

The Impact of Tax Rate and Leverage on the Firms Value in Pakistan

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Abstract:

This paper has empirically explored the impact of tax rate, leverage, profitability and firm size on firm value of non-financial listed companies of Pakistan stock exchange by using data from 2012-2017. All data were collected from the official website of Pakistan stock exchange, State Bank of Pakistan and financial statements of the selected companies in this study. In this study we have used fixed effect model and according to the analyzed results of fixed effect model leverage, return on assets and firm size have positive effect on the firm's value while tax revenue have negative effect on firms value in Pakistan.

Keywords: tax rate, leverage, firm value, Pakistan

1. INTRODUCTION

Leverage is the term used for the use of the debt in the capital mix of the companies and the proportion of the debt of the company to the owner equity of the company (Brigham and Ehrhardt, 2007). Leverage is widely discussed for its relationship with the returns of the investors of the company. The main goal of the financial decision of the organizations is to maximize the firm value of the investors in the company that has been vested by the investors (Sivaprasad and Yaz,

2009). The relevancy of the financial decisions making by the companies are evaluated on the basis of their impacts and their influence on the returns of the investors who have invested their funds in the shares of the companies (Welch, 2004). The returns of the company are widely used as a proxy for measuring the value of the firm (Obreja, 2006). The value of the firm and the returns of the company are highly correlated with each other and the aggregate returns to the investors of the company are what the overall value of the company is created by the firm from its assets. The taxes enhance the value of the company with the increase in the tax shield of the company and consequently increases the returns of the company. Similarly leverage in presence of the corporate taxes have a tax shield effects for the companies which have positive influence over the returns of the firm and will positively be effected by the use of leverage in the capital structure of the company. Previous empirical work on capital structure is mainly focused on examining the factors that have impacts on the returns of the company. Titman and Wessel's (1988) analyzed the determinants of the capital structure and suggested that the liquidity, size and the return of the firm are important determinates of the leverage of the companies and these variables have significant relationship with leverage. Leverage was found irrelevant in the earlier studies and the market value of the company were considered independent of the use of debt or equity for financing their operations and their assets and for the reason the firm value were also consider irrelevant from the use of leverage in the company (Hull, 1999). Philips and Mackay. (2006) used the leverage in correlations with the firm value and suggested that the firm value is concerned with the basic earning power of the assets of the companies and it has no concern with the use of the modes of financing which are used by the companies for financing their different sources of assets of the company. Penman and Richardson (2005) examined that there are many different factors in the financial markets which have influence and impacts over the returns of the company ranging from the simple political and signaling contents to serious important economic and financial context in the economy. Kunt and Maksimovic. (2001) suggest that the increase in the size and the business lines of the firms can also have positive impacts on the return of the firm and the growing firms can increase their return by maximizing their size. The efficiency of the assets of the company

is also considered important factor in comparison to the leverage of the company which have influence over the firm value of the companies. Studies such as (Philips and Mackay, 2006) have analyzed the impacts of return on assets of the company on the returns of the company and have found positive firm value for the companies. In this research we will check leverage and the firm value to analyze their impacts on stock returns. Taxes reduce the net income of the companies and the companies falling under a high tax bracket have a larger portion of their gross profit going to the government, in this regard the taxes of the companies have negative influence on the firm value of the company and will reduce the value of the company.

The Pakistani economy has experiencing although uncertain but still decent growth in the last decade and the stock market has been at the priority list for the investors. The companies in Pakistan Stock Exchange are using the debt in their capital structure in order to increase the return for positive firm value, but the problem needs to be investigated that what are the impacts of leverage on firm value? How does the use of leverage and taxes influence the firm value of the companies? The use of leverage in the financial structure of the company is to be checked for its relevancy with the firm value of the company using the context of the Pakistani stock market. After evaluating the literature, the study came to know that some of the studies have found positive effects on leverage and firm value i.e. Iqbal (2018) and Farooq and Masood (2016) while some of the studies have found negative outcome i.e. Laghari (2017) and Shamim and Awan (2016). The mixed results argued that there is a gap of further research.

The main objective of this paper is to find out the impact of tax rate on firms value of the companies listed on Pakistan stock exchange and further examine the impact of leverage on the firm value of the companies listed on Pakistan stock exchange in Pakistan. The rest of this research paper is structured as follows. Section 2 provides brief literature of previous studies. Section 3 provides data and methodology. Section 4 provides results and discussion, and conclusion in section 5.

2. LITERATURE REVIEW

Earlier many researchers of the world have worked on this topic. However their studies are different from the present study in data, sample, econometrics techniques and geographical location. Literature of the previous studies are as under:-

The primary goal of the corporate is to maximize the wealth of the shareholders. The most vital measure of the wealth of the shareholders is the value of the firm in the market. The valuation of the firms is very important for developing stock prices (Keys and Briggs 1990). Determining a Firm's Value According to Biggs (1978), stock price sometimes, is the sole measure of performance in the model. The value of a firm can be obtained through different measures, each of which is likely to give a value that differs from that obtained by another. The first and most readily available measure of the value of a firm is its accounting net worth or book value. This measure is however problematic, because the accounting rule in a model may be at variance (in divergence) with generally accepted principles of financial accounting. This is because conformance with some generally accepted principles such as historical cost and conservatism, can lead to values that are far from what is reasonable. The second measure is the market value of all its outstanding shares. This is a popular everyday- world method of valuating public corporations. Its application however requires an efficient real market for shares. This condition is not met in models that do not allow participants to trade shares, and even when such trading is allowed, the trades are generally too few and too infrequent for reliable valuation. The third measure is the capitalized value of its projected future performance. Modigliani and Miller (1961) pointed out that although four distinct methods of capitalization can be applied for this purpose, all four give rise to precisely the same valuation when the markets are perfect. People are completely rational, and the future is known with perfect certainty. However, the capitalized value measure has a problem as it requires at least one arbitrary parameter (m), if the Goosen's method is applied. The fourth measure is the deductive application of human judgment. With this method, firms are rated along a psychometric scale. The results are then converted by formula to monetary values. The problem of this measure is that it requires subjective judgment. The fifth measure is the firm's

accounting net worth adjusted for intangible and the idiosyncrasies of accounting rules used in the simulation. Although general principle could be laid out for the adjustment, the specific principle must depend upon the particulars of the model. Though, the adjusted net worth measure avoids both problems; it does not require arbitrary parameter and can be completely objective. Its problem however, is that it requires detailed knowledge of imitation used in any particular model. However, the market value measure of determining firms' value is the most reliable and straightforward way of determining a firm's value, it is also known as market capitalization i.e. total value of all shares outstanding. It should be noted that this method only works for publicly traded companies, where shares value can be easily determined. The market capitalization (market value) of a firm can be determined by multiplying the number of outstanding shares by the current stock price. For example, consider Dynamics enterprises a publicly traded manufacturing company with 5,000,000 shares outstanding. If her shares are currently traded at 50k per share, dynamics' market capitalization is $5,000,000 \times 0.50$; which equals N2, 500,000. The above illustration shows that the major rider of a firm's value using this measure is the stock price. Equity unlike long-term debt includes paid-up capital, share-premium, reserves and surplus or retained earnings. Igben (2004) defines paid-up capital as the portion of called-up capital which has been paid-up by shareholders. He defined reserves as the amount set aside out of profit earned by the company, which are not designed to meet any liability, contingency, commitment or reduction in value of assets known to exist in the balance sheet. Furthermore, reserves may be voluntarily created by directors or statutorily required by law. Share premium is the excess amount derived from the issue of shares at a price that is above its par value. And finally, retained earnings are profit invested back into the business in order to create more resources for operations and invariably increase the value of the firm. From the above explanation, he (Igben) thus, opined that there is no relationship between firm's value and equity. Leland and Toft (1991) states that, the value of a firm is the value of its assets plus the value of tax benefits enjoyed as a result of debt minus the value of bankruptcy cost associated with debt. Modigliani (1980) points out that, the value of the firm is the sum of its debt and equity and this depends only on the income stream generated by its assets. The value of the firm's equity is the

discounted value of its shareholders earnings called net income. That is, the net income divided by the equity capitalization rate or expected rate of return on equity. The net income is obtained by subtracting interest on debt from net operating income. On the other hand, the value of debt is the discounted value of interest on debt. McConnell and Servas (1995) posit that, seeds of under-investment problem lie in the solution of over- investment of U.S firms. They discovered that for firms with high P/E ratios or for high-growth firms, value is negatively related to leverage and those firms with low P/E ratios or for low- growth firms, value is positively related to leverage. Their evidence supports the contentions that for low-growth firms, leverage acts as a monitoring mechanism to enhance firm value. Whereas for high growth firms, leverage cause under investment and destroys the value of the firm. The above empirical studies show that there is a relationship between debt and firms' value. Jensen (1986) suggests that, when firms have more internally generated funds than positive net present value (NPV) projects, debt forces the managers to pay out funds that might otherwise have been invested in negative net present value projects. This over-investment problem can be lessened if managers are forced to pay out excess funds for servicing debt, therefore enhancing the firms' value. Myers (1993) suggests that, a firm with outstanding debt may have the incentive to reject projects that have positive NPV if the benefits from accepting the project accrue to the bondholders without also increasing shareholders wealth. The impact of debt on firm value depends on the balance between the conflict of interest among managers, shareholders, and creditors. When conflicts of interest between managers and shareholders outweigh that between shareholders and creditors, leverage can increase firm value because debt forces the managers to pay out funds that might otherwise have been invested in negative net present value projects. However, when the conflict of interest between shareholders and creditors outweighs that between managers and shareholders, firms with outstanding debt may have more incentives to reject projects that have positive net present value if the benefits from accepting the project accrue to the creditors without also increasing shareholders' wealth. Many empirical studies have investigated the impact of these two agency problems on the leverage-firm value relation, but so far the evidence is not conclusive. Some studies document a lack of relation between leverage and firm

value (e.g. Agrawal and Knoeber (1996), and Dessi and Robertson (2003)). Some other studies find that leverage is value-enhancing for low-growth firms and value-destroying for high-growth firms (e.g. McConnell and Servaes (1995) and De Andres Alonso, Iturriaga, and Sanz (2005)), while others find that the positive relation between leverage and firm value disappears even for low-growth firms when the industry effect is controlled (e.g. Aggarwal and Zhao (2007)). However, evidence in the existing literature is based mostly on single country settings and does not take into consideration international differences in institutional environments. Different institutional settings can change the balance of the agency problem between managers and shareholders versus that between shareholders and creditors. It is possible that the former outweighs the latter in some countries and among certain firms, leading to a positive relation, while the opposite is true among certain firms in other countries, leading to a negative relation. Further, it is easier to empirically measure the agency problem between managers and shareholders than the agency problem between shareholders and creditors. The literature has many ways to measure the former, such as insider share ownership, structure of executive ownership, and corporate governance. In contrast, it has been much more difficult to measure the agency problem between shareholders and creditors. Because of these two difficulties, one conceptual (endogeneity) and the other empirical (difficult to measure), the existing literature has not provided direct evidence that the agency problem between shareholders and creditors is the driving factor behind the negative relation between debt and firm value. We argue that this question can be more effectively addressed in an international context. The balance in the conflict of interest between shareholders and creditors can be affected by each country's legal environment and financial development. In other words, the institutional environment in one country may be able to more efficiently address the agency problem between shareholder and creditors than in another country.

Myers (2001) postulates that debt offers firms a tax shield, and firms therefore pursue higher levels of debt in order to gain the maximum tax benefit and ultimately enhance profitability. However, high levels of debt increase the possibility of bankruptcy. The advantages of this approach include the possibility of deducting interest payments from company tax (Modigliani and Miller, 1963).

Kim (1978), states that the disadvantage of debt is the potential cost of financial distress. Jensen and Meckling (1976) add that an additional disadvantage is the agency costs for equity holders and debt holders. However Nagesh (2002), in his investigation into sixty four JSE listed firms, finds a negative relation between the tax rate variable and the extent of leverage. He also concludes that the trade-off between investment related tax shields and debt-related tax shields is unobserved. Capital structure is influenced by firm management, which has a long term impact on the firm's capital structure. However, management might be tempted to pursue personal incentives instead of maximizing shareholder value (Myers, 2001). Research in this area was initiated by Jensen and Meckling (1976), building on earlier work by Fama and Miller (1972). They identified two types of conflicts: those between shareholders and managers, and those between debt holders and equity holders. They postulate that conflicts between shareholders and managers occur since managers hold less than one hundred percent of the residual claim. Managers do not capture the entire gain from these activities, but they do bear the entire cost of these activities by foregoing expenditures that would benefit them personally, for example. Therefore managers overindulge in personal pursuits at the expense of maximizing the value of the firm. Myers and Majluf (1984) propose that the "pecking order" framework is based on asymmetric information since managers have inside information on the future prospect of the firm and act in the favor of existing shareholders. According to pecking order theory firms prefer internal finance (from retained earnings) to external finance, and when external finance is required, firms prefer debt before equity. Myers (1984) modifies the strict pecking order hypothesis and suggests that firms with many investment opportunities may decide to issue equity before it is absolutely necessary. The outcomes of empirical tests on pecking order theory are mixed. Shyam Sunder, and Myers (1999) find support for the pecking order hypothesis utilizing data from the New York Stock Exchange for various sectors, over the period 1971- 1989. Frank and Goyal (2003) observed little support for pecking order hypothesis also using American publicly traded firms for the period 1971 to 1998, and argued instead that net equity issues are more closely correlated with financing deficit than are net debt issues. The pecking order hypothesis seems to be more applicable to data prior to 1990 than post

1990. Fama and French (2005) examine the financing decisions of many individual firms and observe that these decisions are in conflict with the pecking order hypothesis. They also find that while equity is supposed to be the last financing alternative, most firms issue some sort of equity every year.

1. RESEARCH METHODOLOGY

This paper has empirically explored the impact of tax rate, leverage, profitability and firm size on firm value of non-financial listed companies of Pakistan stock exchange by using data from 2012-2017. All the data were collected from the official website of Pakistan Stock exchange, State Bank of Pakistan and financial statements of the selected companies of the study. In this study we have used fixed effect model and according to the analyzed results of fixed effect model leverage, return on assets and firm size have positive effect on the firm's value while tax revenue have negative effect on firms value selected in this study for analysis. In this study our dependent variable is firm value which was calculated as book value of assets divided by market value of equity of each company selected for the research purpose in this study while independent variables are leverage calculated as total debts of the company divided by total equity, tax rate calculated as tax expenses divided by earning before taxes. Control variable are size and for the calculation of size natural log of all assets of the each company will be taken and return on assets was calculated as net income after taxes divided by total assets. The model used in this study is as under:-

$$FV_{it} = \alpha + \beta_1 TX_{it} + \beta_2 LEV_{it} + \beta_3 ROA_{it} + \beta_4 SZ_{it} + \epsilon$$

In the above model FV_{it} is Firm value for company i at time t , TX_{it} is Tax rate for company i at time t , LG_{it} is Leverage for company i at time t , ROA_{it} is Return on Asset for company i at time t and SZ_{it} is Size of the for company i at time t while β 's Coefficients of respective variables.

3.1 Panel data analysis (Pool data)

Pooled regression type of panel data regression analysis have been used in this paper. The panel data analysis method is applied because it has an advantage over the data analysis with the cross sectional

and time series attributes in terms of the heterogeneity and the heteroscedasticity in the data (Gujrati, 2005). The panel data regression analysis model is applied with robust errors in order to remove the issues from the data and to present unbiased results. According to (Wooldridge, 2004) the panel regression model controls the co linearity in the data.

3.2 Fixed Effect Model

Fixed effect model is used for the analysis of panel data and it is one of the method or technique of the pool regression analysis. The fixed effects model is used for overcoming the biasness which is added by the omitted variables in the panel data. The fixed effect model uses constant slopes with a changing intercept to analyze the relationship.

3.3 Random Effect Model

The random effect model is also applied for analyzing the panel data through the pool regression analysis (Wooldridge, 2004). The random effects model in the pool regression model practices fixed intercept with altering slope coefficients for the variables in the model. The average of the overall intercept of the variables in the model is used as the fixed intercept for the model.

3.4 Haussmann Specification Test

Haussmann specification test is usually applied to select the best and appropriate model among the fixed and the random effects model. When the p value in Haussmann test becomes higher than .05, then we will choose random effect model and if it becomes lower than .05, then we will apply and choose fixed effect model.

2. RESULTS & DISCUSSIONS

4.1 Pooled OLS

<i>FV</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
Const	29.1739	203.098	0.1436	0.88580	
Taxes	3.57773	3.96698	-0.5850	0.49979	
SZ	1.22773	31.5887	0.03923	0.96623	
Lev	0.059088	0.460782	0.1183	0.91376	
ROA	3.47769	0.205743	11.4773	<0.00001	***

Mean dependent var	226.0962		S.D. dependent var	914.6502
Sum squared resid	9.84e+08		S.E. of regression	862.2336

R-squared	0.123117	Adjusted R-squared	0.122440
F(4, 1324)	42.59257	P-value(F)	1.21e-33

Table 4.1 represents the results of fixed pooled OLS model. According to the fixed pooled OLS model results tax rate and leverage on firm value are associated about 12 percent which shows the variables are showing higher level of relationship among the variables. The statistics of table shows about 12 percent variance explained in the firm value due to the leverage and tax rate among the sample firms. The value of F-value in the table has been found more than 4 and argued that the selected model in the present study has been found statistically significant.. The statistics argued that the tax rate will make change about 3.5 units in firm value. The t-value of tax rate can be found less than 2 i.e. 0.58 which concluded that the tax rate has been found insignificant effect on the firm value. The statistics argued that the firm size will make change about 1.22 units in firm value. The t-value of firm size can be found less than 2 i.e. 0.039 which concluded that the firm size has been found insignificant effect on the firm value. The statistics argued that the firm leverage will make change about 0.059 units in firm value. The t-value of firm leverage can be found less than 2 i.e. 0.11 which concluded that the firm leverage has been found insignificant effect on the firm value. The statistics argued that the firm profitability will make change about 3.47 units in firm value. The t-value of firm profitability can be found more than 2 i.e. 11.44 which concluded that the firm profitability has been found significant effect on the firm value.

4.2 Fixed Effect

<i>FV</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	27.5345	201.157	0.1254	0.78873	
Taxes	-2.81863e-05	3.94587e-06	-0.5687	0.458844	
SZ	1.83772	30.52458	0.04587	0.964874	
Lev	0.036888	0.454787	0.15879	0.934587	
ROA	2.475698	0.212548	11.15873	<0.00011	***

R-squared	0.123259	Adjusted R-squared	0.121139
F(6, 1322)	27.42267	P-value(F)	4.23e-32
Log-likelihood	-10755.49	Akaike criterion	224776.97

Table 4.2 represents the results of fixed pooled OLS model. According to the results of fixed effect model the findings argued that the model

can be used in the case when it is important measure the variance explained and involved both independent and dependent variables. The model can be found significant when the variables needs to make sure the correlation or correlation coefficient. The findings of table suggested that listener’s awareness leverage and tax rate on firm value are associated about 12 percent which shows the variables are showing higher level of relationship among the variables. The statistics of table shows about 12 percent variance explained in the firm value due to the leverage and tax rate among the sample firms. The value of F-value in the table has been found more than 4 and argued that the selected model in the present study has been found statistically significant. The statistics argued that the tax rate will make change about 2.8 units in firm value. The t-value of tax rate can be found less than 2 i.e. 0.56 which concluded that the tax rate has been found insignificant effect on the firm value. The statistics argued that the firm size will make change about 1.89 units in firm value. The t-value of firm size can be found less than 2 i.e. 0.045 which concluded that the firm size has been found insignificant effect on the firm value.

The findings argued that the firm leverage and firm value are positively associated with each other. The statistics argued that the firm leverage will make change about 0.036 units in firm value. The t-value of firm leverage can be found less than 2 i.e. 0.15 which concluded that the firm leverage has been found insignificant effect on the firm value.

The statistics argued that the firm profitability will make change about 2.47 units in firm value. The t-value of firm profitability can be found more than 2 i.e. 11.15 which concluded that the firm profitability has been found significant effect on the firm value.

4.3 Linear Regression (Robust)

<i>FV</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	26.6456	24.3173	1.0957	0.27339	
Taxes	2.80972e-06	4.97367e-07	4.3481	<0.00001	***
SZ	1.85883	3.06475	0.6606	0.56835	
Lev	0.0584176	0.0174405	2.8288	0.00664	***
ROA	2.69634	0.198713	12.0255	<0.00001	***

R-squared	0.124259		Adjusted R-squared	0.120239
F(6, 1322)	28.42267		P-value(F)	4.33e-32

Table 4.3 represents the results of Linear Regression (Robust). According to the Linear Regression Robust the findings argued that the model can be used in the case when it is important measure the variance explained and involved both independent and dependent variables. The statistics of table shows about 12 percent variance explained in the firm value due to the leverage and tax rate among the sample firms. The value of F-value in the table has been found more than 4 and argued that the selected model in the present study has been found statistically significant. The statistics argued that the tax rate will make change about 2.8 percent in firm value. The t-value of tax rate can be found more than 2 i.e. 4.3 which concluded that the tax rate has been found significant effect on the firm value. The statistics argued that the firm size will make change about 1.85 units in firm value. The t-value of firm size can be found less than 2 i.e. 0.66 which concluded that the firm size has been found insignificant effect on the firm value. The statistics argued that the firm leverage will make change about 0.058 units in firm value. The t-value of firm leverage can be found more than 2 i.e. 2.82 which concluded that the firm leverage has been found significant effect on the firm value. The statistics argued that the firm profitability will make change about 2.69 units in firm value. The t-value of firm profitability can be found more than 2 i.e. 12.02 which concluded that the firm profitability has been found significant effect on the firm value.

4.4 Multicollinearity

Variables	VIF
Taxes	1.237
SZ	1.281
Lev	1.110
ROA	1.087

As per the results of the multicollinearity table the values of VIF is less than 10 which shows that there is no multicollinearity issue.

3. CONCLUSION & RECOMMENDATIONS

This paper has empirically explored the impact of tax rate, leverage, profitability and firm size on firm value of non-financial listed companies of Pakistan stock exchange by using data from 2012-2017.

All the data were collected from the official website of Pakistan Stock exchange, State Bank of Pakistan and financial statements of the selected companies of the study. In this study we have used fixed effect model and according to the analyzed results of fixed effect model leverage, return on assets and firm size have positive effect on the firm's value while tax revenue have negative effect on firms value selected in this study for analysis. In this study our dependent variable is firm value which was calculated as book value of assets divided by market value of equity of each company selected for the research purpose in this study while independent variables are leverage calculated as total debts of the company divided by total equity, tax rate calculated as tax expenses divided by earning before taxes. Control variable are size and for the calculation of size natural log of all assets of the each company will be taken and return on assets was calculated as net income after taxes divided by total assets. Leverage is considered to be an important decision on part of the financial management of a company and they are interested in understanding the back logic and the practical evidence behind the relationship. The study focused on investigating the issue for the companies in Pakistani economy. Using the debt to leverage, the returns of the companies has been widely highlighted by the studies but still there is a need to provide practical evidence for the relationship of the leverage and the stock returns of the firms. Studies have checked the relationship in different economic and financial structures, however there has not been a visible stream or linkage in these results and every economy has its own interesting insights. The findings are consistent with the study of Penman and Richardson. (2005) examined that there are many different factors in the financial markets which have influence and impacts over the returns of the company ranging from the simple political and signaling contents to serious important economic and financial context in the economy. Titman and Wessel's (1988) analyzed the determinants of the capital structure and suggested that the liquidity, size and the return of the firm are important determinates of the leverage of the companies and these variables have significant relationship with leverage.

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