GOVERNMENT DEBT AND CORPORATE LEVERAGE: SECTORAL ANALYSES OF PAKISTAN

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CERTIFICATE

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Declaration

I Sadia Munir Cheema hereby state that my M.PHIL thesis titled "Government Debt And Corporate Leverage: Sectoral Analyses Of Pakistan" is my own work and has not been submitted previously by me for taking any degree from this University, Pakistan Institute of Development Economics,(PIDE) or anywhere else in the country/world.

At any time if my statement is found to be incorrect even after my Graduation the university has the right to withdraw my M.PHIL degree.

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Sadia Munir Cheema

Dedication

My efforts, I dedicate to My Parents

Strong and gentle souls whose affection, love encouragement and prays of day and night make me able to get success and honor.

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Firstly, I'm highly thankful to Allah Almighty, is the only one deserving all praise and glory, He is the one who can set our paths straight, Who provided me the opportunity of doing this research work and also gave me strength to complete this research work within time. Muhammad (P.B.U.H), the last Prophet of Allah Almighty, who urges his followers to "seek knowledge from cradle to grave". He (P.B.U.H) is the one who shows the practical way to the enlightenment and to success in both domains.

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Last but not least, I offer my regards and blessings to all people who supported me during this research work and this study may not be feasible without their handful contribution and support. I would like to thank all those people who helped me in the completion of this study.

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ABSTRACT

This study inspected the influence of government debt on corporate leverage as well as examined effect of government debt on firm's debt ratio of KSE-100 index sectors enlisted in Pakistan stock exchange, incorporated panel data from 2006 to 2018. Private sectors in Pakistan creates additional revenues for public expenditures and play an important role for the significant growth of the country by generating more income, more employment and additional funding for social services. This study has been estimated by using econometric technique fixed effect linear regression model which is suggested by Hausman test. Two variables are used to measure the corporate leverage (Book leverage, market leverage) and one is used to measure debt ratio (debt-to-capital ratio) and six control variables such as, market-to-book ratio, GDP per capita, inflation unemployment rate, tangibility and return on assets are used to see the impact of government debt on corporate leverage and corporate debt. Government debt helps to execute the public expenditures as well as helps to boost productive capacity of investment in a country while Corporate leverage provides funds to firms of private sectors for investment which may help out to generate more revenue for the public needs. It has been observed form empirical results that government debt adversely connected with corporate leverage and it plays a significant role on debt-ratio. While all other control variables have also significant effect on corporate leverage as well as debt-ratio of firms. These findings are the significant implications for the firm's financing decisions. The findings recommend that firms should increase internal funding rather than external for investment as well as government should work cooperatively with the investors and offer good policies and protection which must maximize the investment and innovation space in the market so that more goods produce and the more revenues generate.

JEL Classification: E00, G30, G32

Keywords: Government debt, Book leverage, Market leverage, Debt-to-capital ratio

CHAPTER 1

INTRODUCTION

1.1 Background

The neoclassical loanable funds theory of interest (1930) explained that balancing of investment and savings will be managed by the interest rate mechanism. Theoretically observed that when government enlarges it's borrowing to finance expanded expenditure or cuts taxes, it crowds out private sector investment by higher interest rate. The increment of the government borrowing leads to higher rate of interest by creating a greater demand for money and loanable funds and hence a higher price, the private sectors which are sensitive to interest rate will likely to reduce investment because of lower rate of return which considered as the investment is crowded out. Economists believe that expansionary fiscal policy may crowd out the private investment. Currently, in Pakistan, Inflation touches the double digit figure and debt ratio is also increasing which may cause to increase public spending as compare to the previous years which put upward pressure on interest rate and discourages the private investment and it crowded out (Economics survey of Pakistan, 2019-20)

Increasing in debt levels and government budget deficit attained a lot of attention during the period of financial crises. Incremental of debt level puts a burden on firm's financing choices. Government debt may affect the firm capital structure and crowd out corporate debt. Whenever supply of government debt increase it may cause increase in expected return on bonds and in return the financing cost of securities based on fixed return securities and in response firms reduce its financing choices which cause the decrease in corporate debt and it crowd outs (Demirici et al., 2019).

Global financial report (2019) explained that during the global financial crises world faced a severity of low GDP growth, in return, firms had paid higher interest rate which deteriorated the corporate vulnerabilities and rose the uncertainty of economic activities. Firms faced lower profitability, valuation pressure, hefty debt loads and limitation of market liquidity, in response firms did not able to deleverage itself quickly. The report also describes about the debt burden of corporate debt as increase its burden investors start to hold more risky and illiquid assets and market economies growing their reliance on external borrowing for investment.

Stock markets in a country play a crucial role in providing the entrepreneurs with the diversification of the portfolios and also help in availability of different policy to enter into investment in more profitable firms (Kunt & Maksimovic, 1996). It transmits the information of financing decision of investors and creditors for example, Allen (1993) describe the advantages of the transmission of investment projects through financial institutions and stock markets. As a result, it attributes the issuance of debt and equity for investment and development of stock markets facilitate the issuance of debt and equity which reflect the financing decision of single firm. Investors always prefer those firms in stock market which have higher risk exposure and it help the investors in their financing decision. Investors would be motivated by higher risk disclosure and it also help to improving the trust of investors in return it will increase the profitability and firm's size. Thus, investor would invest in those firms which is highly trusted and having more chances to increase the profitability (Linsly & Shrives, 2006).

Government borrow money from selling bonds and investors would prefer the safest asset to hold in which is less risky regarding their yields. Rise in the government debt is an alarming situation for the economies which cause to put an adverse effect on corporate debt. In response, during that period investors would be attracted to hold cash and short term liquid asset because it

put upward pressure on issuance of corporate bond and its cost increase. Firms did not choose to make long term investments. While decreasing in debt levels than the demand for safest securities increase thus financial institutions would supply short term securities such as treasuries. With the increase in supply of treasuries corporations may reduce long term investments and reduce their debt issuance. In result it put negative impact on corporate leverage and corporate debt crowd outs (Graham et al., 2014).

At the beginning of the 21st century heavy indebtedness situation becomes a big challenge for the developing countries. Pakistan is also facing the challenges by increasing budget deficit and debt levels. Government needs more funding for investment and for fulfillment of the needs for private investment and fiscal deficit government borrowed from schedule banks and it increase up to its alarming level. For the investment higher public spending put increasing pressure on interest which in returns discourage private investment means crowd out private investment (Khan & Gill, 2009).

Government debt also puts burden on corporate leverage[1] (Corporate or Financial leverage describes the share of the capital injected in an enterprise with reference to the amount of the total assets).As increase the budget deficit would cause increase the government debt over time. In FY2008 the budget deficit was 7.3 percent of GDP and it increase up to 8.3 percent of GDP in 2012 and after that it decrease slightly every year and reached 6.5 percent of GDP FY2018.This movement in budget deficit put effect on government debt levels and its trend is according to the movement of the fiscal deficit. The movement of debt ratio with corporate debt is in opposite direction which shows that government debt reduces the debt ratio of firms. The

[1] Corporate or Financial leverage describes the share of the capital injected in an enterprise with reference to the amount of the total assets.

government debt ratio was 65.22 percent of GDP in FY2017 and this ratio slightly decrease by 63.97 percent of GDP whereas, the 6 debt securities of firms issue with the worth of 25.992 billion in FY2017 and increased by 16 debt securities of firms issue with the worth of 277.31 billion in FY2018 (Economics survey of Pakistan, 2017-19).

1.2 Research Gap

Many studies have done panel work with government debt and corporate leverage separately, with different macroeconomic and firm specific variables and many of these used different countries to analyses of the influence of government debt on firm leverage jointly. In Pakistan, Habib et al. (2016) and Rehman (2016) have worked on this area which based on the influence of government debt on firm profitability and impact of macroeconomic variable on capital structure of textile industry, respectively and no one paid their attention on the influence of government debt and corporate leverage in Pakistan. Thus by reviewing the initial studies, it is supposing that there is no study exist in Pakistan to deal with, the effect of government debt on firm leverage and it also urges there is no study who pay any attention to use all sectors of KSE-100 to evaluate the link among government borrowing and firm leverage in Pakistan. Initial studies of developed and developing economies based on, the impact of government borrowing on firm leverage, used different indicators of firm leverage separately, to measure and focus on firm leverage like book leverage, debt/equity ratio, market leverage and debt/capital etc. But there is no study which used three measures of leverage jointly, such as market leverage, book leverage and debt-ratio, to examine the link of government debt and firm leverage. But this study examines and focuses on the sector wise analyses of firms of KSE-100 to evaluate the relation between government borrowing and corporate leverage as well as uses three indicators

of corporate leverage such as market leverage, book leverage and debt-ratio jointly, to analyzed the concerned link.

1.3 Objectives of the study

The following study is specifically designed to see influence of government debt on firm leverage of Pakistan. We can classify the objectives of study as given below:

- To explore the effect of government debt on firm leverage in corporate sectors of Pakistan listed in KSE-100.
- To examine the impact of government borrowing on corporate debt ratio in corporate sectors of Pakistan listed in KSE-100

1.4 Problem Statement

Government borrow money from issuing bonds and other instruments to financial institutions and also borrow money from banks which in returns availability of loanable funds in bank reduce and bank has not enough funds for investment thus it crowd outs private sector credit for investment. Though, the basic motive of firms is to make profit and for this purpose, firms make more investment by using funds either form internal resources or form external resources. But due to the increment of government debt levels, the loanable funds for investment reduce and investors face many problems while making investment decisions because they have not enough resources or funds to make investment thus it puts burden on the investors and the firm's financial performance while making investment choices and affect its capital structure decisions and firm leverage goes down.

1.5 Significance of the study

Role of government debt cannot be denied on the economy. The movement of debt levels either it is upward or downward it effects on the performance of economy and firms financing decisions as well. The firms of all sectors will reap benefit regrading capital structure decision in debt and equity, and it would be helpful to choose government instruments which is the safest, less risky and give higher benefit in form of return. This type of study will provide the evidence for the financial firms to make efficient decisions while making investments financing choices and give suggestions to government referring to the efficient policy making decision at the time of upward and downward movements of debt. Though the firms often use loanable funds for investment to make profit but due to the higher government borrowing, the loanable funds reduce and firms investment goes down and to escape from the crowding out of firm investment the investors would use internal funding for investment. Thus, this type of study would be helpful for investors in a better way of financing decision.

1.6. Composition of the study

This study proceeds with Chapter 2 discussed the Literature Review, Chapter 3 contains Data and Methodology and Chapter 4 is about Empirical Results and Discussion. And finally, the Chapter 5 includes the Policy recommendation and Conclusion.

CHAPTER 2

LITERATURE REVIEW

2.1 Theoretical Review

Government debt negatively impact on firms leverage. Whenever government debt increase it will put on burden on next generation then their flow of income increased in response private capital stock will increase. As increasing in capital stock investment opportunity enhance after which GDP will grow. Bankruptcy cost will decrease, and stock prices increment is accompanied by higher GDP growth. In response firms start to hold more cash and find more funds resources which leads to keep corporate leverage pro-cyclical. Many of studies put attention on relationship between on leverage and debt which is government in different periods of time.

Friedman (1978) illustrated in his theory that when wealth affects portfolio decisions of investors then government debt will change the asset returns in a way which depends upon asset substitutability. McDonald (1983) built the idea based on the theory of miller (1977) that investors are differ in their preference of tax holding status. Investors which pay high tax may not prefer to hold debt but to hold equity because there is difference in personal tax. As supply of taxable bonds increase then it causes to increase the yield on these bonds which may help to compensate the investors who paid high tax. The rise in debt cost after tax may cause to reduce corporate borrowing as increase in government borrowing. Likewise Taggart (1985) did similar investigation on different assumption that investors are differ in risk aversion behavior. His theory pretends that as increase in supply of government borrowing may absorbed by investors those who are less willing to hold this and they forced for the incremental of yields on corporate debt, in response the issuance of corporate debt will decline.

Shuetrim et al. (1993) describe that higher growth rates drag the greater demand for funds which leads firms to adopt sources of external funds in which debt comes first and then external equity. It is anticipated that an incremental of real tangible asset cause by increasing the quality of collateral then it leads to higher leverage.

Elmendorf and Mankiw (1999) and Hubbard (2011) suggested that an upward shift in government debt cause the crowding out impact on private investment by increasing in interest rate. Frank and Goyal (2009) investigated about positive association of inflation and market leverage of firms which is measure through (total debt/ MV of asset) but inflation has significant impact on book leverage of firms which is (total BV of debt / total BV of asset).

Barry et al. (2008) During the phase of higher and increasing interest rate firms are likely to reduce their interest expenditures by substituting equity for debt, which implying a negative link between leverage and interest rates. It documented that as compare to historical rates when rate of interest is low then companies prefer to issue more debt relative to investment expenditures and equity.

Frank et al. (2009) indicate results about firms which compete each other in industries they depict that firms which have higher market/book ratio than others and have lower leverage (total debt/ total asset) than others. Firms with more tangible assets cause more leverage and firms which have higher profits tend to have less firm leverage. By the size of the firms, larger firms which is measured in term of book assets have higher leverage than short firms and when firms expected the higher level of firms then it leads to higher level of leverage that firms have.

Mokhovaa and Zineckera (2013) have depicted that government debt positively influence on capital structure (total debt/total asset) in many of emerging economies and negatively impact in

developed. Inflation put positively impact on capital structure of emerging economies and Germany, and it put negatively impact in two economies like France and Greece. In Germany & France, both short term and long term borrowing of interest rate has strong positively significant impact on firm's capital structure of assets. The GDP growth put weak effect on all proxies which is used for capital structure in all emerging markets but not for Greece. The money supply which is measured by M2 and unemployment rate have negative relationship with long term debt while, it put strong positively but not significant impact on leverage and debt which is short term.

Leary et al. (2014) depicted that increment of government borrowing cause reduction in long term debt which is issued by firms in response liquid asset holdings of firms increase which lead to lower corporate leverage. Herwadkar (2017) state that hen GDP goes on its growing phase then stock prices goes up which leads to decline in bankruptcy cost and increase in taxable income. Corporates also hold more cash. Firms will raise more resources to finance their expansion investment plans during the phase of GDP growth. In this phase corporate collateral follows a pro-cyclical trend and it is higher. If firms start to raise resources through borrowing against collateral, the leverage may adopt pro-cyclical trend.

Sahin (2018) describe positive link between inflation and debt ratio which measure as total debt/ total asset while no significant link exists among GDP rate and debt ratio of country. He found negative association of debt and tangibility which indicates, higher tangibility of firm preferred to borrow less. A negative link was found between market price/book ratio and government debt ratio for, turkey, India and South Africa. He also found positive link between real exchange rate and debt in pre-crises and negative after crises. Negatively impact of firm size on debt imply that firms will borrow less in pre-crises.

In the field of finance there is a significant amount of research is devoted to understanding how firms make their financing decision. Firms always do investment for making profit and for the highly gain, sometimes firms borrow money and sometimes firms prefer equity for investment purposes. Many of the empirical study focuses on firm's capital structure and there are different theories proposed a model which represent the way how firms make their financing decision by using different variables. The following study follows the models, based on these theories mentioned as below:

Myers proposed the pecking order theory in 1984 and he argued that firms which have higher profitability then it is more likely to rely on internal financing rather than external financing. Therefore, it is proposed by pecking order theory that higher profitability firms prefer higher internal financing which leads to less reliance on debt. It is because that internal financing is easier and less costly and external financing is more costly for higher profitable firms. Hence this theory hypothesize the inverse association of leverage and profitability means the more its profit increases and the less it resorts to debt financing. Some other studies are also in favor of this theory for instance, Bastos *et al.* (2009), Dincergok and Yalciner (2011), Bokpin (2009) and Camara (2012) analyzed the negative connection of GDP growth rate and GDP with leverage, which suggested that firms prefer to depend on internal financing resources when they higher profitability; this conclusion is supportive of pecking order theory.

Taggart (1985) asserted that when there is a strong association among market interest rate and expected inflation then expected higher inflation tends to higher debt tax shield effect, and because of this, debt utilization rate tends to increase, which complies with the expectations of the trade-off theory.

This Market Timing Theory (MTT) introduced by Baker and Wurgle in 2002 which suggested that when stock prices are hyped, firms will finance their projects through debts, when firms will be underrated and would be rely on equity for their projects financing. This theory concludes that market/book ratio places negative impact on the firm's market leverage and significant impact on firm's book leverage. The implication is that when firms achieve certain level of earnings growth, the stock price will be overvalued, so it would be the right timing for firms to proceed equity financing. Some other studies are in favor of this argue for instance, Setyawan (2015) and Rajan and Zingales(1995) describe the four control factors used awhile market/ book ratio affect the leverage of the firms which are inflation, profit, tangibility, and sales. Their study presumes the adverse impact of market/book ratio on leverage of firms.

2.2 Empirical Literature

Government is facing difficulties caused by the increasing debt and fiscal deficit. However, the work about relationship of government debt and firm leverage has not done in detail. Many of the studies put their attention on influence of different macroeconomics variables on firm capital structure.

Shuetrim et al. (1993) worked on panel analyses by determine the determinants of corporate leverage between the period 1974-1990 in Australia. After the estimation they revealed that firm size is dominant determinant of leverage which affects significally whereas, real asset prices and consumer price inflation do not have significant effect on firm leverage.

Chen and Zhao (2006) worked on association between market/ book ratio, leverage ratio and growth opportunity by collecting data of 72,082 firms form COMPUSTAT firms sample size with duration of 1971 to 2002 in which they find out that there is a difference study which

predict the negative connection among market/book ratio and firm leverage. But for some firms the relation among market/book ratio and firm leverage can be positive because firms with higher market/ book ratio with more growth opportunity will borrow more because debt is cheaper for them.

Mokhovaa and Zinecke (2014) investigated the link between macroeconomics and firm capital structure of 7 European developed as well as emerging economies in duration between 2009-2011 by applying regression, they conclude that government debt put negative effect on capital structure firms of develop economies and positive in emerging markets. Both short as well as long term interest rate positively impacted on firm capital structure whereas, inflation rate put positively effect in emerging economies and Germany while it has negative effect in France as well as Greece.

Onofreia et al. (2015) found the results on determinant factors of the corporate leverage by analyzing on Iasi country level between 3 years 2008-10. They find out result by taking debt / asset ratio (dependent variable) and profitability, asset tangibility and liquidity of firm, firm size and growth opportunity (independent variables). After applying fixed effect regression model they said all the explanatory variables negatively significant related to leverage.

Khanna et al. (2015) discussed about macroeconomic variables effect on firm financing choices by taking data 1992 to 2013 of Indian firms. After using vector autoregressive approach and vector error correction model they find out that macroeconomic factors like GDP growth, inflation rate and stock market indicator have effect on dependent variables such has book leverage, net equity and retained earing, both in long run and short run. Stock market indicator proxy BSE(Bombay stock exchange) sensitivity index has positive impact on book leverage and

retained earning whereas, it has negative impact on net equity. While GDP growth put negative influence on book leverage & retained earning whereas, it has positive impact on net equity. And inflation proxy Whole sale price index has positive impact on book leverage and net equity and it has negative impact on retained earnings.

Thusyanthi and Yogendrarajah (2016) indicated the results by working on factors affected on firm leverage with 33 sample size of firms of Sri Lanka with duration 2011 to 2015 that tangibility has negative influence on total leverage of firms which is measure total debt of firms divided by to their total assets but it is positively related to long term leverage. Whereas other variables such as profitability affected negatively on both leverage (total leverage and long term leverage), firm's size has negative association with long term leverage and positive association with total leverage ratio whereas growth rate of firms has positive impression on long term debt leverage and negatively impression on total leverage of firms.

Herwadkar (2017) studied in his paper titled as did financial crises change the determinants of corporate leverage in EMEs? He took 10 countries by using period 1996-2014. By partial adjustment model he concluded in his study in post crises large but profitable firms raised more resources through debt because there is more liquidity in post crises. Whereas, global GDP influenced leverage negatively while prolonged low interest rate build up the firm leverage.

Reddy et al. (2017) discussed about determinants of firms capital structure by examined small-medium capitalized firms of European countries. By applying OLS technique they revealed that firm's growth rate and volatility have no significant effect on leverage, while government debt significally associated with market leverage & asset tangibility has positive link to leverage.

Zafar et al. (2019) examined the determinants of leverage decision by taking evidence from Asian emerging countries from 2006 to 2014. After doing the estimation, they showed negative influence of profitability, tangibility and liquidity on leverage whereas, growth opportunity, size of firm and opportunity growth of firms have positive association with leverage. The effect of country specific regressors like GDP growth is negative but effect of inflation and banking industry remains positive.

Jinxiang et al. (2020) worked on the association of government debt and firm leverage of 266 cities in china with the period between 2007-2017.The outcome of this analyses that government debt adversely associate with the leverage of local firms by reducing the short term loan and micro consequences of government debt that it has strong crowding out effect on firm debt of local firms. In the presence of higher government debt, less profitable and public welfare companies crowd their leverage.

2.3 Empirical literature in Pakistan

Mahmud (2003) studied about the association among economic growth of country and firm's capital structure of listed companies by doing analyses from three Asian countries Japan Malaysia as well as Pakistan. He took sample size of 505 firm form Japan, 109 form Malaysia and 104 from Pakistan. By regressing the model of leverage (liabilities/ assets, long term debt/capital ratio and debt/equity ratio) on the independent variables (growth rate in assets, sales, return on assets, total asset and total sales etc) he find out that companies of Pakistan and Japan show the higher leverage ratio than the companies of Malaysia.

Ilyas (2008) did work on capital structure determinants by taking an evidence from 364 non financial 100-index firms of Pakistan from period 2000 to 2005.He examined that Pakistan firms

tends toward equity financing or internal findings rather than debt financing. By using the panel OLS and WLS techniques he finds out results that profitability negatively correlated with firm capital structure (debt to equity ratio) whereas, firms size negatively correlated with debt ratio in OLS regression and has significant impact on debt ratio in WLS regression. Both techniques suggested that firms financial leverage degree, tangibility and taxes are positively related to debt ratio whereas, tax shied of non debt has positive impact on debt ratio in OLS regression and has negative impact in WLS. By using OLS firm's growth has negative impact on debt ratio and in WLS it is positively correlated.

Rehman (2016) worked on influence of macroeconomic variables on choices of capital structure Pakistan's textile industry for the period 2004-13. He concluded by applying panel data fixed effects regression that corporate taxes, stock market development, real interest rate and GDP growth rate positively influenced on the economic measure (ROE/ ROA) whereas public debt and exchange rate negatively associated with economic leverage. Habib et al. (2016) described the result by taking evidence of Pakistan non financial firms to check the impact of government debt on firm profitability. They used asset return to examine profitability (dependent variable) and long term and short term debt ratio and total debt/asset ratio (independent regressors) and also used some controls variable such as size, sales and opportunity in growth. After regressing it, they revealed the negative but significant effect of debt on profitability.

2.4 Conclusion

By analyzing the literature, it is stated that firms financing decisions play an important role to gain profit. Firms make investment through its capital structure, by borrowed money or by equity. Government borrowed money from issuing bonds or other financial instruments to the financial firms for expenditures. Thus, government debt influences the firm financing choices.

The conclusion is ends over here that whenever the supply of government debt increase it reduce the corporate debt ratio, Moreover, government debt negatively affected on firm leverage. From the above studies in literature it is also concluded that none of the them put any attention to see the effect of government debt on firm leverage in Pakistan.

CHAPTER 3

DATA AND METHODOLOGY

This chapter contains the five sections. The section 1 of this chapter specifies the explanation of data and its sources from where data is collected and data sample size. The second part of this chapter describes theoretical economic models and third part expresses the construction and description of the variables used in this study. The fourth part consist of econometrics models used in this study. And the fifth part indicates the estimation methodology and technique used to find out the results.

3.1 Data and Sample

The data used for study is mainly a secondary data. Annual panel data is used to analyses the result of influence of government borrowing on corporate leverage of the firms in Pakistan by taking both macroeconomic and firms level variables. The time span used for this study from 2006 through 2018. In this analysis, the country specific macroeconomic variables such as government debt, Inflation, and GDP per capita, Unemployment whereas, firm specific variables like market leverage, tangibility, book leverage, ROA, Market/book ratio and debt/capital ratio. These variables represent the true picture of the firm leverage. Firms investment depends upon its financing decision for instance, Mayer (1984) argued that firms with higher profit change its decision and prefer internal financing and less likely to rely on debt because external financing is more costly than internal. Whereas, Frank and Goyal (2009) depicted tangibility, profitability, inflation and sales are the important indicators for market/book ratio and it helps to examine the corporate leverage movements and these variables perform a control function in the model of leverage. Agrawal and Matsa (2013) explained that Labor force affect the productivity of firms

which in return affect its financing decision for investment and higher unemployment benefits leads to increase corporate leverage.

By examining the number of observations of firms, KSE-100 enlisted sectors would be analyzed for this study and each sector has its own firms' specific information. The KSE-100 index because KSE 100 has been a leading indicator for the financial and nonfinancial markets and it represents the overall performance of financial and non financial institutions. Total 650 observations of 50 firms have been used for panel data analyses. Ten variables are used to conduct empirical analyses of three models. Three variables are independent variables such as Book Leverage, Debt-to-Capital ratio & Market Leverage whereas, as other seven are dependent variables in which Government debt is the main explanatory variables and Tangibility ,ROA, Market/book ratio, Unemployment rate, GDP and inflation act as controls variables in three models.

Data on Government debt is taken from International Monetary fund and it is in GDP-ratio. The data is taken in debt/GDP Ratio because in many studies the author used the debt/GDP ratio as independent variable in their regression to run out the model especially in Pakistan Burney et al. (1988) used the public debt in debt-GDP ratio as dependent variable to indicate determinants of the government debt problems in Pakistan and it's debt-servicing capacity. Market leverage data is taken from financial statement analyses, published by state bank of Pakistan and it is ratio of MV of firms to their total assets in a country. Book leverage and debt/capital ratio data is also taken from financial statement analyses of PSX enlisted firms and they are the ratio BV of debt of companies to their total assets in a country and total corporate debt of firms to their total corporate capital, respectively. Return on assets data is used for profitability and its data is taken form Financial statements analyses and its unit is percentage. The data of market/book ratio is

taken from annual reports published by state bank of Pakistan and it is in ratio of MV of assets of companies to their book assets. For tangibility company's fixed asset data is also collected form annual reports of firms. On the other side macroeconomic variables data is collected form World development indicator, GDP is measure in GDP per capita, Unemployment rate is taken as percentage of labor force and inflation is measure through Consumer price index.

3.2 Economic Model

Setyawan (2015) argue in the research with reference to Market timing which suggested that when stock prices are hyped, firms will finance their projects through debts, when firms will be underrated and would be rely on equity for their projects financing. This theory concludes that market/book ratio places negative impact on the firm's market leverage and significant impact on firm's book leverage. Market Timing, Theory (MTT) by Baker and Wurgler introduced 2002. The pioneer of this study that at the time higher market to book ratio value, firms choose the equity for capital structure decision. Firms issue equity when the prices of their shares are high and cost of equity is low and purchase back when price of equity is low and cost of equity is high. In Context of Pakistan, the stock markets are not efficient, so they use asymmetric information for capital structure choices. Their decision is also base on this theory. Due to the higher market values firms will raise their funds either by retained earnings (internal equity) or from issuance of shares in stock markets (external equity). On the bases of this theoretical underpinning the analyses models are given below:

$$BL_t = f((M/B)\ ,\ PPE, EAT, TA) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (3a)$$

$$ML_t = f((M/B)\ ,\ PPE, EAT, TA) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (3b)$$

BL= Book Leverage express in difference

ML= Market Leverage express in difference

M/B= Market to Book ratio

PPE= Property, Plant and Equipment (tangibility)

EAT= Earnings after tax (Profitability)

TA= Total assets

3.3 Construction and description of variables

Description, Definition of variables and their units are explained as follows:

Market Leverage

Market leverage is firm specific dependent variable which is defined as firms total book debt in a country to total market value of asset (Welch (2004) and Demirci et al., 2019).

$$ML = \frac{total\ book\ debt\ of\ firm}{total\ market\ value\ of\ asset\ of\ firm}$$

Book Leverage

Another firm specific dependent variable which is explained as firms total book debt in a country to the total BV of assets (Graham & Harvey (2001) and Demirci et al., 2019).

$$BL = \frac{Total\ book\ \ debt\ of\ \ firm}{total\ \ book\ value\ of\ asset\ of\ firm}$$

Debt-to-capital ratio

Dependent variable Debt/capital ratio is defined as, ratio of book debt to total capital of firms which measured through book debt plus book equity (Demirci et al., 2019).It is proposed by Welch (2011).

$$DC = \frac{total\ book\ debt\ of\ firm}{total\ capital\ (book\ debt\ plus\ book\ equity)}$$

Return on Asset

Return on Assets evaluates the profit percentage of a company in assosiation to its resources. It evaluates the profitability of firm. It measures how proficiently company is using its assets to generate profit (Demirci et al., 2019).

$$ROA = \frac{Total\ earning\ of\ firm\ (net\ rofitbefore\ tax)}{Total\ assets\ (\ non\ current + current)}$$

Tangibility

Tangibility defines as ratio among value of PPE (Plant, Property & Equipment) or in other term companies fixed asset to their total asset (Demirci etal., 2019).

$$Tang = \frac{Comapany\ fixed\ assets}{total\ asset\ of\ firm}$$

Market-to-Book ratio

Market-book ratio defines as, ratio between market value of assets of firms to their book value of assets of firms (Demirci etal., 2019).

$$MB = \frac{Market\ value\ of\ assets\ of\ firm}{Book\ value\ of\ assets\ of\ firm}$$

Government debt

Government debt is the main independent variable used for estimated model. Government Gross debt is used for government debt and it is measured in term as percentage of GDP (Government debt-to-GDP ratio) Gross debt includes of all liabilities that payments of interest and/or principal by the debtor to lender at a specific date or dates due in future. This includes debt liabilities in

the form of SDRs, currency and deposits, debt securities, loans, insurance, pensions and other payable accounts. (International Monetary Fund, WEO 2019).

Inflation

Inflation is act as control variable in the model. For measuring the Inflation CPI is uses as its proxy and it is taken in its average term. A consumer price index (CPI) measures changes in the prices of goods and services that households consume. Such changes impact on real purchasing power of consumers' incomes as well as their welfare. when prices of different goods and services do not all change at same rate, a CPI can only affect their average movement (world Economic outlook, IMF,2019).

GDP (per capita)

GDP per capita is another macroeconomic variable used in model and it also act as control variable in the regression model. The unit of GDP per capita is in annual percentage growth and its aggregate is based on constant 2010 U.S. dollar. It is calculated by dividing GDP with midyear populations. Values taken of GDP per capita in constant local currency (world Development indicator,2019).

Unemployment rate

Unemployment measures Labor force people ages of 15 years and older than who supply labor to produce commodities and services durings a given period. It consists of people who are doing work currently and people who are doesn't work but searching for work as well as first time job seekers (WDI, 2019)

3.4 Econometric Models

This study examines the panel analyses[2] for Pakistan by taking data of different firms in different times to regress the model. General form of panel data regression is like this Y

$$Y_{it} = \alpha + \beta X_{it} + \epsilon_{it}$$

Where i=1,2,3……N and t=1,2,3……..T. The error term represents the unobservable factors which influence the dependent variable and are not account in the original model. The properties of error term are same for all models. In presence of following three models the error term represents the omitted variables that are not account in original model, but it would be include in error term. There will be stochasticity in the specification of model but this error term will account it and bring reliability in the model. The other property of error term that it will create linear connection between variables. There is always a measurement error in sample but the error term will help to overcome this in the following models. Hausman test is used to work with panel data which suggested either fixed effect econometric model or random effect econometric model is to be used. Three model is being used where firm's Book leverage & Market leverage is used to examine how government debt affect firm leverage. Whereas, debt/capital ratio is used to see the effect of government borrowing on corporate debt ratio. The study uses the following the model studies of Rehman (2016) and Demirci. et al., (2019). To study the effect of government borrowing on firms leverage models are as follows:

Model # 01

To see the impact of government debt on corporate leverage of firms listed KSE-100. Book leverage is used to measure the corporate leverage. For regressing the influence of government

[2] Includes the all sectors and their respective firms listed in KSE-100

borrowing on firm leverage, below model will give the result of model in which book leverage used as dependent variable. And Book leverage variable is used to see how the government debt affects actual BV of debt to their BV of assets and this is used because it represents the book value of non-financial firms after paying its liabilities and selling all assets to get profit. It expresses what would be the effect of government debt on book value of firms after paying its all liabilities (Demirci et al., 2019).

$$BL_{it} = \alpha_i + \beta_1 DGDP_{1it} + \beta_2\, INF_{2it} + +\beta_3 GDP_{3it} + \beta_4\, UNE_{4it} + \beta_5\, ROA_{5it} + \beta_6\, TAN_{6it} + 7\, MB_{7it} + \mu_{it} \quad (3.1)$$

BL= Book Leverage

DGDP= Debt to GDP ratio

INF= Inflation

ROA= Return on assets

GDP= Gross Domestic Product per capita

UNE= Unemployment

TAN= Tangibility

MB= Market to book ratio

μ = Error term

Model # 02

To see the impact of government debt on corporate debt-ratio of firms listed KSE-100. Debt/capital ratio is used to measure firm's debt ratio. For regressing the influence of government debt on firm debt ratio, below model will give the result of model which used debt-capital leverage as dependent variable. This variable is used because firms finance its capital decision through debt and equity and its represents the financing choices of firms. (Demirci et al., 2019).

$$DC_{it} = \alpha_i + \beta_1 DGDP_{1it} + \beta_2\, INF_{2it} + +\beta_3 GDP_{3it} + \beta_4\, UNE_{4it} + \beta_5\, ROA_{5it} + \beta_6\, TAN_{6it} + 7\, MB_{7it} + \mu_{it} \quad (3.2)$$

DC= Debt to capital ratio

DGDP= Debt to GDP ratio

INF= Inflation

ROA= Return on assets

GDP= Gross Domestic Product per capita

UNE= Unemployment

TAN= Tangibility

MB= Market to book ratio

μ = Error term

Model # 03

To see the impact of government debt on corporate leverage of firms listed KSE-100. Market leverage is used to measure the corporate leverage. For regressing the effect of government debt o firm leverage, below model will give the result of model which used market leverage as dependent variable. Market leverage variable is used because it represents the market value of firms and its assets prices in overall stock market and expresses what would be the effect if nonfinancial firms didn't pay any kind of its liabilities (Demirci et al., 2019).

$$ML_{it} = \alpha_i + \beta_1 DGDP_{1it} + \beta_2\, INF_{2it} + +\beta_3 GDP_{3it} + \beta_4\, UNE_{4it} + \beta_5\, ROA_{5it} + \beta_6\, TAN_{6it} + 7\, MB_{7it} + \mu_{it} \quad (3.3)$$

ML= Market Leverage

DGDP= Debt to GDP ratio

INF= Inflation

ROA= Return on assets

GDP= Gross Domestic Product per capita

UNE= Unemployment

TAN= Tangibility

MB= Market to book ratio

μ = Error term

3.5 Estimation Methodology

Since the following study used panel data, and the one of the advantages of using panel data that it provides individual specific information and more accurate estimates in the models. Panel data is considered as less problematic then other simple methods (Frees, 2004).The literature shows that different techniques Such as Panel OLS, GMM, Vector error correction technique, Panel VAR, Fixed Effect and Random effect etc, have used to run the panel data. The Panel OLS is just a simple regression technique of panel data while GMM method is used when there is endogeneity in the data, On the other hand panel VAR is regress when there is a discussion of lags of dependent variables. Fixed effect and random effect techniques include the discussion of variation of error term with time is non stochastic or stochastic respectively. This study based on to see the effect of government debt on leverage therefore, simple panel regression technique is used for panel data and hauseman test is used to see the best suitable technique used for this study. The panel data model specified above is a econometric regression model consists of firm specific variables effects and country specific variables effects on leverages. The firm specific variables effects account for variables that are time invariant but vary from firm to firm. The country specific effects account for variables that vary from country to country. Estimation of regression model with firm specific variables and country specific variables corrects for the possible omitted variable bias. These effects, firm specific or country specific, it may be fixed or random. In case of fixed effects, the error terms (μi) are assumed as fixed regressors. In case of random effects, the error terms (μi) are assumed to be random regressors.

Assuming that the sample is representative, we use the Hausman's specification test to check whether the panel variables effects are fixed or random (Baltagi, 2008). The Hausman test is used to explain as model misspecification test. For the analyses of panel data, Hausman test used

to help to choose random or fixed effect econometric model. This test null hypothesis describes the prefer model is random effect econometric model and alternative hypothesis that prefer model is fixed effect econometric model. The tests have also look on correlation among regressors & errors term in regression model. Correlation null hypothesis is same that no correlation exists among these two and alternate is opposite. Rehman (2016), Demirci et al. (2019) used fixed effect econometric model to regress the model of the study.

3.5.1 Fixed effect model

Since the data is available for short time period (13th years), it does not represent a random sample over time, thus fixed effect econometric model used for time period as recommended in Baltagi (2008). To estimate the influence of government debt on leverage, fixed effect econometric model technique is approved as estimation technique which is recommended by the Hausman test. The fixed model is a linear model technique with the assumption that the constant to be cross-sectional specific. One of the main advantages of fixed effect econometric model is that it deals with unobserved heterogeneity in the model.

In fixed effect model error term (εit) varies non-stochastically with respect to t or i. making fixed effect model directs towards dummy variable model towards one direction. The fixed effect model of k factors is as follow:

$$y_{it} = \alpha_i + \beta_1 X_{1it} + \beta_2 X_{2it} + \quad \ldots\ldots\ldots\ldots\ldots\ldots + \beta_k X_{kit} + \varepsilon_{it}$$

Individual specific term αi that determines the unique intercept for each individual while the slope of β is same for all individuals (Sheytanova, 2015).

CHAPTER 4

EMPIRICAL RESULTS AND DISCUSSION

This chapter carries out the detail discussion of empirical results of selected sample used in this study. It will review the results for the effect of government debt on corporate leverage and firm's debt-ratio (book leverage, market leverage and debt-to-capital ratio) of kse-100 index companies listed in Pakistan stock exchange. This empirical study is carried out by using fixed effect model for book leverage, debt-to-capital ratio and market leverage. This chapter includes three section to describe the results. The first section is about descriptive statistics of the variables used in this study. The second section presents the correlation estimates of the variables. And the third section discusses the empirical results of regression of government debt on book leverage, market leverage and debt-to-capital ratio separately by using panel liner regression model.

4.1 Descriptive Statistics

The following section consists of descriptive analyses of kse-100 index firms listed in PSX. The table in below identifies the results of summary analyses of each variable used in the study. Results reveal that average value of book leverage of 100 index companies is 51.78 which expresses that arithmetic mean is positive. The standard deviation value of book leverage 23.68 which means that book leverage shows 23.68 deviation from its mean. The Minimum value of book leverage between the companies is 2.37 and maximum value is 171.9. The skewness value is 0.44 which shows positively skewed distribution of book leverage and kurtosis value is 3.59 that shows mesokurtic distribution of the Book leverage.

Results of debt-to-capital indicate that average value is 51.87 which is positive value and deviation in this behavior is 23.08. The minimum value among the companies is 2.37 and maximum value 148.8. The skewness value shows positively skewness distribution and kurtosis value is 2.79 which shows almost mesokurtic distribution of debt/capital ratio.

Arithmetic mean of firm's market leverage is 79.91 which is positive in nature and the value of standard deviation expresses that market leverage deviate 18.11 unit from its mean value. The minimum and maximum value among the companies is 13.23 and 99.56, respectively. And the negative value of skewness shows that distribution of market leverage is negative skewed and kurtosis value is 4.35 which expresses leptokurtic distribution. The results of government debt indicate that on average government debt is 60.94 among the companies and it shows 4.36 deviation from its mean value. 51.95 and 66.88 are the minimum and maximum value of government debt, respectively. The data distribution of government debt is negatively skewed, and 2.36 kurtosis value expresses platykurtic distribution behavior.

The mean value of inflation is 0.08 and it disperse 0.039 unit from its average value. 0.02 and 0.17 are the minimum and maximum values of inflation values among all companies used in this study. And the distribution of inflation is positively skewed and mesokurtic in nature. The GDP mean value is positive number which is 1.93 and deviation behavior of GDP from its mean is 1.48. Result reveals that minimum value is -0.601 and maximum value is 3.77. The negative value of skewness display -0.47 which is negatively skewed distribution and it is platykurtic in nature.

By examining the summary of Unemployment that on average unemployment is 5.80 and deviation behavior of unemployment is 0.32. Minimum value of unemployment is 5.2 and

maximum value is 6.2 among all companies. Unemployment distribution is negatively skewed and platykurtic in nature. The average value of ROA shows a positive which is 11.88 and it deviate from its mean value by 13.24 unit. Return on assets minimum value is -59.24 and maximum value is 58.23 among all companies and it shows positively skewed and leptokurtic distribution in nature. The arithmetic mean value of tangibility 3.197 and dispersion behavior is 13.24. Its maximum value 6.294 and minimum value is -9.421 among all firms and it is also observed that the data distribution of tangibility among all firms is negatively skewed and leptokurtic in nature.

By also examining the result of market/ book ratio it shows that on average market/ book ratio of all companies is 65.04 and deviation behavior of this data is 28.96. The minimum value of market/ book ratio in 13 years is 10.81 and maximum value is 239.24. The skewness value greater than 0 which shows positively skewed distribution and kurtosis value also greater than three which is leptokurtic- distribution in nature.

Table 4.1: Descriptive Statistics

	BL	***DC***	***ML***	***DGDP***	***INF***	***GDP***	***UNE***	***ROA***	***TANG***	***MB***
Mean	51.78	51.871	79.91	60.944	.08	1.93	5.80	11.88	3.197	65.049
Std. Dev	23.68	23.087	18.11	4.361	.039	1.481	.320	13.242	1.516	28.29
Min	2.371	2.371	13.232	51.955	.028	-.601	5.2	-59.24	-9.421	10.81
Max	171.9	148.843	99.569	66.887	.178	3.770	6.2	58.23	6.294	239.24
Skewness	.441	.283	-1.305	-.685	.779	-.474	-.88	.128	-4.34	1.4843
Kurtosis	3.59	2.798	4.359	2.366	3.22	1.89	2.33	6.12	28.25	8.30

4.2 Correlation Matrix

This section represents the empirical results of multicollinearity of the variables. Below the Table 2 identifies whether there exists a linear relationship between regressors or not and

correlation matrix technique is used to detect the multicollinearity. The results of table show that coefficient sign of Market leverage is negative which shows negative linear relationship among Market leverage and government borrowing. There also exists adverse association among firm's book leverage and government borrowing, as government debt goes up then book leverage would be go down. On the other hand, book leverage positively linked with market leverage, debt/capital ratio, market/book ratio as well as with inflation.

The given sign of coefficient of debt/capital ratio is negative with government debt and positive with market leverage which shows the negative linear relationship among government borrowing and debt/capital ratio and shows positive linear relationship of debt/capital ratio with market leverage. Tangibility is negatively correlated with debt/capital ratio, book leverage, government borrowing and market leverage indicating that as tangibility increase then debt/capital ratio, government debt, book leverage and market leverage would decrease. A negative correlation of return on assets is found with government debt as well as with debt/capital ratio, book leverage, market/book ratio and market leverage. Whereas, it is found positive correlation of ROA with inflation, tangibility, unemployment and GDP

The sign of coefficient of market/book ratio is positive with government debt, debt/capital ratio, book leverage and negative with firm's market leverage, tangibility and return on assets which means that as market-to-book ratio increase then government debt, book leverage and debt/ capital ratio would also increase and market leverage, return on assets and tangibility would reduce. Correlation analyses of unemployment shows that unemployment is positively associated with government debt indicating that as unemployment in the country increased then government debt would also increase and vice versa. It also shows the positive association of unemployment with return on assets and market/book ratio. While unemployment has negative connection with

debt/capital ratio, market leverage, tangibility and book leverage. The mentioned sign of coefficient of GDP shows the direct positive association with ROA, government debt, market/book ratio and unemployment and negative association with market leverage, book leverage, tangibility and debt/capital ratio.

Correlation analyses of inflation indicates that there is adverse linear connection of inflation with government borrowing, market/book ratio, GDP and unemployment, on the other side inflation is positively correlated with market leverage, book leverage, debt/capital ratio, tangibility and ROA. It indicates that if there is increment in inflation in a country then government debt, market/book ratio, GDP and unemployment moves in opposite direction whereas, market leverage, book leverage, debt/capital ratio tangibility and ROA moves in the same direction.

Table 4.2: Correlation Matrix

	DGDP	*ML*	*BL*	*DC*	*TANG*	*ROA*	*MB*	*UNE*	*GDP*	*INF*
DGDP	1.000									
ML	-0.138 (0.000)	1.000								
BL	-0.057 (0.145)	0.588 (0.000)	1.000							
DC	-0.055 (0.161)	0.595 (0.000)	0.984 (0.000)	1.000						
TANG	-0.087 (0.026)	-0.026 (0.494)	-0.199 (0.000)	-0.206 (0.000)	1.000					
ROA	-0.107 (0.005)	-0.515 (0.000)	-0.384 (0.000)	-0.391 (0.000)	0.209 (0.000)	1.000				
MB	0.051 (0.186)	-0.039 (0.310)	0.729 (0.000)	0.713 (0.000)	-0.139 (0.000)	-0.054 (0.164)	1.000			
UNE	0.541 (0.000)	-0.097 (0.012)	-0.047 (0.225)	-0.043 (0.272)	-0.067 (0.086)	0.021 (0.591)	0.035 (0.362)	1.000		
GDP	0.248 (0.000)	-0.242 (0.000)	-0.096 (0.014)	-0.087 (0.026)	-0.048 (0.220)	0.036 (0.356)	0.063 (0.103)	0.645 (0.000)	1.000	
INF	-0.449 (0.000)	0.279 (0.000)	0.102 (0.009)	0.101 (0.010)	0.056 (0.153)	0.001 (0.976)	-0.074 (0.056)	-0.455 (0.000)	-0.732 (0.000)	1.000

4.3 Empirical Analyses

The data type used in this study is in panel form and Hausman test is consider best for panel data. Techniques used for empirical results are revealed by Hausman test which indicate after estimating the data that fixed effect econometric model is more preferable or random effect econometric model is more preferable. Table 4.3 presents the values of Hausman panel test.

Table 4.3: Hausman test results

Hausman test	Chi Square	P-value
Book Leverage	15.58	0.0292
Debt to Capital Ratio	26.41	0.0004
Market Leverage	15.27	0.0327

Note: This table shows the outcomes of fixed effects econometric model for all three models

H_0= More appropriate model is Random effect

H_1= More appropriate model is Fixed effect

The probability value of Hausman in above three models is below than 0.05. Therefore, the null hypothesis is rejected and accept the alternative hypothesis of fixed effect. Thus, fixed effect econometric model is best fit for all three models.

4.3.1 Influence of Government borrowing on firm's Book leverage

To examine the influence of government debt on corporate leverage, the book leverage is used to measure the corporate leverage. The empirical results of fixed effect regression model represent the influence of government borrowing on firm's book Leverage by following model:

$$BL_{it} = \alpha_i + \beta_1 DGDP_{1it} + \beta_2\, INF_{2it} + +\beta_3 GDP_{3it} + \beta_4\, UNE_{4it} + \beta_5\, ROA_{5it} + \beta_6\, TAN_{6it} + 7\, MB_{7it} + \mu_{it}$$

It is observed form the results that model is fit because probability value of F-statistics is 0.0000 which is less than 0.05.

The result reveals, government debt p value is smaller than 0.05 which shows significant value. The coefficient sign of Government debt is negative which shows negative connection among government borrowing and firm's Book leverage. The result is consistence with Demirici et al. (2019) and Mokhovaa & Zineckera (2013) in which they depicted that whenever government debt increase it puts burden on the firms activates and firms borrow less to finance its investment activities. The coefficient value expresses that as 1% increment of government borrowing tends to 69% reduction of Book leverage.

The coefficient of Return on assets has negative sign which indicate that ROA has adverse association with book leverage, whereas, the ROA P-value is showing that whenever increase in ROA it puts statistically negative significant influence on dependent variable Book leverage .The result is line with Mayers (1984) pecking order theory in which he describe that firms with higher profitability have internal financing rather than external financing and less likely to rely on debt because internal financing is easier and less costly and external financing is more costly for them. Hence it is hypothesize the inverse association among profitability (ROA is used as proxy for profitability) and leverage means the more its profit increases and the less it resorts to debt financing. The results are also consistence with Frank et al. (2009) which they depicted that firms with higher profitability will borrow less. This negative association tells that as 1% increase in return on asset it would cause 41% decrease in dependent variable.

The result of Tangibility expresses that tangibility places empirically significant influence on firm's Book leverage, While the given sign of tangibility coefficients is negative which shows

the negative relationship with dependent variable. Onofreia et al. (2015) depicted the same negative result. Its value indicates that as 1% increment of tangibility leads to 24% rdeuction in Book leverage & vice versa. The result of Unemployment is that it has positively significant impact on Book leverage of firms. It is directly positive associated with Book leverage with probability value 0.000 which is consider as it has strongly significant impact on dependent variable. Mokhovaa and Zineckera (2013) estimated the same outcome. Its coefficient value describes that because of 1% increment in unemployment it would cause 75% increment in book leverage.

By examining the results of market/book ratio, its probability value expresses strong significant positive impact on dependent variable. Chen and Zhao in 2006 indicated, few firms which have higher market/book will prefer to borrow more for financing. The outcome value is showing that as market/book ratio is increased by 1% it would cause 50% increment in Book leverage of firms.

The GDP coefficient has negative sign which reveals that GDP is negatively related to Book leverage Basso (2009), Dincergok & Yalciner (2011), Khanna et al. (2015), Bokpin (2009) and Camara (2012) maintained result that higher GDP tends to borrow less by firms which means that firms rely on internal financing rather than external funding. Its coefficient value shows that as GDP increased by 1 unit then Book leverage would decrease by 2.10 units. While its p value is also showing significant impact on dependent variable Book leverage. The inflation is showing the positively and significantly connection with Book leverage of firms. Its coefficient value is 29.14 which means that as inflation in increase or decrease by 1 unit then book leverage would increase or decrease by 29.49 units. Mokhovaa & Zinecke (2014) and Khanna et al. (2015)

expressed the same result. It puts almost statistically significant effect on book leverage with P-value 0.06.

Table 4.4: Government debt and Book Leverage

Book Leverage	Coefficients
Government Debt	-0.695 (0.000)
Return on Assets	-0.419 (0.000)
Tangibility	-2.499 (0.004)
Unemployment	7.494 (0.000)
Market/Book ratio	0.508 (0.000)
GDP per Capita	-2.108 (0.000)
Inflation	29.148 (0.065)
Constant	32.218 (0.002)
Prob > F =0.0000 *p-values are in parentheses*	

4.3.2 Influence of Government Borrowing on firm's debt ratio

To examine the influence of government debt on corporate debt/ratio, the debt/ capital ratio is used for firm's debt/ratio. The empirical results of fixed effect regression model represent the impact of government borrowing on firm's debt to capital ratio by following model:

$$DC_{it} = \alpha_i + \beta_1 DGDP_{1it} + \beta_2\, INF_{2it} + +\beta_3 GDP_{3it} + \beta_4\, UNE_{4it} + \beta_5\, ROA_{5it} + \beta_6\, TAN_{6it} + 7\, MB_{7it} + \mu_{it}$$

The empirical analyses of the following model that this model is fit because its F-statistics value has significant value, less than 0.05.

The findings show the negative significant connection between government debt and debt to capital ratio which means, government debt significantly related to debt ratio of firms. Its coefficient value indicates that as government increase by 1 unit then it leads to reduction in debt-to-capital ratio by 0.67 unit. Government debt puts strongly significant effect on dependent variable Mokhovaa & Zineckera (2013) and Demirici et al. (2019) found the same results the highly debt negatively influence on debt ratio and Taggart (1985) explained the crowds out the corporate debt ratio. His theory pretends that as increase in supply of government borrowing may soaked up by investors those who are less likely to take this and they forced for the incremental of yields on corporate debt, in response the issuance of corporate debt will decline.

It is examined by the result of return on assets that it puts adversely significant influence on debt-to-capital ratio. It states that when firms get more return on their assets it chooses less debt to finance their decision. Its value indicates that as firms' assets return increased by 1% than Firm have 43% less chances to choose debt. Zafar et al. (2019) they showed negative influence of profitability on leverage. Firms use internal funding rather than external funding for investment. By examining the outcome of tangibility, it is observed that Tangibility has significant as well as adverse effect on debt to capital, ratio. Onofreia et al. (2015) and Sahin (2018) explained that as company prefer more its own PPE than it put less focus on debt financing. By increasing the 1% of tangibility (company's fixed asset) firms have 37% less chances to choose less debt ratio.

Moving on the unemployment results, it highlights, there is positive significant association among unemployment rate and debt to capital, ratio. It expresses that firms with more

unemployment rate have more chances to lie on debt financing which increasing the debt/capital, ratio. The conclusion is agreed with Mokhovaa & Zineckera (2013) results. Its value expresses that if unemployment rate increase by one unit than debt/capital ratio would increase with 6.62 unit. The p-value describes the strong significance of the positive relationship.

Stepping forward to market/book ratio results which also show the positively significant connection among Market/book ratio and debt/capital ratio. The results reveal that firms with higher market/book ratio has more prefer to debt/capital ratio. Chen and Zhao (2006) indicated that higher market/book ratio for some firms with lower earnings leads to more focus on external funding in result firms rely on debt for investment financing and firms will with higher leverage. The outcomes of GDP reveal that higher the GDP value puts adverse impact on firm's debt/capital ratio. It strongly significant related to Debt to capital ratio. If GDP per capita is higher then firms put less focus on debt financing. The same results are described by some previous studies of Dincergok & Yalciner (2011), Basso (2009) and Bokpin (2009).

The empirical results of inflation focus on positive association with debt-to-capital ratio. It highlights that inflation is directly related to firms Debt/capital ratio with p-value 0.02.Its value states that increasing the value of inflation by one unit, debt/capital ratio would also increase by 36.20 units means that because of the higher inflation in the economy firms will prefer more debt to finance its financing decision (Khanna et al., 2015).

Table 4.5: Government debt and Debt-to-Capital ratio

Debt to Capital ratio	Coefficients
Government Debt	-0.670 (0.000)
Return on Assets	-0.433 (0.000)
Tangibility	-3.760 (0.000)
Unemployment	6.627 (0.000)
Market/Book ratio	0 .439 (0.000)
GDP per Capita	-1.665 (0.000)
Inflation	36.205 (0.020)
Constant	43.081 (0.000)
Prob > F =0.0000 *p-values are in parentheses*	

4.3.3 Influence of Government borrowing on firms Market leverage

To examine the influence of government debt on corporate leverage, market leverage is used for firms leverage. The empirical results of fixed effect regression model represent the impression of government debt on the, Market Leverage of firms by following model:

$$ML_{it} = \alpha_i + \beta_1 DGDP_{1it} + \beta_2\, INF_{2it} + +\beta_3 GDP_{3it} + \beta_4\, UNE_{4it} + \beta_5\, ROA_{5it} + \beta_6\, TAN_{6it} + 7\, MB_{7it} + \mu_{it}$$

It is analyzed that fixed effect econometric model is suited to explore the influence of government borrowing on the market leverage because its probability (F-statistics) is less than 0.05. From analyzing the results, it is estimated that Government debt adversely related market

leverage. It is examined that by increasing the 1% of government debt then market leverage will decrease by 76%. Government debt has strongly significant impact on related dependent variable with 0.000 p-value. The result in line with Reddy et al. (2017) which they suggested that government debt significally related to market leverage. Results pretended the negative significant association between return on assets and market leverage that when firms with higher return on assets have less chances of market leverage. Its coefficient value expresses that as return on assets increase by 1% than market leverage would decrease by 50% with strong significant probability value. Thusyanthi and Yogendrarajah (2016) describe that firms which are highly profitable would be likely to have less debt thus lower leverage firms.

Moving on the results of tangibility it is estimated that tangibility is negatively and significantly associated with market leverage. Firms which have more PPE have 21% less chances to choose Market Leverage to finance to finance its financing decision. Thusyanthi. and Yogendrarajah (2016) indicated that tangibility negatively influence on total leverage. The results of unemployment pretend that higher the unemployment rate in the country then it also causes to increase market leverage of firms. The result is consistent with Mokhovaa and Zineckera (2013) and Frank and Goyal (2009). It is examined that if Unemployment rate is increased by 1 unit then it leads to increment in market leverage by 11.5 units. By seeing the p-value of unemployment it is concluded that unemployment rate has strong significant effect on dependent variable.

Stepping forward to market/book ratio results, it is analyzed by given sign of its coefficient value that higher the market to book ratio leads to lower firm's market leverage. Market/Book ratio puts significant negative affect on dependent variable. The result is same as the result of market timing theory of Baker & Wurgler (2002). When firms are on its peak of profit earnings then

their stock prices will be hyped and companies less rely on its debt financing and more on equity financing which indicates that market/book ratio leads to negative market leverage of firms which is measure as (total debt/MV of asset) and it reduce the corporate debt. By analyzing empirical outcome of GDP, it is observed negatively strong significant connection between GDP & Market Leverage which means, higher the GDP per capita lead to lower the market leverage of firms. Firms will less rely on Market leverage to finance its capital decision. Herwadkar (2017) describe the same result that GDP influenced leverage negatively. The results of variable inflation present that inflation has positive significant connection with market leverage. If there is a higher inflation in the economy, then the market value of assets in economy will increase which directly effect on market leverage of firms and firms choose higher market leverage ratio. The result is same as Frank and Goyal (2009) and Zafar, Wongsurawat and Camino (2019) results that inflation positively influence on leverage.

Table 4.6: Government debt and Market leverage

Market Leverage	Coefficients
Government Debt	-0.769 (0.000)
Return on Assets	-0.502 (0.000)
Tangibility	-2.122 (0.025)
Unemployment	11.501 (0.000)
Market/Book ratio	-0.063 (0.012)
GDP per Capita	-2.701 (0.000)
Inflation	59.396 (0.001)
Constant	77.265 (0.000)
Prob > F =0.0000 *p-values are in parentheses*	

4.4 Key Findings

The empirical results show that government borrowing is significantly negatively associated with leverage of firms, furthermore government debt put negative significant effect on debt-ratio of KSE-100 index firms .Taggart (1985) explained the crowds out the corporate debt-ratio. Other Control variables such as Return on assets, tangibility and GDP have also negative significant association with corporate leverage. As well as these control variables play an important role to analyzed to see significant influence of government borrowing on firm debt-ratio. Role of government debt is significant for corporate leverage. Whenever government debt increased it will put burden on the next generation then the flow of income increases in the economy which effect on the private capital stock. Increment of capital stock leads to increase stock prices which

accompanied with higher GDP growth. In response firms find other resources rather than debt to finance its financing decision. Firms rely on debt and equity to finance its investment decision, whenever the supply government debt increase the investors of firms absorb its availability and the insist to increase the yields on corporate debt. In response the issuance of corporate debt will reduce which means, crowding out of firm debt-ratio.

Market to book ratio is a vital component of firm leverage. When the firms are on its peak of profit earnings then their stock prices will be hyped and corporations less rely on its debt financing and more on equity financing which indicates that market to book, ratio leads to negative market leverage of firms which is measure as (total debt/MV of asset) and corporate debt-ratio. Whereas, higher market to book, ratio for some companies which have lower earnings leads to more focus on external funding in result firms rely on debt for investment financing and firms will with higher leverage (total debt/ total assets).

Result reveal by Return on assets that Whenever the firms is on their higher profitability, they prefer internal financing than external so the debt will be less consider for financing therefore, ROA puts negative impact on leverage. While unemployment and inflation as control variables are positively related to leverage. Concluded the discussion that results provide an evidence that firms enlisted in Pakistan stock exchange rely on debt and equity to finance its investing decision. Government debt play an important role on corporate debt-ratio. When firms have paid all its liabilities and have sold all assets then Government debt has adversely effect on the book value of the firms as well as government debt is also adversely related to firms market value of assets and its share prices in overall stock market when firms didn't pay any kind of their liabilities (Rehman , 2016) & Demirci et al., 2019).

Table 4.7: Consolidated table of explanatory variables

	Book Leverage	Debt-to-Capital ratio	Market Leverage
Government Debt	-0.695 (0.000)	-0.670 (0.000)	-0.769 (0.000)
Return on Assets	-0.419 (0.000)	-0.433 (0.000)	-0.502 (0.000)
Tangibility	-2.499 (0.004)	-3.760 (0.000)	-2.122 (0.025)
Unemployment	7.494 (0.000)	6.627 (0.000)	11.501 (0.000)
Market/Book ratio	0.508 (0.000)	0 .439 (0.000)	-0.063 (0.012)
GDP per Capita	-2.108 (0.000)	-1.665 (0.000)	-2.701 (0.000)
Inflation	29.148 (0.065)	36.205 (0.020)	59.396 (0.001)
Constant	32.218 (0.002)	43.081 (0.000)	77.265 (0.000)
Prob > F =0.0000 *p-values are in parentheses*			

CHAPTER 5

POLICY RECMMENDATION AND CONCLUSION

5.1 Policy Recommendation

Though the basic motive of a company or firm is to earn profit and to satisfy this objective firms borrow money to finance their assets and to make more investment. But some of the macroeconomic factors especially Government debt puts a burden on private sector investment and firms have no more external funds for their productive investment which lead to crowd out the corporate leverage. The crowding out effect can be eradicated either from decreasing government debt or to improve the leverage of firms. The conclusion recommended that firm should focus on the internal funding and swap the debt funds with equity to increase the investment. Firm should issue new or additional shares which increase the cashflow which can be helpful to repay the existing liabilities and after paying the liabilities firms can improve its book leverage as well as debt-ratio which leads to improve corporate leverage. Firm should focus on increasing its sales which in return firms will get more cash and firms used these cash to finance their capital which would be helpful to recover the market leverage of firms. On the other side government should take important step to eliminate crowding out effect of investment. Increasing debt is an alarming situation for the developing countries and Pakistan is also facing this situation. The economic situation of Pakistan is very much unstable and low investment, in result, it causes to reduces economic growth which leads to higher borrowing. Higher borrowing ratio puts a burden on investors by imposing more tax in development activities thus investors will discourage. The government should need to discourage the investment regulations on investors and makes some policies and regulations which must maximize the investment and innovation space in the market so that more goods produce and the more revenues will generate

which would help in reducing the government debt of Pakistan as well as it will improve the investment infrastructure in a country. There is a dire need that investors and firms should free from the regulations and make some worthy decision with the help of internal financing than the external which may cause to improve the book leverage, debt ratio as well as market leverage of firms. The government should work cooperatively with the investors and offer good policies, protection and facility of the credit to finance the investment in firms. In simple words, sustainable growth doesn't come for the large number of projects in the country but if the government should provide good space to the investor to invest.

5.2 Conclusion

Throughout the study core objective was to analyze the influence of government debt on leverage of firms of all sectors from KSE-100 index enlisted in Pakistan stock exchange. Furthermore, to analyzed effect of government debt on corporate debt ratio of 100-index firms. For this purpose, we have employed panel of KSE-100 index firms over the period 2006-2018. Private sectors in Pakistan creates additional revenues for public expenditures and play an important role for the significant growth of the country by generating more income, more employment and additional funding for social services. By using the panel regression, fixed effect regression model for Book leverage, Market leverage as well as Debt to capital ratio, the results reveal, government debt strong significantly and negatively related to corporate leverage of firms of all sectors form KSE-100 index and government debt play a significant role on debt-ratio of firms. This result is coherent with outcome of Mokhovaa & Zineckera (2013) and Demirici *et al.* (2019). While other control variables such as , tangibility, unemployment, market-to-book ratio, return on assets, inflation and GDP per capita have also significant impact on corporate leverage as well as debt- ratio. Government borrow money to satisfy its

expenditures as well as for development activities. By doing so it put additional burden on the investors and they become discourage and firm's investments go down. The interesting findings of this study suggests that whenever the supply of the government debt enhance it would start to hamper the investors by eradicating of their investment. In response firms find other resources rather than debt to finance its financing decision. Firms finance its investment decision by using debt and equity, by increasing the government debt the investors of firms absorb its availability and insist to increase the yields on corporate debt, which may lead to less issuance of corporate debt which shows, crowding out of firm debt-ratio. Thus, increasing government debt levels may cause to reduce the corporate leverage as well as debt-ratio of firms which displays the crowding out effect of government debt on leverage of firms.

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