

CAPITAL UNIVERSITY OF SCIENCE AND
TECHNOLOGY, ISLAMABAD



**Determinants of Capital
Structure and Influence of 2008
Financial Crisis: Evidence from
Pakistani Non-Financial Firms**

by

Muhammad Latif

A thesis submitted in partial fulfillment for the
degree of Master of Science

in the

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Department of Management Sciences

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*This work is dedicated to my beloved parents, teachers and friends for their
valuable support*



CERTIFICATE OF APPROVAL

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Abstract

This study emphasis to analyze the changes in determinants of capital structure during 2008 Financial Crisis by applying capital structure theories. Study has used sample period from the year 2000 to 2016. Data is collected from Non-Financial Firms listed at Pakistan Stock Exchange. Entire sample period is divided into three parts as “Pre-crisis (2000-07)”, “Crisis (2007-08)” and “Post Crisis (2009-16)”. This study is using Hausman Test and applying Fixed Effect Method. It is found results that leverage ratios increases from pre-crisis to crisis and decreases from crisis to post-crisis. Profitability and net-debt tax shield having significant negative effect but growth having significant positive effect on leverage. Size is showing positive relationship but tangibility is showing negative correlation. Both size and tangibility having in-significant effect on leverage. This study revealed that capital structure of Pakistani non-financial firms changed significantly from Global Financial Crisis (2008). So, policy makers should be careful while making financial decisions in future.

Keywords: Leverage, Profitability, Non-Debt Tax Shield, Tangibility, Size, Growth and Global Financial Crisis.

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Abbreviations

ADB	Asian Development Bank
CS	Capital Sturcture
CCM	Common Coefficient Model
FEM	Fixed Effect Model
GDP	Gross Domestic Product
GFC	Global Financial Crisis (2008)
GROW	Growth
KSE	Karachi Stock Exchange
LEV	Leverage
LN_s	Natural Logarithm of Sales
MAX	Maximum Value
MD	Median
MIN	Minimum Value
MM	Modigliani and Miller
MTT	Market Timing Theory
NDTS	Net-Debt Tax Shield
OLS	Ordinary Least Square
POT	Pecking Order Theory
PROF	Profitability
REM	Random Effect Model
ROA	Return on Assets
SBP	State Bank of Pakistan
SD	Standard Deviation
TANG	Tangibility

TD TAR	Total Debt to Total Assets Ratio
TOT	Trade - Off Theory
US	United States
WACC	Weighted Average Cost of the Capital

Chapter 1

Introduction

1.1 Background of the Study

This research investigates the determinants of capital structure and influence of Global Financial Crisis (2008) using as dummy variable. The data of Pakistani non-financial firms for the period 2000-2016 has been carried out for analysis purposes. This period is divided into two sub-periods pre-crisis to crisis (2000-08) and crisis to post-crisis (2008-16).

The capital structure is the mixer of debt and equity. The combination of equity, debt and internal funds is used by the firms to finance its assets and investments. It increases firm's value as well as shareholders wealth. In this study, different determinants of capital structure has been used such as profitability, non-debt tax shield, size, tangibility, growth and leverage.

The Profitability is measured through the return on assets. Non-debt tax shield (NDTS) is estimated as depreciation over total assets. Tangibility is measured as fixed assets over total assets. The Growth is defined as operating income over net sales. Leverage is estimated as total debt over total assets.

This crisis has significant impact on non-financial and financial sector as well as overall economy of many countries. On account of this, the prices of assets declines, business and consumer are unable to pay their debts, liquidity shortage and unforeseen recession as well as uncertainty in foreign assistance originated.

The inspiration of this research is constructed on the necessity to evaluate the performance of firms and examine the changes in set of determinates of capital structure using Global Financial Crisis 2008 in the context of Pakistani non-financial firms.

This study will help out the professionals in making decision while considering the results of leverage ratios in different crisis periods for smooth functions and governing the risk in future.

This topic has enormous discussion over the period and explained the theories and empirical studies on internal and external sources of finance.

The major purpose of every business is maximization of firm's value and various industry has to create energetic investment decisions and choose to capital structure choices for getting optimal level. Therefore, firm should take cautious decisions concerning capital financing choices.

Companies have to decide shares to be issued to public or go for debt to financial institutions. This process does not only comprise to assess each source of finance independently, but business also be able to consider them collectively. Firms should be confidence in order to determine capital structure choices and follow possible investment chances.

For example, debt is suitable and cheap basis of fund. It is easier to get this than equity. Because it is easy to obtain from creditors and avail tax shield benefit from the Government. Different combination of sources of finance offers different results. Commonly, firms use mixture of sources to finance their business.

Above semi a century Modigliani and Miller (1958) introduced first paper on capital structure and stated that this (capital structure) has no impact on the firm's value. It is based on the assumption of perfect capital market (i.e. no transaction cost, no taxes and symmetric information, no agency cost, no full completion and no bankruptcy etc.). This perfect capital market is not consistent with real market.

Modigliani and Miller (1963) added corporate tax into previous model (1958). This stemmed that firm's value increases, as the leverages rises on account of tax deductibility of debt. Miller (1977) further included personal tax and interest

income. These financial expenses (i.e. interest income and taxes) are deductible before corporate tax. Modigliani & Miller (1958), introduced irrelevancy theory. He improved the academic knowledge on the subject. This theory pointed out that how can be best financed to a firm through its assets by balancing equity and debt or both combination.

Modigliani & Miller (1963), has proposed the trade-off theory and stated that when firms balanced the benefits and costs of financial debts. This produces ideal objective debt level and maximize stakeholder's capital. Debt assistances come in form of tax savings and reduction of free cash flow. This can increase firm's value and smooth the business. On the other hand, a huge amount of debt to equity ratio also rises bankruptcy costs and agency conflict costs.

Friedman (1970) stated that company's main purpose is to make profit with minimum cost. Corporate executives are just employees of the business. They are tasked to make much money during considering fundamental regulations of society. It can be determined that firms seek to maximize value of individual shareholders and primes optimum value of the firm.

Miller (1977), suggested that a firm's value is also influenced by capital structure due to market imperfections. This is disagreeing assumptions which leads to creation of two capital theories: such as trade-off theory (TOT) and pecking order theory (POT).

S. Myers (1984), discovered Pecking Order Theory and found that there is no ideal capital portfolio for any single firm. Which can increase the firm's value. Managers shall finance to new investment opportunities by using POT strategical level. This theory suggests that firms should first used internal funds. Then the less risky debt and lastly offer new securities because of asymmetric indication and high-risk level Harding, (Liang and Ross 2013).

S. Myers (1984) included TOT and described that a manufacturing organization should regularly monitor its capital in conformity with expected optimum level. On the other hand, deficiency in capital market may take unexpected changes and this raises to settlement of cost. Therefore, firms move to retreat their target capital structure as the adjustment costs are rise up.

Modigliani & Miller (1963), started discussion on capital structure (CS). He proposed two concepts through Irrelevance Theory. In first proposition, theory has debated that capital structure does not substance to manufacturer company value. The level of debt increases with cost of capital decreases. Companies should careful decided to have lower cost as compared to equity is overcome by increased cost of debt level, which initiates higher risk level for equity holders.

In the second proposition, author recommended that capital structure does matter to firm's value on account of tax shield gain via increasing level of debt. Higher debt level leads to lower tax liabilities, it reduces overall WACC.

Miller (1977) introduced TOT and explained that firms has to achieve equity and debt combination, which offers weighted average cost of capital (WACC). This results in maintaining optimum debt level and target capital structure.

Capital structure (CS) is total proportion of debt and equity. This proportion includes short term and long term equity and debt ratios. This is called as 'financial structure' and accurately expressed & realized financial strategy, which could offer competitive benefits. This contributes to attain financial objectives of firms by falling cost of capital. Capital Cost has prime attention in financial decisions. This cost is reserved as WACC of all sources of capital. Proper blend of debt and equity referred to optimal capital structure.

Fame & French (2002) decided after long debt on TOT and POT of the economic construction. Conceivably, it is greatest to esteem the two approaches as steady friendly with taking features that explains practically characteristics of funding choices.

Baker & Wurgler (2002), has introduced Market Timing Theory (MTT). According to this theory, investor or business can get finance, observing the timing of interest rates and cost of equity. When shares are traded in market on higher prices. As the stock market is operating at peak, then finance manager would choose to sell shares and get itself financed through equity. In the same way, when the interest rates are low, finance manager should sell bonds and rely more on debt. Market Timing Theory has limited explanatory power of variables (Harrison and Widjaja, 2013).

Jensen & Mackling (1976), defined agency costs and debated concerned conflicts between agents and principals. Conflicts stand up on account of contrasting interests between managers and shareholders.

R. Huang, Ritter and Zhang (2014), observed that companies issue debt when the cost of equity is high. And issued equity when the cost of equity is low in the preview of MMT and agency theory.

The financial environment is changing day by day. It is bringing new opportunities and challenges for the finance managers. Financial Management is the key department and playing a very significant role in decisions making of every firm. First, he (manager) has to decide how to acquire organizational resources. This is called investing decisions. Second, how to raise funds through financing decisions for acquiring assets for smooth functions of the business. And third management decision is how to make efficient organizational resources. All three decisions exaggerated wealth of proprietors of trading firm.

Improvements in information technologies (IT) and communication have significantly changed the whole world. IT brought new opportunities for making operational efficiencies in doing business. This intensified the competition by making customers more knowledgeable. Firms can survive in this cut throat competition, if these are thoroughly efficient in all areas of business decisions. Well organized firms should try to make ranging from product design to financial decisions. Firms should put more emphasis on reducing costs of doing business by countless means. Costs of business can be grouped into three major categories such as production cost, operating cost and financial costs.

Oztekin and Flannery (2012), stated that those companies keep distance from the market innovation. These firms may not perform better than their efficient counterparts. According to Brigham Houston, (2011), debt is a source of financing. It having its own advantages and disadvantages. Advantages of deploying debt in capital structure include tax shield. Debt is controlling mechanism for agency problem which exists between the shareholders and management. Agency cost exists between creditors and management. Disadvantages include cost of financial distress which is also called bankruptcy cost.

Scholars has done a massive work on the research and applied theories. They found negative and positive results. Typically, we used Trade off theory, Pecking order theory and Market timing theory in the statistic. They tried to attain optimal level of capital structure.

Numerous factors can affect choices of capital structure (CS). Theories have developed different hypothesis and resolve issues of practical studies. It is imperious to keep discovering different factors, which influence the decisions of a firm.

It is difficult task to make unique set of new variables and distinct time period for innumerable industries and sectors. He also attempted to examine the determinants which affects the economic structure of non-financial firms.

Shah and Khan (2007), targeted on identification of issues, which influence choices of capital structure (CS), made under circumstances by different firms. Hijazi & Bin Tariq (2006), Memon, Bhutto, & Abbas, (2012) also intended to find such problems which effected the debt and equity structure, which have been invented and applied by varying firms under happenings.

P. Akhtar, Husnain and Mukhtar (2012), also studied on Textile Sector of Pakistan and assessed microeconomic aspects. These may influence the capital formative strategies. This investigation used regression analysis and microeconomic factors including size, growth, financial cost, profitability and tangibility. Financial cost is only positive correlated to the debt and equity ratio. All other variables are negatively correlated.

Masnoon and Saeed (2014), inspected determinants for finding evaluation of financial profitability of the Manufacturer Companies in respect of Pakistan. Bokhari and Khan (2013), applied Ordinary Least Square Method (OLS) to measure financial performance of firm's ratios. Mostly, discussion of capital structure had been constructed on conventional finance. The financial environment is changing day by day. It is bringing new opportunities and challenges for the finance managers. Financial Management is the key department and playing a very significant role in decisions making of every firm.

First, he (manager) has to decide how to acquire organizational resources. This is called investing decisions. Second, how to raise funds through financing decisions

for acquiring assets for smooth functions of the business. And third management decision is how to make efficient organizational resources. All three decisions exaggerated wealth of proprietors of trading firm. Saad (2010) stated that financial decisions are very weighty and crucial. And these decisions are considered globally important for all trading parties.

Campello and Giambona (2013), also expressed that financing decisions are useful in supporting and investing etc. Voutsinas and Werner (2011), directed that Finance Manager should increase funds from many centers with different kinds of debt and equity. In general, firms used blend of diverse bases of financing through Capital.

According to Barclay and Smith Jr (1999), the existing studies concentrated on existing capital structures of the companies known to be stock or either the restructuring of this capital structure (CS) known to be flow and further insisted that along with these workings. There is necessity to research on mark capital structure which companies follow. It may also help to resolve the issue of complex capital structure decisions.

Drobetz and Wanzenried (2006), conducted study and suggested firms seek to their target debt to equity ratio. This is not only minimizing their WACC but also offers flexibility in making decisions. Due to some internal and external factors of firms may deviate from their target structure for the time being but hence forth return back to its optimum structure. As the firms maintain their target capital structure, they adjust relatively to their structure.

Fischer, Heinkel and Zechner (1989), had identified different firms connected factors of financing. Those subsidized to deviations of companies in their target structure funded on maximum and minimum debt ratios over the time. Relative adjustment to target capital is discussed, as partial adjustment. Deviation is constrained in the incidence of settlement cost. Adjustment cost is any expense which is faced by firms for reaching their optimal structure.

According to Leland (1994), when the marginal debt costing is the financial distress. That Cost should be equal to marginal cost. The tax advantage of debt is

also considered cost. This is the point at which firm has its optimal capital structure. When one of these either the marginal benefit or the marginal cost exceeds the others, the firm departs from its optimal structure, but this is provisional, soon the firms seek to reach their optimal structures.

Flannery and Hankins (2007) had explained well the concept that firms seek to adjust to their target structures with a specific speed. This adjustment speed is affected by balancing marginal cost. Marginal cost may be deviated from target and optimal structure. This study described that adjustment cost is value of equity.

Bhagat and Bolton (2008), had tested the implications of dynamic trade off model, in which it was found that companies which have slight deviation from optimal structure should not frequently readjust which is due to high adjustment cost. This over weighed the benefits of adjustment.

Lemma and Negash (2014), has brought together the concept of adjustment factor and optimal capital structure. This study further also added into literature by estimating the settlement speed.

Graham and Harvey (2001), described firms should follow an optimal structure. Financial Management should strictly follow their target structure or have a range of capital structure which is acceptable to them for the firms. The firms should keep eye on the cost and benefits of adjustment along with the trade-off model. Financial experts can re-adjust to their optimal structures.

Ozkan (2001), has used the method to measure the adjustment to target structure and applied statistical model. Author reported that firms should follow target capital structures. The study also argued that any deviations from the optimal structure would result in deviation costs for the company. Firms may pursue to fill these gaps, if this deviation cost is higher, then cost to be adjusted. This gives rise to adjustment speed by which the firms reached their target structure partially.

1.1.1 Financial Crisis

Eichengreen (2013), stated that financial crisis (FC-2008) is not a fresh phenomenon. It had started from early years of nineteen. Asian financial crisis (1997)

was also one of severe these crisis. This crisis was studied by researchers and found contagion impacts among stock markets. Lim (2004), discovered the efficiency of eight (8) Asian Stock Markets. Crisis (1997) effected the efficiency of Hong Kong Stock Market. This was deteriorated from pre to post crisis. In August 2008, Global Financial crisis became visible due to sub-prime debt crisis in (USA). This crisis leads to indebtedness of numerous financial institutions. Global crisis escalate to other developed and developing economies rapidly.

Examiners have been striving hard to exploring consequences of financial crisis on capital structure. Mostly, they concentrated on European & American economies. This financial crisis has affected the whole world in one or another way. In Asia, most economies are dependent economies and do not capable like huge economies. That crisis intensity surprised to every nation. ADB in 2009 reported that total Gross Domestic Product (GDP) of Asian countries without China and India shown 15% decreased in economies. In 4th Quarter (2008) the financial development rate cater from 13% to 6.8% on account of global failure.

Chinese financial strength is export orientation. That's why its economic growth rate fell. Adverse financial conditions leads to corrosion of country's export due to decline in other large economies. Chinese's Government had to take appropriate and imposing actions such as stimulus bundle of 4 trillion (Yuan). Central Bank of China had reduced interest rates and boosted development rate of credit. Therefore, in first quarter (2009) stimulus package revised monetary policy and shown positive impact on the Chinese economy.

Since Great Depression, this Global Financing Crisis (2008) was the most dangerous crisis as considered by International Monetary Fund (IMF). This recession period had created the financing issues. Banks started to set several restrictions on small firms for lending. That's why cost increased for advances. Banks also raised collateral amount and shorten the repayment period. Banks took such steps to minimize the risk of business.

Iqbal and Kume (2014), stated that this crisis (2008) had desperately affected the Foreign Direct Investment (FDI), Portfolio Investment (PI) and Exports of the developing countries. On account of this (2008) crisis leads to fall off (shrunk) the

capital funds inflow from developed countries like (USA) to developing countries like (Pakistan).

Bhamra, Kuehn and Strebulaev (2010), inspected that conventional companies were further expected to be prepared for occasional FC (2008), as these companies were considerably deliberate in adjusting the speed of capital planning in fiscal misery.

Zarebski and Dimovski (2012), stated that many firms have to face difficulties relating to capital structure (CS) and their values due to this global crisis. Consequently, a great question is that how financial crisis does affect the capital structure?

The foremost reasons behind was rise in the prices of assets, collapse of regulatory framework and credit booms. Countless studied have defined that there was no well-developed economic structure for prime resources choices at the time of crisis (2008).

The Pakistan's GDP was 5% in financial year (Crisis year 2007-08), whereas it was declined in financial year (2008-09) up to 4%, 2.6% in 2009-10 and started increased by 3.62% in 2010-11, 3.84% in 2011-12, 3.70% in 2012-13 and 4.14% (2013-14, 2014-15) and 4.5% in 2015-16 as per Pakistan Economic Survey Report. In that situation, question is whether determinants of capital structure (CS) has been affected during Global Financial Crisis (2008) in respect of Pakistani non-financial firms, which are listed at Pakistan Stock Exchange.

1.2 Theoretical Background

For the purpose of operating and expanding the business, the firms need to capital. The companies need huge amount of funds for purchasing raw material and updated technologies to make more attractive and competitive products and services. These services and products will be supplied in new marketplaces apprehended by great investment developments. This demands the high capital for raising funds either internally by issuing equities or externally by borrowing debt. Capital structure is defined as combination of debt and equity that company needs to operate

the business and increase the value of firms as well shareholders wealth. Therefore, different relevant theories have been described.

1.2.1 Theories of Capital Structure

Traditional theory of capital structure says that optimal mix of debt and equity financing decreases the WACC and increases the firm's value. Under this theory, capital structure (CS) take place, where the marginal cost of debt is equal to marginal cost of equity. Financial leverage is the degree to which a business firm employs to borrow funds or debt. This plays significant role while making very important decisions in the business.

1.2.1.1 Trade-Off Theory (TOT)

MM's irrelevance theory has grown TOT. MM assumes that trade-off to be made in the decision that leads towards the chosen of CS. The reason is that assumptions and conditions of the irrelevance theory do not hold. MM theory is based on the following assumptions when taxes are excluded:

- Investors are allowed to buy or sell securities.
- There are not transaction costs to buy or sell securities.
- Investors can borrow without constraint on the same terms and conditions.
- Information is perfect and freely available to the investors.
- Investors behave rationally.

Kraus and Litzenberger (1973) stated in their paper, they speak about a State-preference model of optimal financial leverage. This indicated that the trade-off led towards optimal capital structure. This also leads to maximize firm's value.

MM, (1963) introduced a paper corporate income taxes and the cost of capital and corrected their previous paper for the absence of taxes. They stated firm market value having linear function with TDTAR, which is used for financing activities. MM assumptions when taxes are included:

- Corporate borrowing is more convenient to the investor because formalities and borrowing are observed in the borrowing.
- Existence of transaction cost like brokerage fee and other costs in buying and selling securities.
- Institutional restrictions such insurance.
- Existence of corporate tax, which is deductible.

Fama and French (2002) had argued that deduction of corporate interest payment leads the firms towards more target leverage. Higher personal tax rate on the company debt compared to equity pushes them toward less leverage. Advantage is generation of non-debt tax shields. Too much debt leads to high cost of bankruptcy and create optimal capital structure (Robichek & Myers, 1965).

S. Myers (1984), refers to those costs of financial distress, which includes legal and administrative costs of bankruptcy. It also included indirect agency as well as moral hazard and monitoring and contracting costs. Instead of bankruptcy costs. These costs may demand for higher rates of interest to compensate financial risk. Due to high cost of debt, the firm may relinquish conventional projects, which constitutes an opportunity cost.

S. Myers (1984) also assesses that trade-off theory (TOT) is not for every company observed leverage ratio matches its optimal ratio. This is due to the cost of adjustment that causes companies to experience lag in process of adjusting to optimal capital structure.

Adjustment costs include the costs of security issuance and expected to be higher in times of the financial crisis according to a study by Lambrinoudakis (2016). He argued that firm's risk is measured by volatility of stock returns and positively related to adjustment costs.

To finalize, according to TOT, the market value of a firm financed with debt is equal to market value of an unlevered firm, plus the corporate tax rate times the market value of firm's debt, subtracting the complement of the corporate tax rate times the present value of bankruptcy cost.

1.2.1.2 Pecking Order Theory (POT)

POT referred to pioneering work of S. Myers (1984). This might be due to the fact that it was who first coined the term Pecking order. He developed further this theory. However, the Pecking order hypothesis was already found in a study performed by Donaldson and Fox (2000).

He argued that Management strongly favored internal generation as a source of new funds even to the exclusion of external funds except for occasional unavoidable bulges in the need for funds. This gives a clear explanation on the preferred order of finance. In the financing hierarchy, management prefers internal over external financing. On account of unequal information that arises between insider and outsider of firm. External finance needs to be obtained as internal funds are not able to cover all costs of firm.

According to S. Myers (1984) firms should safest security first as debt is issued before equity. It is noted that in absence of TOT of capital structure (CS), POT does not lead towards an optimal leverage ratio on account of presence of internal and external equity. TOT suggested that when a company is considering to funding its long term investments, it has to sound outline direction of preference with respect to sources of economics it consumes. Initially, the firm will prefer to use internally generated sources of funds rather than external sources of funds. If the internal funds are inadequate to meet its investment requirements, then it will raise external fund in the form of short and longer term debt.

In the context of POT, retained earning can be used as internal source of fund. This is a low-priced and appropriate source of financing as compared to outside funds. Managers should be capable to keep knowledge about risk, prospectus and forthcoming position of the business than outsider users for obtaining or advancement of external sources of finances. The exterior users can demand a higher return to counter the risk due to compensate asymmetry information. Research agreed that Pecking order hypothesis has much more explanatory power, as compared and likened to trade-off theory. However this theory has also been subject to criticism. The theory should only hold for large firms as smaller firms tend to not prefer internal but external financing (Frank & Goyal, 2003).

1.2.1.3 Market Timing Theory (MTT)

Market timing theory is also known as the Window of opportunity. This hypothesis was first developed and tested by Rajan and Zingales (1995). The idea behind the theory is relatively old (S. Myers, 1984). According to Baker and Wurgler (2002), MMT refers to the practice of issuing shares at high prices and repurchasing outstanding shares when prices are low. The benefits for managers to time the market is the misuse of provisional rise and fall in the cost of equity capital relative to other forms of capital available. He also observed effectiveness and applicability of the market timing theory as markets tend to be inefficient and segmented. This is in contrast with (Modigliani & Miller, 1958) irrelevance theory assumes fully efficient and integrated capital markets.

Taggart (1977) provided evidence on market timing, companies having inclination to issue seasoned stock or shares (equity) to the public at high market value instead of debt. Loughran, Ritter and Rydqvist (1994); Pagano, Panetta and Zingales (1998) observed market-timing in case of an initial public offering. Graham and Harvey (2001) also shown from survey and interviewed of different Chief Financial Officers. Two third officers admitted the timing of equity market. De Bie and De Haan (2007) also tested Market-timing hypothesis in Dutch and Netherlands.

1.3 Problem Statement

This study decides to test the set of determinants of capital structure and the possible relationship of non-financial firms of Pakistan from different sectors and aims at identifying the effects of financial crisis on their capital structure decision from 2000 to 2016. This study has not been widely used in Pakistan previously. Majority of research work is done in this area in China and Europe countries. In Pakistan, little work has been conducted on factors affecting on capital structure. Key work is yet required for making decisions and considering risks on the basis of changes from pre-crisis to crisis and crisis to post-crisis during time period of Financial Crisis (2008) in respect of Pakistani non-financial companies, listed at PSX.

1.4 Research Questions

The current investigation has addressed questions that how well non-financial Pakistani firms could perform during financial crisis. It is supposed that financial crisis period is 2007-08, Pre-crisis period is 2000-07 and Post-crisis period is 2009-16. Annual data (yearly) has been used for analysis. During this study, following questions has been answered through this research:

1. What is the impact of profitability on the leverage during Global Financial Crisis?
2. What is the result of non-debt tax shields on leverage during Global Financial Crisis?
3. What is the consequence of firm's size on debt ratio during Global Financial Crisis?
4. What is the impact of tangibility on debt ratio during Global Financial Crisis?
5. What is the influence of firm's growth on the leverage during Global Financial Crisis?

1.5 Research Objective

The present inspection is intended:

- To examine the determinants of capital structure (CS) of non-financial companies during financial crisis (2008).

1.6 Significance of the Study

The sub-prime crisis of 2008 in US trembled the world markets through financial market integration, global trade associations and international banking modification. The financial crisis directed to make changes in financial policies. In this

scenario, this study is attempting to identify and expose the changes in determinants of capital structure in respect of Pakistani non-financial firms, before and after the crisis.

In Pakistan, companies functioned in an indefinite and dynamic environment. Company's employees should be capable to face new challenges for smooth function of business. These firms should financially be capable to manage with uncertain changes. Companies should also be able to define and identify their target structures. Financial environment is becoming challengeable gradually. This can influence on the firms to make their capital structure dynamic and means are more brilliant to regulate the varying requirements of trade. Once this is done, firms must also be competent and efficient to identify the time period which they required to reach those target.

Besides, all the research already available is based on developed countries, whereas the situation of financial development is entirely different in developing countries like Pakistan, because of the difference in the cost of adjustment and the financial opportunities of both type of economies.

In this study, it is intended to analyze firm's factors of capital structure during financial crisis period (2008) and its effects on pre and post periods. These dynamics shall be applied on non-financial Pakistani firms, which are listed at Pakistan Stock Exchange (PSX). This study has applied data from 2000-16 to study the factor affecting the leverage.

This research has highlighted relationships and significance among profitability, non-debt tax shield, size, tangibility and growth on the leverage (debt to assets ratio). This study will help out the managers to take decisions for smooth tasks and govern the risk in the future.

1.7 Plan of Study

First chapter comprises introduction, theoretical background, problem statement, research questions, objectives and significance of investigation. Second chapter

includes literature review of the previous investigations and hypothesis of the research. Third chapter contains data description and methodology of the research study. Forth chapter represents results and discussion. Fifth chapter covers recommendations, conclusion and limitation of the current research study.

Chapter 2

Literature Review

The study has overviewed the literature of determinants of capital structure. Most of the present literature shows that changes in capital structure affect firm value. Graham, Leary and Roberts (2017), find that the capital structure decisions is influenced not only firm specific factors but also by institutional settings and macroeconomic uncertainty in the prior studies. They reported that during periods of economic downturns, investment opportunities are rare and hence the need for external capital is weak leading to a reduction in firms 'leverage ratios.

Kim and Sorensen (1986) studied the impact of Asian crisis of 1997 in respect of Korean listed companies on the (CS) and speed of adjustment. Applied model and found that optimal capital structure was adversely exaggerated by the crisis. After the crisis, research shown mean adjustment speed significantly decreased and indicated that firms had fiscal complications.

According to Kenc and Dibooglu (2010), crisis (2008) hit the Europe and credit facilities to companies and individual down tuned due to poor risk management practices and financial regulations and supervisions of banks. Accordingly, liquidity shortage and confidence among banks broken. This led to rise high transaction cost to access debt and create financial complications.

According to Fosberg (2013), the banks reduced the supply of loans towards non-financial firms due to effect of financial crisis (2008). Companies operations were suffered in bad condition due to increasing difficulties in the process of getting loan to finance their projects.

Mokhova and Zinecker (2014) stated that the need for financing to projects also went down as a result of exceptional investment opportunities. Consequently, the demand for external financing became also low and led to decline economic at the time of financial crisis (2007-08).

Akbar-Ur-Rehman and Ormrod (2013) tested private firms in UK during period of 2007-2009 to check the effect of shock to the supply on the financing and investment policies by using fixed effects model. Empirical evidence stated that crisis unfavorably affected the leverage ratio.

Further, crisis was significant and shown negative effect on the short-term financing channels. Consequently, private firms have to hold cash and issued equity for controlling negative effect.

Kobina Enos, Yensu and Obeng (2020) studied Ghana for the period 2006-16 and applied TOT and POT theories. He investigated that firm size, profitability, tangibility and growth have significant effect on leverage. This effect is differ in periods of global financial crisis.

Roben Autoyan (2012), also studied the pre and post impact of financial crisis (2008) on the leverage for economies of UK and German and French. It was observed that debt ratios were increased for the pre-crisis period (2006-07) to the crisis period and later ratios were decreased in the post crisis (2010-11).

Proença, Laureano and Laureano (2014) experimented the factors affecting Portuguese Small Medium Enterprises (SME's) CS to test FC (2008) on the sample period 2007-2010. Date of '12857' enterprises was selected for analyzing. Result suggested that profitability (ROA), asset structure and liquidity were most important factors to explain the CS. The company's debt ratio level shown downward tendency during FC (2008).

Zhang and Mirza (2015), considered the influence of FC (2008) on determinants of Financial Structure within China. They have found liquidity showed no change during pre and post crisis period. While NDTS, TANG, economic development and inflation had shown significant change in the post crisis period. Trinh and Phuong (2015) examined list firms of Vietnam over the period of 2006-2013 to check the effects of the FC (2008) on the capital structure (CS). Consequently, no

evidence claimed as the debt ratio of Vietnamese firms had significantly changed during the crisis period. They clarified this result, as the financial market in Vietnam had not united and combined much into the global market. Further, financial system is well controlled by the government.

Zhang and Mirza (2015) and examined the global financial crisis 2007-08. '897' Chinese listed non-financial firms were examined for the period 2003-2012. A significant and distinct change after crisis has been shown in the Regression analysis. Temimi, Zeitun and Mimouni (2016) had shown significant impact and negative relation of the (2008) Global Crisis in respect of Gulf Cooperation Council countries over the period 2003-2013 for '270' selected listed firms. This study shown result that the adjustment speed is on average slower after the crisis towards optimal leverage. This is assumed that it was due to the lack of debt financing supply. Mouton and Smith (2016) tested determinants of (CS) on listed companies of South Africa. This research exercised panel regression model and revealed that capital structure (risk, tangibility and profitability) was significant before crisis (2008). After crisis, profitability became insignificant.

Mats Wagenvoort, Xiaohong Huang and Samy Essa, (2016) has studied capital structure for Dutch firms. Data has been shared into two timeframes; namely, pre-crisis period (2006-2007) and post-crisis period (2008-2009) and Ordinary Least Squares (OLS) method has been used. This showed that profitability, tangibility, size and liquidity are positively before crisis while the growth appears negatively related to leverage. During crisis the value of coefficient changed after FC (2008) but direction of the relationship remain same except profitability.

Tripathy and Asija (2017) investigated FC (2008) on '88' non-financial companies listed at National Stock Exchange of India for the period January, 2003 to May, 2014 by using FEM. The study finding shown that TANG and SIZE having superior impression on CS decisions before crisis period (2003-07) and negative coefficient of Profitability exhibited inverse relation with leverage (LEV) after crisis (2008-14).

Empirical and theoretical studies have shown different results about relationship of TANG, SIZE and GROW, NDTs, ROA.

2.1 Profitability and Leverage

First independent variable is Profitability. It is a factor of the leverage that is subject to challenging expectations from a theory viewpoint. Investigators having different views on association between the ROA (profitability) and (LEV) fiscal leverage.

Since Modigliani and Miller (1958), profitability and leverage having no consistent anticipation. Tax models suggest to borrow more. However, TOT of capital structure stated, companies shall take debt as much as possible till reach a point, where costs of bankruptcy become too severe.

According to this theory, S. Myers (1984) assumed that companies shall use external financing only, when internal generated funds are inadequate. Long (1985) researched found that debt have positive relationship with ROA, but Profitability having in-significant impact on the leverage.

Kester (1986) had found that leverage is negatively relating to ROA (Profitability) in Japan and US. ROA had been found negative and having important impact on LEV as studied by Titman and Wessels (1988) and Friend and Lang (1988) on USA firms.

Abor (2005) summarized that ROA and debt having negative relationship and decreases with passing of time. Rajan & Zingales, (1995) tested firm performance and debt. He found negative relationship between them.

Michaelas, Chittenden and Poutziouris (1999) exhibited that ROA (Profitability) had significant influence while making financing decision of firms. In Ozkan (2001) discovered that ROA and LEV having negative relation. Deesomsak, Paudyal and Pescetto (2004) also agreed that profitability having negative correlation. This correlation becomes more negative during and after 1997 (Asian financial crisis).

Frank and Goyal (2009) investigated that debt brings advantage in the form of tax. Firms seek more debt for financing operating activities. This shows that profitability is positively correlated with leverage.

Rafiq (2008) explored (CS) determinants of 26 Pakistani firms listed at KSE from 1993-2004. They applied regression analysis and shown that profitability performance having negative relationship with the debt ratio.

Bauer (2004); Bokpin (2009), had studied and researched that profitability having negative relationship with leverage. T. N. Awan, Rashid and Zia-ur-Rehman (2011) discovered the aspects of Pakistani sugar and allied industries for the period (1996-2004). They employed regression method and found profitability having significant influence on the leverage.

Sheikh and Wang (2011) scrutinized effect of 160 Pakistani manufacturing firms for the period from 2003 to 2007. Findings shown that profitability has negative correlation with debt. Rafiq (2008) studied and constructed in-significant effect of ROA on the leverage. Akinlo and Asaolu (2012) studied the Nigerians firms and found result that leverage is negatively related to ROA.

In addition, Harrison and Widjaja (2013) documented that ROA has negative correlation with debt. This value becomes less negative during crisis. It is concluded financial crisis become weakened as the internal financing capacity causing profitability to become less influential.

A. G. Awan and Amin (2014) has explored determinants of '68' Pakistani Textile firms for the period 2006-2012. They used panel data techniques and found that profitability is negatively correlated with debt ratio.

Osaretin and Michael (2014) has examined the factor of determining (CS) of '20' Nigerian listed firms and applied cross sectional analysis. He found that firm's profitability has no significant impact on the debt ratio.

Trinh and Phuong (2015), Thao Phuong investigated financial crisis in Vietnam. He used sample of 265 listed firms for the period of 2006-2013. Regression model find that profitability together with crisis dummies having significant impacts on the capital structure. Zhang and Mirza (2015) also investigated that profitability is correlated negatively with leverage in pre- crisis period and crisis period.

2.2 Non-Debt Tax Shield and Leverage

(NDTS) Non-debt tax shield is pertinent for the businesses when their proceeds constantly fetching low. NDTS is evaluated via depreciation divided by total assets. Modigliani and Miller (1958), had shown that tax is the core theme of

pioneer study. All researchers believed that NDTS is important for financing structure (CS) of the companies. DeAngelo and Masulis (1980) asserted NDTS are alternatives for the tax benefit of debt financing and expected that large firms used less debt and same confirmed from empirical studies.

Wald (1999) has shown a negative correlation between LEV and NDTS. Whereas Bradley, Jarrell and Kim (1984) has also revealed optimistic connection between debt and tax shield.

Booth, Aivazian, Demirguc-Kunt and Maksimovic (2001), had examined the debt on tax in developing countries such as India, Brazil, Mexico, Pakistan, Malaysia, South Korea, Thailand, Turkey, Zimbabwe, Jordan and found negative relationship with NDTS.

Brounen and Laak (2005) had shown that bankruptcy costs and tax effected the debt ratio. Rafiq (2008) has also look at 26 Pakistani firms for the period 1993-2004. Investigation has found positive behavior of NDTS with the leverage ratio. Sheikh and Wang (2011) inspected factors of '160' Pakistani Manufacturing firms for the period 2003 to 2007. Verdicts shown that NDTS has no significant association with debt ratio. A. G. Awan and Amin (2014), has discovered that NDTS has statistically significant linear relationship with leverage. '68' Pakistani textile firms were chosen from 2006 to 2012 and panel data techniques were applied.

2.3 Size and Leverage

Several studies had submitted that there is a positive relationship between LEV and SIZE. Marsh (1982) initiated that large firms take long term debt while small firms select more short term debt. Thus, large firms might be capable to get benefit of economies of scale and power of bargaining over creditors.

Ferri and Jones (1979); Rajan and Zingales (1995), indicated that SIZE having no positive effect on LEV. On the other side, Deesomsak et al. (2004) find that SIZE is significant (important) factor while making capital structure results.

G. Huang (2006); Jung, Kim and Stulz (1996), submitted that size and leverage having positive relationship. The impact of SIZE is significant on LEV. Economies

of G7 countries had been tested by (Rajan & Zingales, 1995). They discovered that size has positive relationship with debt. This result also supported to trade-off theory.

Wald (1999) also checked the correlation between debt and size. He also shown this relationship is a positive for (USA, UK, France and Japan) firms. On the other side, it is negative one for German firms. Booth et al. (2001) studied and suggested that SIZE having positive relation with debt.

Bhaduri (2002) had identified size and financial distress cost as important determinant of optimal capital structure among firms of Indian. J. Chen and Strange (2005) also shown that debt and size having positive relation for China firms. The same results have also been investigated by (Anwar and Sun 2013).

Zou and Xiao (2006), have studied and found that debt and size are negatively correlated. The same results have been examined by (G. Huang, 2006). Shah, Hijazi and Javed (2004), have investigated and found that size is positively related with leverage ratio. S & H studied Capital structure determinants of 445 Karachi Stock Exchange Listed operating as non-financial firms, from 1997-2001.

Sheikh and Wang (2011) findings shown that size has a positive association with leverage ratio regarding capital structure choice of Pakistani Manufacturing firms for the period 2003-07. Afza and Hussain (2011) researched for '5' years from 2003 to 2007 on Pakistani companies and used regression. This study shown SIZE have not significant impact on LEV.

Qayyum (2013) analyzed that size have insignificant relationship with leverage for the period 2007-2009 for the '70' cement sector Pakistani companies. Alzomaia (2014) scrutinized publicly listed firms of Saudi Arabia from 2000 to 2010 and observed size exerted direct affirmative stimulus on financing structure through cross-sectional pooled data model.

A. G. Awan and Amin (2014) applied panel data techniques on '68' Textile Firms from 2006 to 2012 in respect of Pakistani. This study found that firm's size has negatively influence on debt ratio. Bassey (2014) explored determinants of '28' allied firms in Nigeria for six year period (2005-10) and applied OLS and concluded size having negative relation with LEV.

In Zhang and Mirza (2015) have examined non-financial Chinese firms in China for the period 2003-12 and resulted that Global financial crisis of 2007-08 have significantly affected firm's level and macroeconomic level after financial crisis. He also explored that there is a weighty modification in short term leverage after 'crisis' through size.

Trinh and Phuong (2015) has investigated and found empirical result. Results shown size of firm has significant impact on capital structure in Vietnam. Wagenvoort (2016) investigated that size was positively correlated to leverage before crisis.

2.4 Tangibility and Leverage

Tangibility is collateralizable assets. It is useful in getting debt from institutions and others. Past studies stated that TANG is positive related to TDTAR. S. Myers (1984) had tested tangibility and found positive correlation with leverage. Marsh (1982) had also found that leverage and tangible assets have negative correlation. Titman and Wessels (1988), investigated factor affecting leverage among (USA firms) and concluded that asset structure having significant effect on capital structure decision. Williamson (1988) had suggested that debt should rise with liquidation value and proposed that TANG is positive correlation with LEV.

Wald, (1999) Viviani (2008) had studied determinants of (CS). A positive relationship between leverage and tangibility has been found. Tangibility of twenty-six (26) KSE listed companies has been examined by Rafiq (2008). Investigation resulted that there is positive relationship between TANG and TDTAR.

Karadeniz, Kandir, Balcilar and Onal (2009); Mazur (2007), have studied and given evidence that tangibility having negative relationship with TDTAR in respect of India, Brazil and Turkey firms and also in Pakistan.

Booth et al. (2001), also examined tangibility. A negative correlation has been found with leverage. J. Chen and Strange (2005) has studied Chinese Market and shown TANG and Debt are positively correlated.

G. Huang (2006) also tested Chines Market. A positive relation has been found

in tangibility and debt. Zou and Xiao (2006) also examined the market of China. Debt and tangibility having positive correlation.

Shah et al. (2004) has found tangibility having positively and Sheikh and Wang (2011) shown negative relationship with leverage. Afza and Hussain (2011) had researched on Pakistani companies and revealed that TANG having insignificant effect on TDTAR. Qayyum (2013) analyzed tangibility and found significant relationship with leverage.

Harrison and Widjaja (2013) studied and found significant impact of tangibility on leverage. Tangibility is positively correlated to debt before crisis and increases during and after crisis. Köksal and Orman (2015); Lemma and Negash (2014), demonstrated that TANG is positively correlated with (CS). Masnoon and Saeed (2014) tested ten Pakistani auto-mobile firms from 2008-12 and shown result that TANG having insignificant relation with TDTAR. Zhang & Sultan Sikandar Mirza, (2015) examined and shown tangibility have significant and distinct change after crisis.

According to Wagenvoort (2016), tangibility was positively correlated to leverage before crisis. But during crisis, value of coefficient has changed but direction stayed same.

2.5 Growth and Leverage

Generally, theoretical studies affirmed that growth (GROW) are negatively related with leverage (LEV). Jensen and Meckling (1976) stated that managers have first choice to satisfy their own goals and maximize their utility and second shareholders. He suggested TDTAR and GROW having correlation positively. Michaelas et al. (1999) studied and found that growth had significant effects on financial decisions of companies. Rajan and Zingales (1995) found that there is negative relationship between growing firms and debt. This result is supported with POT. This refers that companies should fiancé new investments in internal funds.

Wald (1999) researched that higher growth is connected with lower equity and debt ratio is only in the country (USA). Zou and Xiao (2006) examined the growth.

They have found negative correlation between debt and growth. Deesomsak et al. (2004) studied and shown negative relationship between growth and TDTAR. Baily and Elliott (2009) also proposed that there is less or no growth for several quarter during the financial crisis period. Anwar, S., & Sun, S. (2013) also observed that leverage and growth are correlated negatively. In addition, Alzomaia (2014) statistically found that GROW have significant linear relationship with leverage. Qayyum (2013) analyzed '70' Cement Sector Pakistani companies and found growth have significant relationship with leverage. Zhang and Mirza (2015) resulted that there is noteworthy variation in total leverage afterward crisis on macroeconomic level through GROW.

Bassey, Arene and Okpukpara (2014) tested Nigeria firms from 2005 to 2010 and resulted that GROW have significant positive relation with short term debt. Empirical result found that growth have no statistically significant in explaining the variance of the leverage as studied by Trinh and Phuong (2015). Generally speaking, major reasons for financing difficulties is absence of identical data which primes to disparities in the budget. Imbalance lies in the providers and the receivers. On account of feeble arbitration position and deficiency in negotiation between firms and banks, financing difficulties would increase.

Audited Financial Statements and Good Governance are the assets of large firms. The banks shall prefer to large firms rather than small firms because it reduces expected credit risks.

2.6 Hypotheses Development

To test the effect of financial crisis (2008), a set of determinants of capital structure (CS) such as profitability, non-debt shield size, tangibility, growth have been formulated to investigate this research.

Profitability is measured return on assets (S.Myers, 1984; Rajan and Zingales, 1995). ROA is estimated as net income divided by total assets. Research analyst having different views on the association among profitability and financial leverage on basis of past studied and theories.

As stated by Pecking order theory, the greater the profitability of a firm, the lower the level of debt in the capital structure as the firm will in the first place use its own resources to finance its activities. Therefore S. Myers (1984) relates negatively profitability and level of debt. On the other hand, according to the trade-off theory, profitability and level of debt are positively related as more profitable firms have greater facility to borrow debt and negotiate more advantageous conditions. Despite these two different viewpoints, this determinant behavior is predicted to be negatively connected with the level of debt, as this result seems to be very reliable across numerous empirical studies (Titman and Wessels, 1988; Harris and Raviv, 1991; Rajan and Zingales, 1995; and Fama and French, 2002).

However, the sign of the relation between profitability and debt will indicate the confirmation of Pakistan firms to base their capital structure decisions according to the pecking order theory or not.

H₁: There is a negative relationship between leverage and profitability.

The historical assets are depreciated as and when purchased. NDTs is premediated as depreciation divided by fixed assets. It also considered as cash. It is flow from inside source of the firm. It is deductible before final tax as permissible by Government.

De-Angelo and Masulis (1980) suggested that non-debt tax shield is a deduction and permissible by depreciations and investment tax credit could add up tax savings as allowable by the leverage. This specifies that a firm with a high level of non-debt tax shield will probably have a lower level of debt. Trade-off theory suggests a negative relationship between non-debt tax shields and debt.

H₂: Leverage and non-debt tax shields have negative relationship.

Firm's size varies from firm to firm. Normally, the firms divided into three parts. Small firms, medium firms and long firms. Plentiful literature has researched from past studies that that size is overstated by the leverage. It is calculated as natural log of total assets.

Size is used as proxy to conclude a firm's capability to attain financing, as the large companies incline to have more alteration of activities that infers not as much of

probability of bankruptcy (Titman and Wessels, 1988). Besides, huge organizations with a reduced amount of unstable proceeds are added with prospective to gain benefit of NDTs, therefore, growing the latent benefits of leverage (Smith and Stulz, 1985).

TOT investigated that the larger companies having tendency to rise their level of debt as result of the smaller possibility of bankruptcy and as this way to get the benefit of tax from the Government. On the account of this, is supposed size and debt have positive relationship.

López-Gracia and Sogorb-Mira (2008) observed that larger size of firm permits a firm to accrue retained earnings for lessen demand of debt in accordance with POT. That's why, this approach envisages negative relationship between size and debt. As pointed by S. Myers (1984), greater firm's size declines with the problems of information asymmetry between managers and creditors. It is permitting organizations to get debt on favorable terms.

Psillaki and Daskalakis (2009), investigated and expected that positive relationship between size and debt may be happened in accordance with POT. Further, POT stated that correlation between debt and size may be positive or negative

H₃: There is positive relationship between leverage and size.

Tangibility (TANG) means physical asset, which are owned by a company to produce or acquire goods and services. Chen et al. (2013) discussed that TANG is measured as fixed assets over total assets. Such assets can be cast-off as collaterals when the companies are facing issue of bankruptcy and defending the creditor's interest.

Michaelas et al. (1999) affirmed that firms with respected tangible assets, which can be cast-off as collaterals is the easier source to avail opportunity of external finance. These firms have probably developed levels of debt than firms with low levels of tangible assets. TOT recommended that there is a positive relationship between asset tangibility and leverage.

Keeping in view, the higher level of tangible assets upsurges the opportunity of submission guarantees, diminishing difficulties of information asymmetry between firms managers and owners and creditors. According to Michaelas et al. 1999 and

Sogorb-Mira 2005 Tangibility and leverage having positive association according to the POT.

H₄: There is a positive correlation between tangibility and leverage.

Growth is the important determinant of capital structure. It is calculated as operating income over net sales. When the firms having high rate of growth, it is easier for large firms to get loan at lower than small firms.

S. Myers (1984) stated that as the bankruptcy and agency costs are better for businesses with high potentials of growth prospects, the companies could be disinclined to practice high amounts of debt. This escalates the likelihood of bankruptcy. Consequently, companies with high growth chances, may not use debt, as the first choice of finance.

According to TOT, firms with greater growth opportunities, have a lower level of debt. It is assumed that better investment opportunities increases the chance of agency problems between managers/owners and creditors, because the previous have a great inducement to lack of funding (S.Myers 1977).

Shyam-Sunder, Myers, (1999) and Ramalho, Silva (2009) stated by POT, companies with higher growth prospects, must focus on main investment projects, which produces greater wants for finance. As the interior funding is fatigued, corporations should prefer debt for financing growth prospects, which are related to better investment projects.

So, the companies with good growth opportunities raise debt, when internal funds are deficient. Thus, Pecking Order Theory (POT) predicts a positive relationship between growth and debt.

H₅: There is a positive relationship between Growth and Leverage.

Chapter 3

Data Description and Methodology

3.1 Data Description

This research aims to explore factors affecting capital structure (CS) and influence of financial crisis (2008) for 75 non-financial firms. These firms have been listed at Pakistan Stock Exchange. Profitability (ROA), Tax Shield (NDTS), Size (SIZE), Growth (GROW) and Tangibility (TANG) are the determinants of CS.

This researched included Pakistani Non-Financial Companies such as manufacturing, cement, textile, sugar, engineering, electrical, pharmaceutical and oil and gas etc. The sample period comprises of 17 years from 2000 to 2016. This samples period includes Financial Crisis Period 2007-08, and Pre-Crisis Period 2000-07 and Post Crisis Period 2009-16.

To investigate impact of GFC (2008), period has been divided equally into 9 years. This is expressive a very substantial aggregate of periods of the companies to analysis pre-crisis to crisis and crisis to post crisis.

In this research, cross sectional and time series data has been included and collected for seventeen (17) years from the year 2000 to 2016. Firms with incomplete financial data are not included in the sample; because they cannot serve as the purpose of the study, as well as all proxies, cannot be applied to incomplete data.

Non-financial companies are used only for analysis since the closing year of these firms is end of June 30th. Financing Structure might vary in the form of Pakistani non-financial firms and financial sector firms. Financial Sector decisions are sound controlled and powerful from non-financial sectors firms (Bassey et al., 2014).

3.2 Panel Data Analysis

In general, regression analysis estimates panel data through Ordinary Least Square (OLS). This regression gives best linear unbiased results. Panel data is a combination of cross sections and time series, where the same unit cross section is measured at different intervals.

In other words, panel data is data from some of the same individuals observed in a certain period of time. T time periods such as (T = 1, 2,3,4,5..., T) and N is the number of individuals (I = 1, 2, 3, 4, 5 ..., N), then with panel data we will have total observation units of N x T (75*17=1275).

If sum unit time is the same for each individual, then the data is called balanced panel. If instead, the number of time units is different for each individual, then it is called the unbalanced panel.

While other data types, namely: time-series data and cross-section. In time series, one or more variables will be observed on one observation unit within a certain time frame. While data cross-section is the observation of several units of observation in a single point of time.

This work also applies Panel data. There are three models of Panel data. These models has been applied on the study for analysis. Assumptions of every model are vary from each other regarding the intercept.

Common Coefficient Effect Model (CCM) is the first model and having persistent intercept in whole time period and cross section. Fixed Effect Model (FEM) is the second model.

This refers whole cross sections are varying for the intercept. Random Effect Model (REF) is the third model. This show whole cross section and random over time are changing for intercept.

How to decide two different tests may be used out of these three models for application in panel data analysis. Fixed Effect Model (FEM) test is applied to detect out of two models of the Common Coefficient Model (CCM) and Random Effect Model (REM) can be applied.

If the answer is significant ($P < 0.05$) in the case of this test, then (FEM) is used.

If the answer is in-significant ($P > 0.05$) then (CCM) will be used.

H0: CEM is appropriate.

H1: FEM is appropriate.

If the response is insignificant ($P > 0.05$), then state null hypothesis, and if response is in significant ($P < 0.05$) then apply fixed effect model.

Hausman Test is used for Fixed Effect Model (FEM) and Random Effect Model (REM). If the outcome of this test has significant values ($P < 0.05$), then (FEM) is used and in case of insignificant ($P > 0.05$), REM should be used for data analysis.

H0: REM is relevant.

H1: FEM is relevant.

If the responses is significant ($P < 0.05$), then reject the entire null hypothesis, and if reply is in-significant ($P > 0.05$), then apply null hypothesis.

3.3 Sources of Data

This research has collected data for independent and dependent variables from the financial statements of the companies and used for testing and analysis. 352 enterprises are registered at Pakistan Stock Exchange as on June, 2016 out of which 75 are selected.

These companies have been carefully chosen on the basis of maximum available data of 17 years for each firm and further these having closing date (ending 30th June). Following reliable sources has been used collection of data:

1. Pakistan Stock Exchange
2. Business recorder
3. State Bank of Pakistan
4. Companies

TABLE 3.1: Sample Section

Groups	Number of Listed Companies (2016)	Sample
Chemicals & Pharmaceuticals	43	14
Cement	17	9
Manufacturing	31	9
Sugar	30	8
Information, Comm. & Transport	11	6
Textile	136	6
Paper, Paperboard & Products	9	5
Food Products	16	5
Fuel & Energy	22	4
Coke & Refined Petroleum Products	10	2
Motor Vehicles, Trailers & Auto parts	18	5
Mineral Products	9	2
Total	352	75

3.4 Dummy Variables

A numerical variable is called dummy variable. It is used in the regression analysis to present sub-group of the sample. In this research, periods has been divided into three groups. One group is Pre-Crisis Period (2000-07) and second group is Post-Crisis Period (2009-16). Third group is Crisis Period (2007-08). Overall period is 2000-16.

Dummy variable is used to differentiate each period for innumerable treatments. Through usage of dummy variables, we can apply single regression equation to denote several groups. It is meant that we have not needed to write out separate equation for each sub-groups. These dummy variables act like switches, that turn various parameters on and off in an equation.

3.5 Measures of the Study

3.5.1 Dependent Variable

3.5.1.1 Leverage

In this research Leverage (debt) is the dependent variable. This variable is calculated as Total Debt divided by Total Assets (TDTAR). Mirza, Rehman and Xianzhi, (2016) and Amjed (2016) and Titman and Wessels (1988) have tested and provide empirical evidences.

It shows that how many assets can be financed through debt. Financial risk of firm can be determined through leverage Sogorb-Mira (2005). Briefly, if debt having greater than 1 ratio, it is measured that companies devise issues to pay back the credit and inverse (vice versa). Debt is the main component of capital structure for financing the business operations.

3.5.2 Independent Variable

Five independent variables such as NDTs, ROA and SIZE, TANG, GROW have been used to distinguish between ways of Pakistani non-financial firms. This research has analysed changes in determinants of capital structure and influence of financial crisis (2008). These independent variables have been explained in the table (3.2).

3.6 Methodology

On the foundation of current literature, determinants of capital structure uses regression to determine how independent variables influence dependent variables. The coefficients of the independent variables are of interest for this study as they give information on the direction of the correlation between the variables.

This work investigates different periods such as pre-crisis, post-crisis and pre-post crisis. This research further observes the changes in leverage ratios of sample

period by classifying into two sub-periods based on whether their pre-crisis and post-crisis leverage ratios are higher or lower than their pre-crisis to crisis and crisis to post-crisis.

This study uses t-test to examine whether there are any significant changes in the leverage ratios. This study also explores the impact of the financial crisis (200) on the firms leverage ratios in more formal setting. Similar to Lemmon, Roberts and Zender (2008), a Fixed Effect Model (FEM) is used to capture to impact of GFC (2008).

I have formed the linear equation on the source of the literature review, which this study has done in the previous chapter and tests those factors which plays key role in the value of the firm.

3.7 Econometric Model for Determinants of Capital Structure

Equation:

$$\text{TDTAR}_{i,t} = [\alpha + \beta_1 \text{ROA}_{i,t} + \beta_2 \text{NDTS}_{i,t} + \beta_3 \text{SIZE}_{i,t} + \beta_4 \text{TANG}_{i,t} + \beta_5 \text{GROW}_{i,t} + \beta_6 \text{DC}_t + \beta_7 \text{DPRC}_t + \beta_8 \text{DPC}_t + \varepsilon_{i,t}] \dots \dots \dots (3.1)$$

Where

α = constant

Coefficient are:

β_1 , ROA

β_2 , NDTS

β_3 , Size

β_4 , TANG

β_5 , GROW

β_6 , DC

β_7 , DPRC

β_8 , DPC.

ε = Error term

i = Firms

t = Period of times (years)

j = Country firms

(DPRC) = Dummy Pre-Crisis Period (2000-07),

(DC) = Dummy Financial Crisis Period (2007-08), and

(DPC) = Dummy Post-Crisis Period (2009-16)

In the perfect framework above, leverage is dependent variable of a firm. It is evaluated as total debt divided by total assets. It is abbreviated as TDTAR. This defines leverage and explained that how much debt is used to finance the firm. It is used to finance the operations of firms and also maximize the wealth of shareholders. Leverage can be used in firms for managing the investment and assets management.

Five independent variables like profitability, non-debt tax shields, size, tangibility and growth. Profitability has been estimated through return on assets and abbreviated as ROA. ROA is calculated as Net Income/Total assets.

Non debt tax shield has been estimated through depreciation over fixed assets and abbreviated as NDTS.

Firm's size has been measured as natural logarithm of total assets. Tangibility has been restrained through fixed assets divided by total assets.

This is abbreviated as TANG. Growth has been measured through operating income over net sales and abbreviated as GROW. The firm's data has been used for the period 2000-2016.

The main variable of interest is represented by dummy variable that takes a value of 1 for the pre-crisis (2000-07) and 1 for crisis (2007-08) and zero 0 for (2009-16) post-crisis. Otherwise, 1 for crisis (2007-08) and 1 for post-crisis (2009-16) and 0 for pre-crisis (2000-07).

TABLE 3.2: Variable Description

Dependent Variable	Notion	Proxy for DV		Empirical Evidence
Leverage	LEV	Total Debts to Total Assets Ratio (TDTAR)		Mirza, Rehman and Xianzhi (2016)
Independent Variables	Variable Names	Notion	Proxies for Measurement of IV	Empirical Evidence
1. Profitability	Return on Assets	ROA	Net Income / Total Assets	Bauer (2004)
2. Non-debt tax shields	Depreciation to Fixed Assets	NDTS	Depreciation / Fixed Assets	Anwar, S., & Sun, S. (2013)
3. Size	Natural logarithm of total assets	Size	In (Total Assets)	Rajan and Zingales (1995)
4. Tangibility	Fixed Assets over Total Assets	Tang	Fixed Assets / Total Assets	Wald, (1999), Viviani, (2008)
5. Growth	Operating Profit Margin	Grow	Operating Income / Net Sales	Abor and Biekpe (2009)
6. Crisis			+ -	Lim (2004) Voutsinas and Werner (2011)

Chapter 4

Results and Discussion

Chapter covers results of research with respect to the basic objectives and identifying changes in determinants of capital structure using 2008 Financial Crisis. Crisis period is 2007-08 and Pre-crisis period is 2000-07 and Post-crisis period is 2009-16. This study has used non-financial firms, which are listed at Pakistan Stock Exchange (PSX). Furthermore, analysis has been made through conducting tests using by Microsoft excel and E-Views software and discussed hereunder.

4.1 Descriptive Statistics

4.1.1 Descriptive Statistics for Pre-Crisis

The below given **Table-4.1**, shows the descriptive statistics of all variables of the study before crisis period (2000-07). TDTAR of the sample firms range from 0.0028 to 0.7000 with the average of 0.5566, median is 0.5739 and SD is 0.2065. Mean value of ROA is 0.0950 with median is 0.0759 and standard deviation is 0.1240. The minimum value is -0.9374 and maximum value is increased up-to 0.5606. The mean value of NDTs is 0.0970 with median 0.0865. The maximum and minimum values are 0.1973 and 0.0223 and SD (Standard deviation) is 0.0674. The Size has value of mean 7.5513, median is 7.3045, and standard deviation is 1.6740 with the minimum and maximum 1.6279 and 11.9370. The average value

of TANG is 0.4967, median is 0.5177, and standard deviation is 0.2241. The minimum value is 0.0259 and maximum value 0.6313. Mean value of Grow is 0.1046. Maximum and minimum values are 0.7667 and -0.5187. Median is 0.0911 and SD is 0.1157.

TABLE 4.1: Descriptive Statistics for Pre-Crisis (2000-07)

IV & DV	Obs.	Mean	MD	MIN	MAX	S.D
TDTAR	600	0.5566	0.5739	0.0028	0.7000	0.2065
ROA	600	0.0950	0.0759	-0.9374	0.5606	0.124
NDTS	600	0.0970	0.0865	0.0223	0.1976	0.0674
SIZE	600	7.5513	7.3045	1.6279	11.937	1.674
TANG	600	0.4967	0.5177	0.0259	0.6313	0.2241
GROW	600	0.1046	0.0911	-0.5187	0.7667	0.1157

Note: That table shown the independent and dependent variables for before-crisis period. DV is TDTAR and defined as total debt over total assets ratio. IV is NDTS and defined as depreciation over fixed. ROA is defined as net income over total assets. GROW is defined as operating income divided by net sales. TANG is defined as fixed assets over total assets.

4.1.2 Descriptive Statistics for Post-Crisis

Table: 4.2 placed below shows Descriptive Statistics after Crisis Period (2009-16) of all variables used in the study. The mean value of TDTAR is 0.5274, median is 0.5476 and SD is 0.2120. Leverage has' Max and Min values are 0.7000 and 0.0034. Average and median values of ROA are 0.0846 and 0.0737. ROA has Maximum and minimum values are 0.5579 and -0.5946. It has standard deviation 0.1304. Mean, median and standard deviations values of NDTS are 0.0750, 0.0610, and 0.0676. It's Maximum (Max) is 0.1973 and Minimum (Min) values is 0.0225. The Size's mean value is 8.8388 and median 8.7290. Whereas the standard deviation is 1.5964. Size has maximum value 12.6202 and minimum value is 3.9831. Average value of TANG is 0.5284, median is 0.5526 and standard deviation 0.2126. The TANG has maximum and minimum values 0.6457 and 0.0259. Average value

of GROW is 0.0988, median is 0.1009 and SD 0.1789. Whereas as the Min value is -0.9034 and Max values is 0.9655.

TABLE 4.2: Descriptive Statistics for Post-Crisis (2009-16)

IV & DV	Obs.	Mean	MD	MIN	MAX	S.D
TDTAR	600	0.5274	0.5476	0.0034	0.7000	0.212
ROA	600	0.0846	0.0737	-0.5946	0.5579	0.1304
NDTS	600	0.0750	0.0610	0.0225	0.1973	0.0676
SIZE	600	8.8388	8.729	3.9831	12.6202	1.5964
TANG	600	0.5284	0.5526	0.0259	0.6457	0.2126
GROW	600	0.0988	0.1009	-0.9034	0.9655	0.1789

Note: Dependent and Independent variables are shown after crisis period. TDTAR is defined as total debt over total assets ratio. NDTS is defined as depreciation over fixed. TANG is defined as fixed assets over total assets. ROA is defined as net income over total assets. GROW is defined as operating income divided by net sales;

4.1.3 Descriptive Statistics for Overall Period

Table: 4.3 given below shows that the descriptive statistics of all variables for the period 2000-16 used in the study. Mean value of TDTAR is 0.5443 whereas the median is 0.5660 and SD is 0.2092. The maximum and minimum values are 0.7200 and 0.0027. The average and median values of ROA are 0.0889 and 0.0742. ROA has maximum and minimum values are 0.5606 and -0.9374. Its standard deviation is 0.1272. The mean value of NDTS is 0.0857. Its median is 0.0717 and standard deviation are 0.0698. It's maximum and minimum are 0.1973 and 0.0223. The SIZE has value of mean 8.2048, median is 8.0830 and standard deviation is 1.7508. The SIZE's maximum and minimum values are 12.6202 and 1.6279. The average and median values of TANG are 0.5112, 0.5317 and its standard deviation is 0.2198. The maximum value is 0.6457 and minimum value is 0.0225. The mean value of GROW is 0.1017, and median 0.0959 and its standard deviation is 0.1509, whereas the minimum and maximum values are -0.9034 and 0.9655.

TABLE 4.3: Descriptive Statistics for Overall Period (2000-16)

IV & DV	Obs.	Mean	MD	MIN	MAX	S.D
TDTAR	1275	0.5443	0.5660	0.0027	0.7200	0.2092
ROA	1275	0.0889	0.0742	-0.9374	0.5606	0.1272
NDTS	1275	0.0857	0.0717	0.0223	0.1973	0.0698
SIZE	1275	8.2048	8.083	1.6279	12.6202	1.7508
TANG	1275	0.5112	0.5317	0.0225	0.6457	0.2198
GROW	1275	0.1017	0.0959	-0.9034	0.9655	0.1509

Note: This table shows descriptive statistics for overall period. This demonstrates independent and dependent variables. TANG is fixed asset divided by total assets. NDTS is depreciation over fixed assets and. SIZE is Ln of total assets. ROA is net income over total assets and GROW is operating income over net sales. TDTAR is measured as total debt ratios over total assets ratios'.

4.2 Correlation Matrix Analysis

The correlation matrix shows the relationship among the variables. Pearson Correlation Test explains the direction and strength of the relationship.

4.2.1 Correlation Matrix Analysis for Pre-Crisis

Table: 4.4 shows the correlation of all variables for pre financial crisis (2000-07) are used in the study.

Correlation between ROA, NDTS, and GROW have negative with TDTAR. While the SIZE and TANG have positive relationship with TDTAR. The relationship between TANG and SIZE having negative with ROA.

GROW and NDTS having positive relation with ROA. SIZE and TANG having negative relation with NDTS. But GROW is positively correlated with NDTS. GROW and TANG having positive with SIZE. Whereas TANG is linking negatively with GROW.

TABLE 4.4: Correlation Matrix Analysis for Pre-Crisis (2000-07)

VARIABLE	TDTAR	ROA	NDTS	SIZE	TANG	GROW
TDTAR	1					
ROA	-0.4299	1				
NDTS	-0.2449	0.3394	1			
SIZE	0.1487	-0.0551	-0.0973	1		
TANG	0.2753	-0.4321	-0.5449	0.2701	1	
GROW	-0.3996	0.6077	0.1212	0.1583	-0.0944	1

Notes: Independent and dependent variable are show for before crisis period. TANG is defined as fixed assets over total assets. GROW is defined as operating income divided by net sales; ROA is defined as net income over total assets; NDTS is defined as depreciation over fixed. TDTAR is defined as total debt over total assets ratio.

4.2.2 Correlation Matrix Analysis for Post-Crisis

Table: 4.5 shows the correlation of all variables for post financial crisis (2009-16), which are used in the study. GROW, ROA and NDTS having negative with TDTAR. While the SIZE and TANG have positive relationship with TDTAR. TANG is having negative relationship with ROA. NDTS, SIZE and GROW having positive relation with ROA. SIZE, GROW and TANG is negative relationship with NDTS. The TANG and GROW having positive relationship with SIZE. The relationship of GROW is positive correlation TANG.

TABLE 4.5: Correlation Matrix Analysis for Post-Crisis (2009-16)

VARIABLE	TDTAR	ROA	NDTS	SIZE	TANG	GROW
TDTAR	1					
ROA	-0.3848	1				
NDTS	-0.0836	0.0825	1			
SIZE	0.0858	0.0194	-0.2301	1		
TANG	0.1023	-0.3460	-0.4745	0.3587	1	
GROW	-0.0909	0.5934	-0.0828	0.167	0.0008	1

Note: This table display correlation for post-crisis.

GROW is defined as operating income divided by net sales;

ROA is defined as net income over total assets; NDTS is defined as depreciation over fixed.

TANG is defined as fixed assets over total assets and TDTAR is defined as total debt over total assets ratio.

4.2.3 Correlation Matrix Analysis for Overall Period

Table: 4.6 shows the correlation of all variables for the overall period (2000-16) containing three period (pre-crisis, crisis, and post-crisis periods) which are used in the study.

Relation between ROA, NDTS, and GROW have negative with TDTAR. While the SIZE and TANG have positive relationship with TDTAR.

The relationship among SIZE and TANG having negatively with ROA. NDTS and GROW having positive relation with ROA.

SIZE, GROW and TANG having negative relationship with NDTS. The TANG and GROW are linking positively with SIZE. The relationship of GROW is negative with TANG.

TABLE 4.6: Correlation Matrix Analysis for Overall Period (2000-16)

VARIABLE	TDTAR	ROA	NDTS	SIZE	TANG	GROW
TDTAR	1					
ROA	-0.3943	1				
NDTS	-0.1503	0.2085	1			
SIZE	0.0803	-0.0368	-0.2036	1		
TANG	0.1739	-0.3939	-0.5033	0.3089	1	
GROW	-0.1911	0.5942	-0.0041	0.1324	-0.0407	1

Notes: That table show correlation for the period (2000-16). ROA is defined as net income over total assets; GROW is defined as operating income divided by net sales; TANG is defined as fixed assets over total assets and NDTS is defined as depreciation over fixed. TDTAR is defined as total debt over total assets ratio.

4.3 Multicollinearity for the Period 2000 to 2016

The source of multicollinearity is a very high value of correlation and may result in biasness in the results. High correlation may arise multicollinearity problem. It effects regression analysis as an alternative of influencing the dependent and independent variables. It starts impacting to each other and also do influence on total results. Results have been reported in **Table: 4.7** through VIF and it is below 5. It indicates that multicollinearity does not exist.

TABLE 4.7: Multicollinearity for Overall Period (2000-16)

Variables	1/VIF
ROA	1.2678
NDTS	1.0292
SIZE	1.0002
TANG	1.0041
GROW	1.0235

4.4 Diagnostics Test

We have used Panel data to estimate the regression model. Panel data is useful when data having times series and cross section. We have applied the same for this study for the period 2000-16. Fixed Effect Model (FEM) Test is applied for assortment between fixed and common effect model. P-value of Fixed Effect Model is (0.0000). Which is less than 0.5. It is concluded that fixed effect model is appropriate. The Hausman test is applied to decide between fixed effect and random effect model. The p-value of cross-section random is (0.0000) and indicating that fixed effect model shall be applied.

TABLE 4.8: Redundant Fixed Effects Tests

Effects Test	Statistic	d. f.	P-value
Cross section F	11.45	-741195	0.0000
Cross section Chi-square	683.42	74	0.0000

TABLE 4.9: Correlated Random Effects-Hausman Test

Test Summary	Statistic	d. f.	P-value
Cross-section random	30.71	5	0.0000

4.4.1 Determinant of Capital Structure

Table: 4.10 explains relationship between dependent variable and independent variables. Profitability is evaluated through return on assets. ROA has co-efficient -0.4730. Its P-value is 0.00. It meant that companies having lower tendency to get debt. These shall use it only, when internal sources are inadequate.

ROA is having significant negative relationship with leverage. It is supporting to POT. Net debt tax shield having coefficient value -0.1581. Its P-value is 0.0900. It is meant that firms having lower NDTs. It is having significant negative correlation with leverage. This shows that firms having less advantages of tax. It is associating with POT. Coefficient values of size -0.0119 with P-value 0.0345. It is indicating significant negative correlation of size and debt. It means that firms are consuming less debt. These will prefer less to debt to expand the size and would use internal sources. It is also following POT.

Tangibility having coefficient value -0.0664. P-value of TANG is 0.1134. This shows that leverage and tangibility are negatively correlated. Its impact on debt is not significant. It supports to Pecking Order Theory. Negative sign shows that firms having less tendency to get debt against tangible assets.

Growth's having p-value 0.1685 and its coefficient values is 0.0001. It is showing positive relationship between leverage and growth. It is having significant impact on debt. When firm expanded growth in sales. It increases wealth of shareholders. This is also helpful for getting loan at lower cost for future investments. The higher growth may hold more choices for future investment projects than low growth firms. It is supportive to TOT.

R-square value is 51.18% it indicates strong descriptive power of this model. Adj. R-square value is 47.95% and presenting variation occurred in the DV (leverage) due to IV's. 52.05% is showing unexplained value of debt. This is due to other determinants which are not included in this study.

TABLE 4.10: Determinants of Capital Structure

Fixed Effect for the Period (2000-16)				Random Effect for the Period (2000-16)				Common Effect for the Period (2000-16)			
Variable	Coef.	t-Stat.	P-Value	Variable	Coef.	t-Stat.	P-Value	Variable	Coef.	t-Stat.	P-Value
C	0.7143	13.5105	0.0000	C	0.6559	14.1457	0.0000	C	0.5844	18.3386	0.0000
ROA	-0.473	-8.0284	0.0000	ROA	-0.5154	-9.0523	0.0000	ROA	-0.7013	-11.8699	0.0000
NDTS	-0.1581	-1.6968	0.09	NDTS	-0.1561	-1.7485	0.0806	NDTS	-0.2183	-2.4466	0.0146
SIZE	-0.0119	-2.1170	0.0345	SIZE	-0.0056	-1.1869	0.2355	SIZE	0.0068	2.0900	0.0368
TANG	-0.0664	-1.5844	0.1134	TANG	-0.0444	-1.1762	0.2397	TANG	-0.044	-1.3908	0.1645
GROW	0.1685	3.9341	0.0001	GROW	0.1625	3.884	0.0001	GROW	0.0729	1.5805	0.1142
R-squared			0.5118	R-squared			0.0664	R-squared			0.1656
Adjusted R-squared			0.4795	Adjusted R-squared			0.0627	Adjusted R-squared			0.1623
F-statistic			15.8592	F-statistic			18.0535	F-statistic			50.3747
Prob.(F-statistic)			0.0000	Prob.(F-statistic)			0.0000	Prob.(F-statistic)			0.0000

4.5 Results of Fixed Effects Model for Pre-Crisis

Table: 4.11 presented Pre-Crisis Period 2000-07. It is showing positive and negative relationships of coefficient and significant and insignificant results of probability.

The value of determination coefficient R^2 (R-Square) is 0.5150. This indicates that model has strong descriptive power. The value of Adjusted (R^2) is 0.4825. This shows that independent variables has explained 48.25% variations in the dependent variable (leverage).

Moreover, Intercept (C) value is significant (0.0000) that shows probability of variables is omitted. It means there are various variables which are included in this study but there are also some variables which may impact leverage (debt) which is the proxy of firm value but are not included in this study.

The Profitability is measured by ROA. Probability having negative relation with leverage. Its P-value is 0.0000 and coefficient value is -0.4695. The results are persistent with literature and research such as researched by Anwar, S., & Sun, S. (2013) and Kester (1986). According to POT, businesses having huge profits they choose inner capitals for put money into their investments. The more profitable firms having greater capacity to accumulate retained profits. So, there is less need to turn to external finance. This theory proposes that corporations select to economics with inside funds than external financing Myers (1984). The P-value 0.000 is showing that ROA has significant impact on TDTAR.

Non-Debt Tax Shields has value -0.1673 for Coefficient and indicating negative relation between debt and NDTS. These results are consistent with the literature. NDTS (Net-debt tax shield) and LEV (Leverage) having negative relationship between them as experimented by Huang and Song (2006) and Wald (1999). NDTS have significant effect on debt. Its P-value is 0.0721. These outcomes are associated with (POT). The companies having no intentions to prevail tax shield before the crisis.

P-value of size is 0.4107 and coefficient value is 0.0073 during Pre-Crisis Period. Debt and size have correlation positively. Outcome is consistent with the literature. Mirchaelas and Chen (1999) had studied and investigated correlation

positive. This result has supported the TOT. Theory stated that firms having higher level of fixed assets can provide large physical collateral to get loans, this allows them to have debts on lower interest rate and get benefits of tax shield accordingly. Its P-value is 0.4107, which is not significant and resulting that size has no effect on the TDTAR.

TANG having coefficient value -0.0726. Its P-value is 0.0833. This shows negative correlation between TANG and TDTAR. It has significant effect on leverage before crisis 2000-07. It is not consistent with literature. Mazur, (2007) and Karadeniz (2009) studied and given evidence there is negative relationship between tangibility and debt ratio. These results are supporting to Pecking Order Theory and suggesting that collective assets can be used to finance future projects.

Growth (GROW) having P-value 0.0002 and coefficient value is 0.1591. This is indicating that the relationship between GROW and leverage during Pre-Crisis Period is positive and significant. Result is persistent with literature. Degryse (2012) and Wald (1999) find growing firms are positively correlation with debt. Outcome is following the TOT and signifying that higher growth may help in getting loan and financing. It increases the wealth of shareholders.

DPRC (dummy pre-crisis) is showing average value of leverage for the period 2000-07. There is significant and positive relationship. The value of coefficient of DPRC is 0.0383 and P-value is 0.0052. This indicates leverage ratio is increasing in this period.

TABLE 4.11: Fixed Effect Model for Pre-Crisis (2000-07)

IV	Coef.	S.E	T-Stat.	Prob.
C	0.5435	0.0806	6.7419	0
ROA	-0.4695	0.0588	-7.9902	0.0000 *
NDTS	-0.1673	0.0929	-1.8004	0.0721***
SIZE	0.0073	0.0088	0.8230	0.4107
TANG	-0.0726	0.0419	-1.7336	0.0833
GROW	0.1591	0.0428	3.7130	0.0002**
DPRC	0.0383	0.0137	2.8014	0.0052**
R-squared				0.5150
Adjusted R-squared				0.4825
F-statistic				15.8488
Prob.(F-statistic)				0.0000

Note: This table shows effects of independent on dependent variables during pre-crisis period. Independent variables are ROA and calculated as net income over total assets; NDTs is depreciation over total assets; Size in Ln of total assets and GROW is operating income divided by net sales.

*And ** coefficient is significant level @ 5% and * coefficient is significant level at @ 1% and *** coefficient is significant level @10%. PRC indicates pre-crisis average value of leverage.*

4.6 Results of Fixed Effects Model for Post Crisis

Table: 4.12 depicts Post-Crisis Period (2009-16) and representing relationship and outcomes.

Adj. R-Square's value is 0.4859 and R-Square value is 0.5182. Determination value of coefficient R^2 is 51.82% and indicating solid explanatory influence of the model.

Adjusted R^2 value 48.59% shows variations in the dependent variable (DV). These disparities are explained by the independent variables (IV's).

Unexplained value of 51.41% is deviations in the DV on account of other determinants, which are not selected in this research.

Probability having negative relationship and significant impact on the leverage. ROA having P-value is 0.0000 and coefficient value -0.4596 during post crisis period (2009-16). Outcome is persistent with literature.

Studied have been researched by Tong and Green (2005) and Chen (2004) and they found a similar relationships in their final results.

According to POT, firms should propose to finance business with internal funds over outside finance.

NDTS has coefficient value -0.1631 and its P-value is 0.0784. It shows the relation between debt and net debt tax shield is negative during this Period.

This shows the result is consistent with literature and researched by Anwar, S. & Sun, S. (2013) and Wald (2009). The results are associated with POT.

According to this theory; firms having less desire to get benefits of tax shield. Further, its P-value is 0.0784 and showing significant impact on the leverage.

Size has coefficient value 0.0132. Its P-value is 0.1165. This indicates positive relation of size and TDTAR during that period.

Chen et al. (1999) and Baur (2004) studied and produced same results and supported to TOT.

This theory suggests that firms having higher level of fixed assets. They can provide large physical collateral to get loan and allow them to have debts on lower interest rate. Firms can get benefits of tax shield accordingly. Its impact is insignificant on debt ratio.

Tangibility having coefficient value -0.0657 and P-value -0.1149. This shows TANG having negative relationship with debt.

Probability of TANG is greater than 0.05 having no significant impact on leverage during post crisis period 2009-16. The result is not consistent with literature. It means that non-financial firms are not adopting the collective assets for obtaining debts in their capital structure.

Karadeniz et al. (2009) researched that firms of Pakistan, India, and Barzil, Turkey having negative relationship with debt ratio.

The negative sign of tangibility shows that firms having less fixed assets tends to use more debt to finance their business. This is supporting to Pecking Order Theory.

During post-crisis period (2009-16) growth having significant positive relation with debt. P-value is 0.0003 and value of Coefficient is 0.1533. Result is consistent with literature.

De Bie and De Haan (2007) studied and found that firms are positively correlation with the leverage and supporting to TOT. This suggests that firms may avail debt easily from the institution, as the rate of growth is higher.

DPC (dummy post- crisis) is showing mean value of capital structure for the period 2009-16. There is significant negative relationship. The coefficient value is -0.0519 with P-value 0.0001. It indicates that debt ratios is decreasing in this era. This shows less dependency of firms in respect of debt financing. The result shows that outcomes of dummy post crisis period negatively and significantly influence the total debt to total assets ratio.

TABLE 4.12: Fixed Effect Model for Post Crisis (2009-16)

IV	Coef.	S.E	T-Stat.	Prob.
C	0.5328	0.0696	7.6583	0.0000
ROA	-0.4596	0.0587	-7.8358	0.0000*
NDTS	-0.1631	0.0926	-1.7617	0.0784***
SIZE	0.0132	0.0084	1.5709	0.1165
TANG	-0.0657	0.0417	-1.5778	0.1149
GROW	0.1533	0.0427	3.5870	0.0003**
DPC	-0.0519	0.0130	-3.9802	0.0001**
R-squared				0.5182
Adjusted R-squared				0.4859
F-statistic				16.0535
Prob.(F-statistic)				0.0000

Notes: That table indicates FEM effects on post crisis. The independent variable is NDTS and measured as depreciation over fixed assets. Size is LN of total assets. ROA is net income over total assets. GROW is operating income over nets. TDTAR is measured as total debt over total assets. ***, **, * show significant levels at @ 10%, @ 5% and 1% of t-test respectively.

4.7 Results of Fixed Effects Model for Pre and Post Crisis

Table: 4.13 shows Pre and Post Crisis Period (2000-16) excluding 2008. It is showing enormous results. This includes Pre-Crisis and Post Crisis Periods.

R-Square having value 0.5182 and value of Adj. R-Square is 0.4855 for the period (2000-16) excluding GFC. 51.82% coefficient value indicates that the model has durable descriptive power.

The value of adjusted R-Square is 48.55% and showing distinctions in dependent variable (leverage) due to the independent variables such as ROA, NDTS, SIZE, TANG, and GROW. 51.45% is unexplained cost in the dependent variable (debt), which is due to other factors which are not included in this work.

Probability (ROA) has coefficient value -0.4594 and its P-value is 0.0000. This shows significant negative relationship between debt ratio and ROA during overall Period 2009-16 excluding 2008. Result is consistent with the literature and studied such as researched by Anwar, S., & Sun, S. (2013) and Huang and Song (2006). Outcome is associated with POT. This theory suggests, the firms should retain profit for inside assets. This may help investing in business activities.

Non-Debt Tax Shields has coefficient value -0.1627. The P-value is 0.0794. So, there is negative relationship between NDTS and debt ratio in this period. The outcome is consistent with the literature and studied such as researched by Anwar, S., & Sun, S. (2013). Results are associated with POT. Its P-value is 0.0794 and showing that NDTS have significant effect on the leverage. It is showing firms are not tending to prevail tax shield.

Size having positive relationship with leverage during period 2000-16 excluding 2008. Size having P-value 0.1543 and coefficient value 0.0129. Consequence is persistent with the literature.

Michaelas (1999) and Bauer (2004) studied and investigated that it has positive correlation with leverage. This result follows TOT. It indicates that firms have less inclination to gear the business through fixed assets. SIZE having no impact on debt as its probability higher than 5%.

Tangibility having negative correlation with leverage during pre and post period. TANG having P-value 0.1183 and coefficient value -0.0654. Outcome is not persistent in line to literature. Balsari and Kirkulak (2008) research find that firm's tangibility having negative relation with debt ratio. Tangibility is showing negative sign.

This shows that firms having less fixed assets tends to use more debt to finance the operations of the business. This result is supporting to Pecking Order Theory. Tangibility having no significant impact on the leverage in this period as its P-value is 0.1183.

GROW's coefficient value is 0.1534 and P-value is 0.0003. This indicates that growth and debt are correlating positively during this period. Grow having significant effect on debt. This result is consistent with the literature. Arene (2014)

studied and found positive relations between LEV (leverage) and GROW. Chen (2004) and Rajan and Zingales (1995) also find out the positive relationship. In 2001, Heshmati stated that fast growing firms having trend to have higher debt. In 1977, Myers viewed that high growth firms might give up some investment opportunities. That outcome has associated with TOT.

Coefficient value of DPRC is -0.0022 and P-value is 0.9130. And DPC P-value is 0.0049 and coefficient value is -0.0534. Both DPRC and DPC are negative but DPC is significant and DPRC is insignificant. It indicates that debt ratios are decreasing.

Size's P-value is 0.1543 and coefficient value is 0.0129. It is indicating positive correlation of size and debt. It means that organizations using collateral assets to expand the size through external sources.

This result is persistent with the literature and supporting to TOT. The size has no significant impact on debt, because its p-value is 0.1543 which is higher than 0.10. In 1995, Rajan and Zingales researched and observed that SIZE is positively correlated with debt.

TABLE 4.13: Fixed Effect Model for Pre-Post Crisis Period

IV	Coef.	S.E	T-Stat.	Prob.
C	0.5372	0.0804	6.6810	0.0000
ROA	-0.4594	0.0587	-7.8258	0.0000 *
NDTS	-0.1627	0.0927	-1.7557	0.0794***
SIZE	0.0129	0.009	1.4254	0.1543
TANG	-0.0654	0.0418	-1.5633	0.1183
GROW	0.1534	0.0428	3.5870	0.0003**
DPRC	-0.0022	0.0198	-0.1093	0.9130
DPC	-0.0534	0.0189	-2.8191	0.0049**
R-squared				0.5182
Adjusted R-squared				0.4855
F-statistic				15.8423
Prob.(F-statistic)				0.0000

*Note: That table show effects of Fixed Effect Model (FEM) on Post-Crisis period. TDTAR is calculated as total debt over total assets. ROA is measured as net income over total assets. NDTs is depreciation over fixed assets. Size is Ln of total assets and TANG is fixed assets over total assets. GROW is operating income over net sale. * representing significant level at @ 1%, ** showing significant level @ 5% and *** indicating significant level @10% .*

4.8 Results of Global Financial Crisis 2008

Table: 4.14 shows the impact of 2008 Global Financial Crisis (GFC) on pre-crisis and post crisis periods. Crisis explains that leverage increases from pre-crisis to crisis and decreases from crisis to post crisis. These results are consistent with Kayhan and Titman (2007) and Leary and Roberts (2005) and Fosberg (2012). In this below table, DC (dummy crisis) means Global Financial Crisis (2008), DPRC indicates (dummy pre-crisis) and DPC shows (dummy post-crisis). DC, DPRC and DPC are dummies variables.

4.8.1 Pre-Crisis to Crisis

The value of coefficient of dummy crisis (DC) is 0.0534 and its P-value is 0.0049. This shows that DC's coefficient is positive and statistically significant. This result suggests that leverage ratio is increasing in crisis period (2007-08). (DPRC) dummy pre-crisis has 0.0512 coefficient value. Its P-value is 0.0004. This indicates DPRC having significant and positive relationship. This outcome proposes that firm's leverage ratio is also increasing in pre-crisis period. It is concluded that companies' leverage ratios are escalating.

4.8.2 Crisis to Post-Crisis

(DPC) Dummy post-crisis having -0.05212 coefficient value. Its P-value is 0.0004. This indicates that DPC is empirically significant and correlating negatively. These result demonstrates that leverage is decreasing in post-crisis period. 0.0022 is coefficient value of dummy crisis (DC) and its P-value is 0.9130. This shows positive

relationship but it is statistically in-significant. It is determined that leverage decreases from crisis to post-crisis.

4.8.3 Determinants

Profitability is assessed through return on assets. Coefficient value of ROA is -0.4594 and P-value is 0.0000. This expresses that companies having significant negative relation with debt. The firms are funding through internal sources instead of external sources. This result is consistent with the literature and following to POT. Chen (2004) studied and found that profitability is negatively correlated with leverage. The coefficient value is -0.1627 of tax shield and its P-value is 0.0794. It indicates that significant negative correlation with leverage. This result is persistent with the literature and supporting to POT. It shows that firms having no intent to conquer tax shield. Strange and Chen (2006) researched and investigated that NDTs having negative correlation with the debt ratio. It is impacting on debt ratio as its p-value is less than 0.10.

Tangibility (TANG) having coefficient value -0.0654. P-value of TANG is 0.1183. This shows that tangibility and leverage having negative association. This result is not reliable with the literature and linking with POT. Its impact on debt is not significant. In 2001, Booth provided evidence that TANG is positively related with leverage ratios. The P-value of Growth (GROW) is 0.1534 and its coefficient values is 0.0003. It is indicating that GROW and debt having positive relationship. This result is important and persistent with literature and relating to TOT. This means that firms are growing growth in sales. It escalates the wealth of shareholders and also supportive in getting credit at lesser cost. Higher growth may grip more choices for imminent projects than little growth firms. In 1976, Jensen & Meckling worked and suggested that GROW is having positive relation with debt ratios. 0.5182 is value of R-Square value and demonstrates that system has solid expressive power. 0.4855 is adjusted R-Square value. This expresses that the independent variables has explained 48.55% deviations in the dependent variable (debt) and 51.45% are unexplained value. So, it is advocated that 51.45% of variations may be caused by other factors which are not included in this study.

TABLE 4.14: Impact of Global Financial Crisis 2008

Pre-Crisis to Crisis (2000-08)					Crisis to Post Crisis (2008-16)				
Variable	Coef.	Std. Error	t-Stat.	Prob.	Variable	Coef.	Std. Error	t-Stat.	Prob.
C	0.4839	0.0831	5.8217	0.0000	C	0.5351	0.0725	7.3753	0.0000
ROA	-0.4594	0.0587	-7.8258	0.0000	ROA	-0.4594	0.0587	-7.8258	0.0000 *
NDTS	-0.1627	0.0927	-1.7557	0.0794	NDTS	-0.1627	0.0927	-1.7557	0.0794***
SIZE	0.0129	0.0090	1.4254	0.1543	SIZE	0.0129	0.0090	1.4254	0.1543
TANG	-0.0654	0.0418	-1.5633	0.1183	TANG	-0.0654	0.0418	-1.5633	0.1183
GROW	0.1534	0.0428	3.5870	0.0003	GROW	0.1534	0.0428	3.5870	0.0003**
DPRC	0.0512	0.0144	3.5589	0.0004	DPC	-0.0512	0.0144	-3.5589	0.0004**
DC	0.0534	0.0189	2.8191	0.0049	DC	0.0022	0.0198	0.1093	0.9130
R-squared				0.5182	R-squared				0.5182
Adjusted R-squared				0.4855	Adjusted R-squared				0.4855
F-statistic				15.8423	F-statistic				15.8423
Prob(F-statistic)				0.0000	Prob(F-statistic)				0.0000

Chapter 5

Conclusion and Recommendations

5.1 Conclusion

Capital structure is mixer of equity and debt. This is used to finance the operations of business. Main commitment of a manager is to select optimal combination of equity and debt. This increases the value of firms. It also enhances shareholders wealth.

Considering the importance of value of firm and benefits of shareholder, companies should pay proper attention while making optimal strategic decisions. It needs trade-off between cost of financial distress and tax benefits of borrowed amount. TOT says that companies should search for debt levels that equilibrium the cost of financial distress and tax advantages. POT states that corporations should favor to lend than issue equity, when internal source are inadequate to fund the capital expenditures.

This work has particularly aimed at the impact of Financial Crisis (2008) on determinants of capital structure within context of Pakistani non-financial firms. Findings confirmed the results, as discussed previously by researchers, within subject of capital structure (CS).

This research investigated factors affecting capital structure (CS) and effects of

Financial Crisis (2007-08) on all these established determinants. CS has been analyzed by way of two key principles of capital structure. Trade-off theory (TOT) and Pecking Order Theory (POT) are two main theories. These theories have shown different relationships with dependent (DV) and independent variables (IV). Leverage (LEV) is DV and measured by total debt to total assets. IV's involve profitability, non-debt tax shield, tangibility, size and growth.

We have selected 75 Pakistani Non-Financial Firms, which are registered at PSE. Data is collected for the period 2000-2016. Periods has been divided into three sub-periods; 2000-07 is representing pre-financial crisis, 2007-08 is representing crisis and 2008-09 is representing post-financial crisis period.

In order to analyse the data, we have applied panel data technique and selected Fixed Effect Model (FEM) for analysis and results. First, this study has analyzed individually pre-crisis, post-crisis and pre-post crisis and found their result. Before crisis and after crisis, profitability and net-debt tax shield having significant negative but growth having significant positive effect on leverage. Size is showing positive relationship but tangibility is showing negative correlation. Both size and tangibility having in-significant effect on leverage. Pre-Crisis Period is showing significant positive effect but Post-Crisis Period is indicating significant negative effect on the leverages. Both Pre-Post crisis are showing negative effects on leverage. Outcome is relatively alike to past studies like (Naliniprava Tripathy and Aman Asija 2017, Huang & Song 2006, Harrison & Widjaja 2013, Anwar & Sun 2013 and Chen & Chen 2011).

Regression testing has shown a clear picture of Global Financial Crisis (2008) from pre-crisis to crisis and crisis to post crisis. It resulted that leverage increases from pre-crisis to crisis and decreases through crisis to post-crisis. These results are in line with (Kayhan and Titman 2007, Leary and Roberts 2005, and Fosberg 2012). We can conclude that determinants of CS of this study changed during Financial Global Crisis (2008).

Campello et al, (2010) research shown small firms were affected by financial crisis (2007-08) and supported the TOT. Nevertheless, POT has more descriptive control than other theories of capital structure. On the basis of analysis, this study

also supports Pecking Order Theory (POT).

In addition, the capital structure decision is not only product of firm specific factors. These CS decisions are also results of good corporate governance and market environment of the countries in which organizations functions. This study also provides an indication of factors such as TANG, SIZE, GROW, ROA and NDTs are important in determining the financial policy of firms.

This research is also relating to decision makers of firms, subsequently, it will empower them to proceed appropriate policy actions to stabilize the firms and overcome the risk. This work will be supportive to both academicians and scholars to realize the prominence of institutional and market determinants while defining the capital structure policy of firms in an economy.

5.2 Recommendations

This study investigated whether the financial crisis has impacted on financing structure determinants within the background of Pakistan. This finding shown, results are different in two periods Pre-crisis to crisis and crisis to post-crisis. The outcomes are certainly a valuable addition to the subject's empirical literature, especially given the inconclusiveness of the earlier consequences pattern varying between industries, time periods and different countries/regions of the world.

It is also recommended that these factors may also be considered like risk, market value, non-circulating shares, earning variability, country and industry effect in the future.

5.3 Future Research and Limitations

The present research deals with five control variables only where macro factors are neglected, further study can be conducted by adding more micro factors such as age and market to book ratio as well as adding macro factors. The time series is divided into three parts i.e. pre-crisis, crisis and post crisis period; it can be further investigated to measure the performance of the firms on year to year basis

comparison with crisis. It can also be split into two part like pre and post.

Moreover, the sampled firms are limited to Pakistan for non-financial firms, where further study can be employed in investigating the impact of the crisis on the performance of a particular sector or various countries. Beside this, data of companies has been selected on yearly basis, which also condensed the amount of observations.

Limitation of this study is the choice of the specific time frames. Academic literature on the financial crisis does not seem to come to a consensus as it comes to framing the period of the financial crisis. Different time frames chosen can therefore lead to varying results.

An additional limitation is given on the interpretation of this study. Namely the context causes the results of this study to be only representative for Pakistan. This because current literature suggests that the determinants of capital structure are country specific. Furthermore, the limited sample size causes representativeness of this study to be rather limited.

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