BANK LOAN SUPPLY AND CORPORATE CAPITAL STRUCTURE

Researcher:

Sehrish Naheed

REG NO.193-FMS/MSFIN/S12

Supervisor:

Dr. ZaheerAbbas

Assistant Professor,FMS

Faculty of Management Sciences

INTERNATIONAL ISLAMIC UNIVERSITY, ISLAMABAD

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Sehrish Naheed

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Islamabad.

Dr. Zaheer Abbas

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In the name of Allah, the most merciful and beneficent.

DEDICATION

I dedicate this thesis to my parents, family and my supervisor whose support has enabled me to complete this research study successfully.

(Acceptance by the Viva Voice Committee)

Title of Thesis: "Bank Loan Supply and Corporate Capital Structure".

Name of Student: Ms. Saleesh Mahmood

Registration No: 193-FMS/MSFIN/S12

Accepted by the Faculty of Management Sciences INTERNATIONAL ISLAMIC UNIVERSITY ISLAMABAD, in partial fulfillment of the requirements for the Master of Science/Philosophy Degree in Management Sciences with specialization in Finance.

Viva Voce Committee

Dr. Zaheer Abbas
(Supervisor)

Dr. Arshad Hassan
(External Examiner)

Ch. Mazhar Hussain
(Internal Examiner)

(Chairman HS & R)

(Dean)

Date: 4th February, 2015

ABSTRACT

This study aims to investigate the impact of bank loan supply on corporate capital structure and to study the role of macroeconomic indicators in firm's capital structure decisions. By using OLS technique, two equations are formulated using two different proxies of leverage ratios with supply side factors; bank loan supply, GDP (growth rate) and inflation rate. To analyze the expected relationship, a Panel regression model is employed by taking the sample of manufacturing firms listed in Karachi Stock Exchange (KSE). Empirical findings illustrate that bank loan supply and macroeconomic factors influence the corporate capital structure decisions. Results showed significant positive association with leverage ratios.GDP growth rate has also shows significant positive association with leverage ratios. But on other hand inflation rate have mixed results with debt ratios. These results signify that observed debt ratios and placement of debt structures are not established solely by modifying in corporate demand for capital structure. Relatively, supply frictions in the debt markets are significant part of corporate capital structures, mostly for bank reliant firms.

Key words: capital structure, debt ratios, bank loan supply, panel data analysis, macroeconomic factors.

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DECLARATION

I hereby declare that this thesis, neither as a whole nor as a part thereof, has been copied out from any source. It is further declared that I have prepared this thesis entirely on the basis of my personal effort made under the sincere guidance of my supervisor. No portion of work, presented in this thesis has been submitted in support of any application for any degree or qualification of this or any other university or institute of learning.

Ms. SEHRISH NAHEED

MS (FINANCE)

Faculty of Management Sciences

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Ms. SEHRISH NAHEED

FORWARDING SHEET

The thesis entitled "Bank Loan Supply and Corporate Capital Structure" submitted by Ms. SEHRISH NAHEED partial fulfillment of M.S degree in Management Sciences with specialization in finance, has completed under my guidance and supervision. I am satisfied with the quality of student's research work and allow her to submit this thesis for further process as per IIU rules & regulations.

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Table of Content

LIST OF TABLES

ABBREVIATIONS

DER	Debt to Equity Ratio
CPR	Capitalization Ratio
GR	Growth Rate
IR	Inflation Rate
BLS	Bank Loan Supply
FS	Firm Size
PR	Profitability

CHAPTER: 1

1. INTRODUCTION

For an effective and sound decision making of firm financial policies, there is decisive need of progressive economic growth. Regarding deliberate financial decision making Capital structure is one of the most important parts of firms. Modigliani and Miller (1958) paid much intension to understanding firm's financial policies. Capital structure is defined as the resources (ways) through which an association is financed. The firm's capital structure is also named as leverage. It includes common stock, preferred stock and debt which categorized as (long-term and short-term) debt. These are actually the main sources of finances which empower a firm to furnish its possessions or assets. In order to carry on its operating activities a firm need to requires a combination of all these financing tools. There is relative significance of capital structure decisions for firm upcoming projects. In the literature of corporate finance, choice of capital structure has been concern of great attention.

The source of capital or money supply also affects the capital structure. As implicit by Modigliani and Miller (1958), if the supply of different types of capital structure is extensively elastic, subsequently debt levels are exclusively determined by firm's requirement for debt. Though, a number of recent sections of evidence propose that it may not be the case. For example, anecdotal (Titman, 2002) and survey (Graham & Harvey, 2001) evidence imply that observers sight supply settings are as significant contribution to the capital structure decision. Faulkender and Petersen (2006) documented in their study that bond rating firms have higher debt (leverage) ratios than

those firms without bond rating. To interpret this result these authors suggesting that segmentation of debt market might be place limitations to various firms' capability to borrow.

Bank loan supply has a significant impact on corporate capital structure. Expansion and contraction of money supply (supply frictions) by banks effect on both leverage (debt) ratios and the capital structure choice. Further it indicates that these supply frictions identify modifications in credit supply. Secondly, the supply shocks are only limited to banks (bank-specific) instead of shocks to entire capital supply. The expected reaction of firms to these credit supply shocks depends on their access to different sections of the capital markets. Such as when reduction in loan supply occurs, firms which have not access to public debt markets will find out an alternate way of funds like (internal funds, non bank private debt and external equity) to keep away from capital constraints. All of above mentioned alternatives would result in comparatively lower leverage following a credit supply contraction. On the other hand, the larger firms will be less affected but risky and small firms might be more responsive to loan supply than large firms (Holmstrom & Tirole, 1997). Furthermore, in reaction to changes in an availability and cost of bank loan, large firms can substitute toward public loan (non bank) without difficulty. These results recommend that movements of bank loan supply also an essential factor of deviation in firm's placement of debt structure.

Along with bank loan supply other factors affect the firms choices of capital structure are macroeconomic indicators which will be taken as another explanatory variables in this study. A hypothetical relationship occurs between economic indicators and firms choice

of capital structure, it's already argued and examined through many researchers. There is significant evidence that macroeconomic conditions have a greater impact on firm's leverage ratios. While previous studies have documented on financing decisions within qualitative models, latest researches tries to provide quantitative support as well. However most of the early literature paid a little attention on macroeconomic indicators with respect to the firm's choices of capital structure.

Along with supply side factors, firms demand for the debt is also very important. According to economic principle, it's difficult to measure supply side effects without demand for the debt. So, for that purpose firm size and profitability will be chosen as the firm-level control variables.

In order to frame an effective financial decisions and debt issuing strategies of firms, there is an exhaustive study of capital structure decisions is supportive for financial executives and managers. Firms continuously need to develop, grow and enlarge their business operations whether it's small or large. Firms besides manufacturing sectors breed in size by increasing their operating activities which results in growing level of productivity and also boosting up economic growth of country. Firms in developing countries like in Pakistan there is need of an additional funds to fulfill their operational activities. To meet these criteria firms uses external financing options in terms of debt financing. Therefore it's compulsory for the firms to determine the financial dynamics as well as institutional and economic factors. That might be helpful and contribute in framing their extensive debt policies and extensive financing decisions.

Developing countries faces so many financial and economic problems. An economy of Pakistan's monitored a growing pattern continuously from preceding some years, until

now it facing so many crises and entered into a declining stage since 2007. Pakistan's economy contains so many issues like increasing political clashes, socio-economic factors, electricity shortage, increasing population with poverty, fuel and energy crises etc. A lot of external factors like foreign debt burden, infrequent higher price of usable goods and international financial crisis effects adversely and disturb the smooth patterns of vital economic variables.

Pakistan's economy can be characterized as semi-industrialized. Country's important manufacturing sectors contains textile, sugar, cement, steel, automobiles, industrial chemicals, oil and gas production, power production and energy generation etc. It also has so many other manufacturing industries which accomplish the demands of domestic as well as world market. Growth rate of Pakistan's manufacturing sector adversely and unfavorably affected by numerous economic indicators and global financial crisis. However technological enhancements and structural improvements are continuously bringing up to the manufacturing industries as well as effective planning and projection efforts also conceded out to take our industries at edged point.

Choice of capital structure decisions changes over time and across firms. Firm challenges financial constrains choose capital structure in different manner as financially unconstrained firms likewise deviations in macroeconomic situations such as variations in interest rate, higher inflation will lead a firm to take different capital structure decisions across the different point in time. Such interpretations propose that macroeconomic indicators determine the choice of capital structure.

The manufacturing sector of Pakistan has a remarkable attention because of its large scale and its significant contribution toward country's GDP. In spite of retaining growth of this sector, firms' regarding this sector not presenting considerable statistics of productivity as well as profitability due to economic falls. Reasons behind all of these occurrences are economic messes like power shortage, higher inflation, increasing level of fuel and energy prices, growing demands of commodities, fading law and order conditions, increasing imports and decreasing exports. All these are adversely affecting the country's operational activities of manufacturing sectors as well as influencing the firm's choice of capital structures. All above issues should not be considered as a neglected portion of firm's financial development as well as economic growth but this area of study deserves persistent academic research because only a small number of studies are documented in this respect that stress upon the influential behavior of macroeconomic indicators with debt ratios. Hence this study aims to explore the idea of bank loan supply as well as dominant behavior of significant financial indicators on firm's choice of capital structure of Pakistan's prominent manufacturing firms.

This study is an addition to recent literature by determining the limitations on the accessibility of loan able resources from the bank as well as supply side factor also effect capital structure choices. Further, this study will support for the role of money supply factor as it is the most important determinant of corporate capital structure.

1.1. Justification of the study

On several aspects of the firm's choice of capital structure, there has been various studies conducted which focused on multiple factors that affect the firms' choices of capital

structure. However bank loan supply factor has not been studied in the Pakistan with respect to its influence on corporate capital structure. Numerous business activities executed not only belongs to the firms but also to the economy of a country. The presence of economic indicators in an economy has a considerable influence on firm's leverage processes and operational behaviors. This is the first type of study in Pakistan which will investigate the impact of bank loan supply along with macroeconomic indicators on firm's capital structure. The firm-level control variables chosen are those that Rajan and Zingales (1995) classify as most robustly associated to leverage ratios in preceding capital structure studies. These variables include profitability and firm size. Pakistan as a developing country severely encounters a lot of troubles in its tedious economic activities because of having multiple disturbances like immature debt markets. Based on similar encouragements, this study aims to investigate the influential conduct of bank loan supply and macroeconomic situations on firm's choices of capital structure by covering the area of Pakistan's prominent manufacturing sector. To the best of my knowledge, bank loan supply and key economic indicators (GDP growth rate and inflation rate) has not been studied collectively in Pakistan (Riaz, 2011). This study covers the Pakistan's prominent manufacturing area and their choices of capital structure. The findings of the study will be helpful for firms to take careful and wise decisions regarding capital structure by considering the credit frictions like tightening and loosing impacts of money supply by banks.

1.2. Problem statement of study

Pakistan as a developing country has an immature debt markets. Firms are inconvenient to take loans from debt markets. For that firms pertain to take loan from banks in order to fulfill their debt requirements. Variations in firm's characteristics of financial structure have been studied many times. But the credit conditions (e.g. frictions in money supply by banks) have been ignored mostly in the corporate capital structure studies. So, all of these issues deserve considerable academic research. So, this study will focus upon the impact of bank loan supply with key macro-economic variables on Pakistani firm's capital structure decisions.

1.3. Objectives of the study

The objectives of the study is to

- To explore the impact of bank loan supply on firms leverage measures.
- To determine the impact of GDP growth rate on firm's leverage measures.
- To analyze the impact of inflation rate on firm's leverage measures.

1.4. Significance

- The study findings will help out to design the monetary policy.
- It will assist the policy makers to develop a better insight about the corporate financial policy by taking into account the credit supply movements.

- Further, it will give the supportive edge to manufacturing firms to set their effective policies and strategies regarding better financing decisions in order to fulfill their operational activities.
- Moreover, it will be an addition to the literature and open doors for the new researchers.

CHAPTER: 2

2. LITERATURE REVIEW

To explain the firm's behaviour of making decisions regarding capital structure, a number of existing theories in finance literature exists and every theory focuses on different aspects of corporate financing decisions.

2.1. Market Timing Theory

The **market timing hypothesis** is a theory of how firms in the economy make a decision whether to finance their investment with equity or with debt implements. It is one of many such corporate finance theories, and is often compared with the trade-off theory and the pecking order theory, for example. The idea that firms pay attention to market conditions in an attempt to time the market is a very old hypothesis.

Baker and Wurgler (2002), argue that market timing is the first order determinant of a firm's capital structure use of debt and equity. In other words, firms do not generally care whether they finance with debt or equity; they just choose the form of financing which, at that point in time, seems to be more appreciated by financial markets. Baker and Wurgler explain that an index of financing which reveals that how much of the financing was done in hot debt periods and how much in hot equity periods. It is a good sign of firm leverage over long periods subsequently.

2.2. Irrelevance Theory

Miller and Modigliani (1958) argue that firm's value is independent to its capital structure. Although, it gives an initial point that facilitate to recognized the capital structure as well as its determinants. They also argued that if the supply of different types of capital structure is extensively elastic, subsequently debt levels are exclusively determined by firm's requirement for debt. Though, a number of recent sections of evidence propose that it may not be the case. For example, anecdotal (Titman, 2002) and survey (Graham & Harvey, 2001) evidence imply that observers sight supply settings as significant contribution to the capital structure decision.

Different studies have been conducted on various aspects of capital structure decision and factors affecting the firm's choices of leverage. Limited area has been studied regarding bank loan supply and macro economic conditions with their impact on corporate capital structure decisions. Leary (2009) explains in his study that there are so many causes behind the question: why credit (loan) supply actions have not received a great attention in the literature of capital structure. This facilitates the importance of this study's contributions. He documented that most researches regarding capital structure tries to find and clarify lender choice and debt ratios with various aspects that evaluate firm's demands for different capital structures i.e. the cost and benefits of multiple kinds of finance. However, the study of Titman (2002) showed that renewed concerns in the supply side effects that exist when deficiencies occurs in the capital markets. Faulkender and Petersen (2005) examine in his study a different supply factor that is incompleteness (costliness) of collecting information and examining the services supplied by intermediaries, which formulates debt capital more costly for informationally unclear

firms. There are multiple reasons to consider that money supply movements should also affect long term financing as well. For example, Johnson (1997) and Houston and James (1996) found in his studies that bank loan has significant impact on long-term debt financing of firms. However, few indications which have been documented on the influence of bank loan supply (shocks) on firm's capital structure. In order to determine the factors affecting the firm's capital structure decisions, Mahmud (2003) conducted a study by selecting the firms of Pakistan, Malaysia and Japan. Study findings examined that, firms in Pakistan and Japan gives high debt ratios because the Japanese have developed debt markets and Pakistan has undeveloped (immature) capital markets which constrained firms to go for bank loans rather than equity.

Instantaneous variations among economic conditions inclined to enhance the financial requirements of industrial firms. For that, firms need to depend upon debt financing (external source of financing). Mahmud (2003) has conducted a study to explore the relationship among the economic growth and choices of capital structure between three developing countries (Japan, Malaysia and Pakistan). Results proposed that firms of Pakistan and Japan have a high leverage ratio than Malaysian firms. Related to this study, (Mahmud et al., 2009) scholars studied the impact of macro-economic variables on defining the capital structure (debt ratios) between the particular firms of three Asian countries (Malaysia, Japan and Pakistan). This Study findings indicated that the firms selected from countries (Japan and Malaysia) showed significant association between capital structure and per capita GNP growth. Moreover, research examined that greater economic growth allow firms to consume more long term debt.

On similar concerns, another study has found that macroeconomic conditions of a country have significant effect on the firm's patterns of capital structure (Bas et al., 2009). It also observed that key economic factors of a country like GDP growth, rate of interest, inflation and taxes etc., considerably affect the firm's debt maturities and capital structure decisions as well. In this study, data was selected from different 25 developing countries including both (small and large) listed companies. Findings of the study proposed that GDP (per capita) has positive relationship with the firms leverage. It is argued that to fulfill the supplementary financing needs, operational firms in those countries are more expected to have external finances if GDP rate of countries increases. Further analysis illustrate that there is positive association between GDP growth rate and firms leverage. On the other hand inflation rate has negative relation with firms leverage indicating that an increase in inflation rate in a country decreases the firms borrowing level or carries down the firms external debt sources.

Inflation provides information about constancy of the home (local) currency. Demirguc-Kent and Maksimovic (1996) indicated that higher uncertainties in a country are connected with higher inflation. Ever since debt agreements are commonly nominal contracts, an inflation rate might affect the debt financing adversely therefore the creditors (lenders) prefers to avoid debt provisions. Researchers also showed in this study that for all kinds of firms inflation has negative association with leverage as well as debt maturities.

Another study of Jong, Abe-de, Kabir and Nguyen (2006) have reported to explore the empirical relationship among the country-specific (macroeconomic) variables and firms choices of capital structure in which data of various firms had been taken from 42 countries. Researchers studied multiple economic factors like GDP growth, interest rates, inflation rates, capital markets, stock market development, corruption and country's legal and judicial systems which have been taken as explanatory variables. Study findings recommend that macro-economic indicators of a country have direct as well as indirect influential impact on a firm's level of leverage. Moreover, it also indicated that economic as well as legal environment of a country play an important role in deliberate financial decision making of firms capital structures. Significant impact of various macro-economic factors such as equity and bond markets and degree of progress in banking region has been presented by Fan, Titman and Twite (2004). Demirguc-Kunt and Maksimovic (1999). They had examined the leverage measures of the firms from11 developing and 19 developed states, proposing that the persuasive actions of institutional factors on the firms leverage is different in small and large firms.

The macro-economic factors such as GDP growth, inflation rate and development of capital markets had an influential behavior on shifting the firm's choices of capital structure as well as debt financing (Booth et al., 2001).

2.3. Hypotheses

Following hypotheses are established in this study:

H1: Bank loan supply is positively associated with debt ratios.

H2: leverage of small firms is relatively more sensitive to bank loan supply.

H3: GDP growth rate is positively associated with debt ratios.

H4: Inflation rate is negatively associated with debt ratios.

CHAPTER: 3

3. DATA AND METHODOLOGY

In this study 100 manufacturing firms of Pakistan listed in Karachi stock exchange (KSE) has been taken for the period of 2006 to 2011.

3.1. Measurement of variables

To measure the leverage, of firms' two debt ratios, debt to equity ratio (DER) and capitalization ratio (CPR) are selected as the dependent variables while; bank loan supply, GDP growth rate, inflation rate, firm size and profitability variables has been selected as explanatory variables. A summary of measurement of dependent and explanatory variables is presented below:

3.1.1 Dependent variables

The capital structure of firms is measured by its leverage ratios (also named as debt ratios) debt to equity ratio and capitalization ratio, as discussed below:

- **Debt to equity ratio**

  The debt to equity ratio is a financial ratio representing the relative fraction of shareholders equity and debt used to fund firm's assets. It also recognised the financial risk and credit worthiness of the firm. A higher value of leverage ratio represents higher level of risk for the creditors of firms, indicating a bad sign for the firm. DER is the ratio of total debt (leverage) of the firm and its shareholder's equity. In order to measure the firm's leverage and firm's capital structure many researchers also used this ratio like Riaz (2011) used this ratio as "dividing total leverage (debt) of the shareholder's equity".

- **Capitalization ratio**

Capitalization ratio (CPR) is also used to measures the firms leverage. It measures the firm's long term financing mix. CPR is calculated by dividing the firm's total fixed liabilities by its total capital employed. This ratio is also used by many researchers in order to check the intensity of firm's long term debt as a fraction of its total capital. Riaz (2011) employed this ratio with the same proxy as "dividing firm's total fixed liabilities by its total capital". Another study carried by Deesomsak, Paudyal and Pescetto (2004) also used this leverage ratio for capital structure but they calculated as "total debt divided by (Total debt +Market value of equity+ Book value of preference shares)".

3.1.2 Explanatory variables

Bank loan supply, macroeconomic factors (GDP growth rate & inflation rate), firm size and profitability has been taken as explanatory variables in this study. Furthermore, firm size and profitability variables have been used as control variables in this study.

- **Bank loan supply**

Bank loan supply has been measured by ratio of Total bank loans and GDP.

- **Economic growth**

It is measured by GDP growth rate.

- **Inflation rate**

Inflation rate is measured by Annual average % age value of consumer price index (CPI).

Bank loan supply, growth rate and inflation rate has values in % age form and same values repeated for every company. And the values of leverage ratios (debt- equity ratio and capitalization ratio) changed company wise. For measurement purpose, we multiplied the company's sales with % age values of above mentioned variables. And then take the Log of these values.

3.1.3 Control variables

- **Firm size**

To measure the Firm size, Log of the Total Assets is used. Different proxies were used by different researchers in their studies. Leary (2005) also used this proxy for the firm size control variable. In the study of Rajan and Zingales (1995), researchers found negative relationship between firm size and leverage ratios and proxy they used for firm size is Log of Total Sales.

- **Profitability**

The proxy used for Profitability has been calculated by operating income divided by its sales. Leary (2005) also used this proxy for the profitability control variable. Studies carried by Rajan and Zingales (1995), Shah and Hijazi (2005) used different proxy for profitability i.e. EBT/ Total Assets.

3.2. Data source

Data of manufacturing firms has been collected from the State Bank of Pakistan's Financial Statement Analysis of firms listed in Karachi Stock Exchange (KSE) for the period (2006-2011). Data of bank loans has been taken from the site of State Bank of Pakistan. And Data used for macroeconomic factor (GDP growth rate & inflation rate) is taken from World Bank's online database of World Development Indicators (WDI) for the period (2006-2011). Growth rate (GR) is captured by Annual average %age value of GDP and inflation rate is measured by Annual average %age value of consumer price index (CPI).

3.3. Model Specification

To investigate the significant impact of bank loan supply on corporate capital structure decision following regression equations are formulated:

Equation I

$$DERit = \alpha + \beta_1 GRit + \beta_2 IRit + \beta_3 BLSit + \beta_4 FSit + \beta_5 PRit + \mu 1it \ldots\ldots\ldots\ldots (i)$$

Equation II

$$CPRit = \alpha + \beta_1 GRit + \beta_2 IRit + \beta_3 BLSit + \beta_4 FSit + \beta_5 PRit + \mu 2it \ldots\ldots\ldots (ii)$$

Where,

DER =debt to equity ratio

CPR = capitalization ratio

GR = growth rate

IR = inflation rate

BLS= bank loan supply

FS= firm size

PR= profitability

t = time period (2006-2011)

i = i^{th} firms from the prominent manufacturing sectors

$\beta 1, \beta 2, \beta 3, \beta 4, \beta 5$ = regression coefficients of the independent variables

Expected signs of variables

Dependent variables	Explanatory variables	Expected signs b/w variables
DER & CPR	Growth rate	+
DER & CPR	Inflation rate	-
DER & CPR	Bank loan supply	+
DER & CPR	Firm size	-
DER & CPR	Profitability	-

Where
"+" means that explanatory variables increases the firms leverage.
"-" means that explanatory variables decreases the firms leverage.

3.4. Methodology

Using ordinary least squares (OLS) approach, a 'Panel Data Analysis' technique has been applied to check the dependent-independent relationship of two different regression equations.

CHAPTER: 4

4. RESULTS AND DISCUSSION

4.1 Empirical Analysis

The empirical analysis of study contains descriptive and quantitative analysis. Descriptive statistics determine the average values (mean and median), dispersion (standard deviation) and range (maximum and minimum value) of the given variables. Further quantitative analysis contains both correlation and regression analysis. In which correlation analysis analyze the degree of relationship between two independent variables while regression analysis on the other hand required confirming the relationship i.e. dependent independent relationship between the preferred variables.

4.1.1 Descriptive Statistics

Table 1 is showing the values of descriptive information of the sample data in which the values of mean variables show the average values of all the firms in each year. The level of dispersion from its mean value is demonstrated by standard deviation. The range values of variables in the sample data represent the variation between the minimum and maximum value in the observation. The mean values of dependent and independent variables showing the common value realized through each variable in every year. Results showing the Maximum average value of debt to equity ratio (DER) as compared to capitalization ratio (CPR). This is presenting that Pakistan's manufacturing sector is relatively two times funded through debt than equity. The Standard deviation between variables demonstrates the extent of dispersion in the sample data from its mean value.

The results of standard deviation also states that DER has maximum deviations in the sample data among other debt ratio i.e. CPR. The descriptive statistics between explanatory variables is also evaluated. Bank loan supply is showing 0.55% mean value during selected years. Furthermore, GDP growth rate and inflation rate are showing an average value of 3.93% and 12.5% respectively. Table 1 is showing the outline of descriptive statistics between dependent and explanatory variables.

Table 1: Descriptive Statistics

	Mean	Median	Standard deviation	Minimum	Maximum
Dependent variables					
DER	2.587289	2.205000	1.930928	0.120000	11.30000
CPR	0.118433	0.000000	0.216023	0.000000	1.658854
Independent variables					
BLS	0.553553	0.566482	0.130010	0.404542	0.718207
GDP	3.938706	3.571080	1.581640	1.595981	6.177542
Inflation	12.50386	11.91677	4.280949	7.598684	20.28612
Firm Size	6.387113	6.370718	0.625472	4.687440	8.262461
Profitability	2.077082	2.077000	0.104787	1.513000	2.422000

4.1.2 Correlation Analysis

Correlation testing is measures the degree of relationship between every two explanatory variables. To verify the multicollinearity between independent variables, correlation test has been carried out. Table 2 is showing the results of correlation test are given below:

Table 2. Correlation Analysis

	DER	CPR	GDP	INFLATION	BLS	P. RATIO	FIRM SIZE
DER	1.000000						
CPR	0.208301	1.000000					
GDP	0.06976	-0.17209	1.000000				
INFLATION	0.070008	0.083849	-0.53062	1.000000			
BLS	0.040714	0.413385	-0.47367	0.434792	1.000000		
P. RATIO	-0.17231	0.198283	-0.0703	0.042157	0.099909	1.000000	
FIRM SIZE	-0.15194	-0.04014	0.035974	-0.02561	-0.0604	0.006361	1.000000

Correlation was checked to find out whether there is multi-co-linearity with in independent variables or not. All the independent variables i.e. (GDP, Inflation, BLS, profitability and firm size) in the correlation table have very low correlation with each other. In other words, there is no multi-co-linearity in the independent variables.

4.1.3 Regression Analysis

To evaluate the dependent-independent relationship in equation, Regression analysis method is used. Moreover, two equations are developed and regression analysis is

separately executed on these equations. Panel data technique is performed for the estimation purpose.

To ensure that either common effect model or fixed effect model is more appropriate Redundant Fixed Effect Test is used. The results of redundant fixed effect test confirm that fixed effect model is more suitable for equation I rather than common effect model as value of F-statistic is significant. Table 3 is showing the results of redundant fixed effect model.

Table 3:

Redundant Fixed Effects Test

	Statistic	d.f.	Prob.
Cross-section F	6.338335	(81,390)	0.0000
Cross-section Chi- square	399.851580	81	0.0000

Further, to check that either fixed effect model or random effect model is more suitable Hausman test is used. Table 6 is showing the results of Hausman test below.

Table: 4

Correlated Random Effects

Hausman Test

		Chi-sq. statistics	Chi-sq. d.f	Prob.
Cross section random		3.402849	4	0.4928

The results of Hausman test show that random effect model is more appropriate for equation I rather than fixed effect model. As chi square value of Hausman test is insignificant. The results of random effect model are showing below in table 5.

Table 5: Panel data analysis

Equation I $DERit = \alpha + \beta_1 GRit + \beta_2 IRit + \beta_3 BLSit + \beta_4 FSit + \beta_5 PRit + \mu 2it \ldots (i)$

(Random effect model)

Variable	Coefficients	Std. Error	t-statistic	Prob.
C	6.886496	2.382649	2.890269	0.0040
GDP	-0.013412	1.056737	-0.962923	0.3361
INFLATION	1.323081	0.696639	1.899234	0.0581
BLS	0.567632	0.303809	1.868380	0.0623
FIRM SIZE	-0.926740	0.345170	-2.684875	0.0075
PROFITABLITY	-3.219620	0.885412	-3.636296	0.0003
R-squared			0.044417	
Adjusted R-squared			0.036302	
F-statistic			5.473199	
Prob(F-statistic)			0.000258	

Table 5 is showing the results of random effect model of regression equation I which is reporting that the explanatory variables(GDP, INF, BLS, FS, PR) can explain 4.4% variation in the dependent variable DER. The results show that GDP growth rate is negatively and insignificantly associated with leverage ratio (debt to equity ratio) and did not support our hypothesis that

- ✓ GDP growth rate is positively associated with debt ratios

Similar results are found in the study of Riaz (2011), argued that previous studies showed that in case of developed and developing countries, the profitability of the firms from these countries show significantly negative association with leverage ratios because when the level of profitability between these firms rises, they preferably reinvest their possessive income or may look for equity financing instead of additional debt financing. Moreover, the profit-making firms generally have an increasing level of output therefore they are capable to add a larger part in the value of country's GDP

Results explain that inflation is positively associated with debt-equity ratio with coefficient value of 1.32% which is significant at 10% level. Result of inflation did not support our hypothesis that

- ✓ Inflation rate is negatively associated with debt ratios

Same results are reported in the study of Riaz (2011), Findings illustrate that when the level of different products price increases generally cost of raw materials and many extra services like transportation, fuel and energy etc. also increases. Consequently, in order to fulfill the financial needs, the firms move towards debt financing options. Therefore, positive relationship is institute.

Findings show that there is significant positive relationship between bank loan supply and debt to equity ratio and support our hypothesis that

- ✓ Bank loan supply is positively associated with debt ratios

The estimated coefficient proposes that 1% change in bank loan supply will affect debt-equity ratio by 0.56% approximately. It demonstrates that un- stretched money supply by banks will able the firms to take loans from banks generously. Findings are consistent

with the study of Leary (2009) reporting in his study that supply friction changes have significant and positive contact with leverage ratios.

Another important demand side factor Firm Size showing significant negative relationship with DER. Result shows that 1% increase in firm size can decrease DER by 0.93%. The study findings explain that higher size in firms is less likely to depend on leverage measures. The study results are consistent with the study of Rajan and Zingales (1995) found negative relationship between leverage ratio and size of firm.

Profitability is negatively but significantly associated with leverage measure (DER) having coefficient value of 3.22%. As reported by Leary (2009) the significance and indication of the control variable of firm level is consistent with the past studies of capital structure i.e., profitability is negatively associated with leverage. The results are also consistent with the study of Rajan and Zingales (1995). Another study carried by Shah and Hijazi (2005) shows negative relationship between firms leverage and profitability.

In equation 1 random effect model has been used to check the dependent- independent relationship between variables. In equation to common effect model as well as well fixed effect model is used for regression purposes. Table 6 is showing below the results of common effect model of equation 2.

Table 6: Panel data analysis

Equation II $CPRit = \alpha + \beta_1 GRit + \beta_2 IRit + \beta_3 BLSit + \beta_4 FSit + \beta_5 PRit + \mu 2it \ldots (ii)$

(Common effect model)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.704791	0.547525	-6.766437	0.0000
GDP	1.009896	0.139622	7.233076	0.0000
INFLATION	1.334639	0.179925	7.417736	0.0000
BLS	0.031636	0.013589	2.328013	0.0203
FIRM SIZE	-0.120388	0.037230	-3.233651	0.0013
PROFITABILITY	-0.496932	0.091547	-5.428175	0.0000
R-squared			0.167770	
Adjusted R-squared			0.160496	
F-statistic			23.06204	
Prob(F-statistic)			0.000000	

To ensure that either common effect model or fixed effect model is more appropriate Redundant Fixed Effect Test is used. The results of redundant fixed effect test confirm that fixed effect model is more suitable for equation II rather than common effect model as its value of F-statistic is significant. Table 7 is showing the results of redundant fixed effect model.

Table 7:

Redundant Fixed Effects Tests

	Statistic	d.f.	Prob.
Cross-section F	3.472454	(99,473)	0.0000
Cross-section Chi- square	315.741581	99	0.0000

Further, to check that either fixed effect model or random effect model is more suitable Hausman test is used. The results of Hausman test show that fixed effect model is more appropriate for equation II rather than random effect model. As chi square value of Hausman test is significant. Table 8 is showing the results of Hausman test below.

Table: 8

Correlated Random Effects

Hausman Test

		Chi-sq. statistics	**Chi-sq. d.f**	**Prob.**
Cross section random		42.149440	5	0.0000
Cross-section random effects test comparison:				
Variable	**Fixed**	**Random**	**Var.(diff.)**	**Prob.**
BLS	0.288829	0.176241	0.000595	0.0000
GDP	1.261718	1.126149	0.000751	0.0000
INFLATION	1.234394	1.296073	0.000234	0.0001
FIRM SIZE	-0.161809	-0.207873	0.005359	0.5292
PROFITABLITY	-0.351177	-0.440588	0.002450	0.0709

In equation I, only common effect model has been used for regression analysis purposes. But in equation II, fixed effect model has also been used to check dependent-independent relationship between variables. Table 9 is showing the results of fixed effect model for equation II.

Table 9: Panel data analysis

Equation II $CPRit = \alpha + \beta_1 GRit + \beta_2 IRit + \beta_3 BLSit + \beta_4 FSit + \beta_5 PRit + \mu 2it \ldots (ii)$

(Fixed effect model)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.632595	0.636725	-10.41673	0.0000
GDP	1.261718	0.122659	10.28638	0.0000
INFLATION	1.234394	0.152289	8.105606	0.0000
BLS	0.125437	0.017814	7.041560	0.0000
FIRM SIZE	-0.161809	0.083260	-1.943416	0.0526
PROFITABLITY	-0.351177	0.102866	-3.413933	0.0007
R-squared			0.518049	
Adjusted R-squared			0.412081	
F-statistic			4.888723	
Prob(F-statistic)			0.000000	

Table 4 showing the fixed effect model of regression equation II, analyzing that the explanatory variables(GDP, INF, BLS, FS, PR) can explain 51% variation in the dependent variable capitalization ratio. Value of R^2 is 51% which shows better indication as its increase from 16% to 51%. Unlike to equation (I), GDP the growth rate of Pakistan presents positive relationship with leverage measure i.e. capitalization ratio (CPR). It shows significant results with coefficient value of 1.26%. The results show that GDP growth rate is positively associated with leverage ratio (debt to equity ratio) and support our hypothesis that

- ✓ GDP growth rate is positively associated with debt ratios

The results are consistent with the study of (Bas et al., 2009) also showing significant and positive relationship between GDP growth and firms leverage. Further, they explore that when countries come upon economic development, they have a stable and smooth

growth pattern and their financial institutions are also stabilized. Therefore, debt financing opportunities are easily obtainable for their firms. Empirical analysis propose that there is significant positive association between GDP per capita and firms leverage, supporting that as countries becomes financially rich, firms working in those countries are capable to seek out various prospects of investment of their extra funds. Similar results are also found in (Mahmud et al., 2009) study explains that country's rising growth rate allows the firms to utilize more long-standing debt. Moreover, when country's GDP value increases, then resources of debt financing are also increases in order to fulfill firm's additional financing requirements.

Inflation is positively related with capitalization ratio with coefficient value of 1.23%. Similar to DER, its result found significant relationship with CPR. Results of inflation in this equation are inconsistent with the study of Riaz (2005). According to her study inflation rate did not illustrate any positive association with leverage ratio (i.e., capitalization ratio).

Results show significant positive relationship between bank loan supply and capitalization ratio (findings illustrate similar behaviour as already mentioned in regression equation of debt to equity ratio). It is significant with coefficient value 0.125%.

Similar to DER, Firm size variable is also showing negative relationships with capitalization ratio which has coefficient value of 0.16%. Profitability is also present significant negative relationship with capitalization ratio and has coefficient value of 0.35%.

Table 10: Interaction term

Equation II $CPRit = \alpha + \beta_1 GRit + \beta_2 IRit + \beta_3 BLSit + \beta_4 FSit + \beta_5 PRit + \mu 2it$ .....(ii)

(Fixed effect model)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.482037	0.658129	-9.849194	0.0000
GDP	1.112119	0.120069	9.262329	0.0000
INFLATION	1.172646	0.150354	7.799238	0.0000
BLS	0.187931	0.044097	4.261736	0.0000
PROFITABILTY	-0.313179	0.103583	-3.023471	0.0026
FIRM SIZE*BLS	-0.118173	0.064386	-1.835391	0.0671
R-squared			0.517636	
Adjusted R-squared			0.411577	
F-statistic			4.880644	
Prob(F-statistic)			0.000000	

To confirm our hypothesis that either leverage of small firms or large firms is more sensitive to bank loan supply, the dummy variable was used to distinguish the small firms from large firms, small firms were coded as 0 while large were coded as 1. The coefficient of interaction term is negative and significant (β= -0.11, $p < 0.067$) which shows that the leverage of large firms is less affected by bank loan supply while leverage of small firms is more sensitive to bank loan supply. Therefore, our hypothesis H2 is accepted. Finding of another study that carried by Holmsrtom & Tirole (1997) also showed that the larger firms will be less affected while the riskier and small firms are more responsive to loan supply. The study results show that there is 1% change in bank loan supply will change the leverage of large firm by 0 .07% while on the other hand if there is 1% change in bank loan supply will change the leverage of small firm by 0.18%. So the results are showing that leverage of small firm is more sensitive to bank loan

supply. The results are consistent with Leary (2009) argued that the expected reaction of firms to these credit supply shocks depends on their access to different sections of the capital markets. Such as when reduction in loan supply occurs, firms which have not access to public debt markets (small firms) will be find out an alternate way of funds like (internal funds, non bank private debt and external equity) to keep away from capital constraints.

To analyze the results of interaction term fixed effect model is used .Redundant fixed effect test is used to determine either common effect model is more appropriate or fixed effect model. The test result show that fixed effect model is more suitable as value of F-statistic is significant. Table no.11 is showing the results of redundant fixed effect under below.

Table 11:

Redundant Fixed Effects Test

	Statistic	d.f.	Prob.
Cross-section F	3.546869	(99,473)	0.0000
Cross-section Chi- square	320.931615	99	0.0000

CHAPTER: 5

5. CONCLUSION

Capital structure choice and policies are the most important element of firms' deliberate decision making. This study aims to investigate the impact of bank loan supply, GDP (growth rate) and inflation on corporate capital structure decisions of KSE 100 listed manufacturing firms. Thus, this study is based on deep investigation of significant as well as dominating behavior of bank loan supply and macroeconomic indicators on leverage (debt) ratios. To study the degree of relationship between bank loan supply & key economic indicators on capital structure of firms OLS approach based on 'Panel Data Analysis' technique has been used.

The study findings demonstrated that bank loan supply and macroeconomic factors had significant impact on decisions making of firm's capital structure in Pakistan's manufacturing sector. The study results are supportive as well as consistent with the expected findings of the study. The bank loan supply has significant positive impact on debt ratios. In Pakistan GDP (growth rate) is found to have a positive and significant relationship with leverage ratios. Inflation rate on the other hand give mix results in determining the relationship with leverage ratios. As, it has positive but insignificant association with debt to equity ratio, while on the other hand it shows significant positive relationship with capitalization ratio. Firm size has significant negative relation with debt ratios. Profitability shows negative relationship with debt ratios but significant only in case of debt to equity ratio. Findings of another study that carried by Holmstrom &

Tirole (1997) also showed that the larger firms will be less affected while the riskier and small firms are more responsive to loan supply than large firms.

5.1 Limitations and future directions

This study also includes some limitations as it's based on the sample of only hundred manufacturing firms listed in KSE i.e. selected by non-financial sectors. So, increase sample size should be recommended for future researches. The sample of the study is relying on secondary database, so the empirical findings may be affected because of any reservations implicated in the data. Moreover, this study is only limited to two main economic factors. Many other institutional and economic indicators such as (interest rate and taxes rate etc.) exist in Pakistan's economy that are also influence the firms leverage. Another restricted point is that its only concludes common impact of bank loan supply on leverage measures. So that the future projections for research give the encouraging impressions therefore, further research should be conceded out on related topics.

5.2 Policy implications

Choice of capital structure is the most important part of any firm regarding strategic decision planning. Previous studies also conclude that economic activities have a significant impact on firm's leverage. Being a developing country, Pakistan is facing so many problems in economic activities like higher inflation, money supply frictions, lower economic growth and so many others. We also discussed that Pakistan's debt markets are immature. So, that's why our financial and non-financial firms are heavily relying upon banks to fulfill their financing needs.

It's obvious from our results that supply side factors have greater impact on firms financing decisions. Our results support that expansion of money supply by banks is encouraging the firms to meet their financial needs effectively. So, the policy makers should need to design out such monitory policies that will be very convenient for both small & large firms. Large firms may have an alternative for debt and may these firms move towards public debt in case of supply frictions by banks. But on the other hand the firms which are solely depending upon banks for debts and they have not access to debt markets facing actual problems. So, the policy makers should be design out the monetary policies which are helpful for both small and large categories of firms. All financial and banking sectors would flourish only in healthy environment, an environment which has higher growth rate, lower fluctuation in currencies and lower interest rates etc. Our results also support that if countries GDP rate is increasing then firms investment opportunities are also increases. Furthermore, firms will easily fulfill their financing needs for firm's operating activities and investment purposes. There is high inflation rate in Pakistan that did not encouraging for firms to meet their financing needs. Our results did not support it significantly but the fluctuations in prices should be controlled. So, the Policy makers should formulate such policies which make our currency stable. We can finally argue that only healthy economic environment can open the doors of opportunities for the firms to make better capital structure decisions.

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