IMPACT OF MONETARY POLICY ON GROWTH OF NON-FINANCIAL FIRMS. EVIDENCE FROM PAKISTAN

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CERTIFICATE

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I, Muhammad Jafar declare and affirm an oath that I have authored this M. Phil thesis with my own work and means, and I have not used any further means except those I have explicitly mentioned in this report. All items copied from internet or other written sources have been properly mentioned in quotation marks and with a reference to the source of citation.

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ABSTRACT

This study investigates the impact of monetary policy on the growth of non-financial firms in the case of Pakistan. A sample size of 45 companies from different sectors has been taken. The data set taken for this study ranges from 2001 to 2016 while it is annual in nature. The study uses a GMM model for the estimation process. The monetary policy variables include interest rate, exchange rate, and money supply. The study showed different results regarding different sectors, which includes leather and tanneries and glass and ceramics interest rate have a negative relation with the 6 selected firms of these sectors. The other sectors have positive and significant results with any change in interest rate. Food and personal and glass and ceramics have insignificant results with any change in Exchange rate. The coefficient of Sugar, Refineries, Transport, and chemicals have negative sign and results are steady with the study. The third variable money supply has mixed result in different sectors, some of which shows positive result while some are showing negative association with the money supply. Synthetic and rayon, Refineries, fertilizer cement, and automobile have negative relations while the rest have been found to have a positive relation.

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CHAPTER I

INTRODUCTION

1.1 Background of the Study

The real economy[1] is strategic and important for bringing the positive changes for the whole economy at an aggregate level with many benefits to the nation as it has been pronounced to have a considerable impact on the growth of nation and employment (Anyanwu and Erhijakpor 2010). The performance of the real sector is essential and plays a key role in developing countries and all this possible through the performance of macroeconomic variables. The policies of government can only be beneficial when it responds positively in terms of production and employment and especially in the distribution of goods and services.

Monetary policy is one of the major macroeconomic tools in every economy and its effectiveness determines the smoothness of the economy in the favorable and desired direction. The basic and prime motive of the monetary policy is to have the stability of prices and sustainable growth. It is expected that monetary policy impacts different industries and sectors through its different tools like interest rate, exchange rate, and monetary policy shocks (Carlino & DeFina, 1998).

Monetary policy effects can be seen through different channels like exchange rate, bank rate, credit asset price, and interest rate (Estrella and Mishkin 1996). As far as the interest rate is concerned as there is an increase in the rate of interest this results in increasing user cost which leads to disturbing the decision of saving and investment. Recently the attention has been diverted towards the sectoral or industry level impacts of monetary to check how different sectors respond to change in monetary policy. Does the change in monetary policy are bringing some positive changes in real output or not? Is monetary policy effecting differently or its effect is of the same degree? The studies (Carlino & DeFina, 1998) and (Mathur & Stein, 1980) have proved that different sectors of the economy have affected differently by the monetary policy; it may be good for one sector and mild for the other sector at the same time. One important aspect of this question is the regional or sectorial effect of monetary policy. The question arises about

[1] Real Economy: The real economy refers to all real or non-financial elements of an economy.

the time of tightening of monetary policy and when the monetary policy is loose. It provides important facts and figures for the monetary authorities to design an appropriate monetary policy that is suitable for the whole economy.

According to the classical economist, monetary policy impacts are uniform across sectors. This means that every sector of the economy is supposed to be impacted at the same level whether it is financial or non-financial. Heterogeneous impacts of monetary policy are ignored but there are some studies (Fratantoni & Schuh 2003) that identify the heterogeneous impact of monetary policy. Monetary policy is one of the important macroeconomic tools and said to be a quick tool for solving the economic problems at the macro level. Monetary policy is capable of playing a key role in the economy and it is an inevitable component in the way of economic development (Hijazi, 2006). While in the case of Pakistan, the State Bank of Pakistan is responsible to conduct monetary policy in Pakistan

Moreover, these results drawn from such type of observation can have an important role in understanding the transmission mechanism of monetary policy that's why many economists have suggested a disaggregated analysis of monetary policy mechanisms. (Domac, 1999), (Dedola and Lippi, 2005). It is described in the case of many countries that monetary policy has differential impacts on the industrial sectors of the economy as it proved in the case of the Netherland (Arnold & Vrugt, 2002). The small firms in the USA are more sensitive than the large firms to the monetary shocks and the results of the small industries are more elastic than the large firms. Because the change in output in the small firms is more than the large firms which are more sensitive to interest rate shocks (Gertler. and Gilchrist 1993). There are also some studies which are against it with the supportive evidence from different economies that describes the different behavior of different sectors of the economy. Some sectors responded positively and some have responded negatively.

Cecchetti (1999) checked the combined impacts of financial structure, legal framework and developed an index to check the monetary policy impacts, to the four types of legal environments (Scandinavian common law, English law French civil law, and German civil law). The values of interest rate impact on output were higher regarding German legal family. There is a possibility that shareholders might be protected through better legal protection and the debtor might have taken lower impact from the monetary policy of lending channel. Countries where the system of banks is

not enough strong and less concentrated provide fewer opportunities for having a loan and it provides lesser opportunities to preserve its balance sheet when the monetary policy is changed. In those countries where firms deepen more on banks for their loans, it can have a more impact on variation in monetary policy.

In the Canadian economy, two types of disaggregation are considered one at the level of final aggregation and other at the level of production. It is found that the monetary policy shocks effects both differently (Farès and Srour 2001). It is also investigated in euro area-wide monetary policy change on output growth in 11 industries of seven countries where negative results were found due to tightening in interest rate there is however cross-industry heterogeneity in both the overall effects. Some industries responded sensitively and this is due to the financial structure in a particular period like debt to equity ratio, firm size, and coverage ratios. The above discussion suggested that the financial accelerator mechanism can't explain fully the asymmetric effect.

Tena Horrillo and Tremayne (2006) found in cross-sectional difference asymmetries and across industries, due to monetary policy shocks. (Gosh 2009) found heterogeneous impacts of monetary policy, also found the real effects for the short run which are very important if used effectively and efficiently. (Yoshino, Taghizadeh-Hesary, et al. 2014) found that easing of monetary policy exogenously increases the prices of stock. The results of various deposition show that forecast error is 10% for Tehran Price Index (TOPIX) after 10 periods. It can be explained some exogenous shocks which dollar have if compared with Iranian domestic product was 17%. Variance deposition results show that after 10 periods the forecast error is 53% of the Tehran Price Index (TEPIX) can be explained by exogenous shocks to the dollar, while this ratio to the exogenous shocks to Iranian domestic product was 17%.

Research work on the Pakistani economy showed to have some significant results regarding the sectorial impact of monetary policy for the financial and non-financial sectors of the economy. (Ifeakachukwuu and Olufemmi 2012) investigated the monetary policy channels impulses on sectoral output in Nigeria. Their findings illustrated that the interest rate channel is best for monetary policy transmitting to the agriculture sector and manufacturing sector, while the exchange rate channel is most effective for transmitting monetary policy building/constructions, mining, service, and wholesale/retail sector.

In the case of Pakistan, only a few studies (Aalam and Waheed 2006) have been done regarding sectoral impacts of monetary policy in which they took quarterly data from 1973Q1 to 2003 Q4 and take seven sectors growth data of Pakistani economy. They used the VAR model and impulse response function and found that different sectors respond differently to the monetary policy shocks. They divided the sectors into two bases. Firstly, they divided the sectors on the magnitude of the response mean the sectors which responded less than one percent or more than one percent. Secondly, they divided the sectors on the base of the period of response like how much time these sectors have taken to respond. (Alam and Waheed 2006) concluded that aggregate output declines while tightening monetary policy and bottoms out after 2 quarters and regarding the sectorial effects they concluded that some sectors decline more due to interest rate shocks.

The sectors which responded in the less than one percent are agriculture ownership of dwelling and construction. While finance and insurance are the sectors where change was more than one percent. This paper is the extension of George and Georgopoulos and Walid Hijazi (2006), who measured monetary policy impacts at the industry level, which includes wholesale trade and retail with other sectors of the economy. Monetary policy stance is calculated by using term spread, defined as the difference between 10- year T-bond and three months T-bill and overnight rate. This study uses a level of unique data set on the financial condition across industries. Also known as the financial accelerator effect. It explains how any change in financial characteristics of the firm responds to the shock of monetary policy. For the measure of financial condition, they have used liquidities, bank borrowing, debt-equity ratio, inventories, coverage ratios, and firm size. In our study we have done the same, to check the impact of monetary policy at across industry level this study has used interest rate, exchange rate, and money supply to check the monetary policy impact on firm growth.

1.2 Research Gap

Regarding Pakistan, there are many studies (Ibrahim, 2005) that have worked on the impacts of monetary policy sectorial growth. But one thing which is common in these studies is that they analyzed it sector vise, due to that the results are average out. There are only a few studies (Aalam & Waheed, 2006) that have checked the monetary policy effect on different sectors of the economy who have checked the monetary policy

impacts on the growth of the seven sectors' growth of Pakistani economy. The exceptionality of our work is that the study checks the impact of monetary policy tools on the growth of the non-financial firm in Pakistan.

1.3 The Objective of the Study

The objective of this study is to find out the impacts of monetary policy variables on the growth of nonfinancial firms of Pakistan which are listed on the stock exchange using the Generalized Method of Moment (GMM).

1.4 Significance of the Study

The study is related to find out the result of monetary policy on firms' growth has an essential role in determining the economic scenario of markets where the work done on financial firms had been aiding in giving an overall view about policymaking. This study furthers takes the concept by enabling the policy creators to overview the monetary policy impact on nonfinancial firms that act as pillars in the economic markets. The firms level works towards indent understanding of real markets situation which is essential and helpful in the current period.

1.5 Scheme of Study

The scheme of the study is that in the 1st Chapter of introduction we have introduced our study and its literature gap along with its objective and significance of the study in the next chapter literature related to the monetary variables has been discussed. The 3rd chapter is related to the monetary variable and in the next chapter data and methodology of the study are explained and the 5th chapter is related to the findings and discussion and the preceding section is related to the conclusion of the study.

CHAPTER 2

LITERATURE REVIEW

The neoclassical approach says that any change in interest rate can bring changes in the investment process. Also, it brings changes in preferences over durable goods which are relatively sensitive to interest. By going through the previous literature, we can see that monetary policy can have greater impacts through the credit channel. Literature focuses a lot on the monetary transmission mechanism which also takes into account the credit channel. Literature is full of studies which state that issuance of unpredictable monetary policy does not bring positive outcome in financial and non-financial sectors.

Milton Friedman and Anna Schwartz (1963) are those economists who evaluate the monetary policy changes on monetary progress. Their findings are based on the data of the USA comprising 100 years. They found that any positive change in monetary policy brought positive changes in output and vice versa. But there was a doubt of correlation in their study as changes in monetary variables are not exogenous. When there is drop-down in the market of credit, it results in decreasing the investment expenditure and goods production. Wherever expansion in the monetary transmission is recognized as FAE (financial accelerator effect). Bernanke, Gertler, and Gilchrist (1996). Dornbusch and Fisher (1980) worked on the financial accelerator effects. Its process of impacting and its sensitivity.). Dornbusch and Fisher (1980) have found opposite results compared with the results of Milton Friedman and Anna Schwartz. They found that the devaluation brings positive changes local market, by reducing the cost of capital. Again, if there is a valuation in the currency it will result in increasing the cost of capital which will ultimately result in lowering the profits and decreasing the growth of the firm. Carlino and Defina (1998) worked on the USA regional economic region and checked the impact of monetary policy on these regions using VAR. when results were checked on the USA funds rate the results on individual sectors were different as compared to average results of all the sector and this was due to the interest sensitivity of the different sectors. There were more changes in those sectors that captured the impact of interest rate quickly. The second possibility is of different results is due to small vs large firms.

(Fazzari, Hubbard, &Petersen, 1988) found that those firms who have some financial constraints are more affected compared to others which are not depending more credit. Chirinko and Schaller (2001). Found the same results as FHP found and justified their results. They took data of 212 firms of the Canadian economy from 1973 to 1986. The contraction in monetary policy firstly impacts the small firms and later on large firms which are depending on banks. Because smaller firms have limited sources of financing compared to larger firms. (oliner and rudebusch) (1996) found the financial accelerator effect in the USA by using company-level data from 1958 to 1992. They found that a significant effect of gross investment but this was in the case of small firms. it was found that the impact on gross invest was more in contraction time compared with the non-contractionary period but still the bigger firm was affected.

Gertler and Gilchrist (1994) checked the monetary policy effects during the period of contractionary monetary policy in the USA. They found that small firms were impacted more than the bigger firm in terms of sales, short term debt, and inventories. Bernanke et al (1996) found some non- financial attributes which affect the performance of the firm in the USA from 1977 to 1991. They found smaller firms more volatile as compared to large firms and this was due to the firm size. The smaller firms are more volatile in short term debt inventories and sale.

Arnold et al (2005) to find out the differential impacts of interest rate sensitivity Arnold used data of eleven industries. These industries include the data of manufacturing and non- manufacturing sectors. Differential impacts of the interest rate were found depending on the nature of interest rate sensitivity. Arnold also found supportive results from the 50 states of the USA which include the date of mix industry. The monetary policy heterogeneity was found across industries and across country and it was based on interest sensitivity and size of firms. When a dummy was Introduced for one industry then the findings showed that it was unaffected to the changes in monetary policy. Milton friedman (1972) worked on the lags of monetary and conclude that monetary policy is affecting after available variable lags. Finding says that any change in monetary policy brings changes in outcomes, then these changes brought changes in prices rather than output. He concluded that CPI influenced after one year and M2 influenced after one year and eleven months.

Friedman's, 1997 worked on Australian final products that have a relation with monetary policy transmission mechanism using instrumental technique and square

estimation. He found that there is note able impact in the short-term real interest rate in final products. The first year an increase of 1% real interest rate decreased the production by one-fifth of the quarter. While for the second and third years the output decreased by one third and one-sixth percent. The study found that average lag from fifth to sixth be detected by monetary policy on growth in output which says that time of lag detected taking more time. Batini and Nelson (2002) extended the work of Friedman (1972) on the existence of lag with monetary policy and behavior of inflation which is related to it. Results were taken from a bigger date of two countries the UK and the USA for the period of 1953 to 2001. The results of the study are justifying that monetary policy has taken one year to affect inflation. Sam results were found for both countries.it was also noticed that commercial market complications and information about the markets did not reduce the lag of monetary policy. Grenville (1995) suggested five ways through which monetary policy affects the real economic sector. Exchange rate, channel cash flow, wealth effect, credit rationing, and interest rate. In seclusion, these channels can't portray the effect of monetary Policy that how monetary policy will affect any single sector of the economy. But there is a possibility of knowing monetary policy impacts. When data is taken in the form of industry characteristics and we can know that how much this industry is interest-sensitive. Interest rate sensitivity in the sectorial sectors can bring very important results that which channels are more efficient for monetary transmission. Llauds (2007) worked on the effects of unexpected monetary policy on 15 OECD countries using VAR. two sectors from each country were taken namely tradable and nontrade able. The author included both the sectors from all countries which are monetary policy sensitive. A rise in the exchange rate occurred due to contractionary policy and production in all the countries in both sectors tradable and nontrade able. But the decrease in the tradable sector was more than the non-tradable sector. This was due to interest rate sensitivity because the tradable sector is more interest-rate sensitive than non-tradable.

Nampeo et al (2013) analyzed the impact of monetary policy in Uganda for a time period of 1999 to 201. The main variables they used were the exchange rate, interest rate, and bank credit. They employed granger causality and recursive (VAR). They have taken into account the key sectors of Uganda economy manufacturing, agriculture, and the service sector. They found significant results when a progressive shock is given to exchange rate output increased in the agriculture and service sector

while in the manufacturing sector the output decrease. They found exchange rate passage is the most operative while bank credit and interest rates are comparatively less effective.

Lawson and Raees (2008) used SVAR to analyze the impact of unanticipated monetary policy on the Australian economy for the period of 1983 to 2007 with components of expenditure and production function. They found the heterogeneous impact of monetary policy supportive with the literature, they found that investment dwelling machinery and equipment sector are more interest-sensitive which expenditure component of GDP is. While the production sector construction and retail sector were more interest-sensitive. Kishan and Vecaflores (2010) checked the monetary policy impact on the net sale of the publically traded firm in the USA. They estimated (regression models) to check the firm-level fixed effect in every sector. They got heterogeneous monetary policy impact in all firms, the sensitive sector among these was wholesale and retail.Dale and Haldane (1995) measured the monetary impacts on the asset price balance sheet of banks' prices of individual and business sectors in the UK. Data that was used is starting from 1974 to 1992 and (SVAR). They found significant results in sectorial differences. The personal and corporate sector showed a negative response, But within the 3 months, the output of the corporate sector touched its peak within 17 months. Their findings are concluded as, that for the effective monetary policy lending of the personal sector and deposit of corporate sector was essential.

Kashif Munir (2010) checked the monetary policy effect on output and prices in the case of PAKISTAN using FAVAR. He has taken data of 115 monthly variables from 1992 to 2010. He found an unexpected increase in monetary policy decreased the output overall. But the sectors at the individual level have not shown the behavior. The result shows that the impacts are heterogeneous on production and for the sort run these results are real and be effective in growth if used efficiently. Tightening the monetary policy leads to a decrease in the CPI and WPI at the aggregate level. As far as the prices are concerned there is much heterogeneity in Pakistan when a monetary policy shock comes due to the discount rate. few prices have shown flexible behavior and the remaining are showing the behavior which is known as sluggish. Any monetary policy shock conveys to wholesale prices earlier than the consumer prices.

Hasanzadah and Kiavand (2012) Measured the effect of macroeconomic

variables on the Iran stock exchange using VECM. Findings say that Iran stock market showed a positive relationship with some macro variables named as the growth rate of GDP and money supply. While, the nominal effective exchange rate, gold price, and the private sector investment in the housing sector has a negative relation with the stock exchange of Iran.Çiftçi (2014 checked the impact of macroeconomic variables exchange rate, crude oil interest rate, and gold on stock return in the US for ten industries. His findings show that the impact on the stock return of these variables is different for the different industries. The exchange rate has different results regarding its impacts depending on the nature of import and export. The interest rate is affecting the stock return. Few sectors showed an increase in the return when domestics currency is depreciated. Crude oil impact is negative for is some industries weather they are oil sensitive or not. Whether they use oil or not these are affected by the actions in crude oil. Before the crisis period, there arise no relation between gold and stock for any industry. Some sectors showed negative results with gold like financials industrials sectors and consumer services.

CHAPTER 3

THEORIES OF MONETARY POLICY

Monetarism theory was presented by Milton Friedman in 1967 while addressing to the (American Economic Association). He concluded that the cure to inflation was higher interest rates. It would result in reducing the supply of money .as people are having much amount of money so the prices will have to fall. He also said that increasing the supply of money at a rapid pace is harmful to the economy. He suggested that a persistent increase necessary for the economy to grow and solving the problem of unemployment. He also suggested that if the federal government can properly utilize the supply of money it would make the economy a goldilocks economy. It means a low level of unemployment at the cost of inflation.

Friedman said that the federal government is responsible for the great depression which has occurred in the world. He said that the federal government decided to keep the monetary policy tight when it should have applied loose monetary policy. The federal government increased the interest rate to protect the value of the dollar. The value of the dollar was decreasing as people were withdrawing their money. At that time the USA was still on the Gold standard. By increasing the policy rate fed made it harder to have a loan. That resulted in a great depression.

3.1 Classical Theory

According to the classical school of thought, the monetary policy impacts the private sector negatively especially when the government takes loan domestically. If government expenses increase which are financed by variations in monetary tools has a negative effect on the working of the private sector. It reduces the performance of the private sector. The investment process must have access to funds for its business actions. It will denounce the performance of private sector investment capability by taking loans from the government is termed as crowding out effect.

Barro (1997) differentiated between the two channels which can displace the private sector due to tax cuts or any increase in government consumption. This brings increased public debt that was described as; “the decline in private spending. It may be due to a tax cut funded by a government budget shortfall and the reduction in private

ingesting and investment that results from an increase in government consumption correspondingly". From the classical frame, several other factors are perceived to affect the behavior of private sector investment. Such as the public debt structure its maturity and composition of proprietorship. Maana *et al*. (2008) found that the structure of public domestic debt portfolio inspirations how investment in the private sector can have access to credit.

3.2 The Keynesians

The Keynesian theory regarding the effects of monetary policy on output is very important. Yet, IS-LM was the main macroeconomics model that was primarily presented by Keynes in his book named (General Theory of Employment, Interest, and Money) in 1936, and later to comprehend the Keynes General Theory, the economists Barro (1978), extends it. In the era of postwar, the IS-LM model was formulated as a macroeconomics' principal framework by Hicks (1937) and Hansen (1949, 1951). Moreover, the suggestion of neutrality with an IS-LM model for aggregate demand was defined by Sargent and Wallace (1975).

The primary Keynesian model gave an upward push to an argument which states that the monetary policy increases the aggregate demand (Output). An increase in money supply is an indirect channel through which Growth in output occurs. As a result of the arising in the government spending or money supply due to low-interest rate, there is an increase in the investment. According to the Keynesian, fiscal policy is the one that affects output and income and it especially showed the constraints of monetary policy; further, in case of a liquidity trap, fiscal policy was only one approach to get a ride from a liquidity trap. They explained that if there is an unexpected rise in money supply, interest rate drop at its lowest point which disappoint the investment as a result of that the economic.

The system could not improve. They strongly argued that the function of fiscal policy is better than the monetary policy (Chowdhury, 1986; Olaloye & Ikhide, 1995).

They claimed that to boost the demand by reducing uninteresting demand and recession keep in mind to adjust the inflation, at that point fiscal policy is the better Instrument to encourage growth. However, that was not possible for both to occur collectively at the same time. So it could improve the output and employment bringing about the control of inflation through loose fiscal policy, to support monetary policy

(Mundell, 1971). An intense Keynesian case that is taken into consideration is the Liquidity trap. An essential factor to note approximately is that there can be no reduction in the interest rate because of the increasing supply of money when the pace of interest rate decreases. To some extent where the liquidity trap takes place. In common, investment is responsive slightly to the interest rate and Keynesians accepted that there is no liquidity trap in the economy, and monetary policy affects the output. Such point of view is currently referred to as "Empirically Relevant Case to Keynesian"

3.3 The Monetarists

The QTM (quantity theory of money) has been presented by Fisher (1926) that put the foundation for the long and short-run effects of monetary policy analysis. Milton Friedman based on his theory critics the Keynesian theory and put the base of Monetarist school of thought. But today the word "monetarist" is mainly associated with Milton Friedman. He observed that output and income could not be increase by the channel of money supply rather focusing their opinion on the monetary policy and investment, Keynesians had nothing in their mind concerning the liquidity trap. Monetary policy will have no effect even if the interest rate decreases, in this case, the interest rate is unresponsive for the investment (Friedman, 1963b).

There was a straight association between money aggregates and economic variations, this idea was firstly modeled by Friedman and Schwartz (1963a, 1963b).

3.4 Credit Channel Theory

Relationship Analysis between monetary policy and output showed that credit has a significant role. Kahn (2010) explained that changes in short term interest rate money supply variations in the rate of capital, which then variations in the rate of static investment (housing expenditures, inventories). The variation in demand at the end resulted in a change in output (GDP). Citing Bernanke and Gertler (1995), Kahn (2010) found the empirical results to supportive results of monetary policy on a Gross domestic product is not strong and it leads towards the credit channel theory. The basic motive of credit theory is to have a relation between internal and external sources of financing. Discussion says that variations in which thing? Bernanke and Gertler (1995) call the "external finance can be better explained by actions in investment so the overall output, than can interest rates. According to Kahn (2010), as the credit channel is concerned monetary policy affects relative pricing by bank loans. A tight monetary policy causes

banks to lessen the utilizing some of the funds whose alternative can't be replaced with other sources of funds.

3.5 Classical View on Money

According to classical money is just a veil it does not play any role in economic activity. Money does not play any role in determining income output and employment. As these are determined through technology, natural resources, savings labor capital stock, and so on they strongly believe that money is just a veil and is used as a medium of exchange only. They strongly believe that changes in monetary policy bring about nominal changes they have nothing to do with real economic activities.

3.6 Quantity Theory of Money

MV=PT, where, M, V, P, and T are the supply of money, the velocity of money, price level, and the volume of transactions (or total output) respectively. QTM states that any change in the money supply will bring the same proportionate change in prices. So, by decreasing or by increasing the supply of money the real economic activity is unaffected.

3.7 Definition of Variables

Variables used in this study is defined as,

3.7.1 Interest rate

Theories of finance discussed that variation in the rate of interest effects the financial condition of firms. (Martinez-Moya, et.al, 2013) says that the rate of interest is having a negative relationship between the growth of a company. If there is an increase in interest rate it would result in decreasing the outcome of a company and vice versa. The changes in the interest rate can bring about the changes in non-financial firms through different means. Initially due to the rise in the cost of debt, increase the costs of an exceptionally indebted firm which hints to lower the bonus and had impacts the cash flows negatively and also on the shares of that company. On the cash flow of a company. And its share prices. Positivity of interest rate results to have a negative impact on the financer investment behavior (Bartram et.al, 2002). Secondly, fee of loans can have a stronger impact on non-financial firms due to money related sources and its liabilities. Thirdly the open-door speculation expenses are affected due to open

loan cost. Any increase in loan cost can create an interesting situation regarding bonds because of the hazardous nature of bond (Bernanke and Kuttner, (2005).

3.7.2 Exchange Rate

The financial condition of a company changes due to two things it's revenue and second is its expenses. When the currency of any country is devalued then there will two types effects firstly the revenue of a company will also increase the expected cash flows will rise and that will result in increasing the share prices which will lead to the growth of a company. And if the devaluation results in increasing the expenses of a company then it will lead to the decrease the share prices and the company will not grow Dornbusch and Fisher (1980).

3.7.3 Money supply

In the short run if the supply of money is increased it will automatically create a situation of liquidity. Due to this, this price will go up for a short-term period, but due to the discount rate, the share prices will go down for long term. Because any rise in the money supply also increases the rate of inflation, as a result n due nominal interest rate also increases, and because of that discount rate also increases and it will proceed in the form decrease in the share price. The monetary portfolio theory states that any change in the supply of money changes the position of money itself. So, it results in changing arrangement and asset price for the portfolio of investors. (Rozeff, 1974). Also said that variation in the supply of money will lead to disturbing the real economic variables. That might bring a positive impact on stocks. (Rogalski and Vinso, (1976).

CHAPTER 4

DATA and METHODOLOGY

Data of this study collected from the (non-financial firms) listed which listed on the Pakistan Stock Exchange (PSX). 45 non-financial firms have been selected on the base of interest sensitivity and the base of performance in PSX for the years 2001 to 2016. To know the impact of different independent variables on firm growth the study uses the Generalized Method of Moments (GMM).

Table 4.1: Nonfinancial Sectors

Nonfinancial sectors	**No of firms**	**Nonfinancial sectors**	**No of firms**
Automobile Assembler	3	Power Generation & Distribution	3
Cement	3	Refinery	3
Chemical	3	Sugar& Allied Industries	3
Oil and gas	3	Synthetic & Rayon	3
Fertilizer	3	Transport	3
Food & Personal Care Products	3	Textile Spinning	3
Glass & Ceramics	3	Paper and board	3
Leather & Tanneries	3		

Data of monetary variables is collected from website of SBP and from its publications. Data of Variables been collected from State Bank of Pakistan Publications i.e. State Bank of Pakistan.

4.1 Data and Sample

As per the nature of the trade monetary policy and the difference in capital structure this study uses non-financial firms which are listed on (Pakistan Stock Exchange). The State Bank of Pakistan which provide reliable data when it comes to Pakistani macroeconomic situation do not provide any kind of information regarding the data of financial statements of different businesses before 2001. After the year 2001 the SBP started to publish the data of the non-financial Firms. On the other side the currently available data set on the website of the State Bank of Pakistan is till year 2016. Due to absence of data the study has finally collected the data for the years 2001 to 2016. Data are collected from the Financial Statement Analysis (FSA) and Balance

Sheet Analysis (BSA) published by the SBP.

To know monetary policy impact in this analysis the study uses the 3 fundamental variables of monetary policy, which are Exchange rate, interest rate and money supply. The data of monetary variables is collected from World Development Indicators (WDI) and government monetary policy circulars.

According to the Financial Statement Analysis (FSA) 2016 there were 443 (non-financial firms) which are listed in Pakistan Stock Exchange. Non-financial firms which did not provide the complete information even in the financial statements and have started their processes recently are left out from the sample. Non-financial firms which have some unusual year values are also removed from the sample. Finally, this study uses data of sectors of non-financial firms. And from each sector this study uses the data of 3 firm on the base of their performance in PSX.

4.2 Variables

In this study our dependent variable is Firms Growth which is calculated on the basis of real added value. The calculation of firms' growth on the basis of real added value was presented by Ferrando and mulier in (2013).

4.2.1 Interest rate

According to theories of finance discount rate and cash flow of a company are disturbed by any changes is interest rate. And due to that it also brings changes in growth of firms. (Martinez-Moya, et.al, 2013) Relation of stock market and interest rate is negative. If the interest rate increases it will result in increasing the discount rate due to that present cash flows of a company and expected cash flows changes at the end it takes to decrease the share prices. Disparities of interest rate can change the value of nonfinancial firm through 3 different ways. Primarily any rise in loan cost increase the costs of an indebted firm that goes to decrease the dividend. And it impacts the cash flow of the company negatively and have a negative impact on the cash flow of the company. The investment is negatively impacted by any change in interest rate Bartram, et.al (2002

4.2.2 Exchange Rate

The financial condition of a company changes due to two things its revenue and second is its expenses. When the currency of any country is devalued then there will two type effects firstly the revenue of a company will also increase the expected cash flows will rise and that will result in increasing the share prices which will lead to growth of a company. And if the devaluation results in increasing the expenses of a company then it will lead the decrease the share prices and company will not grow Dornbusch and Fisher (1980).

4.2.3 Money Supply

For the short run if the supply of money is increased it will automatically create a situation of liquidity. Due to this sprices will go up for short term period, but due to discount rate the share prices will go down for a period of long term. Because any rise in money supply also increases rate of inflation, as result n due nominal interest rate also increases and because of that discount rate also increases and it will proceed in the form decrease in share price.

The monetary portfolio theory stats that any change in supply of money changes the position of money itself. So it results in changing arrangement and asset price for portfolio of investor. (Rozeff, 1974). Also said that variation in supply of money will lead to disturb the real economic variables. That might bring a positive impact on stocks. (Rogalski and Vinso, (1977).

4.3 Description of Panel Data

Panel data, also known as longitudinal data a multi-dimensional data involving measurements over the time; contains observations of multiple phenomena obtained over multiple time periods for the same firms, individuals, countries etc. However, the advantage to usage of panel data can overcome the issue of identification. Currently, there is growing use and popularity of the panel data in different spheres of economic fields. According to (Baltagi, 2008) panel data always have the same cross-section over the different time period.

The advantage to usage the panel data set is that increases the number of observation and allow to control variables that cannot be observed or measured like differences in business practices across companies/banks; or variables that change over

time but not across entities. Furthermore, panel data usually contains more degree of freedom, which reduces the problem of multi collinearity. Hence improving the efficiency of econometric estimates (Hasiao et al, 1995).

Noteworthy, Panel data set consist on two types (Balanced and Un-Balanced). Balanced panel data set consist every observation of variables across all the time period. It means a single observation are not having miss in data.

4.4 Dynamic Panel Data

This study comprises of Dynamic Panel data econometric technique for analysis. FG (firm growth) will be used as a dependent variable to examine the impact of monetary policy variables on it. A dynamic panel data model is a model in which lagged dependent variable looks on the right-hand side of the equation (Baltagi, 2008) There are several conventional econometric techniques which are applied by researchers over the time some popular technique is Pooled OLS, Fixed Effect, Instrumental fixed effect, Random Effect produce the bias estimates. Thus, we rely on Generalized Method of Moments (GMM) estimates, which is commonly used to check the impact of macroeconomic and bank specific variable.

4.5 Model

The general model of the study is given by

$$\boldsymbol{Y_{it}} = \boldsymbol{\beta_0} + \sum_{\boldsymbol{i=1}}^{\boldsymbol{t}} \boldsymbol{\beta_i} \mathrm{X}_{\boldsymbol{it}} + \varepsilon_{\boldsymbol{it}}$$

The specific model including the variables of the study is given as under;

$$\boldsymbol{Log\ (F.G)_{it}} = \boldsymbol{\alpha_0} + \boldsymbol{\alpha_1 Log(F.G)_{it-1}} + \boldsymbol{\alpha_2 MS_{it}} + \boldsymbol{\alpha_3 IR_{it}} + \boldsymbol{\alpha_4 ER_{it}} + \varepsilon_{\boldsymbol{it}}$$

Where

F. G= Firms Growth

MS= Money Supply

IR = Interest Rate

ER = Exchange Rate

4.4 Descriptive Statistics

Descriptive statistics of the data is explained in table 4.2

Table No 4.2: Descriptive statistics

Variables	Mean	Median	Maxi mum	minimum	Std. dev	Skew nes	Kurtosis	Jarque- bera	proba bility
IF	- 0.0212	0.0049	0.2016	-0.3167	0.1947	- 0.5306	2.2378	0.3556	0.8370
IMC	0.3526	- 0.0507	1.6515	-0.1853	0.7833	1.0604	2.5215	0.9848	0.6111
IR	3.4556	4.6929	7.1253	-4.3675	4.5289	- 1.2465	2.9413	1.2955	0.5231
JkS	0.5379	- 0.2347	2.9421	-0.3813	1.3997	1.2413	2.8368	1.2896	0.5247
KAP	0.1358	0.2291	0.2572	-0.0891	0.1532	0.6574	1.7283	0.6970	0.7057
LC	0.3705	0.3390	0.6884	0.1628	0.2079	0.6251	2.1084	0.4913	0.7821
LPL	-.0.9285	- 0.8078	-0.0540	-1.8100	0.8509	- 0.1098	1.2539	0.6452	0.7242
LU	- 1.7638	- 1.3347	0.3765	-4.9717	2.0596	- 0.6854	2.2479	0.5093	0.7751
MGC	0.5417	0.5129	1.1711	-0.3646	0.6437	- 0.3231	1.7562	0.4092	0.8149
MPL	.1.0579	- 0.8442	2.3289	-5.0928	2.7959	- 0.3146	2.0623	0.2656	0.8755
MS	99511	9384152	14633263	7074570	2898621	0.8477	2.4679	0.6579	0.7196
NRL	0.3046	0.0095	1.6737	-0.5402	0.9702	0.4801	1.6505	0.5714	0.7514
PIA	10.1269	- 0.3951	59.6668	-7.3095	27.8509	1.4564	3.1970	1.7759	0.4114
PIC	0.2152	0.1915	0.8092	-0.1594	0.3915	0.5848	2.0628	0.4680	0.7913
PL	1.7018	0.1330	8.8862	-0.7623	4.0428	1.4505	3.1856	1.7605	0.4146
PLC	- 8.9861	- 0.4249	-0.1742	- 43.4942	19.2911	- 1.4997	3.2497	1.8874	0.3891
POM	0.3303	0.2977	0.9484	-0.1493	0.4548	0.2740	1.6366	0.4498	0.7985
ARL	- 9.1837	-.02333	0.6934	- 45.7839	20.4665	1.4976	3.2469	1.8818	0.3902
BC	0.1366	0.1218	0.3356	-0.1207	0.1700	- 0.4726	2.2571	0.3011	0.8602
BGL	0.6880	- 0.2364	4.8615	-0.7302	2.3450	1.4613	3.2011	1.7880	0.4090
BWD	0.0382	-.0.0391	0.4549	-0.4843	0.3817	- 0.1917	1.7225	0.3706	0.8308
CSA	- 0.0265	- 0.3619	1.1633	-0.6376	0.7206	1.0207	2.5339	0.9135	0.6333

DGC	0.5038	0.1737	1.5271	O.1056	0.6049	1.1604	2.6920	1.1419	0.5649
DTM	- 0.90 93	- 0.744 2	0.8684	-2.4814	1.250 9	0.204 1	2.086 6	0.208 5	0.9009
ENGRO	1.06 17	0.547 6	3.2249	-O.8114	2.011 3	0.206 3	1.232 3	0.686 4	0.7094
ER	97.0 42	101.1	102.76	86.43	7.035 4	- 0.742 2	1.922 8	0.700 7	0.7044
FC	0.65 17	0.350 0	1.9936	0.2192	0.755 2	1.450 4	3.182 3	1.760 0	0.4147
FCM	0.11 75	0.044 4	0.5403	-0.3116	0.331 8	0.034 0	1.777 2	0.312 4	0.8553
FFC	0.08 32	- 0.056 7	0.8164	-0.2054	0.422 1	1.293 3	2.963 3	1.394 3	0.4979
GDM	0.12 80	- 0.269 0	1.1144	-0.6134	0.806 5	0.371 9	1.269 9	0.738 8	0.6911
GGL	0.13 20	0.097 1	0.4343	-0.0786	0.187 3	0.768 5	2.625 0	0.521 4	0.7704
GL	0.10 38	0.151 6	0.7732	-0.5629	0.635 9	- 0.055 3	1.263 7	0.630 5	0.7295
HAC	1.08 81	0.612 5	6.7219	-2.7648	3.537 5	0.734 0	2.468 6	0.507 8	0.7757
PS	0.28 69	0.043 1	1.2727	-0.2393	0.630 6	0.793 0	2.127 7	0.682 6	0.7108
PSL	0.39 24	0.180 4	2.0843	-0.6653	1.014 7	0.970 7	2.786 1	0.794 8	0.6720
PSO	0.01 30	- 0.000 2	0.5687	-0.6536	0.485 0	- 0.221 9	1.768 5	0.356 9	0.8365
PTC	0.53 90	0.464 0	1.5800	-0.3834	0.698 6	0.280 0	2.490 0	0.119 5	0.9419
PZM	0.76 07	0.454 4	1.7096	0.1531	0.650 3	0.593 6	1.764 7	0.611 5	0.7365
RMP	0.11 56	0.146 2	0.2000	-0.0157	0.091 9	- 0.514 9	1.696 7	0.574 8	0.7501
SGF	2.36 55	1.102 5	6.2754	-0.5320	3.222 0	0.330 3	1.275 0	0.710 7	0.7008
SIH	0.16 18	0.092 9	0.3531	0.3882	0.130 0	0.612 8	1.806 3	0.609 8	0.7371
SPL	0.08 34	0.123 2	0.2190	-0.1435	0.155 1	- 0.545 3	1.814 5	0.540 6	0.7631
SPLL	0.27 16	0.170 6	0.5942	0.0092	0.263 1	0.309 4	1.318 4	0.668 9	0.7157
STC	0.02 31	- 0.148 5	0.6283	-0.3362	0.378 2	0.853 1	2.337 8	0.697 8	0.7054
THP	0.19 35	0.173 4	0.5968	-0.1369	0.255 3	- 0.067 9	1.637 4	0.390 6	0.8225
TL	- 1.14 36	- 0.682 4	-0.2314	-2.8207	1.083 8	- 0.766 2	2.055 3	0.675 2	0.7134
TPF	0.27 93	- 0.216 8	2.0956	-0.1529	1.081 5	1.110 7	2.648 3	1.053 9	0.5903

The Table provides the descriptive statistics for all the firms under the study. The mean return of all the firms is around zero. As shares are traded in market and market tend to be bearish or bullish, the return observations can be above or below the mean return. Skewness is positive for some of the firms indicating the bearish behavior for the stocks of such firms. Similarly, it is negative for some of the firms indicating the bullish behavior for the stocks of such firms. The kurtosis is positive for the firms indicating the return of all the firms being leptokurtic. The more values of skewness are around zero so it means that this distribution is symmetric around its mean. The return series is not distributed normally for most of the firms as evident from the Jarque-Bera test. Median is used for the middle value. standard deviation tells us how far the observation is from the sample average. The values of normality are indicating that that the data is normally distributed because the values are minimum. Outlier in the data can be found. **4.5 Correlation Matrix** The table 4.3 shows the results of correlation matrix. This table presents relationship among the variables. Firm growth has positive relationship with MS ER and INTEREST. The increment in these variables tends to increase in firm growth. It means any positive change in these variables will bring a positive change in the growth of these firms Exchange rate has positive relation with all the other variables, firm growth, interest rate and money supply. Changes in exchange rate will bring a positive change in firm growth. Next variable is money supply, it has positive relation with firm's growth, interest rate and firm growth. That shows any change in Money supply will bring positive change in firms growth. Over all firm growth has positive relation with all variable.

Table 4.3 Correlation

	DLFG	**INTERSET**	**MS**	**ER**
DLFG	1			
INTEREST	0.5298	1		
MS	0.0865	0.0149	1	
ER	0.0617	0.1655	0.1340	1

CHAPTER 5

RESULT AND DISCUSSION

5.1 Panel Data Analysis

Table 5.1: This table includes the results of three sector of the non-financial sector and

(a) Synthetic and Rayon			**(b) Sugar and Allied Industries**			**(c) Refineries**		
Variable	Coefficient	P Value	Variable	Coefficient	P Value	Variable	Coefficient	P Value
FG(-1)	0.6616565	0.003 (0.0563293)	FG(-1)	0.0374695	0.729 (0.1080278)	FG(-1)	0.0406991	0.35 (0.440292)
MS	-3.6634	0.000 (9.56)	MS	6.06	0.000 (1.53432)	MS	-3.60343	0.00 (8.22)
INTEREST	0.6875299	0.000 (0.150429)	INTEREST	-1.130711	0.000 (0.2614868)	INTEREST	5.991164	0.00 (1.389941)
ER	0.0002675	0.001 (0.0000834)	ER	0.0003165	0.001 (0.00096)	ER	0.0010175	0.00 (0.0002583)
CON	1.566985	0.001 (0.4771188)	CON	-3.011922	0.000 (0.7294207)	CON	16.33226	0.00 (3.702833)
HENSEN		0.17	HENSEN		0.76	HENSEN		0.51

in each sector, there are three non-financial firms. The ongoing study estimates the monetary policy estimates with the help of generalized method moment (GMM), single step estimation method.it includes exchange rate money supply and interest rate, equation as policy variables. The result is presented in table 01 Basically, Hansen test is calculated over-identifying restrictions. The p-values of Hansen (0.17, 0.76 and 0.51). Test suggest that instruments used in the regression are valid for synthetic and rayon industries, sugar & allied industry and refinery industry. The probability value (P- Value) of Hansen test is enough high so the null hypothesis is that the instruments are valid cannot be rejected.

5.1.1 Synthetic and rayon

As the firms' growth depends on the previous lag so, the first independent variable is the lag of firms' growth which shows the significant relationship with growth

of firm and states that firms growth depends on its own previous lag positively which can be seen from its coefficient. P-value is less than 0.05 and value of standard error is 0.0563293 so we reject the null hypothesis and accept our alternate hypothesis. As one independent variable is money supply in this study. The value of coefficient is -3.6634 which shows that it is negatively related with the growth of the firms. P value is less than 0.05 and value of standard error 9.56. From these values it shows that money supply has Negative sign which shows the negative impact of MS on firms' growth, as the MS increases the speed of growth decreases and vice versa. But the value of P is less than 0.05, so we reject the null hypothesis In this study our second independent variable is interest rate. The value of coefficient is positive which that interest rate is having a positive relation with firm's growth. So reject the null hypothesis. P value is less than 0.05 and value of standard error is 0.15 so we reject null hypothesis which means that change in money supply causes changes in firm growth. In this study last independent variable is Exchange Rate. Value of coefficient for Exchange rate is positive which also indicates that Exchange rate has positive relation with firms growth. P value is less than 0.05 so reject the null hypothesis.

5.1.2 Sugar and allied industries

As defined earlier firms' growth depends on the previous lag so, the first independent variable is the lag of firms' growth which shows the significant relationship with firm growth. Firm's growth depends on its own previous lag. The value of coefficient is 0.0374695 and P-value is 0.729 which shows positive but insignificant relationship between firm growth and its lag value. The value of coefficient for MS (6.06) is positive which mean it has positive relation with firm's growth. It means that the movement in money supply and firm's growth in case of sugar and allied industries with be in same direction. P, value is. Less than 0.05 which means that the significant results are obtained. So null hypothesis is rejected Interest rate has negative value of coefficient (-1.130711) which indicates that it has negative relation with the growth of firms. P value is less than 0.05 so we reject the null hypothesis and accepting that the interest rate is having positive relationship with the firm growth. By viewing the p value, we can reject our null hypothesis in this case. Exchange rate has positive value of its coefficient (0.0003165), which means that growth and exchange rate moves in same direction and has a positive relationship. P value is less than 0.05 so we reject the null hypothesis. By this value it can be seen that these are significantly

related (exchange rate and firm's growth).

5.1.3 Refineries

Firms' growth depends on the previous lag so, the first independent variable is the lag of firms' growth. In this case the lag dependent value has positive relation which can be clearly seen from the coefficient which is 0.0406991. But P value more than 0.05 so we can say that in this case the firm's growth has insignificant relationship and it is not depending on its lags in case of the refineries. Money supply has negative value of coefficient (-3.60343) which means that the growth of firms decreases if any increase occurs in MS. P value is less than 0.05 so null hypothesis is rejected. The p value concludes that there is negative but significant relationship between MS and firm's growth.

Interest rate has positive value of coefficient (5.991164). P value is less than 0.05 indicating that it is significant at 5% confidence level. So we reject the null hypothesis. The conclusion from the values can be drawn in such a way that. There is positive and significant relationship between interest rate and firm's growth. Exchange rate has positive value of coefficient (0.0010175) which shows that the movement in exchange rate and firm's growth. Value of p is less than 0.05 India

Table 5.2

Power Generation			**Leather and Tanneries**			**Glass and Ceramics**		
Variable	Coefficient	P Value	Variable	Coefficient	P Value	Variable	Coefficient	P Value
FG(-1)	0.9246 803	0.03 (0.0277 794)	FG(-1)	0.3637 425	0.031 (0.0719 601)	FG(-1)	0.0051 236	0.672 (0.0125 09)
MS	0.3245	0.001 (4.2867)	MS	0.9831	0.041 (1.15)	MS	1.60	0.002 (5.22)
INTER EST	-0.071098	0.001 (0.0219777)	INTER EST	0.5423 317	0.06 (0.2910224)	INTER EST	0.0723 246	0.086 (0.0429845)
ER	0.0000 382	0.0068 (0.0000	ER	0.0018 205	0.014 (0.0003	ER	0.0000 152	0.630 (0.0003
CON	0.290	0.003 (0.290)	CON	14.795	0.031 (6.869)	CON	1.151	0.001 (0.343)
HENSEN	0.725		HENSEN	0.23		HENSEN	0.13	
CON	0.2902 978	0.003 (0.2902 978)	CON	-14.795 97	0.031 (6.8698 89)	CON	1.1516 86	0.001 (0.3433 779)
HENSEN	0.725	HENSEN	0.23	HENSEN	0.13			

5.1.4 Power generation

The result are presented in table 01 Basically, Hansen test is calculated over-identifying restrictions. The p-values of Hansen (0.75 0.23 and 0.13) test suggest that instruments used in the regression are valid for Power Generation Leather and tanneries and Glass and Ceramics industry. The probability value (P-Value) of Hansen test is enough high so the null hypothesis that the instruments are valid cannot be rejected. As the firms' growth depends on the previous lag so, the first independent variable is the lag of firms' growth which shows the significant relationship with growth of firm and states that firms growth depends on its own previous lag positively which can be seen from its coefficient. P-value is less than 0.05 and value of standard error is 0.0277794 so we reject the null hypothesis and accept our alternate. Money supply is independent variable in this study. The value of coefficient is 0.3425 which it is having positive relation with the growth of the firms. P value less than 0.05 and value of standard error 4.2867 from these values it shows that money supply has positive relation with firm growth. P is less than 0.05, so we reject the null hypothesis In this study our second independent variable is interest rate. The value of coefficient is positive which shows that rate of interest has positive relation with firm's growth. So, reject the null hypothesis. P value is less than 0.05 and value of standard error is 0.15 so we reject null hypothesis which means that change in interest rate causes positive changes in firm growth. In this study last independent variable is Exchange Rate. Value of coefficient for Exchange rate is showing positive relation. Which a indicates that Exchange rate has positive relation regarding growth of firms. P value is less than 0.05 so reject the null hypothesis. Exchange rate has positive value of its coefficient (0.0000382), which means that growth and exchange rate moves in same direction and has a positive relationship. P value is less than 0.05 so we reject the null hypothesis. By this value it can be seen that firm's growth and exchange rate are positively related.

5.1.5. Leather and tanneries

As defined earlier firms' growth depends on the previous lag so, the first independent variable is the lag of firms' growth which shows the significant relationship with firm growth. Firm's growth depends on its own previous lag. The value of coefficient is 0.3637425 and P-value is 0.03 which shows positive relationship between firm growth and its lag value. The value of coefficient for MS (0.9831) is

positive which mean it has positive relation with firm's growth. It means that the movement in money supply and firm's growth in case of sugar and allied industries with be in same direction. P value is less than 0.05 which means that the significant results are obtained. So, we reject the null hypothesis. Interest rate has negative value of coefficient (5423317) which indicates that it has positive relation with the growth of firms. P value is 0.06 significant on 10 percent confidence interval. We can reject the null hypothesis and accepting that the interest rate has significant relationship with the firm growth on the base of 10% confidence interval. By viewing the p value, we can reject our null hypothesis in this case. Exchange rate has positive value of its coefficient (0.0018205), which means that growth and exchange rate moves in same direction and has a positive relationship. P value is less than 0.05 so we reject the null hypothesis. By this value it can be seen that there is significant relation among these (exchange rate and firm's growth)/

5.1.6 Glass and ceramics

Firms' growth depends on the previous lag so, the first independent variable is the lag of firms' growth. In this case the lag dependent value has positive relation which can be clearly seen from the coefficient which is 0.0051236. But P value is greater than 0.05 so we can say that in this case the firm's growth has insignificant relationship and it is not depending on its lags in case of glass and ceramics. Money supply has positive value of coefficient (1.60) which means that the of growth of firms increase if any increase occurs in MS. P value is less than 0.05 so we reject the null hypothesis. The p value concludes that there is significant relationship between MS and firm's growth. Interest rate has positive value of coefficient (0.0723246). P value is greater than 0.05 indicating that it is not significant at 5% confidence level. So, we can't reject the null hypothesis. The conclusion from the values can be drawn in such a way that there exists positive but insignificant significant relationship between interest rate and firm's growth. Exchange rate has positive value of coefficient (0.0000152) which shows that the movement in exchange rate and firm's growth. P value is greater than 0.05 indicating positively but insignificant relation of exchange rate with the firm growth. By viewing the p value, we cannot reject the null hypothesis.

Table 5.3

(a) Food and Personal			(b)Fertilizer			(Cement)		
Variable	Coefficient	P Value	Variable	Coefficient	P Value	Variable	Coefficient	P Value
FG(-1)	0.5132033	0.000 (0.40092)	FG(-1)	0.5	0.023 (1.7246383)	FG(-1)	0.4799412	0.000 (0.0397338)
MS	1.28	0.000 (2.31)	MS	-2.46	0.003 (3.65)	MS	-2.24	0.000 (2.06)
INTEREST	-0.2763716	0.000 (0.0371403)	INTEREST	0.0982 3	0.02 (1.26)	INTEREST	3.450635	0.000 (0.3078572)
ER	0.0000278	0.1810 (0.000173)	ER	0.266913	0.01 (1.55)	ER	0.0017256	0.001 (0.004981)
CON	-0.1691124	0.124 (0.1100714)	CON	171.0411	0.05 (1.02)	CON	11.74774	0.000 (1.173488)
HENSEN		0.32	HENSEN		0.24	HENSEN		0.952

5.1.7 Food and personal

The result are presented in table 01 Basically, Hansen test is calculated over-identifying restrictions. The p-values of Hansen (0.32, 0.24 and 0.95) test suggest that instruments used in the regression are valid for Food and Personal Fertilizer and cement industry. The probability value (P-Value) of Hansen test is enough high so the null hypothesis that the instruments are valid cannot be rejected. Firms' growth depends on the previous lag so, the first independent variable is the lag of firms' growth. In this case the lag dependent value has positive relation which can be clearly seen from the value of coefficient is 0.5132033. But P value is less than 0.05 so we can say that in this case the firm's growth has significant relationship and it is depending on its lags in case of food and ceramics. Money supply has positive value of coefficient (1.28) which means that the of growth of firms increase if any increase occurs in MS. P value is less than 0.05 so we reject the null hypothesis. The p value concludes that there is significant relationship between MS and firm's growth. Interest rate has positive value of coefficient (-0.2763716). it means the firm growth will decrease it has negative relation with firm growth. P value is less than 0.05 indicating that it is significant at 5%

confidence level. So, we reject the null hypothesis. The conclusion from the values can be drawn in such a way that there exists negative but significant relationship between interest rate and firm's growth. Exchange rate has positive value of coefficient (0.0000278) which shows that the movement in exchange rate and firm's growth. P value is greater than 0.05 indicating a positive and insignificant relation of exchange rate with the firm growth. By viewing the p value, we cannot reject the null hypothesis.

5.1.8 Fertilizer

Firms' growth depends on the previous lag so, the first independent variable is the lag of firms' growth. In this case the lag dependent value has positive relation which can be clearly seen from the coefficient that is 0.5132033. P value 0.03 so we can say that in this case the firm's growth has significant relationship and it is depending on its lags in case of food and ceramics. Money supply has positive value of coefficient (-2.46) which means that the of growth of firms decreases if any increase occurs in MS. P value is less than 0.05 so we reject the null hypothesis. The p value concludes that there is significant relationship between MS and firm's growth. Interest rate has positive value of coefficient (0.09823). It means the firm growth will increases it has positive relation with firm growth. P value is less than 0.05 indicating that it is significant at 5% confidence level. So we reject the null hypothesis. The conclusion from the values can be drawn in such a way that there exists negative but significant relationship between interest rate and firm's growth. Exchange rate has positive value of coefficient (0.266913) which shows that the movement in exchange rate and firm's growth. P value is greater than 0.05 indicating appositive and insignificant relation of exchange rate with the firm growth. By viewing the p value, we reject the null hypothesis.

5.1.9 Cement

Firms' growth depends on the previous lag so, the first independent variable is the lag of firms' growth. In this case the lag dependent value has positive relation which can be clearly seen from the coefficient that is (0.4799412). P value is less than 0.05 so we can say that in this case the firm's growth has significant relationship and it is depending on its lags in case of food and ceramics. Money supply has positive value of coefficient (-2.24) which means that the of growth of firms decreases if any increase occurs in MS. P value is less than 0.05 so we reject the null hypothesis. The p value concludes that there is significant relationship between MS and firm's growth. Interest

rate has positive value of coefficient (3.450635). it means the firm growth will increases it has positive relation with firm growth. P value is less than 0.05 indicating that it is significant at 5% confidence level. So we reject the null hypothesis. The conclusion from the values can be drawn in such a way that there exists negative but significant relationship between interest rate and firm's growth. Exchange rate has positive value of coefficient (0.0017256) which shows that the movement in exchange rate and firm's growth. P value is greater than 0.05 indicating positive and insignificant relationship of exchange rate with the firm growth. By viewing the p value, we reject the null hypothesis.

Table 5.4

Automobile			**Transport**			**Chemical**		
Variable	Coefficient	P Value	Variable	Coefficient	P Value	Variable	Coefficient	P Value
FG(-1)	0.47994 12	0.000 (0.0397 338)		-0.00614 04	0.879 (0.0402 73)		0.49947 8	0.000 (0.0003 673)
MS	-2.24	0.000 (2.06)		-1.59	0.000 (3.49)		-0.00004 39	0.000 (5.60)
INTEREST	3.45063 5	0.000 (0.3078 572)		1.04495 6	0.000 (0.2410 448)		0.39803 4	0.000 (0.0378 476)
ER	0.00172 56	0.001 (0.0004 981)		-0.00090 65	0.008 (0.0003 391)		-0.14796 95	0.000 (0.0001 587)
CON	11.7477 4	0.000 (1.1734 88)		9.96722 2	0.000 (2.0472 03)		331.011	0.000 (0.3221 819)
HENSEN	0.952		HENSEN		0.739	HENSEN		0.152

5.1.10 Auto mobile

The result are presented in table 01 Basically, Hansen test is calculated over-identifying restrictions. The p-values of Hansen (0.952, 0.73 and 0.152) test suggest that instruments used in the regression are valid for Auto mobile transport and chemical industry. The probability value (P-Value) of Hansen test is enough high so the null

hypothesis that the instruments are valid cannot be rejected. Firms' growth depends on the previous lag so, the first independent variable is the lag of firms' growth. In this case the lag dependent value has positive relation which can be clearly seen from the coefficient that is (0.4799412). P value is 0.03 so we can say that in this case the firm's growth has significant relationship and it is depending on its lags in case of food and ceramics. Money supply has positive value of coefficient (-2.24) which means that the of growth of firms decreases if any increase occurs in MS. P value is less than 0.05 so we reject the null hypothesis. The p value concludes that there is significant relationship between MS and firm's growth. Interest rate has positive value of coefficient (3.450635). it means the firm growth will increases it has positive relation with firm growth. P value is less than 0.05 indicating that it is significant at 5% confidence level. So we reject the null hypothesis. The conclusion from the values can be drawn in such a way that there exists negative but significant relationship between interest rate and firm's growth. Exchange rate has positive value of coefficient (0.0017256) which shows that the movement in exchange rate and firm's growth. P value is greater than 0.05 indicating positive and but insignificant relation of exchange rate with the firm growth. By viewing the p value, we reject the null hypothesis.

5.1.11 Transport

Firms' growth depends on the previous lag so, the first independent variable is the lag of firms' growth. In this case the lag dependent value has positive relation which can be clearly seen from the coefficient which is -0.0061404. P value is greater than 0.05 so we can say that in this case the firm's growth has insignificant relationship and it is not depending on its lags in case of food and ceramics. Money supply has positive value of coefficient (-1.59) which means that the of growth of firms decreases if any increase occurs in MS. P value is less than 0.05 so we reject the null hypothesis. The p value concludes that there is significant relationship between MS and firm's growth. Interest rate has positive value of coefficient (1.044566). It means the firm growth will increases it has positive relation with firm growth. P value is less than 0.05 indicating that it is significant at 5% confidence level. So, we reject the null hypothesis. The conclusion from the values can be drawn in such a way that there exists negative but significant relationship between interest rate and firm's growth. Exchange rate has positive value of coefficient (-0.0017256) which shows that the movement in exchange rate and firm's growth. P value is greater than 0.05 indicating positive and but

insignificant relation of exchange rate with the firm growth. By viewing the p value, we reject the null hypothesis.

5.1.12 Chemical

Firms' growth depends on the previous lag so, the first independent variable is the lag of firms' growth. In this case the lag dependent value has positive relation which can be clearly seen from the coefficient which is 0.499478. P value is greater than 0.05 so we can say that in this case the firm's growth has insignificant relationship and it is not depending on its lags in case of food and ceramics. Money supply has positive value of coefficient (-0.000439) which means that the of growth of firms decreases if any increase occurs in MS. P value is less than 0.05 so we reject the null hypothesis. The p value concludes that there is significant relationship between MS and firm's growth. Interest rate has positive value of coefficient (0.395408). it means the firm growth will increases it has positive relation with firm growth. P value is less than 0.05 indicating that it is significant at 5% confidence level. So, we reject the null hypothesis. The conclusion from the values can be drawn in such a way that there is negative but significant relationship between interest rate and firm's growth. Exchange rate has positive value of coefficient (-0.047945) which shows that the movement in exchange rate and firm's growth. P value is greater than 0.05 indicating positive and but insignificant relation of exchange rate with the firm growth. By viewing the p value, we reject the null hypothesis.

5.1.13 Oil and gas

The result are presented in table 01 Basically, Hansen test is calculated over-identifying restrictions. The p-values of Hansen (0.28) test suggest that instruments used in the regression are valid for Oil and Gas. Probability value (P-Value) of Hansen test is enough high so the null hypothesis that the instruments are valid cannot be rejected. Firms' growth depends on the previous lag so, the first independent variable is the lag of firms' growth. In this case the lag dependent value has positive relation which can be clearly seen from the coefficient that is (0.8815022). P value is less than 0.05 so we can say that in this case the firm's growth has insignificant relationship and it is not depending on its lags in case of food and ceramics.

Table 5.5

Oil and Gas		
Variable	Coefficient	P Value
DL(FG)	0.88	0.00 -0.06
MS	-1.31	0.00 -3.43
INTEREST	0.23	0.00 -0.04
ER	0.00	0.00 0.00
CON	1.47	0.00 -0.30
HENSEN	0.28	

CHAPTER 6

CONCLUSION

We can conclude this chapter by comparing the sectors in relation to the variables. When one standard deviation shock is given to money supply the growth of these 4 sectors is affected more. Sugar and allied industry, glass and ceramics, food and leather are the sectors which are affected more by any change in money supply. The basic reason of performing for sugar and allied industries is that these industries work 4 months for the production and sale out their products for the remaining 8 months in a year. Therefore, it is on the top in its performing. The results of four top performer regarding interest rate among the selected sectors are cement automobile chemical and leather. The top four sectors which are affected in case of exchange rate changes are Fertilizer transport chemical and oil.

6.1 Summary

In our study we have checked the relationship between monetary variables and growth of nonfinancial firms listed in Pakistan stock exchange. The study is beneficial for the analysis of diversifying risk by viewing through the monetary variables. This study has found the impact of monetary variable on different firms in the non-financial sector of Pakistan stock exchange. Three monetary policy variables and growth of 45 firms selected from 15 sectors in the nonfinancial sector of Pakistan stock exchange are examined. For this study yearly data has been taken from July 2001 to June 2016. For the empirical results this study uses GMM. The result of this study shows that the effect of monetary variables vary from firm to firm and from sector to sector however there are variables which have similar impact.

6.2 Conclusion

On the base of past studies as we know that variation in rate of interest effect both the discount rate and expected future cash flows of the firms and therefore the value of the company changes as well. (Martinez-Moya, et al. 2013). Here in the case of leather and tanneries and glass and ceramics interest rate have negative relation with the 6 selected firms of these sectors. These results are consistent with the findings of (Martinez-Moya, et al. 2013). The other sectors have positive and significant results with any change in interest rate. Small firms are more interest rate sensitive in Belgium

(Bautzen & Catherine, 2001) which supports this study results in case of Pakistan. If our currency depreciated against the dollar and it hints to rise the expenses of the company then that means exchange rate is affecting cash flow of the company negatively Dornbusch and Fisher (1980). When ER increases our local currency is devalued due to that our products becomes cheaper for the foreigners it leads to increase in export and tends to increase the sale and probability of the firm. Which ultimately results in growth of firms (Yin-Wong Cheung, Rajeswari Sengupta 2013). Food and personal and glass and ceramics have insignificant results with any change in Exchange rate. Coefficient of Sugar**,** Refineries, Transport and Chemical have negative sign and results are steady with the study (Dornbusch and Fisher, 1980). The reason of negative relationship shown in results is simply that the dealings of chemical sector is directly with the companies and we all know that the profit of those companies is higher. Money supply has mixed, some sectors have responded positively and some are responding negatively. Synthetic and rayon, Refineries, Fertilizer cement and auto mobile have negative relation remaining have positive relations. By combining the estimated results, it is concluded that the money supply has negative impact in the case of synthetic refineries fertilizer cement auto mobile transport and oil and gas sectors. While In case of sugar power leather glass food and chemical the money supply is positively impacting.

6.3 Policy Recommendation

This study has implications in case of Pakistan when a set of 45 companies were taken in the sample. The monetary policy regulator (central bank) which in case of Pakistan is state bank of Pakistan can take valid decisions viewing the effect of monetary policy on firm's growth. The state bank of Pakistan by this way can construct policies which will increase the firm's growth and will be helpful to firms and equity holders in long term growth. The investors will be attracted in this way and the economy will flourish as a result.

6.4 Future Way Out

Furthermore, a larger sample with more variables will represent the population more appropriately so adding of firm specific variables in future studies will benefit in knowing how the growth of firms are affected and hence can be used in formulating a better monetary policy towards advancement of Pakistani economy.

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