

# How Firm Characteristics Affect Capital Structure in Banking and Insurance Sectors (The Case of Pakistan)

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## Abstract

The paper provides further evidence of the capital structure theories pertaining to a developing country and tests the determinants of capital structure for the firms in the banking and insurance sectors of Pakistan, to find that financial pattern of firms in the two sectors follow which capital structure theory. We have found that both the Pecking order theory and Trade-off theory are pertinent theories to the companies' capital structure in the two sectors, whereas there was little evidence to support the Agency cost theory. The sample consists of 22 banks and 24 insurance companies listed in the, "Karachi Stock Exchange", during 2002-2009. The research was conducted using secondary data sourced from the company's annual reports and Karachi Stock Exchange. The variable debt ratio (leverage) was the dependent variable. While the explanatory variables were size, growth, liquidity, profitability, non-debt tax shield and tangibility of assets. We have used panel least square regression to determine the affect of firm level characteristics on capital structure. The variables profitability and liquidity were found to have negative impact on debt ratio, while size and growth were positively correlated. Whereas, tangibility has direct positive correlation with leverage in insurance sector but negative in banking sector.

**Keywords:** capital structure, firm characteristics, KSE, pecking order theory, agency cost theory, trade-off theory.

## 1. Introduction

What are the determinants that affect the firm's capital structure choice? In the field of corporate finance, researchers have devoted extensive time both theoretically and empirically to discover the answer to this important research question. After the publication of seminal papers by Modigliani and Miller (1958, 1963) this question acquired special significance. The determinants of capital structure have been investigated by several researchers. However, still there is no unifying theory of capital structure even after decades of serious research, which leaves the topic of capital structure open for further research. Capital structure is basically a mix of company's leverage and equity that a firm uses to finance its assets. It is the method by which public corporations finance their assets sets up their ownership structure and influence whether their corporate governance is of high standards. It is necessary for every firm that the capital structure decision must be handled carefully otherwise they can face the problem of bankruptcy and financial distress. So for a high leverage firm, it is necessary that for minimizing cost an efficient mixture of capital must be allocated. In order to increase their value firms must make a strategy to lower WACC, due to which the company's net income will be increased which will result in maximization of value of the firm. Every firm needs to find out their optimal capital structure, because they exist different firm specific factors that affect their capital structure choice. But it is not a science to determine the exact optimal capital structure; therefore companies obtain a target capital structure after studying different determinants of capital structure which they consider as optimal. Every firm has different capital structure when they try to maximize the overall value. Therefore to explain the variation in the firm's capital structure over time or across regions research has been done on different theories of capital structure. Boot et al. (2001) include Pakistan in his work on capital structure on 10 developing countries. Majority of the studies done so far on capital structure determinants, have taken data from developed countries mostly USA and UK, and there is not enough research work in the field of capital structure in developing countries. In this paper

we studied different firm specific characteristics that affect capital structure decision. Specifically the study is related to Pakistani banks and insurance companies listed in the stock exchange of Pakistan and their financing decision making, but in general it covers each and every aspect of the topic. Therefore, we are trying that basically which factors determines the corporate capital structure in these two sectors in the light of trade-off theory, theory of agency cost and pecking order theory. To the best of author knowledge, it is the first work done on determinants of capital structure of banking and insurance companies listed in the KSE.

### *1.1 Research Objectives*

The objectives of this study are to analyze the main determinants of the financing behavior of banks and insurance companies of Pakistan, listed in the "Karachi Stock Exchange". We will test each factor mention in the study in order to figure out is there any relationship with debt ratio of companies or not. Furthermore, we will try to analyze which capital structure theory best explains the financial behavior of Pakistani listed firms in the two sectors during the period of 2002-2009.

## **2. Literature Review**

Modigliani and Miller (1958) presented the theorem of leverage irrelevance, which says that the capital structure of firm does not impact on its value. The work done so far on firms capital structure is based on this earlier work of Modigliani & Miller (1958). Proposition 1: Modigliani & Miller claim that the capital structure and value of the firm do not relate to each other, in fact the assets profitability is responsible for fluctuations in firm value and do not depend on the way of financing these assets. The MM proposition-1 is based on perfect capital market assumptions in which the cost of bankruptcy, transaction cost, information asymmetry and taxes are absent. Proposition-2 of Modigliani and Miller is also based on perfect capital market assumption. It says that a firm that is using a higher D/E ratio will have to pay a higher rate of return to its shareholders, because shareholders of the firm that is using higher debt in their capital structure will have to face higher risk, thus cost of equity is a linear function of D/E ratio. Modigliani and Miller received criticism because there exist imperfections in capital markets. Different sources of financing may be relevant to the investment decision of the firm. The theory of pecking order, the theory of agency cost and trade-off theory are the most important theories of capital structure and are based on examining what happens if the assumptions of M&M do not hold.

### *2.1 Pecking Order Theory*

Myers and Majluf (1984) first introduced the pecking order framework. According to this theory firms follow a hierarchy in financing their operations by giving first priority to their internal funds over external funds Shyam-Sunder and Myers (1999); they also say that if external funds are required firms will prefer debt over equity because of lower information costs. This theory is based on the idea of asymmetric information between managers and investors. Managers have more knowledge than outside investors about the firm's future prospects and riskiness. Therefore in order to avoid the problem of under investment, managers will try to use such a security for financing their new investment opportunity which is not undervalued by the market, like their internal funds or riskless debt. Thus, it will affect the choice between internal and external financing.

### *2.2 Trade-Off Theory (Target Capital Theory)*

Taxes, agency cost and financial distress are the three factors that influence a firm's optimal capital structure according to trade off theory. Firms will use large amount of debt in their capital structure because debt will provide them a tax shield so to improve their profitability and gain as much tax benefits as they can they will use higher debt level. Modigliani and Miller (1963) said that interest payments might be excluded from company's tax. But using higher leverage will increase their bankruptcy costs because creditors will demand extra risk premium Baxter (1967).

### *2.3 Agency Cost Theory*

The management of a firm influences the capital structure choice. Myers (2001) says that instead of increasing the wealth of shareholders managers might work for their personal incentives. Jensen and Meckling (1976) was the first who initiated research in this field by continuing the preceding research by Fama and Miller (1972). They identify that possible interest conflicts are two in types: the first one is between management and shareholder, and the second one is between shareholders and debt holders. The reason for the conflict between manager and shareholder is that managers hold less than 100% of the residual claim. Managers bear the same cost on these activities but they do not receive the same benefit. Therefore in spite of maximizing firm's value, managers overindulge in personal pursuits. The conflict between debt holder and shareholder can arise when shareholder receive most of the gain from issuance of debt as compare to debt holder. Thus, shareholder captures most of the benefit, if firm receive large return from an investment, over and above the face value of debt, more explicitly debt investment is inclined towards shareholders. On the other hand the equity holders just skip away and debt holders suffer the entire aftermath, when investment goes down and the firm is facing possible bankruptcy. According to Jensen & Meckling (1976) to overcome this problem it is required that the manager ownership should be increases in the firm in order to align his interests with the owner another solution is that

firms should use higher amount of debt due to which the equity base will be reduced and as a result increasing the manager percentage of equity in the firm. Therefore, if the level of debt increases, while the manager equity stack in the firm is held constant, so as a result the equity share of manager increases and therefore reducing the loss from the conflict of manager and shareholder.

#### 2.4 Empirical Evidence on Capital Structure Theories

The outcomes of empirical tests on POT are mixed. POT is supported by Shyam-Sunder and Myers (1999) in their study during the period 1971-1989 on data taken from companies listed in “Newyork Stock Exchange”. However little support is found for POT by Frank and Goyal (2003) during the period 1971 to 1998 in the context of US public listed firms. Fama and French (2005) also do not find support for POT; they examine the financing decision of many individual companies and found that they are against POT. Abubakar sayeed (2007) during the period 2001-2005 in energy sector of Pakistan find that POT is applicable to financial behavior of firms in energy sector of Pakistan. Jasir ilyas (2008) find that POT is applicable to financing behavior of firms in Pakistani listed non financial firms. They show that in Pakistan firms mostly use their internal equity for financing projects as compare to debt or external equity. Bradley et al. (1984) in their study found mix results on capital structure theories. They found strong direct relationship between firm's debt level and non-debt tax shields which is against TOT. In their study on capital structure determinants MacKie-Mason (1990), Givoly et al. (1992) and Trezevent (1992) found that their results was consistent with trade-off theory. Shah and Hijazi (2004) find support for trade-off theory and agency cost theory in his study on Pakistani listed non-financial firms during the period 1997 to 2001 in terms of tangibility, size and growth variable. Delcoure (2007) did not found enough evidence for POT, TOT and agency cost theory and argue that these theories partially explain the capital structure puzzle. Fakher Buferna et al. (2008) find that their results suggest that both agency cost theory and TOT are applicable in the context of Libya while POT do not.

### 3. Research Methodology and Empirical Data

The target population for the study was 28 banks and 38 insurance companies listed on the “Karachi Stock Exchange”. The sample for the study consisted of companies in the two sectors that are listed in the KSE for the period of eight years from 2002-2009. Companies that were not listed in the stock exchange of Pakistan for the duration of the eight year period from 2002 to 2009 were left out of the sample. Companies that did not have a full set of data on variables mention in the study were also left out. Companies that come in to existence after year 2002 are also not included in the sample. At the end of this elimination process, 22 banks and 24 insurance companies were left in the sample for further analysis. Secondary data was collected from various databases to undertake the analysis. Such as profit and loss statements, balance sheets and cash flow statements were collected from the KSE, State bank of Pakistan and Bloom burgee business week.

#### 3.1 The Regression Model

By applying panal least square regression model, we are trying to examine different firm characteristics that determine firm’s level debt. In panal regression the slopes and intercepts are treated as constant it is also called the constant coefficients model. The model assumes that with regard to capital structure all firms are similar and there is no significant industry or time effect on debt ratio.

The equation general form is given as:

$$DR_{it} = \alpha + \sum_{i=1}^n \beta_i X_{it} \dots \dots \dots (1)$$

DR *it* = the debt ratio of a company *i* at period *t*

$\alpha$  = it is the model intercept

$\beta_i$  = the change co-efficient for *X<sub>it</sub>* variables

*X<sub>it</sub>* = the number of explanatory variables of a company *i* at period *t*

*i* = it represent total number of companies i.e. *i* = 1, 2, 3...*N* (in this thesis report *N*= 46 companies)

*t* = the period of the study i.e. *t* = 1, 2, 3...*T* (in our case *T* = 8 years).

After converting the general form of model into different explanatory variables used in the study the model becomes:

$$DR_{it} = \alpha + \beta_1 SIZE_{it} + \beta_2 GROWTH_{it} + \beta_3 NDTs_{it} + \beta_4 LIQUIDITY_{it} + \beta_5 TANGIBILITY_{it} + \beta_6 PROFITABILITY_{it} + \epsilon_{it} \dots \dots \dots (ii)$$

Where:

DR *it* = the debt ratio for the company *i* at period *t*,

SIZE *it* = Represent size of the company *i* at period *t*,

LIQUIDITY *it* = Represent current ratio of company *i* at period *t*,

PROFITABILITY *it*= NI before taxes/ total assets for company *i* at period *t*,

NDTs *it* = Non-debt tax shield of the company *i* at period *t*,

$GROWTH_{it}$  = Annual percentage increase in total assets for company  $i$  at period  $t$ ,  
 $\varepsilon_{it}$  = the disturbance term

#### 4. Measurements of Variables

In this part of the paper we are going to shed some light on the determinants of capital structure that we have used in our study. The characteristics of firms that affect capital structure decision have been studied widely in many research studies. In this paper we have used six independent variables profitability, tangibility, liquidity, NDTs, growth and size as firm specific factors. The dependent variable of the study is debt ratio.

##### 4.1 Dependent Variable

###### 4.1.1 Debt Ratio

We use dependent variable of debt ratio ( $DR_{it}$ ) in our study. Several definitions of leverage exist in the literature of corporate capital structure, for example total debt or long term debt divided by total assets. In Pakistan according to Shah and Hijazi (2004) majority of firms are smaller in size therefore access to capital market is difficult for them, because small firms have cost and technical difficulties therefore their total debt consist of higher percentage of short term debt so we use the proxy of total debt divided by total assets to measure capital structure. Further more corporate bond market is in the process of development and has limited history. Hence, following Booth et al. (2001) Rajan & Zingales (1995), and Beven & Danbolt (2002) we define debt ratio (financial leverage) as:

Debt ratio ( $DR_{it}$ ) = total debt/total assets

##### 4.2 Independent Variables

###### 4.2.1 Size

The first independent variable is size ( $SIZE_{it}$ ). There are mix results between the relationship of size and debt ratio. According to trade-off theory the relation of size with debt ratio is positive, the reason according to Titman and Wessels (1988) who studied trade-off theory of capital structure is that large companies have low chances of bankruptcy due to their diversification and therefore their probability of default is very low, so due to these qualities lenders prefer them to give loans as compare to smaller firms. On the other hand according to POT the association between size and dependent variable is negative. Similarly according to the theory of agency cost the association of size with debt ratio is positive. We take the proxy of total assets to measure the Size variable. In order to smooth the variation in the figure over a period of time, we take the natural log of total assets.

###### 4.2.2 Growth Opportunities

The second independent variable is growth ( $GROWTH_{it}$ ). According to POT growing companies will use more debt in their capital structure, because their internal funds may not be enough to meet their requirements, they will need more funds for financing their projects and to spend on research and development therefore for meeting their requirements they will go for external finance and will use debt over equity because of minor adverse selection problem. Trade-off theory and Agency cost theory predicts that the impact of growth variable on debt ratio is negative because growth opportunities are not collateralizable they are intangible assets and therefore firms with large amount of intangible assets will find difficulty in obtaining long term debt Titman & Wessels (1988) and Rajan & Zingales (1995). We use annual percentage increase in total assets to measure the growth variable.

###### 4.2.3 Liquidity

Our fourth independent variable is liquidity ( $LIQUIDITY_{it}$ ). We measured liquidity by dividing current assets by current liabilities which is equal to current ratio. POT predicts negative association between liquidity and leverage because high liquidity firms can generate sufficient cash inflows and therefore the excess cash inflows can be used to finance investment and operating activities. On the contrary the association of debt ratio with liquidity is positive as far as trade-off theory is concerned; the reason is that high liquidity firms can pay their short term liabilities on time.

###### 4.2.4 Tangibility of Assets

Our fifth independent variable is Tangibility ( $TANGIBILITY_{it}$ ). Trade-off theory predicts positive relation of tangibility with debt ratio. In today's changing world where there is asymmetric information, firms with higher fixed assets can easily obtain debt because it is acceptable to creditors as a security. The interest rate for those firms who have more fixed assets will be lower because they can provide this large amount of fixed assets as a security to creditors. In a different situation, according to the theory of agency cost companies can use higher debt level to prevent manager's attitude to consume excessive perks. By using higher debt ratio companies can monitor the activities of managers when they have fewer tangible assets even at high cost of debt Grossman and Hart (1982). The positive association of tangibility of assets with dependent variable is the prediction of the theory of agency cost. POT suggest that companies will face the problem of asymmetric information when they have less amount of fixed assets, therefore such firms with less fixed assets will use more short term debt. The proxy fixed assets divided by total assets is used to measure tangibility variable.

###### 4.2.5 Profitability

Our sixth independent variable is profitability (*PROFITABILITY it*). Profitability has diverse relationship with debt ratio. According to POT profitable firms will give first priority to their internal funds as compared to external funds Myer and Majluf (1984); and firms who have a large amount of retained earnings (profitability) will first finance their investments with retained earnings. Trade-off theory of capital structure says that high profitable firms will use more debt due to tax benefits of debt. The reason is that high profitable firms have an increased ability to meet debt repayment obligations, and that's why they are less likely subject to bankruptcy risk. Thus to maximize their tax shield they will demand more debt at more attractive cost. The agency costs of free cash flow are minimized by higher debt ratio because the interest burden reduces the amount of funds available to managers for consuming more perquisites. We have taken net income before taxes and divide it by firm's total assets to measure profitability.

#### 4.2.6 Non-debt Tax Shield (Depreciation)

The trade-off theory of capital structure says that debt provides companies tax benefits of interest payment. However, firms cannot take full advantage of using debt for tax reasons when they have other tax shields for example investment tax credit deductions or depreciation. The reason according to Ozkan (2001) is that, these deductions are independent of the way a firm chooses to finance its investments, whether it uses debt or not. Thus firms can use these non-debt tax shields as a substitute for debt DeAnglo and Masulis (1980). Therefore companies will be less dependent on debt when they have higher non-debt tax shields. We used depreciation expense which has been taken from companies annual reports and divide it by total assets to measure non-debt tax shield.

We also used qualitative variable (dummy) in our study, where 0 is given to banking sector and 1 to insurance companies.

## 5. Research Hypothesis

We formulate three hypotheses for Pakistani firms in banking and insurance sectors on the basis of capital structure theories presented above and their relationship with debt ratio. First we formulate hypothesis for POT. The second hypothesis is made for TOT. The third and last hypothesis is formulated for theory of agency cost. We will test each of these hypotheses to find which theory is more applicable to companies financing decision included in our sample. We formulate these hypotheses in terms of alternative and null hypothesis.

### 5.1 Pecking Order Theory

#### Hypothesis 1

##### H1a

Hi: the association of dependent variable with tangibility is negative

Ho: There is no association between tangibility and dependent variable.

##### H1b

Hi: There is direct positive association of growth opportunities with dependent variable.

Ho: There is no association between growth and dependent variable.

##### H1c

Hi: The association of profitability with dependent variable is inverse.

Ho: There is no association between profitability and dependent variable.

##### H1d

Hi: The association of liquidity with dependent variable is negative.

Ho: There is no association between liquidity and dependent variable.

### 5.2 Trade-Off Theory

#### Hypothesis 2

##### H2a

Hi: The association of tangibility with dependent variable is positive.

Ho: There is no association between tangibility and dependent variable.

##### H2b

Hi: The association of size with dependent variable is positive.

Ho: There is no association between size and dependent variable.

##### H2c

Hi: The association of NDTs with dependent variable is negative.

Ho: There is no association between NDTs and dependent variable.

### 5.3 Theory of agency cost

#### Hypothesis 3

##### H3a

Hi: The association of size and dependent variable is positive.

Ho: There is no association between size and dependent variable

## 6. Analysis and Results

### 6.1 Descriptive Statistics

In table 2 we have shown descriptive statistics for six explanatory variables and dependent variable debt ratio. These include the median, mean, standard deviation, min and max values for the duration of eight years from 2002 to 2009. The data contains 22 banks and 24 insurance companies listed in the, "Karachi Stock Exchange". The table shows that in the minimum values column their exist some negative values, because in the eight years period some companies have experience losses. The results show that share of total debt in total assets is higher for banking sector 85.7% as compare to 52% for insurance sector. This evidence indicates that firms in banking sector rely more on leverage as compare to equity. Similarly the insurance sector holds more long-lived assets (26% of total assets on average for insurance sector against 6.7% for banking sector). The growth rate of firms in the banking sector is 37% as compare to firms in the insurance sector (20%). Firms in the insurance sector are more profitable (9.6% against 5.5%). Banking sector has higher liquidity 1.44 against 1.23 for insurance sector.

### 6.2 Correlation Matrix

The Pearson's co-efficient of correlation was used in order to examine the presence of multicollinearity among regressors, table 3 presents the results. Technique for detecting multicollinearity is through the use of a correlation matrix. A correlation will be called as a high correlation when it exceeds 0.80 or 0.90 according to Kennedy (1998). According to Brayman and Cramer (2001) when the correlation between any two variables is 0.80 or higher then they will have the problem of multicollinearity, whereas 0.70 is used as a bench mark by Anderson et al. (1999) for serious correlation. It can be seen that there is no serious correlation between any two of the independent variables however we have found several observations that are noteworthy. First, it was found that size and growth have direct positive association, which means that firms that are large in size have higher growth rate and they grow more as compare to small firms and second it can be seen that large firms do not have higher amount of fixed assets. The reason that large firms grow more is that higher amount of funds are required for research and development which large firms can afford, thus due to this reason the growth opportunities of large firms will increase because of their ability to add new product lines.

### 6.3 Regression Results

To determine whether the slopes for the insurance companies are significantly different, the implied coefficients for the explanatory variables for insurance companies given the regression output in Table 3 are shown in Table 4. Profitability and liquidity has a significant negative impact on debt ratio in both sectors however; the relationship is more negative in insurance sector. Similarly size and growth has positive relationship with debt ratio in banking and insurance sector, but the relationship between growth and debt ratio and size and debt ratio is stronger in banking sector. Tangibility has significant positive association with dependent variable in the insurance sector, but the same relationship is negative in banking sector. NDTs has insignificant impact on debt ratio in both sectors.

### 6.4 Discussion of Results

#### 6.4.1 Profitability

The relationship of variable profitability and debt ratio in banking as well as insurance sector is negative. This result suggests that high profitable firms in Pakistani banking and insurance sector maintain low debt ratios. Thus it support POT presented by Myers and Majluf (1984) which says that high profitable companies will always go for using their internal funds over external funds. Retained earnings according to Frydenberg (2001) is an important and cheapest source for financing companies operations and has no adverse selection problems, therefore the dependence of highly profitable firms on external funds will be low. Our result also supports the result found by Frank and Goyal (2004) and Rajan and Zingales (1995). Further our result is also consistent with Titman & Wessels (1988). Shah and Hijazi (2004), Shah and Khan (2007), Jasi rilyas (2008), Abubakar sayeed (2010) and Joy pathak (2010) who find negative association of profitability with dependent variable. In contrast, Fakher Buferna et al. (2008) find that profitable firms will have high debt ratio.

#### 6.4.2 Tangibility of Assets

We have found that tangibility variable is significantly positively correlated with dependent variable in the insurance sector of Pakistan. Our result positive association is consistent with the prediction of trade-off theory of Jensen and Meckling (1976) and Myer's (1977). In today's changing world where there is asymmetric information, firms with higher amount of fixed assets can easily obtain debt on lower interest rate by providing their fixed assets as a security to creditors. Creditors have no tension about the interest payment on their debt, if the firm is performing well. But it will be difficult for them to continuously monitor the operations and performance of the firm, therefore they can overcome this trouble by asking for fixed assets (building, land, machinery etc) as a security. Thus firms with less fixed assets cannot borrow large amount of debt because of high cost of debt. Jean-Laurent Viviani (2004), Shah and Khan (2007), Jasir ilyas (2008) and Joy pathak (2010) also find that tangibility variable has positive association with dependent variable.

The coefficient of the variable tangibility of assets is negative and is statistically significant as for as banking sector is concerned. This result is against various previous research findings. According to trade-off theory and agency cost theory the relation of tangibility variable with dependent variable debt ratio is positive. On other hand the result is consistent with POT that predicts negative association, and further says that firms will go for external funds for financing their operations and will select debt most likely short term debt against equity when they have fewer amounts of fixed assets because firms with smaller percentage of fixed assets can face the problem of asymmetric information; therefore they will prefer debt for financing their investments because of its lower information costs. The debt maturity structure of the banking system of Pakistan consists of large amount of short term debt. In his study on a sample of firms taken from 10 developing countries including Pakistan Booth et al. (2001) and Shah and Hijazi (2004) on KSE listed firms; find that firms have higher utilization of short term debt in total debt in Pakistan.

This negative association of independent variable tangibility with dependent variable debt ratio for banking sector suggests that firms do not use fixed assets in the banking sector for raising debt as a security to creditors. As in banking sector of Pakistan most of the ownership belongs to the government, therefore in spite of taking fixed assets as a security the creditors accept government involment as a security. According to Khan (1995), Khan and Khan (2007); majority of the ownership in banking sector of Pakistan is with the government. In this paper it is right because the asset maturity structure of the banking system of Pakistan consists of large amount of short term assets. Abubakar sayeed (2007) in energy sector of Pakistan also find negative relation between tangibility of assets and financial leverage.

#### 6.4.3 Liquidity

Similarly, the association of the variable liquidity with the dependent variable was negative in banking as well as in the insurance sectors of Pakistan. Firms in the banking and insurance sectors maintain high liquidity therefore they can generate high cash inflows. Furthermore they can use this excess cash for financing their projects. Therefore, high liquidity firms are less dependent on debt as compare to low liquidity firms in the two sectors as predicted by POT. This result is similar to the findings of Naveed et al. (2010) and joy pathak (2010).

#### 6.4.4 Size

The explanatory variable size has direct positive association with debt ratio and is statistically significant in the banking as well as the insurance sector. This means that larger firms in the two sectors have high debt ratio. Considering the fact, according to trade-off theory that larger companies compare to smaller one can afford to use higher amount of debt in their capital structure because of more consistent cash flows, also they are more diversified and bear less risk. Moreover we can say that the reason for raising higher debt by larger firms is that majority of them are government controlled (partial or complete) due to which their chances of bankruptcy are low. Titman and Wessels (1988), Rajan and Zingales (1995), Booth et al. (2001), Shah and Hijazi (2004), Abubakar sayeed (2007), Fitim Deari and Media Deari (2009), Naveed et al. (2010), all find the same relationship.

#### 6.4.5 Non-debt Tax Shield

In this paper we have found that the association of variable NDTs with the dependent variable is insignificant in both sectors. Therefore we can say that our result goes against the predictions of trade-off theory of capital structure which predicts negative association. One reason for this statistically insignificant association of NDTs with dependent variable debt ratio is that in Pakistan, tax rate does not fluctuate with the income level; there is a constant rate of tax in Pakistan. Therefore companies do not used non-debt tax shield (depreciation) as a substitute to debt ratio to stop net income from going into a next high tax bracket. Our result insignificant association is in favor with the results found by Shah and Khan (2007), Abubakar sayeed (2007), Jasir ilyas (2008) and Fitim Deari and Media Deari (2009).

#### 6.4.6 Growth

The growth and dependent variable were significantly positively correlated as for as banking as well as insurance sector is concerned. Thus our result support the POT presented by Myer and Majluf (1984) which predicts that growth variable and debt ratio are positively related, and the reason is that debt has no asymmetric problems therefore when outside funds are needed firms will go for debt against equity, because for a growing firm their internal funds might not be sufficient to meet their requirements, therefore they will require more funds to spend on research and development in order to expand their business and finance their positive investment projects Shah and Hijazi (2004), Cai et al. (2008), Körner (2007) and Joy pathak (2010) also find similar results.

## 7. Conclusion

The purpose of this paper was to study the characteristics of firms that affect capital structure in the banking and insurance sectors listed in the "Karachi Stock Exchange", of Pakistan for the eight year period from 2002–2009 in light of POT, trade-off theory and theory of agency cost. We have found that both the POT and Trade-off

theory are pertinent theories to the companies' capital structure in the two sectors, whereas there was little evidence to support the Agency cost theory. The sample consists of 22 banks and 24 insurance companies listed in the, "Karachi Stock Exchange", during 2002-2009. The research was conducted using secondary data sourced from the company's annual reports and Karachi Stock Exchange. The variable debt ratio (leverage) was the dependent variable. While the explanatory variables were size, growth, liquidity, profitability, non-debt tax shield and tangibility of assets. We have used panel least square regression to determine the affect of firm level characteristics on capital structure. The variables profitability and liquidity were found to have negative impact on debt ratio, while size and growth were positively correlated. Whereas, tangibility has direct positive correlation with leverage in insurance sector but negative in banking sector.

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*Econ. Financ. Adm. Sci.* ISSN 1450-2275 Issue 24.

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Table1: Eight-year summary of Descriptive statistics

	DR	PROF	TANG	GROWTH	NDTS	LIQ	SIZE
<b>Entire sample</b>							
Mean	0.6817	0.0626	0.1395	0.3526	0.0299	1.0530	8.8599
Median	0.6854	0.0308	0.0455	0.2142	0.0111	1.0339	8.9700
Std. Dev	0.2176	0.1155	0.2201	0.7944	0.0486	0.3119	2.7139
Min	0.0361	-0.7994	0.0013	-0.5386	0.0011	0.4526	3.36
Max	1.1619	0.7075	1.0007	11.730	0.2522	3.2867	13.76
<b>Banking sector</b>							
Mean	0.8578	0.0557	0.0675	0.3717	0.0118	1.4414	11.2083
Median	0.8965	0.0202	0.0277	0.1816	0.0073	1.0533	11.2600
Std. Dev	0.1020	0.0546	0.1054	1.0670	0.0132	0.2431	1.46340
Min	0.5463	-0.1037	0.0041	-0.2088	0.0011	0.4621	6.56000
Max	1.1619	0.3270	0.5448	11.730	0.0945	2.5900	13.7600
<b>Insurance sector</b>							
Mean	0.5202	0.0965	0.2390	0.2060	0.0465	1.2356	6.7072
Median	0.5426	0.0726	0.0933	0.2494	0.0200	1.0131	6.5500
Std. Dev	0.1632	0.1431	0.2716	0.4115	0.0617	0.3621	1.5653
Min	0.0361	-0.799	0.0013	-0.538	0.0013	0.4526	3.36
Max	0.8315	0.7075	1.0007	2.5156	0.2522	3.2867	10.29

Table 2: Correlation Matrix

Variables	Profitability	Tangibility	Growth	NDTS	Liquidity	Size
Profitability	1					
Tangibility	0.001	1				
Growth	0.110*	-0.035	1			
NDTS	0.034	0.318**	-0.024	1		
Liquidity	0.009	-0.162**	-0.047	-0.078	1	
Size	-0.170**	-0.407**	0.009**	-0.369**	0.066	1

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

Table 3: The Results of Panal Least Square Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Intercept	0.533865	0.034652	15.40667*	0.0000
Profitability	-0.192536	0.078072	-2.466138**	0.0142
Tangibility	-0.282973	0.074730	-3.786625*	0.0002
Liquidity	-0.061605	0.018023	-3.418113*	0.0007
Size	0.036130	0.002650	9.026582*	0.0000
Growth	1.790712	0.364237	4.916338*	0.0000
Non-debt tax shield	0.002524	0.006963	0.362522	0.7172
DUM	0.159519	0.063119	2.527265**	0.0120
Profitability*DUM	-0.206802	0.068689	-3.010703*	0.0028
Tangibility*DUM	0.335362	0.084648	3.961832*	0.0001
Liquidity*DUM	-0.134696	0.039885	-3.377123*	0.0008
Size*DUM	0.023919	0.007414	4.873181*	0.0000
Growth*DUM	-1.640139	0.395782	-4.144042*	0.0000
Non-debt tax shield*DUM	-0.038493	0.031246	-1.231930	0.2189
R-squared	0.679227	Mean dependent var		0.690390
Adjusted R-squared	0.665688	S.D. dependent var		0.215861
S.E. of regression	0.124810	Akaike info criterion		-1.281542
Sum squared resid	4.797886	Schwarz criterion		-1.117432
Log likelihood	220.3283	F-statistic		50.16780
Durbin-Watson stat	0.631780	Prob (F-statistic)		0.000000

\*significant at 1% level, \*\*significant at 5% level, \*\*\*significant at 10% level. Dum represents a dummy variable, a value of 0 is given to firm that belongs to banking sector and a value of 1 is given to firm in the insurance sector.

Table 4: Coefficients of the Explanatory Variables for Insurance Companies

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Intercept	0.693384	0.063119	2.527265**	0.0120
Profitability	-0.399338	0.068689	-3.010703*	0.0028
Tangibility	0.052389	0.084648	3.961832*	0.0001
Liquidity	-0.196301	0.039885	-3.377123*	0.0008
Size	0.060049	0.007414	4.873181*	0.0000
Growth	0.150573	0.395782	4.144042*	0.0000
Non-debt tax shield	-0.035969	0.031246	-1.231930	0.2189

\*significant at 1% level, \*\*significant at 5% level, \*\*\*significant at 10% level.

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