IMPACT OF MONETARY POLICY ON FINANCING DECISIONS OF FIRMS: THE CASE STUDY OF PAKISTAN

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PIDE2017FMPHILEAF41

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(2020)

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CERTIFICATE

This is to certify that this thesis entitled **"Impact of Monetary Policy on Financing Decisions of Firms: The Case Study of Pakistan."** submitted by **Ms. Anila Maryam** is accepted in its present form by the Department of Business Studies, Pakistan Institute of Development Economics (PIDE) Islamabad as satisfying the requirements for partial fulfillment of the Degree of Master of Philosophy in Economics and Finance.

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DEDICATED

TO

MY BELOVED PARENTS

ACKNOWLEDGMENTS

ABSTRACT

The objective of this study is to test the impact of monetary policy on financing decisions of firms in case of Pakistan. A panel data covering a period of 14 years from 2004 -2017 for 200 listed non-financial firms in Pakistan Stock Exchange is used while fixed and random effect model allows for the individual impact and for the problem of endogeneity using GMM. Results show that the monetary policy indicator (KIBOR) is significantly and negatively affects the financing decisions of firms. Moreover results show that during tight monetary policy affects the debt ratio and this effect is weaker for large firms as compared to that in small firms because large firms more spread, have less bankruptcy risk and have more fixed assets.

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COL   Collateral

CV   Coefficient of variation

FE   Fixed effect model

KIBR   Karachi interbank offered rate

LDEBT   Long term debt

MP   Monetary policy

RE   Random affect model

ROA   Return on assets

GMM   Generalized method of moments

SD   Standard deviation

SDEBT   Short term debt

CHAPTER 1

INTRODUCTION

Monetary policy is used to stabilize the economy by using different tools (discount rate, open market operations, and the reserve requirement). It is important for a central bank to measure the impact of various policy tools, the level of asymmetries in the economy and market expectations about inflation. Degree of effectiveness of different channels of monetary policy, not only confirm the level of achievement of objectives of monetary policy but also indirectly reflects the level of asymmetries in the market, that help understand the behavior of different economic agents (households/ individuals, firms, governments, and central banks) in the economy. In this study we discuss only the behavior of firms and attempt to empirically examine the impact of monetary policy on the behavior of large and small firms.

Due to lack of resources in-hand firms take loan for business related investment from different financial institutions e.g. banks. Also primary sources are available for debt financing; loan can also be issued by private company or by family or friends. Mostly firms greatly depend on the bank loan for running business and especially short term bank loan is taken to finance the working capital (Shabbir, 2012).

Firms often use debt when construct their business because it has certain advantages compared to equity financing. Debt financing is very important for firms because it helps with tax saving, build the business and debt helps keep profits within a firm. Change in monetary policy rates would impact the financial decisions of firms directly by changing their debt costs. However credit market instability impact bank lending and financing of firms behavior as the credit channel. Credit channel concerns

the supply and demand for loan of banks and it also differentiates between the bank level feature and firm level feature. During periods of contractionary monetary policy interest rate increase which decreases the loan for the business firms (Ruslan et al., 2015).

During the contractionary monetary policy banks reallocate loan supply. Also they find small firms riskier and lend more to the large firms due to contractionary monetary policy (Black and Rose, 2007).During the period of contractionary monetary policy the borrower's financial position concludes with rise in their interest expense and reduction in the net cash flows. Aggregate demand also affects the economy when there is tight monetary policy that results in sharp decrease in the firm's revenues, raise the expenses, reduce cash flow, rise in coverage ratio and fall in their profit. When there is increase in the interest rate then it decreases the asset prices and lowers the value of their collateral. During this situation banks reallocate their funds and large firms considering less risky as compared to small firms (Bernanke and Gertler, 1995). Another case is found that when there is contractionary monetary policy then banks lend more to large firms and less to small firms (Gertler and Gilchrist, 1994; and Li 1997).

In case of Pakistan it is observed that when there is tight monetary policy domestic demand fall, shown by low investment and also it is found that only two channel are active in Pakistan; interest rate and asset price channel (Agha et al., 2005).

Shabbir (2012) used 160 non-financial listed firms to measure the effect of contractionary monetary policy in case of both small and large firms. Findings depict that the balance sheet channel is active in Pakistan. Using linear panel model with random effect, study shows when there is contractionary monetary policy it decreases

the profit of the firms, increases the financial expenses and squash their cash flow. In this result large firms in some way continue to hit resources externally and internally at the same time as small firms fail to obtain access to the credit market. Small firm's asset prices decrease rapidly and their equity is destroyed as compared to the large firms. In this case small firms try to back their net worth with revaluation of surplus and yet face heavy loss. In business movement it is observed through this stage that almost 7% of business decrease their output to (0) Zero in which 1% belong to large firms and 6% belong to small firms.

The small firms in Pakistan face more pressure due to tight monetary policy and in the GDP they are not playing very important role. According to the result of a study the main problem faced by small firms in Pakistan is connected with financial constraints, lack of material development, and lack of technology and political instability. These studies more over show some policy implications for the government to fight these problems, such as improve the communication, adjustment of loan management, increase the technology and provide incentive to small firms in Pakistan (Ahmed and Raziq, 2017).

1.1 Problem statement

When it comes to monetary policy change, the small and large firms both have to suffer a lot. When there is tight monetary policy, than it results sharp decrease in the firm's revenues, rise in the expenses, reduce cash flow, rise in coverage ratio and fall in their profit. So this study attempts to analyze the impact of monetary policy on financing decision of firms. Moreover it is investigated whether monetary policy is more effective for the small sized firms as compared to the large? Does contractionary and expansionary monetary policy has symmetric effect on debt?

1.2 Research Objectives

The key objective of the study is to examine the impact of monetary policy on financing decision of firms during tight and lose monetary policy conditions at disaggregated level for small and large firms. More specifically the objectives of this study are:

- ➢ To estimate the effect of monetary policy instrument on financing decisions of firms.
- ➢ To examine whether monetary policy is more effective for small size firms as compared to large sized.

1.3 Significance of the Study

This study will guide the policymakers to consider while deciding for tight monetary policy, whether provision should be made to cater for potential damage of the contractionary policy or not so that the firms do not suffer. The research will further become helpful for the administrations who are concerned in identifying the factors and various situations under tight monetary policy to take the necessary actions to improve the performance in the firms in small scale as well as in the large scale. The study fulfill as a stepping stone for advance research in disaggregated analysis of monetary policy area of Pakistan.

1.4 Organization of the Study

The thesis consists of five chapters, where chapter one presents research questions, objectives and significance of study along with the organization of the study, chapter two is about review of literature and literature gap. Chapter three is about the sample data and sources from where the data is collected, methodology and also describes different tests related to study. Chapter four explains the regression results in detail. Lastly chapter five is conclusion of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The available literature related specifically to financing of firms and monetary policy as well. The literature related to financing of firms and monetary policy is rich and easily available however linking the relationship between monetary policy and financing of firms is rarely available especially in the case of single country. The literature studied and incorporated has important according to my knowledge a single study is not available studding the impact of monetary policy on financing of firms in Pakistan. The empirical literature is incorporated, first the literature specifically relating to the empirical literature. Second the literature specifically relating to the empirical literature with reference to Pakistan economy and in last literature Gap.

2.1.1 Empirical literature

Meltzer, (1960) examined the Mercantile Credit, Monetary Policy, and Size of Firms. The tight monetary policy data of 1955 to 1957 showed that the increase the short and long term loan to the many size group in the manufacturing sector. For larger firms easy way to get non-bank loans this showed during contractionary monetary policy and smaller firms less liquid firms. Also discussed that the larger firms decrease the cash balance during contractionary monetary policy contribute to an increase in velocity. During tight monetary policy that larger firms may use credit policy, decrease the price and to increase the sales.

Gertler and Gilchrist,(1994) showed that the contractionary monetary policy increase the short time debt for the larger firms and decrease the short time debt for the smaller

firms and their inventories decline steadily in the end. Also showed that large companies increase debt that needs to satisfy demand for working capital and small companies decrease debts do not have enough condition to borrow debt and thus inventories go down during these times when state bank prove tight monetary policy.

They get the result that the small firms are higher profitable as related to the large firms, because the small firm's taken more debt, more investment and pay fewer dividends. The small scale companies have a higher rate of return, pay fewer dividends, borrow money and invest more than the big scale companies by Fazzari and Petersen, (1988). When central bank follow tight monetary policy small scale of company borrow more money and having more output as compared to the large companies by Thomas and Vincenzo, (1999).

The main concerns the effect of monetary policy on the financing behavior of firms. The sensitivity of firm's debt structures change in the case of monetary policy position is analysis uses the sample of 22000 firms and use data EMU-11 countries that in the Euro area and the UK .In the sample 55% companies are public and 45% companies are private and time period from 1990–1997.In this study analyses the effect of monetary policy on four debt ratio: long time loan, short time loan, total debt and trade credit. Financing decisions to monetary shocks depending on their tangible assets, intangible assets, size, depreciation rate and earnings before interest rate and tax. According to the result shows the positive affect of interest rate on the short time loan and trade credit. Size shows negatively impact on trade credit and positively impact on all other debt ratio .also find that the smaller firm's more use of trade credit as related to the larger firms. Conclude that the Firm's change from short- to long-

time debts after a short-term interest rate rise, specially low-leveraged firm's .by De Haan and Sterken, (2006).

Cooley and Quadrini, (2006) main concern is monetary policy and financing decisions of firms. According to this paper focused on the heterogeneous response of firms where financial factors play a key role in their production and investment decisions. In this paper, large firms exist many more employees (10,000 employees). The smaller firms exist less than (5000 employees). When the contractionary monetary policy affected both small and large firms but the small firms more sensitive as related to the large firms. In the case of financial decisions of firms, in monetary shocks have an effect on output and also monetary policy shock show the volatility in stock market returns. And when increase the interest rate reduces the firms profit then decrease their next period equity. When decrease value of equity, in the next period firms less borrow.

In this study examine the monetary show instrument and the role played by firm's financial position. Time period from 1990 – 1999 and using the Panel data 16000 manufacturing firms in the UK. Divide the sample of size in to three, small medium and larger firms and relate the contractionary and expansionary monetary policy. This study show that for all sample of firms the ratio of, trade credit and the bank debts increase with an more the base rate when contractionary monetary policy. The ratio of trade credit and bank debts decrease with a more the base rate when loose monetary policy. When study sub sample smaller and larger firms than show that the smaller firms rise the trade credit during contractionary monetary policy and decrease the trade credit during loose monetary policy. The larger firms reduce the trade credit in

the tight monetary policy. There was significant negative link between trade credit and bank lending by (Mateut et al., 2006).

This paper proof for credit channels on the work firms financing during contractionary and expansionary monetary policy. For analysis using micro level data a sample of 565 firms are listed on the stock exchanges. And time period from (1995-2007) and allow us to test on the some firm-level variables including size, age, leverage, riskiness and profitability. Dependent variables are short time debt, long time debt and total debt. Use panel regression techniques to estimate the reaction of firms to monetary policy. And the test use the fixed affect model and random affect model using the hausman test .The p.value less than 5% null hypothesis rejected and fixed affect model is accepted. According to the result Age performs to be a significant and the positive relation in all regressions. The coefficient on RoA is show that the negative and statistically significant. Its mean firm's well earnings in the situation of debt finance, so it is able to finance its investments largely for retained earnings by Ghosh, (2010).

According to the of Czech Republic concerted on the heterogeneous response of firms, financing decisions to monetary shocks depending on their size, age, collateral and profit. Other is yearly data approximately 57000 firms, from 2003 to 2011 periods. Used the panel regression techniques to estimate the reaction of firms to monetary policy. And the test use the fixed and random affect model using the Housman test .When the p.value less than 5% null hypothesis rejected and fixed affect model is accepted. According to the result profit has shown negatively effect on all the debt, its meaning that firm's use less external financing and earning higher profit. During contractionary monetary policy, more collateralized firm's decrease their long

time loan and total debt ratio. More collateralized firms, have long time debt shifting to short time debt during contractionary monetary policy. When contractionary monetary policy decreases the long time debt short time debt and trade credit. Also find that the smaller firm's smaller amount of profitable as related to the largeer firms in the case of tight monetary policy by Ruslan et al., (2015).

The objective of this study show that the effect of macroeconomic condition on capital structure decisions for listed in Colombo stock exchange manufacturing firms. Panel data using for this study and time period 10 years from 2004-2013 for 27 in Colombo stock exchange listed manufacturing firms. While use random and fixed affect model to analyze the data. According to empirical results, significant show the decisions of capital structure in Sri Lanka the listed manufacturing firms in overall macroeconomic conditions. Banking sector also shows the significant result the decisions of capital structure in Sri Lanka the listed firms. Although show the result insignificant in the decisions of capital structure of the listed firms in Sri Lanka by (Perera, 2015).

In this thesis monetary policy and the liability composition of firms for finding the result use the sample more than 500,000 firms in which include both private and public firms for 12 countries after the worldwide crisis .The data has set for small and medium size of firms from 2002-2009 to examine the impact of the Euro introduction and the European central bank. The dependent variable is long time bank loan, short time bank loan and trade credit and independent variable is Tangible assets, intangible assets, size, depreciation, and EBIT. For the monetary policy variable (MPI_{t-1}) use the three month EURIBOR rate. One year lag use because monetary policy affects the real economy with a large lag. Data use is panel data and use the methodology for

analysis individual effect can be treated as Random or non-rendom model. To test whether non-random are random effects are suitable in the analysis a Hausman   test is performed. Show that the result private firms covered 72.5% and public firm 27.5%. According to this crisis low interest rate, increase the unemployment and decrease the GDP. The correlation between interest rate and all debt are positive and significant estimated. Tangible assets are estimated positive and intangible assets show negative sign. In interest rate channel show that the increase interest rate, decrease the all debts use in the total sample. Show that the balance sheets channel the large firms comparatively untouched by the monetary policy position in their debt use. In case of contractionary monetary policy decrease the small firm's debt usage by (Pfennings, 2011).

In this study showed the 491 surveys of 500 companies working in Hanoi, Ho Chi Minh City, and Da Nang. Monetary policy conduct for company system in Vietnam is calculated based on three different decisions: investment decision, profit decisions and financing decision. About financing decisions the impact of the interest rate of limited liability companies are different to those of joint stock companies. In joint stock companies, during tight monetary policy than the expected level and to use other finances remain stable but decrease the bank loans and increase the retained earnings. In the limited liability companies, during tight monetary policy that the financing funds from the owners and others but increase the bank loans and decrease the retained earnings by Le and Anh, (2016).

2.1.2 Empirical literature with References to Pakistan Economy

In case of Pakistan it is observed that when tight monetary policy domestic demand falls, show by low investment and also find that the only two channel in Pakistan active interest rate and asset price channel by Agha et al., (2005).

In Pakistan function of monetary policy, on the credit accessibility to small firms analyses by the (Khan, 2012). The study research significantly negative relationship between credit accessibility to small and large firms. Furthermore that small firm in Pakistan is crowding out the credit market for financial sector in Pakistan consider the small firms highly risky and less believable.

In this study used 160 non-financial listed firms for find the effect of contractionary monetary policy by both small medium and large firms. This paper finds the strong evidence in Pakistan for the active of channel balance sheet. Get result from linear panel model of random affect show when contractionary monetary policy decrease the profit of the firms , increase the financial expenses and squash their cash flow. In this result large firms in some way continue to hit resources externally and internally at the same time as small fails to obtain access to the credit market. Small asset price decrease rapidly and their equity destroyed as compared to the large firms than Small try to back their net worth with revaluation of surplus and yet faced heavy loss. In business movement was observed through this stage almost 7% of business decrease their output to (0) Zero in which 1% belong large firms and 6% belong to Small firms by Shabbir, (2012).

Financing decision of the firm is affect by both external and internal factors. But most of the empirical results have attention on internal factors while the impacts of

macroeconomic variables on decisions of capital sutures in the situation of countries are developing. The purpose of the study, the impact of macroeconomic variables on the capital structure decisions of textile companies listed in Pakistan. Panel data using for this study and time period 10 years from 2004-2013 for all textiles firms listed in Pakistan. While used random and fixed affect model to examine the data to evaluate the effect of macroeconomic variables on structure of capital. The results of the test is that the negatively related public debt, interest rate and exchange rate with economic leverage but positively related stock market development, corporate taxes, gross domestic product growth rate and price rises with economic leverage. Furthermore the stock market development, corporate taxes and exchange rates is significant correlation with the economic leverage by Rehman, (2016).

The small firms in Pakistan pressure faced and in the GDP of country they are not playing very important role. According to the result the main problem faced by small firms in Pakistan connected with financial constraints, lack of material development, and lack of technology and instability of political. This study more show some policy implication for the government to fight these problem, such as improve the communication of country, adjustment of loan management ,increase the technology and provide incentive to small firms in Pakistan by Dar,Ahmed and Raziq, (2017).

2.1.3 Literature Gap

Numerous studies have been directed to investigate the effect of monetary policy in case of Pakistan. Maximum studies are carried out on macro level. For instance Agha et al., (2005) show that there is decrease in investment due to tight monetary policy as well as decrease the domestics demand in the economy. Rashid and Jehan, (2014) show the effect of monetary policy on industrial output, prices and nominal exchange

rate. Apart from the above Hussain, (2009) use VAR to study the effect of monetary policy on real gross domestic product and inflation.

In Pakistan little work at firm level evidence of monetary transmission instrument is available. Shabbier, (2012) was the first one who worked on micro data of 160 non-financial firms listed at KSE, Pakistan. The result finds that there is decrease in the net worth of both small and large firms when there is tight monetary policy. Rashid et al., (2014) using micro data found the negative relationship between money supply of banks and monetary measures. Moreover, their study finds that the contractionary monetary policy is more effective on the small banks as related to the large banks.

This study focuses to find the impact of monetary policy on financing decisions of both small and large firms. Listed 200 non-financial firms in Pakistan Stock Exchange are taken, while Karachi Interbank Offered Rate (KIBOR) is used as the short term interest rate, which SBP targets.

CHAPTER 3

DATA AND METHODOLOGY

In this chapter we discuss the data and methodology. Section 3.1 presents theoretical framework while section 3.2 describes the Data and sample selection. The empirical measurement and econometric models are presented in section 3.3. The estimation techniques and issue related to these techniques are explained in section 3.4 and 3.5.The detailed description of variables is given in section 3.6. While section 3.7 describes the Robustness tests.

3.1 Theoretical framework

Trade off theory

The tradeoff theory postulates that the structure of capital that is, organization picks how much debt finance and how much equity to use depends on the expenses and advantages. A significant motivation behind this theory is to define the way that organizations as a rule are financed half with debt and half with equity. It expresses that there is a benefit to financing with debt that is, the tax advantage of debt and there is an expense of financing with debt. The marginal advantage of further rise in the debt reduces as debt rises, however the marginal cost rises, with the goal that a firm that is streamlining its general worth will concentrate on this tradeoff when picking how much debt and equity to use for financing.

Pecking order theory

Myers and Majluf (1984) states that firms choose to follow a hierarchy of financial decisions when establishing its capital structure *(Pecking order theory)*. Initially firms use internally generated resources to fund investments i.e. they use retained earnings

first. If internal resources are not enough to finance all the investment opportunities they go for external financing. For external financing first they apply for bank loan then for public debt. They always issue equity as a last resort. According to pecking order theory more profitable firms use less debt as their internally generated profits are quite enough to finance investments. As there is asymmetry of information between management and new stock holders firms are disinclined to issue equity.

Capital structure substitution theory

In finance, the capital structure substitution theory (CSS) describes the relationship between earnings, stock price and capital structure of public companies. The CSS theory assumes that managements of public companies use capital structure such that earnings per share (EPS) are maximized. The theory is used to explain trends in capital structure, stock market valuation, dividend policy, the monetary transmission mechanism, and stock volatility. The CSS theory suggests that the monetary policy transmission mechanism is indirect but straightforward: a change in the federal funds rate affects the corporate bond market which in turn affects asset prices through the equilibrium condition.

3.2 Data and sample selection

Data is found from the "Financial Statements Analysis of non-financial firms listed at Pakistan stock exchange" prepared by State Bank of Pakistan.

This study utilizes the 200 non-financial firms data of Pakistan covering period from 2004-2017 (14 Years). Non-financial firms are taken from different sectors. Textile Sectors, Sugar, Chemicals & Pharmaceuticals, Food Products, Manufacturing, Motor Vehicles ,Cement, Auto parts & Trailers Mineral Products, Refined Petroleum Products & Coke, Energy & Fuel, Information, Comm. & Transport, Products,

Paperboard & Paper, Apparatus & Electrical Machinery and Different Services Activities. To discover the impact of monetary policy on financing decisions of firms, the sample is separated into the small and large firms on the basis of total assets. For that we take the median of total assets, above it are the large firms and the smaller Firms below it. The selection criteria of 200 firms and the selection of the sectors depend on the availability of data.

3.3 Econometric Model

We estimate the effect of monetary policy on financing decisions of firms from annual balance sheet data. We also analyze how these financing indicators (size, collateral and profit) respond in small and large firms.

Using following model:

$$Y_{i,t} = \alpha_0 + \alpha_1 \Delta KBR_t + \alpha_2 PRO_{i,t} + \alpha_3 SIZ_{i,t} + \alpha_4\,COLT_{i,t} + \alpha_5\,\Delta GDP_t + \in_{it}$$

Where $Y_{i,t}$ Denoted one of the following three debt ratios (short term debt/total assets, long term debt/total assets and debt to equity) of firm i in period t. KBR stand for Karachi interbank offered rate, PRO shows the profit of firms, COLT is collateral and SIZ is size of firms. GDP is gross domestic product. $\in_{it}$ is the error term. Interest rate is directly linked to the monetary policy rate; tight monetary policy increases the interest rate and expansionary monetary policy lowers the interest rate. For short term interest rate we use KIBOR. Similar equation use by (Ruslan et al., 2015).

Fixed and random effect model allows for the individual impact. Random effect model is used when the firm specific effect is uncorrelated with the independent variables and fixed effect model is used when the firm specific effect is correlated with the independent variables. Hausman test is used to differentiate between fixed

effect model and random effect model. If the P.value is less than 5% the null hypothesis of firm specific effect is uncorrelated with the independent variables is rejected and thus the fixed effect model is favored.

3.4. Some Related Econometric Issues

This study attempts to estimate relationship between monetary policy indicator, debts and other firm's specific variable. The major econometric issues that are faced in the estimation are endogeneity and heteroscedasticity.

Endogeneity

Whenever there are two way connections between dependent and independent variables of the model, it leads to the problem of endogeneity. Endogeneity arises if there exists relationship between independent variables and error term of models. There are many reasons for endogeneity exist .In this study kibor correlated with error term. Due to this reason OLS cannot be applied, as it gives biased results in the presence of endogeneity. To overcome this issue many methods are generally adopted like instrumental variable technique and Heckman selection correction. This study is using GMM (Generalized Method of Moments).

3.5. Technique of Estimation

Since our study is based on annual panel data which has time series dimension that's why we have used the estimation technique that is best and frequently used for the panel data. It is used for individual like firms, school, cities or any collection of unit's. We have used panel data only for firms. There exists heterogeneity in these units. The panel data has much advantage over traditional time-arrangement and cross-section data. It comprises of a large number of data, thus it provides more degrees of freedom and decrease the multicollinearity between the independent

variables. Panel data gives better results for numerical conclusion (Gujrati and Porter, 2005 and Baltagi et al., 2009). (Hsiao, 1986) (Klevmarken, 1989) and (Solon, 1989) show that the individual heterogeneity only control the panel data , because it can provide the high information data, less co linearity ,high degree of freedom , high efficiency and high variability. Most commonly used models fixed effect model and random effect model are used to estimate the coefficients of variables. According to the previous research study and according to the data category we decide panel data methodology. As a result, the GMM (Generalized method of moments) estimator has been used following (Baltagi, 1995).

Basically it is an instrument based technique of estimation in which lags of dependent and independent variables can be used as instruments or internal instruments or we can also use proxies of variables which are called external instruments. We use the GMM techniques and then test for random and fixed effects model. The GMM as proposed by (Blundell and Bond, 1998).

Consider the following model:

$$Y_{i,t} = \alpha_0 + \alpha_1 \Delta KBR_t + \alpha_2 PRO_{i,t} + \alpha_3 SIZ_{i,t} + \alpha_4\ COLT_{i,t} + \alpha_5\ \Delta GDP_t + \in_{it}$$

To find the reliable estimations then take the lag of all independent variables as instruments which eliminate the variation arising from endogeneity. Dependent and independent variables lagged are used as instrument variables.

$$Y_{i,t-1} = \alpha_0 + \alpha_1 \Delta KBR_{t-1} + \alpha_2 PRO_{i,t-1} + \alpha_3 SIZ_{i,t-1} + \alpha_4\ COLT_{i,t-1} + \alpha_5\ \Delta GDP_{t-1} + \in_{it}$$

3.6 Variables Construction and Definition

The variables used in this study are briefly discussed below.

3.6.1 Monetary policy indicator:

According to the (Gertler and Gilchrist, 1994) contractionary monetary policy (increase interest rate) increases the short term debt for the larger firms and decreases the short term debt for the smaller firms and their inventories decline steadily in the end. For the effect of monetary policy, studies mainly focus on the short term market interest rate because it is closely connected to the monetary policy rate. For measure of short term interest rate we use the KIBOR and (Ruslan et al., 2015) used same indicator for monetary policy.

Decisions of the Debt of firms depend on the levels of interest rates. Increase or decrease in the percentage of interest rate impact on the debt policy and the decision of financing of firms. (Eldomiaty, 2007 and Bokpin, 2009) show that most of the firms plan to get debt when in the economy interest rates fall.

3.6.2. Collateral

Collateral is promise as security for refund of a loan, as a penalty charge in the event of a default loan. Collateral is constructed as the ratio of tangible fixed assets to total assets by (Hajkova and Kubicova, 2015). Tangible fixed assets represent presence of collateral, which makes contact to debt easier hence it has positive effect on debt (De Haan and Sterken, 2006).

3.6.3. Size

Size is measured by the natural logarithm of total assets (Kashyap and stein, 1995). According to the (De Haan and Sterken, 2006) the large firms are well known to have the outside investors and are liable to be very much differentiated with the goal that

they have less asymmetric information issues and run lower business risks. Its effect on debt should be positive.

Size = Natural logarithm of total assets

3.6.4. Profit

Different measures are used by researchers in finance literature to reflect firm's profitability. Some researchers used accounting measure such as ROA while ROE is a market measure. Following (Nejadmalayeri, 2001) and (Fischer et al., 1989) we use the formula below to calculate profit.

Return on asset =Profit before depreciation, interest and tax to total assets

3.7. Robustness Tests

Robustness testing allows assuring the quality of the estimation results by verifying the results. It is important to find the nature of data. As time dimensions are also involved in the panel, thus it is necessary to test endogeneity, autocorrelation, multi co-linearity and stationarity.

3.7.1. Panel Unit Root

Estimation process becomes more difficult when we deal with panel data because the individuals in the panel may not have same features which can lead to problem of heterogeneity. Individual series may not be stationary in panel data. If there are non-stationary individual series, it will cause biased results. For this resolution, (Dickey-Fuller & Augmented Dickey-Fuller) most common tests for unit root are extended for the panel data estimations. We used *Levin and Lin (LL) test* to check whether data is stationary or non-stationary because it contracts with unbalanced panel as we take into account unbalanced panel and problem of heterogeneity. This test is basically an

extension of Dickey-Fuller Test. It is important to check that if series are stationary or non-stationary. Because the non-stationary series regression known as spurious regression. To define the stationary of a panel series is done panel unit root tests. Levin, Lin & Chu (LLC) test have been used in this study. The tests results show that all the variables are stationary at level.

Kibor and GDP, these two variables are measured on time serious scale. So we use simple Augmented Dickey-Fuller for these two variables. The test results show that two variables are stationary at 1st difference. These two variables, results have been given in appendix and other variables panel unit root test, results have been given in table 3.1

Table: 3.1 Panel Unit Root Test

Variables	LLC Test Stat	P –Value	Status
Short term debt	-1600	0.0000	Stationary
Long term debt	-1700	0.0000	Stationary
Debt to equity	-4400	0.0000	Stationary
Collateral	-7100	0.0000	Stationary
Profit	-1700	0.0000	Stationary
Size	-170	0.0000	Stationary

Notes: LLC denotes the Levin, Lin and Chu panel unit root test.

3.7.2. Test for Autocorrelation

To test the problem of autocorrelation we use Wooldridge test. This test is used to detect autocorrelation in the errors in the regression model. Wooldridge test for autocorrelation in panel data sets following null hypothesis:

H0: no first-order autocorrelation

Results found against this hypothesis are given as:

$F (1, 198) = 2.116$

$Prob > F = 0.1473$

Which show that errors are not serially correlated?

3.7.3. Test for Heteroscedasticity

For Heteroscedasticity this study uses the Modified Wald test for Group Wise heteroscedasticity

According to the Modified Wald test

H0: sigma (i) ^2 = sigma^2 for all i

chi2 (200) = 5.4e+05

Prob>chi2 = 0.0000

3.7.4. Test of Heterogeneity (Cross Section)

Below graph is showing for the study of the cross sectional heterogeneity. The black line shows mean value of debt to equity and black dots show the debt to equity of every non-financial listed firm. Black line up and down movement shows that there occur cross sectional heterogeneity however at minor level. There is no cross sectional heterogeneity if the Black line is straight and as a result show that the non - financial firms are different from each other at minor level.

Figure 3.1 Cross sectional heterogeneity
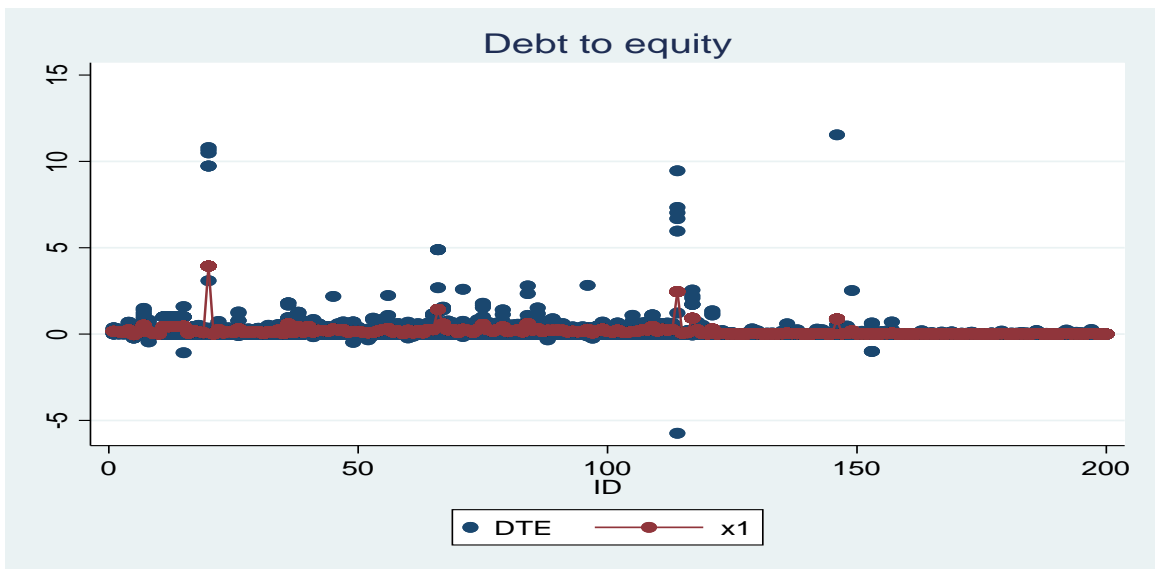
3.7.5. Test of Heterogeneity (Overtime)

Now, the below figure table checked over the time period (Time Series Heterogeneity). Possibility is that the listed every non-financial firm may change over the time. The above graph find that on average mean value of debt to equity from track at year 2004, 2005, 2008 and 2017, which find there is no heterogeneity for the sampled data taken for this study

Figure 3.2. Over Time Period Heterogeneity
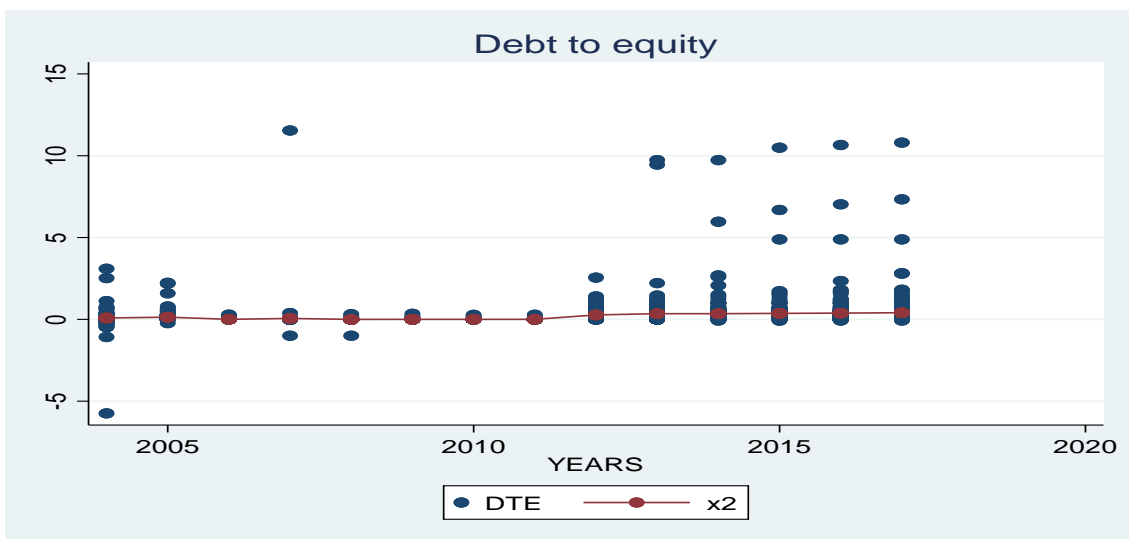
CHAPTER 4

EMPIRICAL RESULTS AND DISCUSSION

This chapter shows the empirical results, test results and descriptive statistics using data of 200 listed non-financial firms for the time period of fourteen years 2004-2017. This chapter is divided into three parts, section 4.1 deals with the descriptive statistics, correlation matrix are presented in the section 4.2 and finally section 4.3 provides detailed discussion on regression results.

4.1. Data Description and Tests

4.1.1 Descriptive Statistics (Full Sample)

Table 4.1 summarizes descriptive statistics (mean, standard deviation and coefficient of variation) of the variables in full sample. The CV is the ratio of the standard deviation (S.D) to the mean. Higher the value of coefficient of variation higher is the dispersion around the mean. It is mostly expressed as percentage. In this study we also get the CV result in percentage.

Formula of C.V: Coefficient of variation= (Standard deviation/mean)*100

Table 4.1 Descriptive Summary of the Variables (Full Sample)

Variable	Observation	Mean	Standard deviation	Coefficient of variation
Debt to equity	2800	3.17	0.67	3.90%
Long term debt	2800	0.21	0.37	1.80%
Short term debt	2800	0.63	0.68	0.14%
Kibor	2800	9.56	0.54	0.26%
Size	2800	6.20	0.86	0.13%
GDP	2800	16.06	0.16	0.09%
Profit	2800	4.64	0.28	0.05%
Collateral	2800	4.63	0.20	0.04%

The largest CV value among the series is of debt to equity (3.90%) and followed by the CV value of long term debt is (1.80%). The lowest CV value is related with GDP (0.009%) and Collateral (0.04%) and profit (0.05%).Which is followed by the average value of size (0.13%), short term debt (0.14%) and kibor (0.26%).

Sub Samples (small and large firms)

In table 4.2 the descriptive summery of the variables for smaller and larger firms through coefficient of variation are shown.   Small firms are 113 and number of observations is 1582 .large firms are 87 and number of observations is 1218.

In case of small and large firms, debt to equity and short term debt of small firms have higher CV and large firms have less CV. It means large firms are less volatile as compared to the small firms in case of debt to equity and short term debt. But in case of long term debt small firms are less volatile as compared to the large firms, because small firms have less CV.

According to coefficient of variation SIZE and PROFIT have less CV in case of large firms while the large firms are less volatile than the small firms which has higher CV. In small firms CV is 0.03% and large firms CV is 0.05% in case of COLLATERAL. It means small firms have less variability as compared to the large firms.

Table 4.2: Descriptive Summery of the Variables for Small and Large Firms

	Small Size Firms			Large Size Firms		
Variables	**Mean**	**S.D**	**C.V**	**Mean**	**S.D**	**C.V**
Debt to equity	0.22	0.86	3.97%	0.09	0.23	2.34%
Long term debt	0.23	0.38	1.63%	0.16	0.35	2.07%
Short term debt	4.64	0.89	0.19%	4.60	0.01	0.00%
Kibor	9.55	2.54	0.26%	9.55	2.54	0.26%
Size	5.77	0.82	0.14%	6.75	0.53	0.07%
GDP	16.06	0.15	0.09%	16.06	0.15	0.09%
Profit	4.64	0.30	0.06%	4.65	0.22	0.04%
Collateral	4.62	0.16	0.03%	4.63	0.24	0.05%
GDP, SIZE is in log form. Data range is from 2004-2017 and number of total observations is 1582 (113X14=1582).				GDP, SIZE is in log form. Data from 2004-2017 and total number of observations is 1218 (87X14=1218).		

4.2. Correlation Matrix

The correlation between the debt ratio and other firm's variables and the interest rate is shown in table 4.3. A negative correlation exist between size and all the debt ratios, however the correlation with short time debt is weak. We also observe that the collateral is positive correlated with the long time debt and negative correlated with the short time debt and debt to equity, which profit does not have strong correlation with the other variables. The correlation between the kibor and the debt ratio are negligible.

We also check the presence of multi-collinearity in the model which shows relationships between independent variables which present an issue that the estimations of parameters becomes inefficient and standard errors are large. Furthermore different independent variables with high relationship add no extra information to the model. Subsequently, Correlation of every variable with itself gives the value of 1. The greater values show higher correlation the lesser value specifies

minor correlation. The table 4.3 shows the correlation matrix not high; hence there is no problem of multi-collinearity.

Table 4.3 Correlation Matrix of Variables

Variables	Debt to equity	Long term loan	Short term loan	GDP	Collater al	Profit	Size	Kibor
Debt to equity	1.000							
Long term debt	0.05	1.000						
Short term debt	-0.00	-0.00	1.000					
GDP	0.19	-0.00	-0.04	1.000				
Collateral	-0.00	0.08	-0.00	-0.12	1.000			
Profit	-0.04	-0.01	-0.00	-0.07	-0.00	1.000		
Size	-0.05	-0.09	-0.02	0.08	0.00	0.06	1.000	
Kibor	-0.07	0.03	-0.03	0.26	-0.13	-0.03	0.03	1.000

4.3. Regression Result and Discussion

In this part we present our estimation results and finding. To check the impact of monetary policy on debt to equity along with its lagged term, it is regressed on the variables of collateral, gross domestic product, size and profit. The results are presented in 4.4, 4.5 and 4.6 tables below.

Table: 4.4 Impact of monetary policy on debt to equity ratio (Full Sample)

VARIABLES	(1)	(2) Static Panel Data Model	(3)	(4) Dynamic Panel Data Model
	FE	RE	CE	GMM
Debt to equity				0.72***
				(0.00)
Profit	-0.00	-0.01	-0.01	-0.04***
	(0.04)	(0.04)	(0.04)	(0.00)
Collateral	0.00	0.00	0.01	0.08***
	(0.02)	(0.01)	(0.01)	(0.00)
GDP	-0.92	-0.93	-0.93	-0.60
	(0.21)	(0.21)	(0.21)	(0.00)
Size	-0.03	-0.04	-0.04	-0.16***
	(0.04)	(0.03)	(0.03)	(0.00)
Kibor	-0.03***	-0.03***	-0.03***	-0.01***
	(0.01)	(0.01)	(0.01)	(0.01)
Constant	-14.21***	-14.18***	-14.18***	-8.12***
	(3.45)	(3.38)	(3.38)	(0.04)
Observations	2,771	2,771	2,771	2,365
Number of id	200	200	200	199

Robust standard errors in parentheses   *** $p<0.01$, ** $p<0.05$, * $p<0.1$

To check the impact of monetary policy on debt ratio along with its lagged term, it is regressed on the variables of size, profit, collateral and GDP. The results are presented in table above.

First we discuss the lagged dependent variables of debt to equity, short term debt and long term debt which turns out to have a positive sign with statistical significance, which shows that current level of debt in a firm, is greatly affected by its previous year's value. The fact that firms in Pakistan dependent on debt goes on to rise in the coming year. This finding is consistent with the result of (Afza and Hussain, 2011) (Rafiq et al., 2008) and (Hovey, 2007).

 For the impact of monetary policy on financing decisions short term debt, long term debt and debt to equity our results show that there is negative relation between kibor and financing decisions. When there is increase in the Karachi interbank offered rate

(KIBOR) then it decreases the overall debts, short term debt, long term debt and debt to equity. Same result was found by (Ruslan et al., 2015).

Profit as measured by ROA has a negative impact on all our debt ratios, debt to equity, short term debt and long term debt meaning that firms with greater earning use less external debt. More profitable firms may use more of their own capital and so less dependent on external financing. When profit increases Pakistani firms debts decrease. Same result was reported by (Gill et al., 2009) and (Bas et al., 2009). In case of Pakistan (Ali, 2008) and (Javid and Imdad, 2012) also found negative impact of profit on debt ratios supporting pecking order theory which is consistent with results of (Hijazi and Shah, 2008).

Table: 4.5 Impact of monetary policy on long term debt (Full Sample)

VARIABLES	(1) FE	(2) Static Panel Data Model RE	(3) CE	(4) Dynamic Panel Data Model GMM
Long term debt				0.94***
				(0.00)
Profit	-0.00	-0.00	-0.00	-0.00*
	(0.01)	(0.01)	(0.00)	(0.00)
Collateral	0.10	0.11	0.11	0.06***
	(0.07)	(0.07)	(0.07)	(0.00)
GDP	-0.03	-0.03	-0.03	-0.01
	(0.08)	(0.08)	(0.08)	(0.00)
Size	-0.04	-0.03	-0.03	-0.02***
	(0.04)	(0.03)	(0.03)	(0.00)
Kibor	-0.01***	-0.01***	-0.01***	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-0.09	-0.09	-0.01	-0.36***
	(1.19)	(1.12)	(1.12)	(0.04)
Observations	2,771	2,771	2,771	2,365
Number of id	200	200	200	199

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Collateral is measured as the tangible fixed assets to total assets. The positive link is found between collateral and debt financing of firms. The collateral value of the firm is high the level of debt financing, short term debt, long term debt and debt to equity increase, because of collateral (guarantees) firms can easily contact bank for debt. (Ruslan et al., 2015) also show that collateral has positive relation with debt for the case of firms.

The negative sign shows that as, size increase it decreases all the debt ratios. In Pakistan larger firms have more ability to finance through other sources than finance

through debt. Situation of big firms is also strong to get external financing on favorable terms in equity market, so debt is less in these firms. (Hijazi and Shah, 2008) also found negative link between size and debt ratio of Pakistani firms.

Table: 4.6 Impact of monetary policy on short term debt (Full Sample)

VARIABLES	(1) FE	(2) Static Panel Data Model RE	(3) CE	(4) Dynamic Panel Data Model GMM
Short term debt				0.18***
				(0.00)
Profit	-0.02	-0.10	-0.10	-0.49***
	(0.05)	(0.07)	(0.07)	(0.04)
Collateral	0.10*	0.07	0.07	6.17***
	(0.06)	(0.06)	(0.06)	(0.74)
GDP	-0.55	-0.52	-0.52	-0.01
	(0.33)	(0.33)	(0.32)	(0.09)
Size	-0.02	-0.05	-0.05	-0.47***
	(0.07)	(0.07)	(0.07)	(0.04)
Kibor	-0.01	-0.01	-0.01	-0.02***
	(0.01)	(0.01)	(0.01)	(0.00)
Constant	7.42	7.79	7.79	32.13***
	(5.49)	(5.54)	(5.54)	(3.95)
Observations	2,760	2,760	2,760	2,343
Number of id	200	200	200	199

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The GDP shows insignificant and negative relationship between GDP and financing decisions of the firms. When GDP increase reduce all the debts (debt to equity, long term debt and short term debt). (Ruslan et al., 2015) also find negative relation between GDP and debt to equity, short term debt and long term debt of firms.

4.3.1 Small and large firms

To check the impact of monetary policy on financing decisions of firms (debt to equity, short term debt and long term debt) for both large and small firms, regression is separately estimated for both types of firms. The sample consists of the data from 2004 to 2017 of Pakistan stock exchange, 113 small firms and large firms are 87.

The results are presented in 4.7, 4.8 and 4.9 tables below. First table shows that the impact of monetary policy on debt to equity for both large and small firms. Second table show the impact of monetary policy on long term debt for both small and large firms and third table shows the impact of monetary policy on short term debt for both small and large firms.

First we discuss the lagged dependent variables of debt to equity, short term debt and long term debt which turns out to have a positive sign with significance, which shows that current level of debt in a firm is greatly affected by its previous year's value.

Table: 4.7 Impact of monetary policy on debt to equity for small and large firms

	Small Size Firms				Large Size Firms			
VARIABLES	(FE)	(RE) Static PanelData Model	(CE)	(GMM) Dynamic PanelData Model	FE)	(RE) Static Panel Data Model	(CE)	(GMM) Dynamic Panel Data Model
Debt to equity				0.77***				0.49***
				(0.00)				(0.03)
Profit	0.04	0.03	0.03	0.31***	-0.05*	-0.09***	-0.09***	-0.28**
	(0.07)	(0.06)	(0.06)	(0.00)	0.03)	(0.03)	(0.03)	(0.12)
Collateral	-0.02	-0.02	-0.02	-0.08***	-0.02	-0.01	-0.01	-0.12**
	(0.12)	(0.12)	(0.12)	(0.00)	0.02)	(0.02)	(0.02)	(0.12)
GDP	-1.37	-1.37	-1.37	-0.21	0.41	- 0.41	-0.41	-0.54
	(0.12)	(0.12)	(0.12)	(0.00)	0.04)	(0.04)	(0.04)	(0.09)
size	-0.03	-0.03	-0.03	-0.24***	).04	0.01	0.01	0.32**
	(0.04)	(0.03)	(0.03)	(0.00)	0.01)	(0.01)	(0.01)	(0.07)
Kibor	-0.04***	-0.04***	-0.04***	-0.01***	-0.02***	- 0.02***	-0.02***	-0.01**
	(0.01)	(0.01)	(0.01)	(0.01)	0.00)	(0.00)	(0.00)	(0.01)
Constant	-21.44***	-21.40***	-21.40***	0	5.96***	-5.82***	-5.82***	-7.53***
	(2.09)	(2.08)	(2.08)	(0)	0.63)	(0.64)	(0.64)	(1.69)
Observations	1,566	1,566	1,566	1,448	,204	1,204	1,204	1,114
Number of id	113	113	113	113	37	87	87	87

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Kibor negatively affects the debt ratio and this effect is stronger for small firms as compared to the large firms. Moreover we observe that when interest rate goes up the larger firms also decrease their short term debt but the effect is weaker compared to that in small firms. So our result shows that the highly significantly and negative relationship between kibor and financing decisions of the firms. Same result shows that the monetary policy changes highly significantly and negative relationship between kibor and financing decisions of firms (Bokpin, 2009).

We also find that the profit of firms has positive effect on debt measures in case of small firms while the effect is negative for large firms. When profit increases for small firms, they tend to expand their business and take more loans. For large firms, profit enhances the capacity of internal financing and therefore debt decreases. For short term debt, the coefficient of profit is negative even for small firms because they can better manage working capital with high profit.

Table: 4.8 Impact of monetary policy on short term debt for small and large firms

	Small Size Firms					Large Size Firms			
VARIABLES	(FE)	(RE) Static Panel Data Model	(CE)	(GMM) Dynamic Panel Data Model		(FE)	(RE) Static Panel Data Model	(CF)	(GMM) Dynamic Panel Data Model
Short term debt				-0.01***					0.951***
				(0.00)					(0.00)
profit	-0.01	-0.01	-0.01	-0.32***		-0.00**	-0.00***	-0.00***	-0.07***
	(0.08)	(0.08)	(0.08)	(0.03)		(0.00)	(0.00)	(0.00)	(0.01)
collateral	-0.07	-0.07	-0.07	-1.96***		-0.00	-0.00	-0.00	-0.00**
	(0.14)	(0.14)	(0.14)	(0.00)		(0.00)	(0.00)	(0.00)	(0.01)
GDP	-0.29	-0.29	0.29	-0.18		-0.00	-0.00	-0.00	-0.15
	(0.14)	(0.14)	(0.14)	(0.00)		(0.00)	(0.00)	(0.00)	(0.01)
Size	-0.01	-0.00	-0.00	-0.01***		0.00	0.00	0.00	0.01**
	(0.05)	(0.04)	(0.04)	(0.00)		(0.00)	(0.00)	(0.00)	(0.01)
Kibor	-0.01	-0.01	-0.01	-0.01***		-0.00	-0.00	-0.00	-0.01***
	(0.01)	(0.01)	(0.01)	(0.00)		(0.00)	(0.00)	(0.00)	(0.001)
Constant	9.77***	9.83***	9.83***	0		4.61***	4.61***	4.61***	-2.178***
	(2.45)	(2.43)	(2.43)	(0)		(0.00)	(0.00)	(0.00)	(0.22)
Observations	1,566	1,566	1,566	1,334		1,204	1,204	1,204	1,114
Number of id	113	113	113	113		87	87	87	87

To measure the size of firms we use total assets because it can be used as collateral to increase the external fund. We find that the size of firms in Pakistan has negative effect on debt measures in case of small firms while the effect is positive for large firms. Larger firms can easily increase external funds as compared to the smaller firms because these are more spread and have less bankruptcy risk. The larger firms may have more capability to increase external finance whichever debts or equity as compared to the smaller firms. Mostly firm size has been empirically found to be positively correlated with debt. The fact shows that large firm has more fixed assets that can be used for debt. Therefore larger firms have more capacity to finance with debt suggesting that firm size has positive relation with debt (Ajao et al., 2012).

Next variable is collateral which we find to be negatively related with debts. During the tight monetary policy the collateral value of the firm rise and the levels of debt financing decrease. We also find that in Pakistan when the fixed assets (collateral) increase small and large firms borrow less and depend more on the internal funds to finance their business. (Bas et al., 2009), (Afza and Hussain, 2011) also show that the collateral has negative relation with debt ratios in the case of smaller and larger firms.

Table: 4.9 Impact of monetary policy on long term debt for small and large firms

	Small Size Firms				Large Size Firms			
VARIABLES	(FE)	(RE) Static Panel Data Model	(CE)	(GMM) Dynamic Panel Data Model	(FE)	(FE) Static panel Data Model	(CE)	(GMM) Dynamic panel Data Model
Long term debt				0.85***				0.96***
				(0.02)				(0.02)
Size	-0.06***	-0.04***	-0.04***	-0.02*	0.02*	0.02*	0.02*	0.05**
	(0.02)	(0.01)	(0.01)	(0.01)	(0.03)	(0.03)	(0.03)	(0.08)
Profit	0.01	0.00	0.00	0.25**	-0.01	-0.01	-0.01	- 0.00
	(0.02)	(0.02)	(0.02)	(0.11)	(0.03)	(0.03)	(0.03)	(0.04)
Collateral	-0.28***	-0.29***	-0.29***	-0.08***	-0.09**	-0.09**	-0.09**	-0.17***
	(0.05)	(0.05)	(0.05)	(0.97)	(0.04)	(0.04)	(0.04)	(0.07)
GDP	-0.12	-0.12	-0.12	-0.12	-0.00	-0.00	-0.00	-0.02
	(0.05)	(0.05)	(0.05)	(0.07)	(0.02)	(0.02)	(0.02)	(0.02)
Kibor	-0.01***	-0.00***	-0.00***	-0.01**	-0.00*	-0.00*	-0.00*	-0.00***
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.52	0.49	0.49	-13.20***	-1.54**	-1.53**	-1.53**	-2.56**
	(0.82)	(0.82)	(0.82)	(4.88)	(0.67)	(0.67)	(0.67)	(1.21)
Observations	1,566	1,566	1,566	1,334	1,204	1,204	1,204	1,114
Number of id	113	113	113	113	87	87	87	87

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

At the end discus the GDP, higher shares of total debt correlate with GDP. According to the results for the debt (short term debt, long term debt and debt to equity) this does not hold when we look into the structure of the debt. The debt to equity, short term debt and long term debt act to be insignificant and negative relation with GDP. Same result was reported by (Ruslan et al., 2015).

4.4. Comparison between small and large firms:

Difference between in case of small and large firms according to my result is that, in KIBOR effect is stronger for the small firms and the effect is weaker for the large firms. PROFIT of firms has positive effect on debt measure in case of small firms while the effect is negative for large firms. SIZE of firms has negative effect on debt measure in case of small firms while the effect is positive for the large size firms. COLLATERAL of firms and GDP has negative effect on debt measure in case of small and large firms. In our sample small firms are 133 and large firms are 87. Small firms are more in Pakistan but the debt facilities are scarce and during tight monetary policy small firms show stronger response as compared to the large firms because small firms are less spread and have more bankruptcy risk and have less fixed assets.

CHAPTER 5

CONCLUSION AND IMPLICATIONS

5.1. Conclusion

We examine the role played by different significant factors in the determination of firm's financial decisions most importantly the impact of monetary policy in doing so. A sample of 200 listed non-financial firms in the sectors of textile, sugar, paper and board, food, pharmaceuticals, automobiles and parts, energy, cement, chemicals, transport and telecommunication, engineering and energy for the period of 2004 - 2017 is taken.

First part of the result focuses on the financing decisions of Pakistani firms (overall). In this regard fixed and random affect model and GMM was applied to test all the relationships among the variables of interest. These results not only balance the previous findings but also give the new ones. Among firm specific determinants of debts Pakistani firms depend more on the past levels of debt ratios which means that the debt level of firms are more sensitive towards their lagged values. Monetary policy factors effect firm's decisions about debt financing significantly.

Most important financing decisions of Pakistani firms are affected by the changes in monetary policy. Tight monetary policy (increase the KIBOR) decreases the overall firms short term debt, long term debt and debt to equity. Negative and significant results are shown between KIBOR and debt ratios.

Similarly there is a significant difference in the debt of both small and large firms. Kibor negatively affects the debt ratio and this effect is stronger for small firms as compared to the large firms. Moreover we observe that when interest rate goes up the larger firms also decrease their short term debt but the effect is weaker compared to that in small firms. So our result shows that the highly significantly and negative relationship between kibor and financing decisions of the firms.

5.2. Implications of the Study

On the basis of above analysis of impact of monetary policy on financing decisions of firms, this research postulates following policy recommendation.

- Monetary policy strongly effect financing decisions of firms so the monetary authorities should keep in view the consequences of monetary changes on manufacturing sector, while devising monetary policy.

- The study shows that when the financing constraints are improved, firms switch towards external financing but the small firms still accumulate and depend more upon internal funds because of lack of banks willingness to lend them loans due to probability of default and fewer collaterals. The state bank of Pakistan should consider this issue and try to release these financial barriers for all size of firms by improving their loan monitoring system and facilitating borrowers.

- To make firms avail more debt there is need revise policies to alleviate the financing constraints and make access to finance easily by avoiding discrimination on the basis of size or age etc.

5.3. Direction for Future Research

Keeping in view the findings of this research, it would be worthwhile to suggest following ideas to the future researchers:

- Future research should aim at whether similar results can be found for different countries and future research could compare results from listed and unlisted companies and can also compare with the financial sector.

- To have a clearer picture to examine whether the contractionary and expansionary monetary policy actions have symmetric impact on the financing decision of firms.

- Impact of monetary policy on credit decisions of firms must be considered also by the future researchers.

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APPENDIX

<u>Unit Root Test:</u>

KIBOR:

Augmented Dickey-Fuller test for unit root

----------- Z (t) has t-distribution -----------

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z (t)	-3.699	-2.896	-1.860	-1.397

P-value for Z (t) = 0.0030

GDP:

Augmented Dickey-Fuller test for unit root

----------- Z (t) has t-distribution -----------

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z (t)	-3.000	-2.896	-1.860	-1.397

P-value for Z (t) = 0.0085

Test of Heterogeneity (Cross Section)

Short term loan

Long term loan

Test of Heterogeneity (Overtime)

Short term laon

Long term loan