THE IMPACT OF CAPITAL STRUCTURE ON FIRM VALUE: EVIDENCE FORM PSX

Muhammad Hamza khan   01-221211-022

SUPERVISOR: Dr. MOHSIN RAZA

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IMPACT OF CAPITAL STRUCTURE ON FIRM VALUE: EVIDENCE FROM PAKISTAN STOCK EXCHANGE

Name: Muhammad Hamza Khan　　　　　　　　　**Enrol:** 01-221211-022

Class: MBA (1.5) Finance

Approved by:

Mohsin Raza

_____

Dr. Mohsin Raza

Supervisor

_____

Dr. Rabia Umer

Internal Examiner

_____

Shamsa Khalid

External Examiner

_____

Dr. Syed Haider Ali Shah

Research Coordinator

_____

Dr. Khalil Ullah Mohammad

Head of Department

Business Studies

ABSTRACT

Sixty years ago form today an issue raised, it has been academic issue, which is, the association of firm's value with capital structure of the firm. Even, till now, there is no theoretical framework on capital structure that provides a satisfactory answer to the relationship. The research shows the effect of the capital structure, return on debt and return on equity on the value of the firms of the Pakistan. Another new variable is added in this research to get more feasible relationship is return on debt. The financial data is collected form the Pakistan stock exchange with index 100. The sample size of the data is 50 and the time period is five years 2017 to 2021. Capital structure is a main component in the current study of the research, which directly or indirectly effing the value of the firm. To establish the relationship researcher used Pooled- Ordinary least-squares models, fixed- effect model, and random- effect model are used. The result proclaims that the existence of Modigliani and Miller (1 9 5 8) irrelevance theory specify no effect of leverage on the value of the firm. The generated results from study provide important suggestions to the potential investor to make well- judged investment in these type of firm.

Key word: Capital Structure, Firm's value, return on debt, return on equity.

Contents

PART 1

INTRODUCTION

1.1. Background

The economy is growing very rapidly such that competition in business is also growing. To sustain and get more profit in business companies The capital structure is utilized as a generic and basic instrument in decision making to maximization of firm's value and their value. The firm use capital structure to finance its operation and capital investments through various sources of fund such as common stock or equity-financing, short term debt, preferred stock, and long- term debt. Every firm use different ways to utilize capital structure which differs their financial decision. The decision about a capital structure is difficult for managers to minimize the risk toward getting more profit and increase shareholder wealth. Management tries to change the capital structure, so the risk of the company can be affected. To balance the risk and return and maximize the profit of the shareholder optimal capital structure is use.

Firstly, Modigliani and miller demonstrated capital structure with relationship between debt and equity that the company utilize in their operations. Modigliani and miller introduced the theory in 1958 is called capital structure about irrelevance principle. On the bases of some assumptions, they argued that investor homogenous expectation, tax free economy perfect capital market and transection cost not play any key role to examine value of the firm. Later on, in 1963, Modigliani and miller modified the previous paper published in 1958 about the impact of capital structure on firm value and under different assumptions. (Modigliani F, 1958). To enhance the optimal capital structure firm requires to subject various number of stocks along with the sum of debt capital as well as equity capital to achieve an accurate combination that give the better results to estimate the value of firm. Furthermore, taking in consideration of cost and benefits company select the estimated amount of debt finance as well as equity finance. Debt financing is profitable for shareholders and its increases the wealth of the shareholders as well as helps in reducing tax. Debt financing can be also threat for shareholder because more debt financing can cause bankruptcy (Miller, 1977). In research study to the Myers and Majluf the pecking order theory determine that internal

financing can be utilized for upcoming projects to maximize the wealth of shareholder, if firm have higher return and profits. Further, when retain earning stop helping, then debt financing will help. The adoption of retain earning occurs and the reason behind the choosing retain earning is that is has no operational cost and interest. For the firm's value, a wide range of research is done for determination of influencing the decisions of capital structure. Equity as well as debt are the basic component in capital structure. By using both component or financing tells the mixed and conflicting results on value of the firm. Margaritis and Psillaki, after getting involved to study the whole scenario and observed data, the firm value is positively impacted by capital structure and firm value can be also enhance by increasing debt (M M D, 2017). Firm's value among its competitors in the market will be better if some portion of debt is increased as well as firm's assets are tangible too (M C, 2018). Debt helps in financial activities and only debt can increase the value of the firm (Jang S, 2018). According to the more researchers Cheng, Chien and Liu leverage also play an important role to make the positive impact of capital structure on firm value (Cheng Y, 2019). Champion (Champion, 2010) supported the Margariti and Psillaki (Margaret, 2020) by revealing that capital structure do positive related to the profitability.

So, finally we get to decision that there many theories and some of them are agreed positively effecting leverage, some are agreed with negatively effecting and some shows no relation between these variables. Basically the aim of the current research study is that to find a significant correlation of the leverage with the value of the firm.

Theoretical Basis

There are some theories which play an important role in last sixty years to contribute in provide meaningful data to the current topic of research study.

1. Agency cost theory:

It is one of the basic theory of investment by shareholder is agency theory formulated by Jensen and Meckling in 1976, that defines, the main focus of the theory is the contract under which an employer hires the labor. The relationship of the agency theory is with the manager, owners and creditors. Manager make decisions, strategies, and manage operation of the firm by funds which are distributed by owner of firm. Manager normally and ideally work for the owner to increase their wealth. Make sure that the

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debt is paid in given period of time. Sometimes manager their power and position for their own perks and benefits then agency problem due to the wrong distribution of the power in organization. Due to the difference of power of managers and ownership of the company, manager know better than others (owner, shareholder or creditor) about the condition of the firm, stock holder and creditor of the firm. this make the shareholder to think more about the management that if they are working for interest of the company or not, and is more adverse and ethically bad situation. The part comes in which the shareholder and the manager have conflict of the interest. That's why they monitor manager and pay cost to monitor managers. Shareholder and owner want to make sure that action and decision made by the managers should be in the interest of the company. So, to minimize the conflict of interest owners and shareholder pay a surveillance cost, bonding cost and losses which is called agency cost (Jensen, 2019).

2. Modigliani and Miller theory:

If we talk about capital structure, then we cannot neglect the efforts of Modigliani and Miller. Both of them worked on cost of capital, corporate finance and the theory of investment. From these three theories they reach to the result that there is no role of the capital structure to influence the value of the firm. But they suggest the perfect capital market in which they neglect the tax, agency cost and other transactions and discrimination, that's how firm value is independent to the capital structure. According to the Modiglani and Miller there are two things on which manager works, 1st is maximize the profit and 2nd is maximize the wealth of the shareholder (Modigliani F, 1958).

3. Trade- Off theory

One of the crucial question and stand from long period of time that what should the ratio of debt in financing the company. In the answer, the tradeoff theory suggests that there is an optimal level of the debt and equity (debt to equity ratio), by firms' trade-off their incentive with cost of debt. While in the traditional trade-off, the best or chief debt is not to pay tax but pay interest instead of tax (Graham, 2001). Graham and Harvey proposed a theory, the tradeoff theory is also lying between leverage and the incentives. Cost of debt, benefits of borrowing and trade- off of the costs during holding firm assets is an optimal debt to equity ratio for a firm. It may maximize efficiently the

value of firm otherwise the firm value may decrease by the debt, if situation gets out of control. So, trade- off theory may be the optimal level of balancing the debt and equity in formal way to get more benefit instead of loss. During the time of trade- off, firm need to adjust the situation to get into the deal with trade- off an adjustment cost rises in the shape of costs.

4. Pecking theory

In 1984, another theory or hypothesis was developed by Stewart and Myers to explore the corporate nature and the financial decision behavior of the corporate structure. The theory state that the major or main focus of the managers should be the that they need to address the highly relevant capital structure to maintain the stable dividend of shareholder and neglect the fluctuation in earnings, stock prices and investment chance. Whereas managers put more stress to get invest by internal financing than external financing. If there is need to get leverage, then manager want to go for the less risky debt instead of high risky debt (Chadha, 2015).

5. Signaling theory

This theory is developed by Spence in 1978. In this theory the researcher elaborates that a specific information about the financial of the company is only known by manager. These signal are used to make investor to invest in the company. As good as the signal the more investor will invest in the firm and it will enhance the investment and reputation of the firm (Spence, 1978.).

6. Market- timing theory

in 2002 Wurglern and Baker argue that market- timing theory can better describes capital structure of the company and that stock price instability has a major impact on capital structure of any firm. rejection is made by the authors that the presence of the perfect capital structure as well as regard capital structure development to be the product of actions that modify capital structure during business appraisal by market value. The two pioneers of the research study in united states, Lewellen and Roden in 1995 practice a study on leverage and profitability. Between 1981 and 1990, their sample includes 48 American enterprises. The writers acknowledged a link between the debt ratio and profitability. The relationship is investigated in numerous nations throughout the world, following Roden and Lewellen (1995). The studies varied in

terms of variables in the study model, research methodology, and research findings, value of the firm had a very relation with capital structure indicated by the following results.

1.2. Problem Statement

Form literature review we have found that as Modigliani and Miller said that their no effect of leverage and equity on the firm value. Form the previous literature, it is revealed that the value of the firm is affected by debt (leverage), so that there is a clear conflict of interest that debt effect the firm value. Probably in Pakistan people don't have that much money to invest in the business and they borrow money from the other people to start business (banks, relatives, family and friends). Therefore, this study is conducted to analyze the effect of debt on firm value in Pakistan.

1.3. Gap

From the literature review of the previous studies it is concluded that most of the studies are conducted with different variables to check the effect of debt on value of the firm, such as profitability, size, return on assets, as well as return on equity but they did not include the return on debt (Amjed, 2011). So, in this study we used the return on debt to check whether the influence of capital structure (leverage) is positive or negative on the value of the firm. Pakistan, here is a very few researches have been done on this topic.

1.4. Research Questions

The below research objectives are inscribing in these questions.
1. To determine that how capital structure influence effect on the value of the firm?
2. How does return on debt effect value of the firm?
3. How return on equity effect value of the firm?

1.5. Objectives

The three main objectives which is use to conduct this study are given below:
1. To measure the effect of the capital structure on the value of the firm.
2. To identify the effect of return on debt on value of the firm.
3. To analyze the effect of return on equity on value of the firm.

1.6. Significance of Study:

Many financial institutions play a key role that provides opportunities for employment by promoting business investment and funding. For better outcomes of the investing in the company which is performing incredibly we need to examine that how company is managing it funding. Such as, debt financing or equity financing may be effective for the profit earned by the company. There may be another financial structure to contribute in the profitability of the company which may affect the value of the company. Although companies are increasing their firm value by some other instruments but debt and equity are the major instruments. Some of the researchers said, there is positive impact of equity and debt on the value of the firm (KB K, 2017) but some said capital structure negatively affect the value of the firm (Nirajini_ A, 2013). There is another issue to resolve by this research that entrepreneur do not have much money to invest in the firm and investor want to expand and make wealth. For instant, they think about debt financing to generate profit and but at the same time they also pay interest on that debt and installment of the debt. The goal of the study is to defining the parameters that effect the value of the firm.

For the student, who will further work on this topic will find good result and implement this in their business. Like, if debt is useful and then they will use debt financing and vice versa.

1.7. Rationale:

Main rationale of the study is owner of the company who want to get more profit and increase his/ her wealth. So that how they think that they can use debt financing to over-come the expense and pay less to management and gain more from the firm and also increase the value of the frim. But in the mean- time what is the value of the firm and why firm uses the debt financing instead of equity financing. If they use debt financing, then what ratio they use to get maximum output. Cause, if debt increase from certain amount or ratio then the company goes for bankruptcy.

1.8. Scope of Study

In this current research study, we discussed the impact of the leverage on the value of

the firm in Pakistan using Pakistan stock exchange index 100. This study is useful for researcher working the leverage and equity as an independent variable. Whereas the value of the firm is taken as a dependent variable. Researcher can add more variable to get better results and can elaborate that which variable is more useful in this study either debt financing is better or equity financing is better.

1.9.   Organization of Study

Basically, the research conducted on the value of the firm contains five main parts (sections) that covers, how equity influence as well as leverage make an impact on the value of the firm in Pakistan.

The overview of the chapters is given below:

The 1st chapter contain the introduction of the research study which further retain background, problem statement, question of research, objectives, significance, scope, and research gap of the current research study. The 2nd chapter is literature review; in which we discuss the relation of the previous studies to the current research study. And, it provides us the important links and points about the problem, gap and variables. After chapter 2, chapter 3 is about the methodology of the current research study. Then 4th chapter come in the line, which provide info about the analysis of data, interpretation, discussion and presentation of the observation under examination. In the last, 5th chapter provide the conclusion of the current research study.

PART 2

LITERATURE REVIEW

2. Review

This previous studies shows the results that here is remarkable positive affect of capital structure on recorded financial value of MFIs (KB K , 2017). In this previous study the conclusion is that it is proved that the relationship of capital structure with profitability and financial value is degraded (Kajirwa, 2017). Mustafa, Zulfiqar and Raheman, done a research 94 companies of Islamabad Stock Exchange (ISE), which was non-financial companies and the time period from 1999 and 2004.

To know that weather is relation between capital structure and firm value or profitability after using financial statement, Pearson's correlation and regression model is need to use (Raheman A, 2007), it proves that capital structure have an impact on firm value.

It is proven that capital structure has a significant relationship with firms value after the study of 400 firms from different 12 sectors which are listed in Tehran Stock Exchange (TSE) (Bagheri, 2020).

Using correlation and multiple regression model Nirajini and Priya (Nirajini A, 2021) finds out that capital structure has a significant relationship with firm value. There are different effects of capital structure on the firm value shown by mixed results. Capital structure have both positive and negative impacts on the firm's value that indicates capital structure is correlated with firm value in both, many researchers revealed these findings. In some case or researches, it is also proven that both capital structure and firm value do not have any relationship. From the data 1998 to 2002 of the firms from Ghana, shows that capital structure has a positive relation with firm value (Abor, 2020). Berger and Patti too revealed that capital structure is positive affecting the firm value (Berger A and Bonaccorsi di Patti, 2019).

Margaritis and Psillaki, after studying the whole scenario and observed data, the firm value is positively impacted by capital structure and firm value can be also enhance by increasing debt. Firm's value among its competitors in the market will be better if some portion of debt is increased as well as firm's assets are tangible too. Debt helps in

financial activities and only debt can increase the value of the firm (Jang , 2018).

According to the more researchers Cheng, Chien and Liu leverage also play an important role to make the positive impact of capital structure on firm value (Cheng, 2019). Champion (Champion, 2019) supported the Margariti and Psillaki by revealing that capital structure do positive related to the profitability.

In Dhaka and Chittagong, research is conducted to find out whether the relationship is positive or not between capital structure and firm value, in that research Chowdhury find out that capital structure has a very strong impact on firm's value and has positive correlation (Chowdhury, 2019). They also concluded that equity and debt of the firm is managed ideally, however, the average weighted cost of capital (WACC) show that it has negative influence on the value of the firm, so firm has to maintain the WACC possibly low. Only a little part of the firm is affected by debt and equity, the most important thing is the resources of the firm.

The research of Shoaib and Siddiqui reveals that the firm follow two thing trade-off of pecking order theory, and also capital structure have great impact on firms' value and also tell that agency theory can used only for external affairs of the firm by managers (Siddiqui, 2020).

In research randomly 235 Malaysian companies were selected to check the relation between capital structure and firm value. The conclusion of the research was that there is positive relation between debt and profitability, firm growth and tangibility (Mustapha, 2020).

The profitability of the firm is associated to capital structure in a positive way, which is, the capital structure is extended or increased then there will reasonably increase in the firm profitability (Aman, 2021).

In the research of Friedl, to choose debt or equity companies use several methods (Friedl, 2021). To get higher firm value, one factor is tax shield of interest payment. Risk is another factor for financial distress which boosts an equality between costs of debt and benefits of financing. The agency problem which arises conflict between manager and shareholder is also factor which influences capital structure. For companies' asymmetric information is also a factor to choose debt or equity financing.

Myers and Majluf demonstrated that pecking order theory suggest for firm to use retain

earnings 1ˢᵗ, utilize debt as a 2ⁿᵈ option, and then finally issue equity capital as a last additional financing requirement (Myers, 1020).

By using data interval from 1995 to 2008, park and jang (Park, 2017) also reveal a significant positive relation of capital structure on firm value. To increase the firm's profitability or reduce the free cash flow, debt can be used efficiently. Form Tokyo Stock Exchange (TSE) 799 manufacturing firms were chosen and examine under two different competitions similar to Cornet and Bertrand competitions, shows that leverage is positively correlated towards market share (Mitani, 2018).

Another research in China on Chinese firms was conducted, which shows that there is negative relation between capital structure and firm value. When leverage in Chinese companies increases then profitability of the firm decreases (Huang, 2016). Another study of leverage and profitability reveal that both of them are inversely correlated (Ghosh, 2017).

The study of the firms in Oman reveal that there is a negative impact of capital structure on firms' value (Rao, 2017). Firms, which are been leveraged more with respect to other firms/competitors or which have disturbed product introduction, will have competitively disadvantages (Chen, 2017).

(Antoniou, The determinants of capital structure: capital market-oriented versus bank-oriented institutions, 2018). According to the forecast model, profit and growth have an impact on shareholder's value. The study also showed that similar results can be obtained when measuring firm's value by using market value equity and Tobin's Q index (Varaiya, 2017).

The financial performance characteristics of real-estate companies that were successful in international integration between 2000 and 2006. Three key factors that determine the enterprise value of real estate companies were examined in this study: profitability, growth, and financial leverage. The research revealed that real estate companies that are successful are more profitable and have a higher market rating than their book value. Profitable businesses are more likely than others to take advantage of positive leverage effects. This can lead to both higher long-term profits and sustainable growth. Financial variables are also important in determining success rate. However, they can vary between countries and regions (Liow, 2019).

The effect of profit and leverage on enterprise values was studied by Chen and Chen (2017). Research shows that firms with high profits have higher enterprise values. Profit has a significant effect on business value. According to the classification theory, highly profitable businesses are less dependent on external funds. Therefore, profit has a negative effect on leverage. But bankruptcy costs rise as financial leverage increases. The companies' value taken for research purpose are negative affected by leverage. Financial leverage is therefore used to study the impact of profit on enterprise value (Chen L. J., 2017).

Hermuningsih (2020) studied how profit, opportunities for growth, and capital structure affect enterprise value. The listed companies in stock exchange of Indonesia is consider, for this study. the number of companies are 150 and the data frame was five years in the range of 2006 to 2010 were studied using structural equation modelling. The findings suggested a positive relationship between profitability, growth prospects, and capital structure, as well as a statistically significant impact on the company's worth (Hermuningsih, 2017). On the other side, according to research findings by Manurung (2018), profitability is positively connected with enterprise value while capital structure is adversely correlated (Manurung, 2017).

Kodongo performed a research study on the connection of capital structure and firm value and revenue of firms that were listed in the in Kenya for the time period 2002 to 2011. The profitability of companies of Kenya has oppositely effect by the capital structure (Kajirwa, 2017).

 A Pakistan researcher studied the relation of profit earned and debt. Data was gathered from Pakistan stock exchange KSE-100 related to the companies of textile sector were chosen from "Pakistan Karachi stock exchange" for the time period of 1999 to 2004. Profitability of the are examined by return on equity and leverage was indicated by loan and STD debt to the TA. The finding of the research study was that profitability was positively effect by short term debt. Short term debt can be used to get more profit in the mean- time. Nevertheless, the researcher finds that the long term debt is not working good for the profitability and significant negatively pushing the profitability. Long-term debt raised expenses; hence, profitability decreased as long-term debt levels climbed. Last but not least, there was no connection between ROE and the proportion

of total debt to total assets (Amjed, 2018).

In 2017, another researcher also performed research on how the financial structure of enterprises in the United Arab Emirates affected their performance. From 1996 to 2000, he gathered information from the financial accounts of publicly traded food corporations. The debt to equity ratio has no effect on the performance of the company, according to empirical findings (Arbabiyan, 2019).

Debt ratios' implications on a company's performance—as determined by its Return on Assets (ROA), Return on Equity (ROE), and Gross Margin—were explored by (Ebaid, 2019).

Between 1997 and 2005, data from Egyptian listed firms were analysed for the study. The short-term debt ratio and the debt ratio, as well as ROA, were shown to have a weakly negative association. However, there was no significant correlation between ROE and GM and the ratios of short-term, long-term, and total debt to total assets. The number of 65 companies that are listed in the Sri Lanka Stock Exchange between 2003 and 2007 were the subject of Prahalathan and Ranjani's (2019) investigation of the effect of the principle of the capital structure choice on corporate performance. The ratios of STD, LTD, TD~TA, and profitability, as measured by RoE and RoA, were not found to be significantly correlated.

Pakistani research tries to investigated the connection between debt and textile company's profit in Pakistan. Using the smallest mean method, the authors chose 17 textile companies at random. Debt was used in calculation using the ratios of total liabilities to total assets, total debt to total assets, and return on equity (ROE). The results showed a substantial positive association between the ratio of short-term debt to total assets and ROE, but not a significant link between the ratio of long-term debt to total assets. Khan (2012) investigated the association between capital structure choices and business performance in Pakistan's engineering sector from 2003 to 2009. Measures of business success include ROA, ROE, Gross Margin (GM), and Tobin's Q. The ratios of STD to TA, LTD to TA, and TD to TA were used to calculate financial leverage.

From 1995 through 2011, Raj and MahfuzahR (2017) took companies from the stock exchange of Malaysia, the number of the companies are 237. The empirical findings of

recorded data shown negative impact of the Return on equity, where the empirical data contain long and short debts. Tobin's Q was favourably associated including all three leverage ratios. Yogan evaluated the link between capital structure and profitability of 11 Kenyan banks during a nine-year period beginning in 2017. In Kenyan banks, ROE would have been the financial ratio expressing profitability, whilst all the ratios mentioned about of debt and asset is used to measure the capital structure.

The research model includes control factors such as firm size and sales growth. The authors employed OLS of regression approaches and found that STD had a positive association to profit of companies, LTD had a negative connection with RoE, overall debt were unimportant. A Vietnam researcher took a data of the stock exchange of Vietnam whereas the number of companies are 236, calculating leverage using the LTD to equity and total liabilities to equity ratios.   The study discovered a negative association between the leverage ratios chosen and business performance. From 2007 to 2011, another research investigated the association different sectors of the Vietnam, the empirical data is taken from the stock exchange of the vietnam (Cheng, 2017).

 Furthermore, the medicines industries, CGI, and other industries, in which the capital structure of the firm and RoE also has positive impact. IT industry is not working efficiently due to the capital structure and RoE. Furthermore, the pharmaceutical and medical industries, consumer goods industries, and public utility industries have a stronger relationship between capital structure and ROE than industrial product sectors; the information technology industry has a weaker relationship than industrial product sectors. The ratios of short-term debt, long-term debt, and total debt to total assets were used to assess financial structure. Firm size, fixed asset to total asset ratio, and corporate income tax rate were all control factors. The authors used FEM, REM, and OLS regression approaches, as well as the Hausman test, to determine the association between capital structure and performance. They discovered a negative relationship between debt (including short-term, long-term, and overall debt) and ROA. In all kinds of capital structure, firm size was statistically connected to ROA. The ratio of fixed assets to total assets and ROA has a negative relationship. Tax rate was only marginally related to ROA (in both the long-term debt and total debt models) but statistically insignificant in the short-term debt model. The research found that the ratios of STD

and TD to seemed to be negatively related to ROE, whereas the long-term debt is insignificant to ROE. Throughout all models of STD, LTD, and TD, firm size was positively connected to ROE. . In the short-term debt model, the ratio of tangible fixed assets was statistically significant and inversely connected to ROE. In all research models, the tax rate proved statistically inconsequential to ROE.

Ramadan and Ramadan (2017) investigated the impact of capital structure on the performance of 72 Amman Stock Exchange businesses between 2005 and 2013. ROA was employed as a measure of profitability, while the ratios of LTD to TA and TD to TA were utilised as indications of capital structure. The authors found that debt ratios were adversely associated to performance using OLS regression. Firms that performed well were less reliant on loans. When corporations favour equity, this conclusion is consistent with the Pecking-order theory.

Logavathani and Lingesiya (2018) evaluated the association between capital structure and performance in ten Sri Lankan commercial banks. a. ROA and ROE were two financial metrics used to assess bank performance. Leverage is represented by the ratios of short-term debt, long-term debt, and total debt to total assets. The authors used the FEM and the REM to analyse data and came to this conclusion. The results of the FEM regression from the ROA model and the REM regression from the ROE model revealed that the ratio of total debt to total assets was closely and negatively related to the ROA and ROE of commercial banks in Sri Lanka. Deposit increase was statistically significant and correlated favourably with ROA and ROE. The size of the bank has no statistically significant link with ROA or ROE.

Hypothesis Development:

A study of Modiglani and Miller suggests that whenever the capital structure is taken to check the influence on firm value in perfect situations, there will be no influence on the value of the firm (Modigliani F, 1958). Most of the research said that firm value is somehow get effected by the leverage and the part of the equity which is used as internal financing (Durand, 1952, January). Some said that the impact which occur due to the capital structure on the value of the firm is negative. The issue is not resolved yet.

Hypothesis 1:

The capital structure (leverage) is significantly and negatively effecting the value of

the firm.

To get a high profit most of the business traded in better price (Allayannis, 2001). And if a business has more profit that more investor wants to invest in the firm. most of the researcher have proved that profitability has an important role in influencing the value of the firm (Mohamad, 2010).

Hypothesis 2:

The return of equity is significantly and positively effecting the value of the firm.

As we are curious about the value of the firm, so it can also be checked by the profitability of the firm which is directly related to the return on equity. As we know that return on equity impose some tax on, so we want to see if there some kind of effect on firm value due to return on equity. As many scholars quoted that there is positive relation which is by nature in between return on equity and firm value.

Hypothesis 3:

The return on debt is significantly and positively effecting the value of the firm.

There are so many researches about the firm value and profitability but return on debt is introduce first time in this research, This research focus on the return on debt, which will directly or indirectly effect the value of the firm.

2.1. Model of research
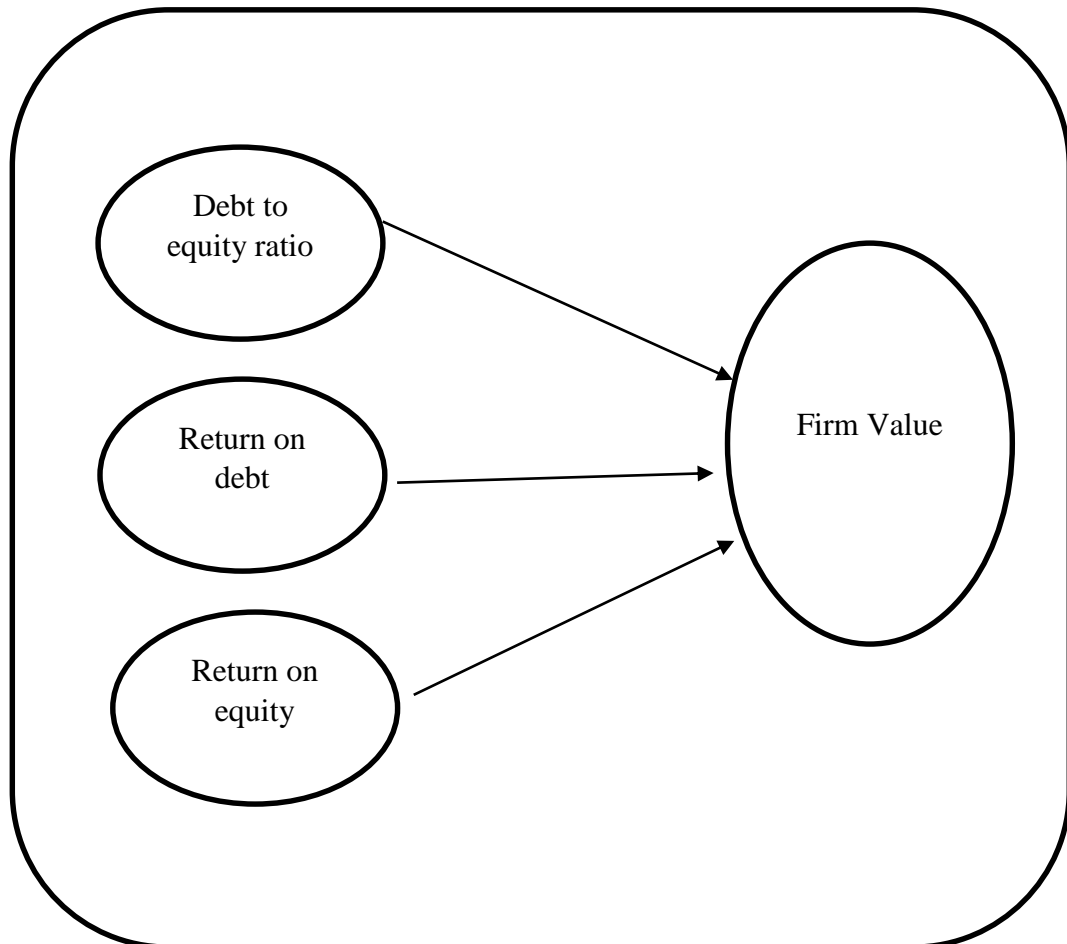
PART 3

METHODOLOGY

3. Methodology

The research methodology provides direction to the researcher along which the researchers are responsible to carry out their target work. This also provides the control along which selected researchers keen to work out on their goals and achieve the finding, then describe the finding of the data collected in the time of the study. This is also used to design the data according to the correct order. Also, illustrates that how desired outcomes can be deriving at the conclusion of the study according to the primary objective of the study. at last, this chapter also guide about the research method employed in the research process. Now this chapter will explain that how capital structure can be linked to the value of the firm.

3.1. Research Design

The main goal of the study is that to define the nature of the capital structure effecting the firm value. it is a causal research study which is use to retrieve the effecting nature of capital structure on the value of the large firm of Pakistan. The data is taken from Pakistan Stock Exchange. In this study the researcher uses causal effect that what are parameter under which capital structure has a relationship with value of the firm. To get the actual result business should be study in natural setting. But most of the studies are done in artificial or laboratory setting. Researcher need to create the cause- and-effect chain, which is natural setting and also known as field experiment. They manipulate the independent variable in their research.

3.2. Research Strategy

The quantitative analysis is used on the secondary data, so it is quantitative research strategy. Quantitative data is taken for the research from Pakistan Stock Exchange. And use this quantitative data mathematically and numerically researcher get findings.

3.3. Time Horizon

The time horizon matters so much in the research study. So, time horizon is taken as

the time limit and then categorized according to the time horizon. Panel data is used as a base of the study, in which each panel contain five years and this is ranging from 2017 to 2021. The panel research is mostly done on the have repetition with specific time period with the same variable. In panel research study the data is taken from different companies or sectors with different time period.

3.4. Research Approach

The study of research endorses the quantitative approach to the acknowledge the impact of capital structure (debt and equity) on the value of the firms based in Pakistan. In quantitative research quantifiable data is use to pass through different computational, mathematical or computational methods. The quantitative research method is specially use for explaining the issues of well specified phenomena.

3.5. Types of the Study

The type of the study is causal study, based on cause and effect of the capital structure (debt and equity) on the value of the firm in Pakistan. Thus, one variable depends on other variables. That if one variable increases the other will also get effected by increase or decrease in its value or figure.

3.6. Choice of Variables

The dependent variable of the research is value of the firm and independent variable of the research study is capital structure. Capital structure is measure by debt to equity ratio.

There are two more variables which are controlling variables. These are as follows:

1. Return on debt
2. Return on equity

3.7. Models

The different types of model are used in this research study to examine the relation between the capital structure and firm value. The tests and detail of the test are given below.

1. Simple descriptive statistic model
2. Correlation matrix

3. Pooled ordinary least square test
4. Breusch- Pagan lagrange multiplier test
5. Fixed effect model test
6. Random effect model test
7. Hausman model test

3.7.1. Simple Descriptive Statistic Model

Simple descriptive statistic model is use to summarize and represent the whole population of the panel data. So, simple descriptive is used to study the basic features of the data which is under process. As our study is based on quantitative approach, so, this model is also use to examine and interpret the quantitative panel data. Mostly data is taken in hundreds and thousands in numbers, simple descriptive data is use to get useful results from the data of population of interest. This model do not give permission to the researcher to pre- assume conclusion about the data of population of interest. Simple descriptive model is use for more advanced and inferential statistical analysis. It contains constructive table of different statistics functions. Such as mean, variance, standard deviation, maximum and minimums, kurtosis, and probabilities. It measures discrimination of the data. Finally, it tells that how much the panel data is normally distributed.

3.7.2. Correlation Matrix

The correlation matrix provides us details about the correlation coefficient of the variable under consideration. It provides all aspect of correlation of pairs of data. This is very powerful analytical tool which gives us the summery of the given panel data. it ranges is about -1 to +1. Most of times, correlation matrix utilizes to understand the correlation of more than two variables.

- -1 indicate that the panel data of two variables is perfectly negative correlated with each other.
- 0 indicate that the panel data of two variables are not correlated with each other.
- +1 indicate that the panel data of two variables are perfect correlated with each other.

3.7.3. Pooled OLSD

Pooled OLS is type of regression in which the cross sectional or time effect is neglected and use to get unbiased and constant results of panel data. Pooled OLS provide the relationship between the one or more than one independent variables and dependent variables. It minimizes the sum of the squares of difference of different type of variables.

3.7.4. Breusch- Pagan LM test

It is use to check the validity of the Pooled OLS. This is the test which indicates whether the variance of the errors received from the regression depends on the figures of the independent variables of panel data of the research study. it provides a statistic which is chi- square distribution also called probability. That is why, the rules of probability are applied here that the value of the probability should be less than 0.05. if it gets above than 0. 05 then the null hypothesis will be reject.

3.7.5. Fixed Effect Model Test

When pooled ordinary least square model become invalid then after Breusch- Pagan LM test fixed effect test is run on the panel data of the research study. In this the values of independent variable keep constant or same and only dependent variable is changes to check the results are feasible or not. It means that it is apply on panel data to manage any specific feature of the variables that does not change across the time.

3.7.6. Random Effect Model Test

It is also run on panel data after un-validity of the pooled OLS. This model is run on the random variable of the panel data. In this test the parameter that are part of the model is put as a form of a random variation. And, it also provides the variation in the variable under observation. One more thing that if same variable is used in random effect model then it will provide correct results. There must be different variables or different values of the variables.

3.7.7. Sampling

The study is suggesting us a dynamic model of link between debt accumulation. Increasing and decreasing effect on the value of firm due to the change in capital structure ratio is examined by extracting panel financial data of 50 good and financially sound companies listed in Pakistan stock exchange index 100. Where, there are 100 total companies registered in Pakistan stock exchange index 100, which are top 100 companies of the Pakistan and we get percent of that is 37 companies listed in Pakistan stock exchange. But we get observation of 50 companies to get better results. These companies are selected from different sectors of the Pakistan stock exchange. These companies are taken on the basis of the Yamane method of sampling size which is formulate in 1967. It provides the sample size by the input of the population in the formula and selecting the error range which is 0.1, 0.05 and 0.01. whereas the formula is given below:

$$Sample\ size\ (n) = \frac{N}{(1 + N(e)^2)}$$

$$Sample\ size\ (n) = \frac{100}{(1 + 100(.1)^2)}$$

$$Sample\ size\ (n) = 50$$

1. N represent the population
2. n represent the sample size
3. e represents the coefficient of error

3.9. Variable descriptions

Different type of determinants is used in different ways to get suitable results. The financial variables of the present study are used for regression is defined separately below.

1. Dependent variable
   a. Value of the firm: literature which is written by some of the researchers indicates that firm value is influenced by the operation financial profitability and some of the researches that value of the firm is associated with debt and

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equity. But, from other researches it is clear that firm value is linked with value of shares plus book value of liabilities divided by total value of assets.

2. Explanatory variable

   a. Capital structure: Now days capital structure is replaced or proxy of capital structure is firms' debt to equity ratio, explained as the amount of debt which is used for financing its assets, to the shares of shareholder's equity in total assets.

PART 4

FINDINGS AND RESULTS

4.1.   Finding and results:

Panel regression equation is made by dependent variable and independent variable. And specified as follows.

$$Firm\ Value_{it} = a + \beta_1\ (\text{Debt} \sim to \sim \text{Equity ratio}) + \beta_2\ (\text{Return} \sim on \sim equity)$$
$$+\ \beta_3\ (\text{Return} \sim on \sim debt) +\ \mu$$

$$Firm\ Value_{it} = a + \beta_1\ (\text{D} - \text{E Ratio}) + \beta_2\ (\text{ROE}) +\ \beta_3\ (\text{ROD}) +\ \mu$$

Measurement Of Variables Utilized In Model		
VARIABLE	VARIABLES NAME	MEASUREMENT
DTE	DEBT TO EQUITY RATO	$\dfrac{DEBT}{EQUITY}$
ROE	RETURN ON EQUITY	$\dfrac{NET\ INC.}{EQUITY}$
ROD	RETURN ON DEBT	$\dfrac{NET\ INC.}{TOTAL\ DEBT}$

The given equation given above contain different elements. In which 'I' represent cross- section- units, 't' is used for series of time element, and the alphabet 'α' is treated as persistent which represent alphabet 'β' is acting as a coefficient.

In this study of current period, recorded financial data is extracted form 50 companies of Pakistan stock exchange is taken for adopting the panel data analysis. To set up informal or informal relationship of capital structure improvising with the value of the firm, a panel least square regression is run on eviews. Whereas firm value contains value of shares, value of liability and value of total assets. Initially, all the data collected is arranged together in a way to run Panel Ordinary Least Square (pooled OLS) test for the sake of heterogeneity of the companies belonging from different sectors Pakistan stock exchange ignoring the nature of data as a time series. Nevertheless, the 50 companies are not valid for homogeneity assumption. For this reason, another test by

Breusch-Pagan in 1979 introduced called Lagrange Multiplier, is used to check the results of Pooled OLS are valid or not. Another issue arises here that if there is need of Fixed Effect Model or Random Effect Model? When the results of the Breusch-Pagans' LM test reject the hypothesis then random effect model and fixed effect model will be used separately to get feasible solutions. FEM is used for the variability over 50 firms by assuring that firms have intercept value and don't alter over time. Whereas, REM tells us that the 50 firms have same intercept value. At the end, the Hausman Test was finally used to get the result for null hypothesis. Random effect model is adopted as compared to the Fixed effect model. All the results are discussed in this paper.

4.2.   Empirical finding

From the below statistical data. Descriptive statistics it is observed that financial factors are used for the panel data regression test. It expresses the mean around which variables moves, median reveals the repetition, maximum tell the highest value, minimum provide least figure, standard deviation indicate about the error, skewness examine the parabolic movement of data, kurtosis, jarque-bera, probability, and observations. The financial variable does not show any or exhibit normal distribution features. The mean value of the variables is mostly close or equal to zero but in this case the mean value is far away from the zero, the St.D is far apart form one, and skewness is reflected positive and as well as expanded tail is observed form the financial data. And the jarque-bera test in which p-value is less than 0.05 elaborates that variables are distributed along the line normally and didn't accept the null hypothesis. Which means that all the variables are not normally distributed.

Statistical data: Descriptive Statistics test of Panel Data

	VALUE	DTE	ROE	ROD
Mean	0.09571	19.3584	2.474146	15.24373
Median	0.060385	0.33621	1.346459	11.38437
Maximum	0.337136	465.2718	66.97428	142.1738

Minimum	-0.176574	0	0	-11.65643
Std. Dev.	0.091843	61.26642	6.275292	20.45799
Skewness	0.736868	4.946826	7.495174	3.237551
Kurtosis	3.044784	29.43459	67.35473	17.4371
Jarque-Bera	24.94536	8426.468	50644.18	2665.051
Probablity	0.000006	0	0	0
Observation	200	200	200	200

The Pearson's correlations between different variables shown in table 2. The end results provide information about correlation between different variables. The correlation of these variables are below 0 .5. it means that there is no multicollinearity in these variable and if the results of the multicollinearity is not supporting the data then outcome of the tests will not be appropriate.

Statistical data. Correlation metrics

	FIRM VALUE	DTER	ROE	ROD
FIRM VALUE	1.000000			
DTER	-0.232528	1.000000		
ROE	0.033552	-0.116566	1.000000	
ROD	0.545609	5.15E-25	0.012532	1.000000

Pooled OLS Results

The financial data of 50 firms is taken and then the data is undergone from the POLS regression, results of the 50 firms are given below in the statistical data. Well, the finding of the test reveals that the capital structure (measures by DTE) effects firms

value in different manners. And, DTE ratio influence negative impression on the firm value, means it can decrease the firm value. The results of the data taken from Pooled OLS also reveals that retrun on equity has also positive effect on the firm's values. In addition to, the retrun on debt is also effecting positively the value of the firm. All three variable has a minor effect on the value of the firm. the stated figure of the F-statistic is (44.17461) and as well as the value of the probability(F-statistic) is also (0.000) shows that the model is well fitted. Whereas, the figure related to adjusted R- squared is lying the in middle, which is (0.518573) and tell that there is only fifty-one % dissimilarity in the value of the firm which is explained by the model. The conclusion of the overall results indicates that by ignoring the difference of companies and the time, the firm's value in this case is negatively impacted by the degree of the debt and positively affected by the returns of debt and equity. Nevertheless, the homogeneity of the variables is not that much realistic. Hence, Breusch- Pagan LM model test is need to conduct on the data to the check whether the result of the Pooled OLS are valid or not.

Statistical data. P-OLS Results

Dependent~Variable. FV				
WAY: Pooled OLS				
Variable	Co~efficient	StD~Error	T~Statistic	Prob.
C	0.515325	0.056496	8.071345	0.000
DTE	-0.000284	9.81E-06	-3.191923	0.0287
ROE	0.002173	0.000215	12.542213	0.000
ROD	1.67E-08	8.13E-09	2.212354	0.0271
R~Squared	0.521367	F~Statistic		44.17461
Adjusted R~Squared	0.518573	Prob.(F~Statistic)		0.00

BP-LM Test

By running the Breusch- Pagan LM test on the data the following results are withdrawn

given in the table. In the findings of the Breusch- Pagan test, it is clear that there are powerful indication of one- sided (CSRF), which has LM-statistics figure (462.4837) and the probability of the test is (0.000). So, the values of LM statistic and probability are significant. Nevertheless, 1 sided period (TSR) effect does not established. Hence, the no panel effect is rejected, which is null hypothesis. It indicates that there is no validity of the Pooled OLS. That's why, REM and FEM is applied on the empirical data to check if it is significant or not.

Statistical data. BP~LM Test

BP (LM) test for paneled data			
Null (no RM)	Cross~section	Period	Both
Alternatives	One~sided	One~sided	
BP Value	462.4837	3.764853	454.3160
Prob.	(0.0000)	(0.0969)	(0.0000)

Fixed Effect Model Test:

After Breusch- Pagan LM test results, FEM is run upon recorded financial data of 50 firms of Pakistan stock exchange. The results of the FEM test are shown in the statistical data. DTE ratio has a plus sign value of coefficient and t- statistic which are (1.53E- 06) and (0.239449). which show that there is positive insignificant coefficient related the DTE ratio. In other words, capital structure does not have any correlation with the variable under observation, which is the Firm's value. Same effect in the result are for the return on debt because the it has also smaller t-statistic figure. While RoE has a big positive effect on the value of the firm because the t- statistic value is greater than 2 that mean it is significant and reliable, but the coefficient is very low that is the indicator of small influence of return on equity on the value of the firm. Whereas the F- statistic figure (58.28611) and the probability of the F- test is (0.000), it shows that the model is appropriate and Panel data of Pakistan stock exchange. The adjusted R-squared tells us that how much the variable is explained. So, the value of the R- square is (0.84222) which is significant and propose the model find eighty-four % of the dissimilarity in the value of the firm.

Statistical data. FE- MR

Dependent~Variable. FIRM VALUE				
Way : Paneled OLS (CSFE)				
Variable	Co~efficient	Std~Error	T~Statistic	Prob.
C	0.475436	0.084671	5.157533	0.000
DTE	1.84E-06	6.39E-06	0.2348759	0.8230
ROE	0.002014	0.000301	6.6837463	0.0000
ROD	8.11E-09	1.71E-08	0.426486	0.6742
R- squared	0.851274	F-Statistic		58.28611
Adjusted r- square	0.842220	Prob.(F-Statistic)		0.00

Random Effect Model

After Breusch- Pagan model test fixed effect test is done but the problem is, fixed test failed to provide the acceptable results. REM test is also necessary to the validity of the data. so in statistical data results of cross sectional REM test is also show. This test also revealed that the debt to equity ratio is also has positive and insignificant coefficient, indicating that the capital structure is not effecting the firm value. The value of the (3.09- 06) and the value t- statistic is (0.050243). While in the simple regression leverage is indicating that it has negatively reducing effect on the firm value. Whereas, the figure of return on equity is (7.653) reveals that the RoE is much effective the other elements (variable) and positively influence the effect to induct value to the firm. And, also the return on debt have negative and insignificant impact on the value of the firm. On other side the value of the adjusted R- square is 0.259234 examine that there is only twenty- five per cent of the variance is demonstrate by the model. The figure of the F-statistic is reported in the table is 15.75325 and prob. F- statistic is 0.0000 indicates that the Random Effect Model is well fitted to the data.

Statistical data. REM Results

DEPENDENT VARIABEL- FIRM VALUE				
WAY: Paneled EGLS (CSRF)				
Variables	Co-efficient	Std~Error	T~Statistic	Prob.
C	0.048464	0.074255	7.313196	0.000
DERATIO	3.09E-06	7.19E-06	0.050532	0.8000
ROE	0.002041	0.000272	7.653456	0.0000
ROD	1.29E-08	1.28E-08	0.956461	0.3643
r-squared	0.274563	F-Statistic		15.7532
Adjusted r-squared	0.259234	Prob.(F-Statistic)		0.00

Final and the last test is Hausman Test, which is use to check that the model which is more accurate and proper model for paneled financial data examination. The Hausman test also check the null hypothesis whether is rejected or not and the contradiction of the 'REM' and 'FEM'. Statistical data 7 shows all the results of the Hausman test. The results show that REM shows more appropriateness than fixed- effect model. Cause the Chi- Square Statistic is (2.96439) is insignificant and the value of prob. Is 0.7543 which is more than 0.05. So, the most appropriate and accurate for the paneled financial data under observation is REM.

Statistical data 7. Hausman model Test Result

Correlation random effect- hausman model test			
Equation: Untitled			
cross- section random effects model			
Test Summary	CHI. SQ Stistic	CHI- SQU. D.F	PROB.
Cross- section random-effect	3.196439	6.5	0.7543

From the results of above and given empirical data, it is admitted that Modiglani and Miller in 1958 was right about the irrelevance hypothesis and the results approximately match the results of the Modigliani and Miller. The value of the firm does not lie on the capital structure of the firm. Whereas, the return on debt negative effect on the value

of the firm. While return on equity has a positive impact on the value of the firm. It means that by increase in the return on equity there is increase in the value of the firm. There some more to add in this which may affect the value of the firm positively or negatively.

4.3.   Discussion

In most of the previous research studies, firm value is somehow effected positively or negatively. Some for the researcher like Modiglani and Miller under a perfect condition the value of the firm do not get effected by the capital structure. The ratios of short-term debt, long-term debt, total debt to total assets, and profitability, as measured by ROE and ROA, were used as some independent variables in previous researches. The ratios of short-term debt, long-term debt, total debt to total assets, and profitability, as measured by ROE and ROA, were not found to be significantly correlated. They also concluded that equity and debt of the firm is govern ideally, however, the average weighted cost of capital (WACC) reveals that it has negative influence on the value of the firm, so firm has to maintain the WACC possibly low.

In the ongoing study of research, it is clear that leverage do not make an impact on the value of the firm. It may cause the increase in the interest because every debt has a fixed interest to pay specific entity. Firm value is main concern of the shareholders and manager are utilized to increase the value of the firm in different ways. Whereas equity is more reliable to increase the value of the firm, that's why manger want to use the equity financing instead of the debt financing. while other researches or studies indicates that capital structure (leverage) is use as a role model in increasing the value of the firm (Chen L. J., 2017). The debt financing caused fundamental decrease in the value of share or shares, due the different portion of debt in the finance. In financial terms, shares are subject to put in risk cause by leverage. Growth factor is also a variable which is used in previous research studies and tested by different statistical tools whether the relation of growth efficiently positive impact on the value of the firm. But it also has a negative approach toward the value of the firm.

As per this research, one new variable is introduced that is profit earn by debt. To check whether it have positive effect or negative it is also pass through different models. The results of the statistical tools indicate that this variable is not related the value of the

firm. The reason of not supporting the dependent variable, is earning from the debt is pay back to creditor (debtee) along with the interest in installment. That's why the manager doesn't want to get loans or debt for the investment purposes. The current results given above also provide an indicator to manager, to prefer equity financing in the business. Equity financing do not require any installment with interest but there is small deduction of tax form the profit earned. Invest attract toward the firms in debt to equity ratio is probably low. It means equity is more important as return on equity.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1. Conclusion

The current statistical data of research elaborate the link that show some relation of positivity or negativity of capital structure with the value of the firm. The size which is taken for the sample is 50 big and sound, financially strong and healthy firms, which are listed on the Pakistan stock exchange consisting previous data of five regular years which starts 2017 to 2021. Pooled OLS, fixed- effect model and random- effect model is used in this study. Where is '' REM'' measure the statistical date more feasibly and extract feasible results from the financial figure of the companies under process of testing and was already tested by Hausman model. Aim of study is that whether firm working on their value are more stable or the the firm which are not working on their value. So, firm whose intimate goal to use debt~to~equity ratio and the return~on~equity is studied in this current research in regard of firm value. There is inconsistency in the conclusion of different researches. As a consequence, there is a need to look over the interplay impact of the ROD, ROE and debt~to~equity ratio to grasp the probable concurrent domination on dependent variable by the independent. The debt to equity ratio as base of capital structure do not affect the value of the firm of Pakistan (Modiglani and Miller, 1958). The above result also reveals that the return on equity influence positive impact on the firm's value. But there is an unpredictable result of this study that return on debt substantial not effecting the value of the firm, which is not used in any previous study. The practitioners get crucial financial insight and policy consequences from the results of the study. The company accounts department should take step to resolve the crucial problem of capital structure of the company. Yet, the results of different tests do not set up a fine solution of the capital structure actions, the value of the firm is however remaining the same, there is no change in it. That mean capital structure does not make any impact on the firm value. The accounts managers should manage and seek the momentum to ensure the consistency in the firms' RoD and RoE to make favorable environment for the firm. Some of the investor may evaluate a company's entire financial condition keeping the

debt and equity aside and not concentrating on its capital structure.

5.2.   Recommendation:

First,

For the investor, it is important to get ride financial data of the firm. The value of the firm only depends on the return on equity for instant in this research. While the firm's profitability which is measure by two different variables are RoE and RoD. So, it is suggestion for the attracted investor to get rid of the return on equity for investing in particular industry.

Second,

The manager of the business, the manage knows everything about the business which they manage to get their salaries. When the liability increase they know better than their owner that the company or firm or industry will suffer or face consequences because the firm value will be decline. So, the managers should get ready for debt situation and need to get minimum debt and to know how feasibly the debt can be utilized.

5.3.   Limitation

First limitation of the study is that this study is limited to the only Pakistani large and sound firms. The research size can be also the another limit to the study because the study is done on the PSE- 100 INDEX.   The 2nd and last but not the least that the research is limited to 5- year financial data. Which is not much to get accurate and complete findings from study of the research.

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