0.013333	-1.16285	0.2475
TOBACCO *MB	0.026279	0.002333	11.26333	0
PHARAMA *MB	0.042641	0.007017	6.076647	0
TRAVEL *MB	0.003133	0.00032	9.79572	0
R-squared			0.809104	
Adjusted R-squared			0.780823	
F-statistic			28.60959	
Prob(F-statistic)			0	

i) Regression Table Bankrupt across Industry w.r.t Physical Capital Intensity

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.201963	0.028775	7.01873	0
L	-0.00016	0.000311	-0.514	0.6083
MB	0.001159	0.00075	1.544964	0.1253
P	0.007107	0.01988	0.357498	0.7214
S	-0.01951	0.003629	-5.37581	0
CEMENT *PCI	-0.05049	0.014217	-3.55166	0.0006
CHEMICAL*PCI	-0.06057	0.01853	-3.26864	0.0014
OIL*PCI	-0.04448	0.027176	-1.63667	0.1046

ELECTRIC*PCI	-0.08487	0.020755	-4.08891	0.0001
TELECOM*P	-0.12355	0.039724	-3.11005	0.0024
FORESTRY*PCI	-0.03917	0.021121	-1.85448	0.0664
HOUSE HOLD *PCI	-0.02699	0.070234	-0.38424	0.7016
MEDIA *PCI	0.708774	0.110691	6.403171	0
INDUSTIRAL MINING *PCI	-0.07826	0.016483	-4.74773	0
TOBACCO *PCI	0.300155	0.032819	9.145834	0
PHARAMA *PCI	0.298003	0.053047	5.617687	0
TRAVEL *PCI	0.060164	0.041841	1.437924	0.1533
R-squared			0.843669	
Adjusted R-squared			0.820509	
F-statistic			36.4277	
Prob(F-statistic)			0	

j) Regression Table Bankrupt across Industry w.r.t Size

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.193037	0.027927	6.912131	0
L	-7.41E-05	0.000294	-0.25172	0.8017
MB	0.00089	0.000714	1.246061	0.2154
P	0.00063	0.019257	0.032704	0.974
PCI	-0.06289	0.016969	-3.70599	0.0003
CEMENT *S	-0.01676	0.003481	-4.8133	0
CHEMICAL*S	-0.01642	0.003648	-4.49968	0
OIL*S	-0.01828	0.00357	-5.1201	0
ELECTRIC*S	-0.02043	0.003292	-6.20635	0
TELECOM*S	-0.02115	0.003636	-5.81769	0
FORESTRY*S	-0.01573	0.00362	-4.34507	0
HOUSE HOLD *S	-0.01705	0.004545	-3.74984	0.0003
MEDIA *S	0.001148	0.004905	0.233962	0.8155
INDUSTIRAL MINING *S	-0.02049	0.003988	-5.13795	0
TOBACCO *S	0.006672	0.003985	1.674244	0.097
PHARAMA *S	-0.00346	0.004023	-0.86125	0.391
TRAVEL *S	0.003069	0.007412	0.414011	0.6797
R-squared		0.861138		
Adjusted R-squared		0.840565		
F-statistic		41.8593		
Prob(F-statistic)		0		

Regression Table Bankrupt across Industry with respect to Profitability shows the impact of profitability on Labor Intensity Industry wise. In Cement, Electric and Telecom Industry profitability has negative impact on labor intensity and only in Cement Industry profitability has significant negative impact on labor intensity. In Oil, Forestry, House Hold and Industrial mining the impact of profitability on labor intensity is positive but insignificant. In remaining five industries of Bankrupt Sample profitability significantly positively impacts labor intensity.

Regression Table Bankrupt across Industry with respect to M/B Ratio (market to book ratio) shows the impact of market to book ratio on Labor Intensity Industry wise. In Oil, Electric, Telecom and Industrial Mining Industry market to book ratio has negative impact on labor intensity. However the impact is insignificant. In Cement, Forestry, and House Hold the impact of market to book ratio on labor intensity is positive but insignificant. In remaining five industries of Bankrupt Sample market to book ratio significantly positively impacts labor intensity.

Regression Table Bankrupt across Industry with respect to Physical Capital Intensity shows the impact of Physical Capital Intensity on Labor Intensity Industry wise. In Media, Tobacco, Pharmaceutical and Travel Industry Physical Capital Intensity has positive impact on labor intensity. However the impact in travel industry is insignificant. In Oil, Forestry and House Hold Industry the impact of Physical Capital Intensity on labor intensity

is negative but insignificant. In remaining five industries of Bankrupt Sample Physical Capital Intensity significantly negatively impacts labor intensity.

Regression Table Bankrupt across Industry with respect to Size shows the impact of Size on Labor Intensity Industry wise. In Media, Tobacco and Travel Industry Size has positive impact on labor intensity. However the impact is insignificant. In Pharmaceutical Industry the impact of Size on labor intensity is negative but insignificant. In remaining eight industries of Bankrupt Sample Size significantly negatively impacts labor intensity.

X. Conclusion

Titman (1984) while exploring determinants of capital structure argued that firms don't reach optimal capital structure because of indirect costs associated with increase in leverage. According to Titman (1984) direct costs of debt do not truly and significantly explain why firms restrain from using debt thus the only answer for restraining firms from use of debt was the indirect cost borne by firms by incorporating debt in their capital structure.

Upon this argument Berk, Stanton, and Zechner (2010) developed a model stating that increase in salaries paid to employees with increase in leverage is a major indirect cost which refrains firms from using large amount of debt. As per BSZ (2010) as firms incorporate debt in their capital structure the employees feel high risks of bankruptcy of firms and further increased risk of unemployment. Thus to compensate the risk of unemployment employees demand a salary premium. This salary premium paid to employees offsets the tax benefits of debt thus a firm can only take up debt till the time this premium is below tax benefits of debt thereby enforcing firms to restrain from use of large amount of debt or even not letting firms to reach their optimal capital structure.

To statistically verify this model Chemmanu, Cheng, and Zhang (2012) for the first time explored the impact of increase leverage on salaries. As per results of Chemmanu, Cheng, and Zhang (2012) salaries rise with increase in leverage thus proving BSZ (2010) model and theory of Titman (1984).

I also statistically checked the BSZ (2010) model with context of Pakistan. After analyzing sample data collected from listed companies from Pakistan I conclude that in overall results the theory of Titman and model of BSZ are not applicable in Pakistan. The main reason for this are the economic conditions of country and as well as the ownership structure of firms. There is a large workforce available in the country to work at any provided pay. Further the firms in the country are family held and thus the level of corporate governance is very low. Further these family held firms have small ownership structure thus it is easy for them to acquire leverage and keep employees at minimum wage. The same conclusion remains for observations of firms in safe zone.

The results of my observations of bankrupt firms or firms in distress zone support the theory that firms in distress zone will use debt as a bargaining tool to lower down the wages however the magnitude is quite small. Growth of firms in distress zone and profitability of these firms increase labor intensity significantly however size and physical capital Intensity of firm significantly decrease labor intensity.

a) Direction for the Future Research

This conclusion is drawn from a sample 84 listed companies from different sector of Pakistan covering a period of five years and can be further enhanced by collecting data of more firms for a longer period. Further to get a clear picture the data can be divided in two parts firms with specialized and non specialized employees. As firms with specialized employees will already be providing higher wages than firms with non specialized employees. Similarly technological and non technological firms can be separated to see the similar impact. Existing evidence suggests that employees in non technological firms are entrenched or are already paid higher and scholars expect that there is stronger effect of leverage on labor costs when employees are more entrenched. Further the BSZ (2010) model is of no use in cases where assets of firms are such that they support high leverage and highly paid employees giving a positive relationship between leverage and salary. Thus our conclusion is not final and is restricted to data, time period and the division of data.

b) Recommendation

The economic conditions of country, ownership structure of firms and the level of corporate governance in firms does not allow employees to bargain their rights. Thus leverage of firms has no significant impact on salary of employees of firm in Pakistan when they are in safe zone. Therefore the firms in Pakistan are free to take on leverage as the tax benefit of debt is not offset by any premium paid to employees to cover up their risk of unemployment.

References Références Referencias

1. Agrawal, A.K. & Matsa, D. A., forthcoming. Labor Unemployment Risk and Corporate Financing Decisions. *The Journal of Finance*.
2. Ahmed Sheikh, N., & Wang, Z. (2011) Determinants of capital structure: An empirical study of firms in manufacturing industry of Pakistan. *Managerial Finance*, 37(2), 117-133.
3. Bae, K-H., Kang, J-K. & Wang, J. (2011) Employee treatment and firm leverage: A test of the

stakeholder theory of capital structure. *Journal of Financial Economics,* 100, 130–153.
4. Berk, J.B., Stanton, R. & Zechner, J. (2010). Human Capital, Bankruptcy, and Capital Structure. *The Journal of Finance*, VOL. LXV, No. 3, 891-926.
5. Berkovitch, E., Israel, R. & Spiegel, Y. (2000). Managerial Compensation and Capital Structure. *Journal of Economics & Management Strategy,* Volume 9, Number 4, Winter 2000, 549-584.
6. Chen, J.J. (2004). Determinants of Capital Structure of Chinese-Listed companies. *Journal of Business Research* 57, (2004), 1341-1351.
7. Chemmanur, T.J., Cheng, Y. & Zhang, T. (2013). Human Capital, Capital structure and employee pay: an empirical analysis. *Journal of Financial Economics (2013),* http://dx.doi.org/10.1016/j.fineco.2013.07.003
8. Cronqvist, H., Heyman, F., Nillson, M., Svaleryd, H. & Vlachos, J. (2009). Do Entrenched Manageers Pay their Workers More? *The Journal of Finance,* Volume 64, Issue 1, 309-339.
9. Frank, M.Z. & Goyal, V.K. (2009). Capital Structure Decisions: Which Factors Are Reliably Important? *Financial Management*, Spring 2009, 1 – 37.
10. Hassan, A. & Butt, S.A. (2009). Impact of Ownership Sytructure and Corporate Governance on Capital Stucture of Pakistan Listed Companies. *International Journal of Business and Management,* Vol.4, No.2.
11. Hovakimian, A. & Li, G. (2011). Large Sample Evidence on Capital Structure and Employee Wages
12. Jaggia, P.B. & Thakor A.V. (1994). Firm-Specific Human Capital and Optimal Capital Structure. *International Economic Review*, Vol. 35, No. 2, 283-308.
13. Javid, A.Y. & Iqbal, R. (2008). Ownership Concentration, Corporate Governance and Firm Performance: Evidence from Pakistan. *The Pakistan Development Review.* 47:4 part II. 643-649.
14. Jong, A.D., Kabir, R. & Nguyen, T.T. (2008). Capital Structure Around the World: The roles of firm- and country-specific determinants. *Journal of banking & Finance* 32, 1954-1969.
15. Khan, A., Kaleem, A. & Nazir, M.S. (2012). Impact of Financial Leverage on Agency cost of Free Cash Flow: Evidence from Manufacturing Sector of Pakistan. *Journal of Basic and Applied Scientific Research,2*(7), 6694-6700.
16. Kisgen, D.J. (2006). Credit Ratings and Capital Structure. *The Journal of Finance*, VOL. LXI, No. 3, 1035-1072.
17. Kletzer, L.G. (1998). Job Displacement. *The Journal of Economic Perspectives*, Vol. 12, No. 1, 115-136.
18. Kuzmina, O. (2011). Capital Structure and Employment Contracts Flexibility.
19. Matsa, D.A., forthcoming. Capital Structure as a Strategic Variable: Evidence from Collective Bargaining. *The Journal of Finance.*
20. Modigliani, F. & Miller, M.H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, Vol. 48, No. 3, 261-297.
21. Myers, S.C. (1984). The Capital Structure Puzzle. *The Journal of Finance*, Vol. 39, No. 3, 575-592.
22. Myers, S.C. (2001). Capital Structure. *Journal of Economic Perspective.* Vol. 15, No. 2, 81-102.
23. Myers, S.C. & Majluf, N.S. (1984). Corporate Financing and Investment Decisions when Firms have Information that Investors do not have. *Journal of Financial Economics*, 13, 187-221.
24. Neal, D. (1995). Industry-Specific Human Capital: Evidence from Displaced Workers. *Journal of Labor Economics*, Vol. 13, No. 4, 653-677.
25. Pbs.gov.pk, (2015). Labour Force Publications Pakistan Bureau of Statistics. [online] Available at: http://www.pbs.gov.pk/labour-force-publications [Accessed 4 May 2015].
26. Pratt, R. (2011). A Structural Model of Human Capital and Leverage. *Job market paper*.
27. Rashid, A. & Abbas Q. (2011). Predicting Bankruptcy in Pakistan. *Theoretical and Applied Economics,*Volume XVIII, No. 9(562), 103-128.
28. Shah, A. & Huazi, T. (2004). The Determinants of Capital Structure of Stock Exchange-listed Non-Financial Firms in Pakistan. *The Pakistan Development Review,* 43:4 Part II, 605-618.
29. Shah, A. & Khan, S. (2007). Determinants of Capital Structure: Evidencce from Pakistani Panel Data. *International Review of Business Research Papers*, Vol.3, No. 4, 265-282.
30. Sheikh, N.A. & Wang, Z. (2011). Determinants of Capital Structure: An Empirical study of Firms in manufacturing Industry of Pakistan. *Managerial Finance,* Vol.37, No. 2, 117-133.
31. Suarez, J., Almazan, A., & Titman, S. (2004). Stakeholders, Transparency and Capital Structure (No. wp2004_0401).
32. Suhaila, M.K. & Wan Mahmood, W.M. (2009). Capital Structure and Firm Characteristic Some Evidence from Malaysian Companies. MPRA Paper No. 14616, posted 12.
33. Titman, S. & Wessels, R. (1988). The Determinants of Capital Structure Choice. *The Journal of Finance*, Vol. 43, No. 1, 1-19.