

Determinants of Corporate Investment Decision: Evidence from Pakistan Stock Exchange

By

Ehsan Ullah-MMS143022

**MASTER OF SCIENCE IN MANAGEMENT SCIENCES
(Finance)**



DEPARTMENT OF MANAGEMENT & SOCIAL SCIENCES

CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY

ISLAMABAD

February 2017

**Determinants of Corporate Investment Decision: Evidence from
Pakistan Stock Exchange**

By
Ehsan Ullah
(MMS143022)

A research thesis submitted to the Department of Management & Social
Sciences, Capital University of Science & Technology, Islamabad
In partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT SCIENCES
(Finance)



DEPARTMENT OF MANAGEMENT & SOCIAL SCIENCES
CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY, ISLAMABAD

February 2017



C.U.S.T.

**CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY
ISLAMABAD
CERTIFICATE OF APPROVAL**

Determinants of corporate investment decision: Evidence from Pakistan Stock
Exchange

By

Ehsan Ullah

MMS143022

THESIS EXAMINING COMMITTEE

S No	Examiner Name	Internal / External	Organization
(a)	Dr. Muhammad Khalid Sohail	External	COMSATS, Islamabad
(b)	Dr. Jaleel Ahmed Malik	Internal	CUST, Islamabad
(c)	Dr. Shujahat Haider Hashmi	Supervisor	CUST, Islamabad

Mr. Shujahat Haider Hashmi
Thesis Supervisor
February, 2017

Dr. Sajid Bashir
HOD Management Social Sciences
Dated: February, 2017

Dr. Arshad Hassan
Dean Faculty of Management Sciences
Dated: February, 2017

Certificate

This is to certify that **Mr. Ehsan Ullah**, having Registration number **MMS143022** has incorporated all observation, suggestions and comments made by the external evaluators as well as the internal examiners and thesis supervisor. The title of his Thesis is “Determinants of corporate investment decision: Evidence from Pakistan Stock Exchange”.

Forwarded for necessary action

Mr.Shujahat Hashmi
(Thesis Supervisor)

Copyright © 2017 by **Ehsan ullah**

All rights reserved. No part of the material protected by this copyright notice may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopy, recording or by any information storage and retrieval system without the permission from the author.

Dedication

This thesis is dedicated to my great father, beloved mother, my elder brother, teachers and all those friends who have supported me since the beginning of this thesis. I thank my father and brothers for the interest they showed in my studies and the motivation they gave me during those trying times when I had doubts about my abilities.

Acknowledgement

First of all I would like to thank Almighty Allah who gave me courage to complete this thesis. I would like to express my sincere thanks to a number of people who have made the completion of this thesis possible. I am extremely grateful to all of them.

I sincerely thank to my supervisors **Mr.Shujahat Haider Hashmi**, for being so supportive and expressing such strong confidence in me. I am especially thankful to my brother Dr. Muhammad Iqbal for his invaluable advice and willingness to counsel me during the thesis journey. I admire his patience and ability to bring important things into focus. I realized the importance of fellow students towards enriching graduate life. I thanks to my friends Hassan Zada, Awais Ahmad and some other who's always been there to help me whenever I needed. I will be always thankful to them for his invaluable support.

Ehsan ullah

Table of Contents

CHAPTER 01	1
INTRODUCTION	1
1.1 Background of Investment Theories	5
1.2 Problem Statement	5
1.3 Research Gap	7
1.4 Research Question	7
1.5 Research Objective	9
1.6 Significance of the Study	9
1.7 Organization of the Study	10
CHAPTER 02	11
REVIEW OF LITRERATURE	11
2.1 Corporate Governance and Corporate Investment Decision	11
2.2 Cash Flow and Corporate Investment	14
2.3 Firm Size and Corporate Investment	17
2.4 Financial Leverage and Corporate Investment	19
2.5 Growth Opportunity and Corporate Investment	24
2.6 Theoretical Model	26
2.7 Research Hypotheses	26
CHAPTER 03	27
RESERCH METHODOLOGY	27
3.1 Data Description	27
3.2 Population and Sample Size	27
3.3 Definition of Variables	29
3.4 Variables and Measurement	30
3.4.1 Firm Investment Rate	30
3.4.2 Corporate Governance	30
3.4.3 Board Size	31

3.4.4	Board Independence	31
3.4.5	Number of Board Meeting	31
3.4.6	Institutional Ownership	31
3.4.7	Cash Flow	31
3.4.8	Firm Size	32
3.4.9	Financial Leverage	32
3.4.10	Growth Opportunity	33
3.4.11	Fixed Capital Intensity	33
3.5	Model Specification	34
CHAPTER 04	.....	36
RESULT AND DISCUSSION	.....	36
4.1	Descriptive Statistics	36
4.2	Correlation Analysis	38
4.3	Selection between CCM and FEM	39
4.4	Hausman Specification Test	40
4.5	Fixed Effect Model (FEM)	41
CHAPTER 05	.....	46
CONCLUSION AND RECOMMENDATION	.....	46
5.1	Conclusion	46
5.2	Implication of the study	47
5.3	Limitation of study	48
5.4	Future Research Directions	48
REFERENCES	.....	49
APPENDIX A	.....	61
APPENDEX B	.....	62
APPENDEX C	.....	64

List of Tables

S. No	Name	Page
Table 3.1	Companies Distribution	28
Table 3.2	Definition of Variables	29
Table 3.3	Value of F1 of CG Index	30
Table 4.1	Descriptive Statistic	37
Table 4.2	Correlation Matrix	39
Table 4.3	Likelihood Test	40
Table 4.4	Hausman Test	41
Table 4.5	Fixed Effect Model	42

Abstract

Investments play the role of a catalyst in the economic growth of the country, whether it is foreign or domestic investment, public or private investment. The purpose of this study is to examine the determinants of corporate investment decision of non-financial firms listed at Pakistan Stock Exchange. For this purpose, first of all 100 non financial firms were selected on base of market capitalization. But after initial screening, 18 companies were dropped due to outlier's problem and incomplete information. Finally samples of 82 companies were analyzed in the current study. Data was collected from time period of 2008 to 2013, but year 2008 was used as a base year. So, only five years data of 82 non-financial companies was used in analysis. Convenient sampling technique is applied during selecting companies for the sample. Data were collected from Balance Sheet Analysis (BSA) published by State Bank of Pakistan, Business recorder and annual financial report of the companies. Fixed effect model were applied to capture the individual. The result of fixed effect model shows that cash-flow, fixed capital intensity, firm size and growth opportunity are the key determinants, which affect corporate investment decision in Pakistan.

Keywords: Corporate investment, corporate governance, cash-flow, financial leverage, Tobin's q.

CHAPTER 01

INTRODUCTION

Although macroeconomic variables play massive role in formulation of policies at country level, the microeconomic variables also has its own significance. Different policies derived from the studies of macroeconomic level are more essential and effective but one cannot neglect the micro economic factors because it can also affect the investment decisions. Nowadays researchers are in views to find out over all factors that affect investment decision at firm level. They are seeking answer of questions like: (1) what factors influence the investment decisions of firms? (2) what extent is the investment decisions affected by the opportunities available to the firms? and, (3) do these factors have equal effect on all types of firms? These questions have agitated the minds of the researchers.

Corporate investment means the quantity of capital, which is invests or spent with the expectation that it will be able to generate income or will be appreciate in the future. The new investment in a firm is used to increase the production capacity of the firm which would be financed either from internal source or from external source. According to Jangili and Kumar (2010) corporate investment decision are not only the decision, which create profit and revenue, but also include all those decisions which minimize firm expenses and save more money.

Previous literature explored the importance of financing constraints during making business investment decisions (Brainard and Tobin, 1968; Fazzari and Petersen, 1993). Miller and Modigliani (1958) contribute to corporate finance by developing irrelevance theory of financial structure. They argue that firm's market value would not be affected its capital structure

in a frictionless capital market. So the above statement support that the only thing which can effect firm financial decisions irrespective of capital structure may be corporate governance, firm size, growth opportunities, tangibility of assets, cash flows from operation etc.

A good corporate governance practices in organization enhances the effectiveness of the companies by the increase of their excess to outside capital, thus contributing to economic development of the state (Davidson et al., 1993). Good governance means that very little amount of company resources would be misuse by management, which would result in high resources allocation and improved performance. The misuse of resources could be due to the result of smoothness of earnings, known as earnings management (Bedard et al., 2004; Klein 2002 and Xiao, 2009).

Good corporate governance mechanisms reduce the agency problem in the organization by aligning the goals and interest of managers and shareholders. Corporate governance play very role in the investment decisions of a firm. It is a multifunctional role which has been measured through different variables in many research studies. It is a multifunctional role which has been measured through different variables in many research studies. It is a multifunctional role which has been measured through different variables in many research studies.

According to Butt and Hassan (2009) corporate governance is a mechanism which encourages the processes and structures that play a vital role in shareholders wealth creation by means of management of corporate relations that secure the protection of individual as well as collective interest of over all stakeholders. Shah and Butt (2009) argue that primary objective of corporate governance is to make sure the protection of interest of the whole stakeholders of the firm.

The link of firm cash flow with corporate investment has a turbulent history. Which is widely studied by Kuh, (1963); Meyer and Kuh, (1957); Fazzari et al., (1988) and some other researchers too. They argue that cash flow affect investment decision significantly due to imperfection in the capital market. They further says that firm facing more financial constraints demonstrate high sensitivity to investment and cash flow.

However, Kaplan and Zingales, (1997) and some other researchers challenged the finding of Fazzari et al., (1988). They argue that more financial constraint firms are less sensitive of cash flow during corporate investment decision. Other researchers like Raith et al., (2007); Cleary et al (2006) and Guariglia, (2000) initiate a U-shaped association between capital expenditures and availability of internal financing. Guariglia, (2000) initiate a U-shaped association between capital expenditures and availability of internal financing.

Furthermore, the arguments about the relationship between firm size and corporate investment decision are mixed. Some researchers like Yu (2003); Janglili and Kumar (2010) Adelegan and Ariyo (2008); and Li et al., (2010) and Ruiz & Lopez (2011) support the positive relationship between corporate investment decision and firm size. They argued that large firms are goes toward diversification; they enjoy easier access to capital markets and paying low interest rates on borrowed funds. This may be a financial constraint that could affect investment. On the other hand, Bokpin and Onumah (2009) and Ninh L et al., (2007) concluded that firm size is the significant determinant of investment decision at firm level because human resource or management capability cannot handle all things in a large firms, therefore large firms tend to decrease their investment.

However, the arguments about the relationship between firm size and corporate investment decision are mixed. Some researchers like Adelegan and Ariyo (2008); Yu (2003); Li et al., (2010); Janglili and Kumar (2010) and Ruiz & Lopez (2011) support the positive relationship between corporate investment decision and firm size.

Jensen (1986); Stulz (1990); Grossman and Hart (1982) and Aivazian, Ying and Qui (2005) also give arguments about the relationship between firm size and corporate investment decision are mixed. Some researchers like Adelegan and Ariyo (2008); Yu (2003); Li et al., (2010); Janglili and Kumar (2010) and Ruiz & Lopez (2011) support the positive relationship between corporate investment decision and firm size.

1.1. Background of Investment Theories

A lot of theories are proposed by researchers about factors influencing corporate investment decision. In which some are discussed below.

Jensen and Meckling in 1976 proposed an Agency problem theory about investment decision. They conclude that interest of managers is different from that of shareholders therefore managers usually put their personal goals ahead to the goals of shareholders. They suggest that as much as separation of ownership and management increase, managers easily give preference to their own interests. They conclude that agency problem will be more severe in the availability of more free cash inflow under management control. In such case managers might tend to invest in a poor and unprofitable projects for their own benefits. So it should also focus to minimize the gap among managers and shareholders by aligning their interest through different techniques.

According to Tobin Q Theory, a firm tends to increase the level of investment, when Tobin Q ratio of a firm is greater than one, because On the bases of this theory, it is conclude that if growth opportunity is available for a company, then it should avail by the company. When Tobin Q ratio of a firms is smaller than 1, because their market value is smaller than book value of assets. On the bases of this theory, it is conclude that if growth opportunity is available for a company, then it should avail by the company.

1.2. Problem statement

Most of the studies about determinants of corporate investment decision are founded in developed countries like US, UK, Canada and China. But it is not possible to generalize the results of those studies which are conducted in other developed as well as developing countries due to higher information asymmetry, different market dynamics and characteristics, different

ownership structure, limited access to debt financing and nature of business ownership. For instance, in Pakistan most of businesses are family owned business.

In the current study, different determinants of corporate investment decision are analyzed in the context of Pakistani non financial firms. In Pakistan, various studies have been carried to investigate investment decision with several variables by selecting different sample but there is limited literature available regarding determinants of corporate investment decision. Therefore, this research study examines the determinants of investment decision at corporate level.

1.3. Research Gap

Many researchers have mostly focused on developed countries, namely Canada, UK, US, India, China etc. There is very rare work in Pakistan which is related to determinants of corporate investment decision, while making good investment decision is become a big issue in the recent years. Concretely, Haque et al., (2014) analyzed only two factors (Cash flow and growth opportunity) of corporate investment decisions of Textile sector in Pakistan. Similarly Mukhtar et al., (2016) study the link between investment decision and position of financial leverage of only chemical sector of Pakistan. But in the current study, other variables are also added like corporate governance, firm size, financial leverage and fixed capital intensity which might have a significant influence on investment decisions at firm level and have not been analyzed in Pakistan. Secondly, in the current study the determinants of firms taking from different sectors are analyzed to capture a broad picture of determinants of investment decision of Pakistani non-financial firms.

1.4. Research Questions

The current study analyzed the determinants of corporate investment decision in Pakistan. This study provides the answers of the following six questions:

1. Does corporate governance affect firm investment decision in Pakistan?
2. Does cash-flow affect the firm investment decisions in Pakistan?
3. Does firm size affect corporate investment decisions in Pakistan?
4. Does firm Leverage position affect the investment decisions in Pakistan?
5. Does fixed capital intensity affect the investment decisions in Pakistan?
6. Does growth opportunity affect the firm investment decisions in Pakistan?

1.5. Research Objectives

“The main objective of the study is to analysis different determinants of corporate investment of non-financial firms in Pakistan. The specific objectives are:

1. To examine whether corporate governance affect firm investment decision in Pakistan
2. To examine whether cash-flow affect the investment decisions of Pakistani listed firms
3. To determine whether firm size influence corporate investment decisions in Pakistan
4. To determine whether firm leverage position affect the investment decisions of Pakistani Listed firms
5. To determine whether fixed capital intensity influence corporate investment decisions in Pakistan,
6. To examine whether growth opportunity influence corporate investment decisions in Pakistan.”

1.6. Significance

The current study explores the determinants of investment decision at corporate level in Pakistan. This study will be beneficial for financial professionals and investment advisors. So, they can understand or focus on those factors which play a significance role on investment decision at corporate level. Here investment decision and its determinants with respect to Pakistani perspective have been discussed. Also, the study demonstrate the role and nature of these specific determents which may increase awareness and help institution as well as individual investor to boost their investment return by making good investment decision.

Finally, the study indicates the future research direction by analyzing some other factors to better understand the overall phenomenon.

1.7. Organization of thesis

This study consists of five chapters. In chapter 01, an overall concept about investment decision and its determinants are discussed. Subsequently, Chapter 02 discusses the past studies about determinants of investment decision that are conducted in different countries. Meanwhile, chapter 03 is about the methodology used in the current study and description of all variables. Chapter 04 describes the results obtained via Eviews and MS-Excel analyses. Chapters 05 summarizes and justify the results obtained through Eviews and implications of the study. Finally, this study concludes with the limitations of study, future research directions and recommendations for further studies.

CHAPTER 02

REVIEW OF LITERATURE

Investment is the amount of money sacrifice in the present, to get more benefit in future. Individual investors as well as institutional investors and government are always worried about whether to invest or not, and how to chose best investment option among the available options. According to Nwibo and Alimba (2013) an individual investor will decides whether to purchase a stock, undertake a course of training, plant seeds etc. Similarly, a firm will decides to buy new machinery or construct any new building, while government will decide whether or not to build market. Macro and Paolo (2010) argue that allocation of funds depend upon the experience gained from past investment. Before choosing the investment option, investors analysis different types of financial data, and try to transform that data into useful information.

2.1 Corporate Governance and Corporate Investment Decision

Corporate governance play multifunctional role in investment decision at corporate level. It has been measured through different proxies in past research studies. A good corporate governance company means that very little amount of company resources would be misuse by management that would result in high resource allocation and improved performance. According to Klein (2002); Bedard et al., (2004) and Xie et al., (2003) the misuse of resource could be due to the result of smooth earning, known as earning management. According to Hassan and Butt (2009) corporate governance is a mechanism that support the processes and structure that play a vital role in shareholders wealth creation by means of management of corporate relations that secure the protection of individual as well as collective interest of over all stakeholders.

Core et al., (1999) concluded that firms having poor corporate governance face more agency problems in running the organization. He argue that performance of the firm becomes poor and decrease day by day when managers are trying to fulfill their own goals instead of organizational goals. According to Jensen and Meckling (1976); Hart (1995) and Mayer (1996) a manager can't remove agency problems completely, but they can minimize it up to certain level through aligning the interest of managers and shareholders. Therefore it is recommended to improve corporate governance to perform well in market which will lead toward long term survival of the firm. Good Corporate governance can be observed in organization by maintaining the balance between ownership concentration and management control while providing safeguard to the interest of all stakeholders.

Bohren et al., (2007) scrutinized the association of firm's performance and corporate governance in US. For investigating the relation between stock market performance and corporate governance rating, they use the rating scale provided by three US rating companies. Bohren et al., (2007) scrutinized the association of firm's performance and corporate governance in US.

Ertugrul and Hedge (2009) scrutinized the association of firm's performance and corporate governance in US. For investigating the relation between stock market performance and corporate governance rating, they use the rating scale provided by three US rating companies. The results show weak evidence for the ability of overall ratings to classify companies with governance related problems. These results were consistent with the concept that, it is not easy to extract a complex corporate governance mechanism into a single overall rating.

Bertrand and Mullainathan (2003) found that real investment decision is strongly affected by corporate governance. Specifically, investment decisions of well governed firms are substantially less sensitive to cash inflows while more sensitive to their growth opportunities.

Do and Phan (2013) analysis the relationship of corporate governance and firm's investment decision. They took a sample of 77 non financial firms listed at Vietnam Stock Exchange from the period of 2006 to 2011. The findings indicate that elements of corporate governance such as gender, duality of the CEO, working experience of board members and the compensation have no any significant outcome on firm's investment decision, but, only size of the board has a positive impact on firm's investment decision.

Shah and Butt (2009) examined the impact of corporate governance on cost of equity by using CAPM model. Their results show that both, managerial ownership as well as board size has negative relationship with cost of equity. On the other hand board independence and audit committee independence has positive relation with cost of equity. Hoodgson et al., (2011) examined the relationship between firm's performance and corporate governance index established by Thai Institute of Directors and McKinsey & Co. They found a significant and positive relationship between firm performance and corporate governance index. In their study, the proxies used to measure firm's performance were; return on equity, return on assets, cash from operations, free cash flow and sales per employee.

2.2 Cash Flow and Corporate Investment

Cash flow is a relevant determinant of firm investment decision. The presences of cash flows provide more growth opportunities for the firm. The first argument proposed by Jensen (1986) based on agency cost theory of free cash flow. Jenson argue that manager give more preference to his own interest while making investment decision due to which he spend free cash flow on less profitable projects. The first argument proposed by Jensen (1986) based on agency cost theory of free cash flow. Jenson argue that manager give more preference to his own interest while making investment decision due to which he spend free cash flow on less profitable projects. The second argument proposed by Myers and Majluf (1984) based on asymmetry of information. They show that cost of external financing is high as compare to internal source of financing due to problem of asymmetric information. Therefore sometime firm left projects of positive net present value. They show that cost of external financing is high as compare to internal source of financing due to problem of asymmetric information.

Fazzari et al., (1988) studied the relationship of financing constraint and firm investment by using US manufacturing firm data over the period 1969 to 1984. They initiate that financially constraint firms are more dependent to their cash inflow during making their capital investment decision. Many other studies like (Hoshi et al., 1991) also provide empirical support to the studies of (Fazzari et al., 1988). In this study, firms have been classified on the basis of various characteristics like dividend distribution pattern, firm size, age etc for the purpose to identify their level of financial constraints.

Donaldson (1961) argue that cash flow play most vital role in firm investment decision. He concludes that managers prefer internal finance as compare to external source due to asymmetry of information in the market. According to Donaldson (1961), managers prefer internal finance as compare to external source due to asymmetry of information in the market. Whited H (1980) argued that investment of a business is very sensitive toward cash flow, and this effect is found stronger in high levered firms as compare to low levered firms.

Devereux and Schiantarelli (1992) examine the relationship between corporate investment decision and cash flow in UK over the period 1972 to 1986 by using panel data analysis. They conclude that there is a significant positive relationship of cash flow with corporate investment, however, this link is more vital for large and new firms as compare to small and old firms. Similarly Joseph (2002) studied the relationship between corporate investment decision and cash flow in UK from period 1991 to 2000. He also found that cash flow has a positive and significant impact on firm investment decision in UK.

Carpenter et al., (1994) and Fazzari et al., (1988) and also concluded that cash flow is the most appropriate determinant of firm investment. Their findings show that sensitivity of investment toward variation occurs in cash flow is greater in those firms which face the problem of financial restrictions. In contrast, Kaplan and Zingales (1997) disagree with the arguments of (Fazzari et al., 1988 and Petersen & Fazzari; 1993). They conclude that sensitivity of capital investment toward variations in cash flow is greater for the firms which have less financial restrictions. Secondly they conclude that in higher financial constraint firms, the relationship between cash flow and capital investment is the more sensitive to external cash flow of the firms.

Hoshi et al., (1991) argue that keeping good relationship with creditors also play an important role in firm cash flow sensitivity. A firm investment is very less responsive to variations found in company cash inflow. If firm keeps good relation with creditors and consequently less subject to problem of asymmetric information.

Saquido, (2003) examine only two determinants of corporate investment i.e. growth opportunity measured by Tobins Q ratio and change in net worth measured by cash flow by using data of Philippine manufacturing companies from the period 1996 to 2001. They found that Tobins Q ratio and cash flow are the most significant determinants of corporate level investment in Philippine. They further argue that to a small extent, growth factors like the country's GNP growth rate and the firm's revenue growth rate also contribute in determining the firm investment level.

According to Moyen (2004) sensitivity of investment depend upon financial condition of firms, means either firm is financially strong or financially in distressed position. Apart from that Moyen (2004) found that sensitivity of investment depend upon financial condition of firms, means either firm is financially strong or financially in distressed position.

Almeida et al., (2004) empirically observe the sensitivity of cash to firm's cash flow by using large sample of non-financial firms over the period of 1971 to 2000. They found that financially constrained firms have more tendencies to save a large portion of cash flow in the form of cash for future investment as compared to financially unconstrained firms. Hyde (2007) concluded that a rapid variation occurs in the value of cash flows could affect the firm's value and investment in the eyes of stake holders.

Cleary, S. (2006) analyzed the relation between financial constraints and firm capital investment. He noticed that investment decisions of firm are more sensitive to cash flow in the firms having strong financial position. On the other hand, Kaplan and Zingals (1997) conclude that in higher financial constraint firms, the relationship between cash flow and capital investment is the more sensitive to external cash flow of the firms.

The following research studies support the significant and positive relationship between cash flow and firm investment rate (Fazzari and Petersen, 1988; Hoshi et al., 1991; Hubbard and Whited, 1980; Kaplan and Zingales 1997; Fazzari, and Petersen, 1993; Vermeulen, 2002; Cleary, 1999; Mizen and Vermeulen 2004; Junlu, Zeguang and Qunyong, 2009; Bond and Reenen, 2007 and Sun, Nobuyoshi, 2009).

2.3 Firm Size and Corporate Investment

In the past literature, firm size has been widely studied in different countries. Approximately each and every study accepts the fact that firm size plays an important role in corporate investment decision. According to Resource-Based View; large firms have more resources because these firms can easily obtain funds from financial market (Myers & Turnbull, 1977). According to Fazzari et al., (1988) firm size has been widely studied in different countries. Approximately each and every study accepts the fact that firm size plays an important role in corporate investment decision. According to Resource-Based View; large firms have more resources because these firms can easily obtain funds from financial market (Myers & Turnbull, 1977). That is why the firm age and level of investment both play a very significant role in the pertinence of firm's theories to investment decisions of SMEs.

According to Saquido (2003), the firm size and its leverage level, both are insignificant in investment decisions. They propose that investment decision and firm financing decisions are extremely independent to each other. Previous research of Lawrence (2004) claimed that firm production capacity increases with the increase in size of the business, due to which it generates higher return by making more investment. He found a positive correlation between company size and its profitability. But in case of real estate, property and construction industry, this link is considered to be negligible due to weak relationship.

Yu (2003) analysis the determinants of capital structure of Philippine listed companies. He found a significant positive impact of company size on capital structure. He argued that larger firms go toward more diversification strategy. They enjoy the benefit of higher credit rating and easier access to capital markets and pay minimum interest. They enjoy the benefit of higher credit rating and easier access to capital markets.

Chirinko (1993) studied the relationship between sale and investment of large firms of Kansas, USA. They conclude that sale is statistically the major explanatory variable of corporate investment. Besides that, some other studies like Hung and Kuo, (2011) and Aivazian et al., (2005) also identify a positive impact of sales on investment in large firms.

According to Saquido (2003), the firm size and its leverage level, both are insignificant in investment decisions. They propose that investment decision and firm financing decisions are extremely independent to each other. Previous research of Lawrence (2004) claimed that firm production capacity increases with the increase in size of the business, due to which it generates higher return by making more investment. He found a positive correlation between company size and its profitability.

Large size firm can attract investors easily for investment. According to Titman and Wessels (1988) larger firms may be further diversified, which decrease the chance of failure as compare to small firms. Amidu (2007) examine the determinants of banks capital structure in Ghana. His research study concludes that profitability, asset structure, corporate tax, and size are the most important variables of bank capital structure in Ghana. All these variables positively influence investment decision of capital structure in banking sector.

2.4 Financial Leverage and Corporate Investment

In the last two decades empirical research have been done to analyze the relationship between leverage and investment decisions. The study of effect of financial leverage on corporate investment decision is a fundamental issue in corporate finance. Financial leverage plays an important role in the capital structure of a company. Among different methods of corporate financing, financial leverage is one of the debt instrument used by the organization to raise funds for short term as well as long term. Cantor (1990) studied the relationship between corporate investment and financial leverage. He conclude that a firm having large amount of cash flow can easily accumulate a huge amount of reserves and these reserves can be used by the firm to make new investment during less profitable year. But on the other hand, highly levered companies having a small amount of cash flow, they cannot maintain reserve and sometime need to cut their investment back, when company stuck in the problem of financial distress. So, it means that in case of highly levered firm, investment is highly sensitive to cash flow of the firm and shows more variability in investment over the time.

Prior theoretical work suggests that financial leverage has negative impact on the firm investment decision. Myers, (1977) and Zwiebel, (1996) studied the relationship between

financial leverage and firm investment rate. They observed that financial leverage is negatively related to firm investment rate, and concluded that creditors feel difficulties for the availability of credit in case of greater asymmetric information about profitability and business risk. According to Ooi (1999), large and more profitable companies give preference to reinvest their profit for expansion of business due to low bankruptcy risk as well as high tax bracket.

However, Titman and Wessels (1988) also found a negative relationship between financial leverage and firm profitability. They argue that successful companies give more preference to internal reserves as compare to external financing. Titman and Wessels (1988) contribute further by saying that growth in assets increase the value to a company, but since these assets does not generate taxable income in progress and they cannot be guaranteed. Therefore, they support a pessimistic affiliation between debt and industry expansion opportunities. On the other hand, Hite (1977) and Franklin and Mouthusamy (2011) found a significant positive relationship between financial leverage and investment for high growth firms.

Many researchers observed the relationship of financial leverage and firm investment decision such as Jensen, 1986; Myers, 1977; McConnell and Servaes, 1995; Stulz, 1990; Aivazian et al., 2005; Lang, Ofek and Stulz 1996; Ahn et al., 2006; Lee et al., 2008 and Firth and Wong 2008). All of them support a negative relationship between corporate investment rate and financial leverage for the company having low opportunity of growth in developed countries.

Mohanprasadsing Odit and Chitto (2008) further extend the past empirical research work on financial leverage and firm investment rate in different dimensions, by studying the relationship of 27 Mauritian companies which are listed at Mauritius Stock Exchange from 1990

to 2004. Mohanprasad and Odit (2008) further extend the past empirical research work on financial leverage and firm investment rate in different dimensions, by studying the relationship of 27 Mauritian companies which are listed at Mauritius Stock Exchange from 1990 to 2004.

Stulz (1986) forecasts that financial leverage does not decrease firm growth having best growth opportunities. Bolton and Scharfstein (1990) analysis the US firms from year 1946 to 1987 to evaluate the internal and external sources of financing available for firms. They argued that firms will generate funds through debt financing instead of equity financing. Thus financial leverage does not decrease firm growth having best growth opportunities. Bolton and Scharfstein (1990) analysis the US firms from year 1946 to 1987 to evaluate the internal and external sources of financing available for firms. They argued that firms will generate funds through debt financing instead of equity financing. Stulz (1986) forecasts that financial leverage does not decrease firm growth having best growth opportunities. Bolton and Scharfstein (1990) analysis the US firms from year 1946 to 1987 to evaluate the internal and external sources of financing available for firms.

Aivazian et al., (2005) studied the behavior of financial leverage and firm investment decision of Canadian companies by using panel data over the period 1982 to 1999. They conclude that financial leverage has negative impact on investment decision and this negative relationship is found stronger in the firms having small growth opportunity (low Q ratio) as compare to firm having high growth opportunity. A similar research study is being conducted by McConnell and Servaes (1995) in US by analyzing non-financial firms. They divide their sample size into two broad categories, one with firms having strong growth opportunity and second with low growth opportunity. They found that there is a positive association between financial

leverage and investment among low growth companies while this relationship is negative for the firms having high growth opportunity. But Fama and French (1988) negate the findings of Aivazian et al., (2005), and they argue that more profitable companies keep low levels of debt because high debt level gives poor signals about future prospects of the firm.

According to Ahn et al., (2006) more diversified companies have high debt ratio as compare to focused counterparts and these companies invest more than that of focused counterparts. They conclude that debt ratio influence the investment decisions and that diversified companies can overcome debt ratios through the distribution of liabilities by corporate managers.

Lang et al., (1996) examined a huge sample of US firms from the period 1970 to 1989. They found a strong negative relationship between leverage and subsequent investment only for the firms having weak growth opportunity. By weak growth opportunity they mean, when the Tobin's q ratio is less than one.

Michael et al., (2008) scrutinize the relationship of financial leverage and firm investment rate in china. They claim that there is a negative relationship between financial leverage and investment rate. According to them, this negative relationship was found strong in the firms having good operating performance and high growth opportunity but it was weaker for the firms having poor operating performances as well as low growth opportunity.

Norvaisiene et al., (2008) investigate the relationship between capital investment, debt and business growth. They emphasize that firm debt ratio and the agency problem between shareholders, managers and creditors lead to overinvestment or underinvestment, which is negatively correlated to business growth, corporate investment and firm value. Umutlu (2010)

analyzed the impact of financial leverage on corporate investment in Turkey through panel data. Sample size of the study was taken from non-financial companies of Turkey listed in Istanbul Stock Exchange. They argue that there is negative relationship between financial leverage and investment in low growth firms. However no significant relationship has been found when he extends the model for incorporating the time effect.

Firth et al (2008) studied the relationship between financial leverage and investment rate of China state-owned bank. They finalized their study with three major findings; first is that debt is negatively related to growth, second they find that in weak performance firms and low growth opportunity firms the negative relationship between debt and growth is weaker and vice versa. Thirdly, in state-owned firms the relationship between debt and growth is also weaker as compare to non state-holding firms. They noticed that state owned banks impose less restriction on investment expenditure of firms having low growth opportunities in China, which leads to overinvestment problems. Mehmet Umutlu (2009) also supports the argument of Firth et al (2008). However, when he further extended the model to integrate the time-effects, then no significant relationship was found.

Franklin and Muthusamy (2011) observed the relationship between leverage and firm investment rate in India. They concluded that financial leverage positively influence firm investment rate. They also conclude that financial leverage has very little impact on investment decision in the industry because pharmaceutical industry products demand is heavy in India due to a big country. Therefore financial leverage does not influence the investment decision of pharmaceutical industry in India. They argued that retained earnings and cash flow play important role in identifying investment decisions.

2.5 Growth Opportunity and Corporate Investment

According to Modigliani and Miller (1958) the firm investment policy should be focused on those factors which increase the cash flow, profitability and net worth of the firm. They proposed the irrelevance theory of transactional cost. Many researchers are against the irrelevance theory proposed by Modigliani and Miller (1958) and challenged it by saying that the irrelevance theory of Modigliani and Miller (1958) will be valid only under the condition of a perfect market. But actually, the existence of a perfect market is impossible because the corporate world is in the grip of various market imperfections such as institutional restrictions, transaction cost and asymmetric information. On the behalf of agency problem, the interactions among shareholders, management and debt holders create resistance and that may lead to over-investment or under-investment incentives.

Lang et al (1995) analyzed the relationship of growth opportunities and investment level of firms having low Tobin's Q ratio. They found a negative relationship between growth opportunities and investment level of firms having low Tobin's Q ratio. On the other hand, this relationship is positive for the firms having greater Tobin's Q ratio (if greater than one). Karadeniz et al (2009) studied the impact of firm size, growth opportunity, asset tangibility and return on assets on firm debt ratio. They demonstrate that return on assets and asset tangibility is negatively correlated to the company debt ratio while size of the company and growth opportunities did not have any significant relationship with company debt ratio.

On the other hand, Aquino (2000) conducted a survey and noticed that there is an insignificant relationship between Q ratio and investment rate. He further concludes that investment is related to revenue growth and to a lesser extent, it depends upon debt-equity ratio

and the fixed capital intensity of the firm's operations. He did not find any significant relationship either between cash flow and investment rate.

According to Saquido, (2003) growth opportunity and cash flow were found to be the most significant determinants of corporate level investment in Philippine. They conclude that to a small extent, growth factors like growth rate of country GNP and firm's revenue growth rate also play significant role in determining firm investment level.

The past studies on relationship between firm investment and cash flow sensitivities seldom considered the overinvestment scenario, which is created by agency problem and create different conflicts between shareholders and managers (Jensen and Meckling, 1976). According to Jensen & Meckling (1976) and Fama & Jensen, (1983) managers may ignore such type of project which benefit company but adversely affect the manager performance. McConnell and Servais (1995) analyzed the data of US public companies in the year 1976, 1986 and 1988 and found dual nature of debt. They concluded that firm value is positively related to the financial leverage of firms having low growth opportunities or low price-earnings ratio, while for high growth opportunities or high price-earnings ratio firms, financial leverage is negatively related to the firm value. Agarwal and Mohtadi (2004) also support these finding.

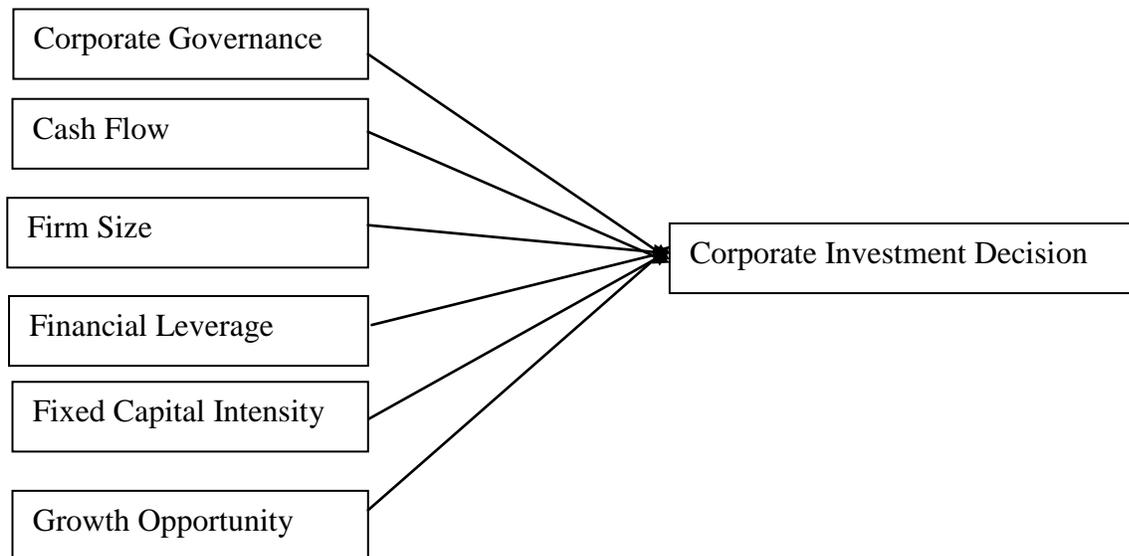
From the above literature, it is concluded that most of research studies related to corporate investment decision have been done in developed and emerging countries, namely US, UK, Canada, India, China etc. To the best of my knowledge, there is very rare work in Pakistan. So it feel important to analysis such factors in Pakistan also.

2.6 Theoretical Model

The theoretical framework of the study is as follow

Independent Variables

Dependent Variable



2.7 Research Hypotheses

On the basis of above chart, several hypotheses may be developed

Hypothesis 1: *Corporate governance mechanisms have significant effect on firm investment decision.*

Hypothesis 2: *Cash flow of a firm is positively associated with firm investment decision.*

Hypothesis 3: *Cash flow of a firm is positively associated with firm investment decision.*

Hypothesis 4: *There is a significant negative relationship between leverage and investment decision.*

Hypothesis 5: *Corporate governance mechanisms have significant effect on firm investment decision.*

Hypothesis 6: *Corporate governance mechanisms have significant effect on firm investment decision.*

CHAPTER 03

RESEARCH METHODOLOGY

The aim of this research is to analysis the determinants of corporate investment decisions in Pakistan. This section contains the conceptual framework and information about methodology used in the current study. It also provides information regarding various aspects like population of the study, sample size, sources of data collection, estimation technique, variables of the study and econometric model used in this research work.

3.1 Data Description

The present study is based on secondary data, which are collected from companies' annual financial reports, Balance sheet analysis file published by State Bank of Pakistan, business recorder and Pakistan Stock Exchange website. To find out the main determinants of investment decision of non-financial firms in Pakistan, the past five years data is obtained from their annual financial reports. Initially time period of data were from 2008 to 2013, but later on, year 2008 were used as a base year. Therefore five years data were used for analysis.

3.2 Population and Sample Size

In order to study these factors, non-financial firms listed at Pakistan Stock Exchange are chosen for analysis. At the beginning, samples size include of 100 non financial companies listed at Pakistan Stock Exchange. These companies were selected on the base of market capitalization, because usually these companies represent the KSE 100 index. After screening the data, firms

having incomplete data were dropped out from the sample and along with this, all those non-financial firms having negative equity or incomplete information are also excluded from the sample size. Finally data of 82 firms' were considered for Panel data estimation. In the present study, only non-financial firms are selected since, capital structure, regulation complications and investment decision of financial firms (like banks, leasing companies, insurance companies and mudarrabas companies) are different from non-financial firms therefore it is expected that their determinants will also differ from one another. That is the main reason of excluding financial firm from the study. The chosen sample of 82 non-financial firms is collected from eleven different sectors of Pakistan. Table 3.1 shows the detail of the companies.

Table 3.1 Companies Distribution

S. No	Sectors	Number of companies
1	Automobile sector	09
2	Cement sector	14
3	Chemical & Pharmaceutical sector	17
4	Coke & Refined Petroleum product	06
5	Electrical Machinery & apparatus	05
6	Food sector	05
7	Fuel and Energy sector	03
8	Manufacturing sector	04
9	Mineral products	02
10	Sugar sector	05

11	Textile sector	12
	Total companies	82

3.3 Definition of Variables

Table 3.2 represents the brief definition of the variables, which are used in the study

Table 3.2

Variables	Definition
Investment Rate	Annual increase in the fixed assets of the firm
Board size	Total numbers of board of directors
Board meeting	Total numbers of board meeting in a year
Board independence	Portion of non-executive directors in the total board directors
Institutional ownership	Percentage of shares owned by different institutions out of total shares of the company
CEO duality	Put one, if CEO and Chairmen both are the same and single person, while put 0, if CEO and Chairmen are different of the company
Cash flow	Firm annual cash inflow from operation
Firm size	Total assets at the end of the year
Financial leverage	Percentage of total debt in the total assets of the company

Growth opportunity	Market value of the total assets divided by book value of the asset
Fixed capital intensity	Percentage of the fixed assets in the total assets of the company

3.3 Variables and Measurement

3.3.1 Firm Investment Rate

Firm investment rate is dependent variable of the present study, is used as a proxy for measuring corporate investment decision. Investment rate is calculated as change in fixed assets of the corporation. The same proxy was used by (Azzoni et al., 2006). The proxy used to calculate Investment rate is given below:

$$IR = \frac{FA \text{ at the End} - FA \text{ at the Beginning}}{FA \text{ at the Beginning}}$$

3.3.2 Corporate Governance

Corporate governance, the independent variable of the current study was measured by making principal component analysis index through EViews. An index of corporate governance has been developed by making factors (Saeed, Murtaza and Sohail, 2013). Table 3.3 shows the values of factor one (F1) of board independence, board meeting, board size and institutional ownership.

Table 3.3 Values of F1 of CG index

Variable Names	F1 value
Board independence	-0.027

Board meeting	0.06
Board size	0.33
Institutional ownership	0.44

$$CGI = F1 \text{ of } BI * BI + F1 \text{ of } BM * BM + F1 \text{ of } BS * BS + F1 \text{ of } INSTO * INSTO$$

3.3.2.1 Board Size

The proxy used to measure board size is given below,

$$BS = \text{Total numbers of board of directors}$$

3.3.2.2 Board Independence

Board independence was measured through the following formula.

$$BI = \frac{\text{Numbers of Non exactive directors in board}}{\text{Total numbers of directors}}$$

3.3.2.3 Number of Board Meeting

As the name represents the board meetings were analyzed by its number arrangement in a year.

And the following formula was used.

$$BM = \text{Total number of meetings in a year.}$$

3.3.2.4 Institutional Ownership

Institutional ownership was calculated by dividing the number of shares owned by an institution by total number of shares. The formula form is as under,

$$\text{INSTO} = \frac{\text{Number of shares owned by institution}}{\text{Total number of shares}}$$

3.3.3 Cash Flow

In the present study, cash flow was used as a proxy to measure net worth of the firm. It is considered an important determinant of firm investment decision because if firm have enough cash inflows. Cash flow was used as a proxy to measure net worth of the firm. It is considered an important determinant of firm investment decision because if firm have enough cash inflows. Cash flow was used as a proxy to measure net worth of the firm. It is considered an important determinant of firm investment decision because if firm have enough cash inflows. Carpenter and Guariglia (2008), Odit and Chittoo (2008); Brown et al., (2009) and Carbo et al., (2008) also use this proxy for measurement of cash flows. Company annual reports are used for net income, depreciation and amortization.

$$\text{Cash Flow} = \frac{\text{Operatin cash flow}}{\text{Past year Fixed assets}}$$

3.3.4 Firm Size

According to previous literature, three types of proxies are used for the measurement of firm size, such as total revenue, natural log of total assets and total numbers of employees. In the current study, firm size is measured by taking log of total assets because the annual reports of some firms do not contain information about the number of employees and provide incomplete information. Secondly, total asset is used for measuring financial leverage too, Tobin's q ratio and fixed capital intensity. This proxy is also used by (Jangili and Kumar 2010).

$$\text{FS} = \log \text{ of Total Assets}$$

3.3.5 Financial Leverage

Financial leverage is the ratio of total liabilities to total assets. Two alternative proxies have been used for measuring leverage in previous literature. One is book value of total liabilities divided by book value of total assets, while the other is book value of long-term debt divided by total assets. The first measurement tool does not distinguish between short-term debt and long-term debt while the second one emphasize on the dominant role of long-term debt as a determinant of investment. In this study, leverage is measured through total liability divided by total asset. Lang et al., (1996); Opler & Titman (1994); Aivazian et al., (2005); Ahn et al., (2005); and Saquido (2003) also use the same proxy has been used by other researchers for measuring Leverage.

$$\text{Leverage} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

3.3.6 Growth Opportunity

Tobin's q ratio is used as a proxy for growth opportunities available for firms, defined as the market value of total assets of the firm divided by the book value of assets. Different research studies have used different proxies for measuring growth opportunity; like market to book value of equity, research expenditure to total sales measure and annual percentage increase in total assets (Tariq, Yasir and Hijazi, 2006). Saquido (2003) and Aivazian et al., (2005) have suggested that, tobin's q ratio is calculated as market value of total assets divided by book value of total assets. Information of this variable was also taken from company annual reports. It can be stated that growth opportunities are involved in the investment decisions. Higher growth opportunities will triggers higher investment in an environment, where enterprises will attempt to maximize the value of firm through net present value through positive projects.

$$\text{Tobin Q ratio} = \frac{\text{Market value of total assets}}{\text{Book value of total assets}}$$

3.3.7 Fixed Capital Intensity

Fixed capital intensity represents asset tangibility. In this study, the ratio of fixed assets to total assets reflects fixed capital intensity of the firm's operations. Saquido (2003), Shah and Hijazi (2004), Hijazi and Tariq et al (2006) also use the same proxy for measuring fixed capital intensity. Setup costs related to high fixed capital expenditures may put some restraint on additional investments. When a company increases its fixed capital, it means that demand for the product is high in the market, therefore company is investing in fixed assets to satisfy the demands. Here gross fixed assets were used instead of net depreciated value of fixed assets because different firms use different methods of depreciation, which may cause problem of irregularity in the data. Secondly firms may use an asset which has been totally depreciated in the record although it has still some market value (Shah & Hijazi, 2004).

$$\text{FCI} = \frac{\text{Gross Fixed Assets}}{\text{Total Assets}}$$

3.4 Model Specification

In order to empirically examine the determinants of corporate investment decision of Pakistani Non-financial firms, a simple linear regression were used, which is extensively used in the previous literature. Below is generalized form of simple linear regression.

$$Y_{it} = \alpha_0 + \sum_{k=1}^k \beta_k X_{kit} + \mu_{it}$$

Where Y_{it} represents the firm investment rate, while X_{it} indicates the determinants of firm investment decision like corporate governance, cash flow, firm size, financial leverage, Tobin's

Q ratio and fixed capital intensity and μ_{it} represents the error term. Further i , t and k represents number of firm, number of years (time) and the number of explanatory variables respectively.

On the basis of above generalized equation, the below specific equation were developed.

$$IR_{it} = \alpha_1 + \beta_1 CGI_{it} + \beta_2 CF_{it} + \beta_3 FCI_{it} + \beta_4 FS_{it} + \beta_5 LEV_{it} + \beta_6 TQ_{it} + \mu_{it}$$

Where **IR** represents the firm investment rate, while **CGI** represents corporate governance index, **CF** represents cash flow from operation, **FCI** represents fixed capital intensity, **FS** represents firm size, **Lev** represents financial leverage, **TQ** represents Tobin's Q ratio and μ_{it} represents the error term. Further i , t and k represents number of firm, number of years (time) and the number of explanatory variables respectively.

The past literature prefers to use Generalized Method of Movement (GMM) estimation to handle the problem of endogeneity and serial correlation. But in case of current study, the empirical results showed that dependent variable "Investment rate" is not affected by its lagged term, means there is no pattern in the data. Therefore panel data estimation will be better as compare to use Generalized Method of Movement (GMM) estimation. That's why Fixed effect model was selected on the basis of Hausman and Likelihood test.

CHEPTER 04

RESULTS AND DISCUSSION

The purpose of this section is to provide detail empirical evidence of the study. These empirical evidences are structured to provide in depth results which include descriptive statistics, correlations and the results of final model, which is fixed effect model. Furthermore, this portion contains the results of Redundant likelihood test as well as Hausman tests which were used for selecting the final model.

4.1. Descriptive Statistics

Before going to run any test to panel data, the behavior of data is examined to assure its accuracy. Descriptive statistics shows the general behavior of data including dependent variable as well as all independent variables. Here the descriptive statistic table contains the value of mean, minimum values, maximum values and values of standard deviations of all variables of the sample, which shows that how much data is deviated from its center. Results of descriptive statistic are given below in Table 4.1.

Table 4.1: Descriptive Statistics

Variables	Max	Min	Mean	Std.
Investment rate	0.39	-0.09	0.071	0.11
CGI	6.09	2.89	3.60	0.54
Cash Flow	1.62	-0.23	0.19	0.40
Fixed Capital Intensity	0.98	0.03	0.52	0.23
Financial Leverage	0.93	0.12	0.53	0.19
Firm Size (FS)	18.9	12.2	15.8	1.4
Growth opportunity (TQ)	28.6	0.63	6.57	7.2

Table 4.1 shows the statistical behavior of the data for the period of 2009 to 2013. This table presents the central tendency and scattering of data. The determinants of corporate investment decision include corporate governance, cash flow, fixed capital intensity, financial leverage, firm size and growth opportunity.

Table 4.1 shows that average investment rate in Pakistani non-financial firms is 7% while maximum and minimum investment rate is 39% and -9% respectively. Similarly, the average value of the corporate governance index in non financial firms of Pakistan is 3.6 and the minimum and maximum value is 2.89 and 6.09 respectively, with a standard deviation of 0.54. Similarly in Pakistan the average value of cash flow of non financial firms is 0.19 and the minimum and maximum value is -0.23 and 0.62 respectively, with a standard deviation of 0.40. The average value of fixed capital intensity is 0.52, which means that approximately half of the total assets are fixed assets in Pakistani non financial firms, while the minimum and maximum percentage is 3% and 98% respectively, with a standard deviation of 0.23. The average value of

financial leverage is 0.63, which shows that, capital structure of non-financial firms in Pakistan contain 63% debt and 37% equity while minimum and maximum portion of debt used in Pakistan is 12% and 93% respectively with a standard deviation value of 0.19. In Pakistan, the average size of non-financial firms is 15.8 having the minimum and maximum value of 12.2 and 18.9 respectively with a standard deviation value of 1.4. Finally the mean value of growth opportunity is 6.57 and minimum and maximum value in Pakistan is 0.63 and 28.6 respectively with a standard deviation value of 7.2.

4.2 Correlation Analysis

Pearson's correlation is used to investigate whether multicollinearity problems exists or not among independent or explanatory variables. Here the numbers shows the relationship between two variables, while the -ive and +ive sign shows the direction of the relationship between two series. When the correlation value is "1" then it shows that there exists a perfect correlation between the two variables, when the value of correlation is "0" then there is no correlation between two variables. Kennedy, (1998) concludes that when correlation exceeds the limit of 0.70, then it indicates that the following two variables are highly correlated, due to which a problem of multicollinearity may be arise. The result of our study shows that there is no problem of multicollinearity among independent variables because values of all variables are within the tolerable limit.

Table 4.2: Correlation Matrix

	CGI	CF	FCI	LEV	FS	TQ
CGI	1					
CF	0.01	1				
FCI	-0.09	-0.23	1			
LEV	0.10	-0.11	0.06	1		
FS	0.07	0.40*	0.35	0.37	1	
TQ	-0.06	0.14	-0.26	0.34	0.16	1

Table 4.2 shows the correlation analysis among all independent variables and (*) indicate the highest figure in the table. This table shows that there is no problem of multicollinearity among independent variables because the highest value is 0.40.

Table 4.2 represents, that there is high correlation between cash flow and firm size, which is 0.40, preceded by financial leverage and firm size, which is 0.37. Corporate governance index symbolized by (CGI) show positive relationship with all variables except fixed capital intensity. Cash flow symbolized by (CF) show positive correlation with firm size as well as Tobin's Q ratio while correlation with fixed capital intensity and financial leverage. Fixed capital intensity represented by (FCI) has negative correlation with Tobin Q ratio while showing positive correlation with financial leverage as well as firm size. Similarly, financial leverage symbolized by (LEV) show positive relationship with firm size and Tobin Q ratio.

4.3 Selection between Common Effect Model and Fixed Effect Model:

Redundant fixed effects likelihood test were used for the selection purpose that either common effect model or fixed effect model will be better. Here the selection criteria are the P-value of this test. If P-value of the likelihood test is significance, then common effect model will

be rejected. In the current situation, P-value is significant; therefore common effect model is rejected.

Table 4.3 Likelihood Test

Test summary	Statistic	d.f	P-value
Cross-section F	1.52	(81322)	0.0059

The null and alternative hypotheses of the test are:

H_0 = Common effect model is appropriate model.

H_1 = Fixed effect model is appropriate model.

Now there are two possibilities. Either fixed effect model or random effect model will be used. Now Hausman specification test will be use for making decision.

4.4 Hausman Specification Test

Hausman (1978) proposed a test to facilitate the choice of an appropriate technique from among the two competing approaches namely the fixed effects and the random effects. This test tells us that difference between the fixed effect and the random effect estimators is significant or not. The null and alternative hypotheses of the test are:

H_0 = Random effect model is appropriate model.

H_1 = Fixed effect model is appropriate model.

Hausman test is applied to identify the suitable technique. Results indicate that Chi-square value of cross section is 37.48 having p-value of 0.0017. Hence the Hausman test

recommends fixed effects model to be employed in order to obtain consistent and efficient estimates.

Table 4.4 Hausman Test

Test summary	Chi-square statistic	Chi-sq. d.f	P-value
Cross section random	37.48	6	0.0017

4.5 Fixed Effect Model (FEM):

The Fixed effect model is similar to pooled regression but it allows for the constant to vary across individuals. It is also called Least Square Dummy Variable (LSDV) estimator, because it uses dummy variables for taking different cross sections to account (Gujrati 2006). Different intercept concepts are logical because our samples consist of heterogeneous set of non financial firms relating to diverse sectors.

Table 4.6 Results of Fixed Effect Model (FEM):

Variables	Coefficient	t-statistic	P value
C	-2.428	-5.44	0.0007
CGI	0.050	0.276	0.782
Cash Flow	0.59***	2.645	0.008
Fixed Capital Intensity	0.323***	3.147	0.002
Financial Leverage	-0.013	-0.172	0.863
Firm Size (FS)	0.14***	5.663	0.000
Growth Opportunity (TQ)	0.20**	0.700	0.045
R Square	0.30		
F statistic	1.64		
Prob F	0.001		

Note: This table presents the results for the balanced panel-data models using firm fixed-effects. Moreover, (**) denotes that variable is significant at 5% confidence interval while (***) denotes that variable is significant at 1% confidence interval.

Table 4.6 reports the result of fixed effect model. The value of R square is 0.30. It means that 30% of variation in corporate investment rate (the dependent variable) is occurring due to all independents variables. The value of R square is not highly satisfactory, but it is acceptable for panel data analysis (Shaikh, Iqbal and Shah, 2012). There may be certain other variables which are missing in the current study which also influence the corporate investment decision that's why the value of R square is 30%. The results of fixed effect model reveal that corporate governance index and financial leverage has insignificant relationship with investment rate.

While cash flow, fixed capital intensity, firm size and growth opportunity has significant and positive impact on corporate investment decision. Our result shows that growth opportunity has also a significant positive relationship with investment decision of non financial firms in Pakistan.

Cash flow is statistically significant and positively associated with corporate investment decision in Pakistan, which support the cash flow theory if investment. The results show that increase of 1 unit in cash flow might lead to an increase of 0.59 unit in investment rate, if other variables are remain constant. This clearly indicates that Pakistani non financial firms mostly finance their new investment from that of internal funds. Because, Pakistani firms have no easily access to cheap bowering. The result is consistence with the previous results of Azzoni and Kalatzis (2006); Aivazian et al., (2005) and Bokpin and Onumah (2009); Nair (2011); Geng and Diaye (2012) and some other research studies. The past literature persists that when cash inflows of a company is increasing, it will lead company to invest more in fixed assets, due to which its production capacity will be increased.

In term of Firm size, which shows the estimated coefficient of 0.14 with a P-value of 0.001, indicate that firm size has also significant association with corporate investment decision. The results show that increase of 1 unit in firm size will increase 0.14 unit in investment rate. The finding of current study suggests that as size of the firm increase, the investment rate also increase. The result is consistence with the previous results of Bokpin and Onumah 2009; Yu 2003; Aivazian et al., 2005; and Hung and Kuo, 2011). They argued that larger firms go toward more diversification strategy. They enjoy the benefit of higher credit rating and easier access to capital markets and pay minimum interest rates on borrowed funds, which may lead the firm toward more investment. Lawrence et al., (2004) argue that larger enjoy the benefit of higher

credit rating and easier access to capital markets and pay minimum interest rates on borrowed funds, which may lead the firm toward more investment.

In addition the result is consistence with the previous results of Bokpin and Onumah 2009; Yu 2003; Aivazian et al., 2005; and Hung and Kuo, 2011). They argued that larger firms go toward more diversification strategy. They enjoy the benefit of higher credit rating and easier access to capital markets and pay minimum interest rates on borrowed funds, which may lead the firm toward more investment.

Finally, Growth opportunity measured by Tobin's Q ratio is positively correlated with investment activities when fixed effect model is applied to incorporate the time effect. The coefficient of Tobin's Q 0.20 reveals that if growth opportunity increase by 1%, the investment rate of the firm will increase by 0.20%, if other variables are remain constant. This result is the same expected sing and is logical with the following past studies of (Jiming et al., 2010; Odit and Chittoo 2008; and Amidu 2007).

High-growth firms enjoy the benefit of easy access to capital markets and pay minimum interest rates on borrowed funds due to higher credit rating. The presence of large capital may lead the firms towards more investment. High-growth firms enjoy the benefit of easy access to capital markets due to higher credit rating (McConnell & Servaes, 1990).

CHEPTER 05

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

This study analyzes the determinants of corporate investment decision in Pakistan. Sample of 82 non financial companies listed at Pakistan Stock Exchange were taken for the period of five years, starting from 2009 up to 2013. Results of this research are consistent with findings of most of the studies in the existing literature.

The results of common effect model suggest that only cash flow and firm size significantly influence the investment decision of the firm, but whenever we extended the model to incorporate the time and individual effect by applying fixed effect model, board size, cash flow, fixed capital intensity, firm size and growth opportunity are the significant determinants of corporate investment decision, while board independence, board meeting, CEO duality, institutional ownership and financial leverage does not play any significant role in making investment decision in non-financial firms of Pakistan.

First of all the significant relationship suggests that firm managers give more preference to its internal cash flows as compared to external funds to finance their investment activities. Similarly the significant relationship suggests that firm managers give more preference to its internal cash flows as compared to external funds to finance their investment activities. Similarly managers give more preference to its internal cash flows.

Similarly the significant relationship suggests that firm managers give more preference to its internal cash flows as compared to external funds to finance their investment activities. Similarly the significant relationship suggests that firm managers give more preference to its

internal cash flows as compared to external funds to finance their investment activities. Similarly managers give more preference to its internal cash flows.

The findings of current study suggest that as size of the firm increases, the investment rate also increase. Large firms enjoy the benefit of easy access to capital markets and pay minimum interest rates on borrowed funds due to higher credit rating. The presence of large capital may lead the firms towards more investment. Larger firms also make more production and achieve economies of scale; these firms obtain higher returns by making more investment.

Finally, growth opportunity measured by Tobin's Q ratio has a significant positive impact on firm investment decision, which means that high-growth firms tend to reduce information asymmetry and provide better aspects for obtaining funds as compared to low-growth firms. Low-growth firms are considered to have lower cash flows and availability of funds.

5.2 Implication of the study

On the basis of the empirical results, a few suggestions on the improvement of investment decisions at the firm level are given as follows:

The current study has concluded that managers prefer internal finance due to the asymmetry of information with external investors. That asymmetric information increases the cost of external finance.

If sometimes a firm has insufficient internal finance to sustain their investment and growth, then government should give some special financial benefits for such company like to provide tax shield, provide loan at low interest rate so that it recover itself from bankruptcy.

5.3 Limitation of study

The current study tried to overcome and remove existing flaws in all aspects but still it has some limitations that must be considered and applied in future. The very first limitation of this research is that it is conducted with a small sample size and short time period. It is possible to get different results by increasing the sample size as well as time period. Another limitation is that sample size of current study is only limited to non financial sector of Pakistan. It can't give any information about the determinants of investment decision of financial firms listed at Pakistan Stock Exchange.

5.4 Future Research Directions

- i. This study investigates the impact of only few variables such as corporate governance, cash flow, financial leverage, firm size, fixed capital investment and growth opportunity on corporate investment decision, many other variables like business risk, sale growth, dividend payout ratio etc would also affect the investment decision at firm level.
- ii. This study has taken data of non-financial firms. It would be useful to carry same study by taking financial firm as a sample. Future research may also be made on sector wise comparison in non financial sectors.
- iii. The R^2 value is 32%, which clearly indicates that some other factors are also present, which are not addressed in the current study. Hence, future research studies are suggested to explore some other factors that influence the investment decision.

References

- Adelegan, O.J. and Ariyo A. (2008), “Capital Market Imperfections and Corporate Investment Behavior: A Switching Regression Approach Using Panel Data for Nigerian
- Agarwal, S. and Mohtadi, H. (2004) “Financial markets and the financing choice of firms: evidence from developing countries”, *Global Finance Journal*, Vol. 15, Issue 1, p. 57-70
- Ahn, S.; Denis , D.; Denis, D. 2006. Leverage and investment in diversified firms, *Journal of Financial Economics* 79: 317–337
- Aivazian, V.A, Ge. J., and J. Qiu, (2005), ‘The Impact of Leverage on Firm Investment: Canadian evidence’, *Journal of Corporate Finance*, Vol. 11, pp. 277-291.
- Akhtar, M. N., Hunjra, A. I., & Rehman, K. U. (2011). Determinants of Short Term Investment Decision Making. *ACTUAL PROBLEMS OF ECONOMIICS*, 11.
- Shah, S. Z. A., & Butt, S. A. (2009). The Impact of Corporate Governance on the Cost of Equity.
- Almeida, H., Campello, M., & Weisbach, M. S. (2004). The cash flow sensitivity of cash. *The Journal of Finance*, 59(4), 1777-1804.
- Amidu, M. (2007). Determinants of capital structure of banks in Ghana: an empirical approach. *Baltic Journal of Management*, 2(1), 67-79.

- Aquino, Rodolfo (2000). How Do Philippine Listed Firms Make Investment Decisions?
- Azarmi, T., & Schmidt, C. E. (2015). Determinants of Corporate Investment: Theory and Evidence on the Investment Effect of Corporate Taxes.
- Azzoni, C. R., & Kalatzis, A. (2006, August). Regional differences in the determinants of investment decisions of private firms in Brazil. In *ERSA conference papers*
- Bertrand, M., & Mullainathan, S. (2003). Enjoying the quiet life? Corporate governance and managerial preferences. *Journal of political Economy*, 111(5), 1043-1075.
- Bialowolski, P., & Weziak-Bialowolska, D. (2014). External factors affecting investment decisions of companies. *Economics*, 8(11), 0_1.
- Bohren, Oyvind, Ilan Cooper, and Richard Priestley, (2007), "Corporate governance and real investment decisions", Ljubljana, EFA 2007 Ljubljana Meetings Paper
- Bokpin, G.A., and J.M. Onumah, (2009), 'An Empirical Analysis of the Determinants of corporate Investment Decisions: Evidence from Emerging Market Firms', *International Research Journal of Finance and Economics*, Issue. 33, pp. 134-141.
- Bolton, P., and D. Scharfstein, 1990, "A Theory of Predation Based on Agency Problems in Financial Contracting," *American Economic Review* 80, 93-106.
- Bond, S.; Van Reenen, J. 2007. Microeconomic models of investment and employment, in

- Heckman, J. J.; Leamer, E. E. (Eds.). *Handbook of Econometrics* 6, 4417–4498.
- Brainard, William C. and Tobin, James. “pitfalls in Financial Model Building,” *Americon Rev.*, May 1968, 58(2), pp. 99-122
- Brandstetter, L. and M. Jacob (2013). Do Corporate Tax Cuts Increase Investments?
- Brown, J., Fazzari, S., Petersen, B., 2009. Financing innovation and growth: cash flow, external equity and the 1990s R&D boom. *J. Finance* 64, 151---185.
- Butt, Safdar A., and Arshad Hasan. "Impact of ownership structure and corporate governance on capital structure of Pakistani listed companies." *International Journal of Business & Management*
- Cantor; Richard, (1990), “*Effects of leverage on corporate investment and hiring decisions*”, Federal Bank of New York Quarterly Review, pp. 31-41.
- Carbó-Valverde, S., Rodríguez-Fernandez, F., Udell, G., 2008. Bank lending, financing constraints and SME investment. In: Working Paper. Departamento de Teoría e Historia Económica, Facultad de CCEE y Empresariales, Universidad de Granada, Spain.
- Carpenter, R. E., & Guariglia, A. (2008). Cash flow, investment, and growth opportunities: New tests using UK panel data. *Journal of Banking & Finance*, 32(9), 1894-1906.
- Carpenter, R., Fazzari, S., Petersen, B. 1994. Inventory (dis)investment, internal finance fluctuations, and the business cycle. *Brookings Papers in Economic Activity* 2, 75- 122.

- Chenery, H., 1952. Overcapacity and the acceleration principle. *Econometrica* 20, 1---28.
- Chirinko, S., 1993. Business fixed investment spending: modeling strategies, empirical results and policy implications. *J. Econ. Lit.* 31, 1875---1911.
- Cleary, S. 1999. The relationship between firm investment and financial status, *Journal of Finance* 54: 673–692.
- Cleary, S. (2006). International corporate investment and the relationships between financial constraint measures. *Journal of Banking & Finance*, 30(5), 1559-1580.
- Core, John E., Robert W. Holthausen, and David F. Larcker, 1999, Corporate governance, chief executive officer compensation, and firm performance, *Journal of Financial Economics* 51, 371-406.
- Davidson, Russell and James G. MacKinnon (1993). *Estimation and Inference in Econometrics*, Oxford University Press.
- Devereux, M., Blundell, R., Bond, S., Schiantarelli, F. 1992. Investment and Tobin's Q: evidence from company panel data. *Journal of Econometrics* 51, 233-257.
- Donaldson, G., 1961. *Corporate Debt Capacity: A Study of Corporate Debt Policy and the Determination of Corporate Debt Capacity*. Boston Division of Research, Harvard Graduate School of Business Administration, Boston, USA.
- Fama, E. F., & French, K. R. (1988). Dividend yields and expected stock returns. *Journal of*

financial economics, 22(1), 3-25.

Farla, K. (2014). Determinants of firms' investment behaviour: a multilevel approach. *Applied economics*, 46(34), 4231-4241.

Fazzari, S., Hubbard, G., Petersen, B., 1988. Financing constraints and corporate investment.

Brookings Pap. Econ. Act. 1, 141---195

Fazzari, S., Petersen, B., 1993. Working capital and fixed investment: new evidence on financing constraints. *Rand J. Econ.* 24, 328---342

Firth, M.; Lin, C.; Wong, S. 2008. Leverage and investment under a state-owned bank lending environment: evidence from China, *Journal of Corporate Finance* 14: 642–653.

Galai, D. and R. W. Masulis (1976). The Option Pricing Model and the Risk Factor of Stock) and (John, K. and L. W. Senbet (1990). Limited Liability, Corporate Leverage, and Public Policy.

Geng, N., & N'Diaye, P. (2012). Determinants of corporate investment in china: Evidence from cross-country firm level data.

Gomes, J. (2001), 'Financing Investment', *American Economic Review*, Vol. 91, pp. 1263–1285.

Grossman, S., Hart, O., 1982. Corporate financial structure and managerial incentives.

Guariglia, A. (2000). Inventory Investment and Capital Market Imperfections: a Generalization

Of the Linear Quadratic Inventory Model. *Oxford Bulletin of Economics and Statistics*, 62(2), 223-242.

Gugler, K., Mueller, D. C., & Yurtoglu, B. B. (2007). Corporate governance and the determinants of investment. *Journal of Institutional and Theoretical Economics JITE*, 163(4), 598-626.

Haque, A., Naeem, K., & Qureshi, W. (2014). IMPACT OF INTERNAL FINANCES ON CORPORATE INVESTMENT IN PAKISTAN TEXTILE FIRMS. *Science International*, 26(5)

Hart, O., 1995. *Firms, Contracts and Financial Structure*, Oxford Clarendon Press.

Hartzell, J. C., Sun, L., & Titman, S. (2006). The effect of corporate governance on investment: evidence from real estate investment trusts. *Real Estate Economics*, 34(3), 343-376.

Hausman, J.A., 1978. Specification tests in econometrics. *Econometrica* 46, 1251–1271.

Hoshi, T., Kashyap, A., & Scharstein, D. (1991). Corporate structure, liquidity and investment: evidence from Japanese industrial groups. *Quarterly Journal of Economics* 106, 33- 60.

Hubbard, G.; Glen, A.; Whited, T. 1995. Internal finance and firm investment, *Journal of Money, Credit and Banking* 27: 683–701.

Hung, J.-H., Kuo, Y.-P., 2011. The effect of family control on investment-cash flow sensitivity. *Appl. Financ. Econ.* 21, 897---904. 7(3), 231-239.

Hyde, S. (2007). The response of industry stock returns to market, exchange rate and interest rate risks. *Journal of Managerial Finance*, 33(9), 693-709.

Jangili, R., & Kumar, S. (2010). Determinants of Private Corporate Sector Investment in India.

Jensen, M. C. (1986). Agency cost of free cash flow, corporate finance, and takeovers.

Corporate Finance, and Takeovers. American Economic Review, 76(2).

Jensen, M. 1986. Agency costs and free cash flow, corporate finance and takeovers. *American*

Economic Review 76, 323-329.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs

Journal of accounting and economics, 33(3), 375-400.

Jiming, L., Chengqin, S., & Zhaohua, W. (2010). The impact of debt financing on firm

investment behavior: Evidence from China. *International Journal of Digital Content*

Technology and its Applications, 17-26.

Joseph, N. (2002). Modeling the impacts of interest rate and exchange rate changes on UK stock

returns. *Derivatives Use, Trading and Regulation*, 306- 323.

Kaplan, S. N., & Zingales, L. (1997). Do investment-cash flow sensitivities provide useful

measures of financing constraints?. *The Quarterly Journal of Economics*, 112(1), 169-215.

Klein, A. (2002). Audit committee, board of director characteristics, and earnings management.

Journal of accounting and economics, 33(3), 375-400.

Kopcke, R. W. (1993). The determinants of business investment: has capital spending been

- surprisingly low?. *New England Economic Review*, (Jan), 3-31.
- Kuh, E. 1963. *Capital Stock Growth: A Micro-Econometric Approach*. North Holland,
- Lang, L.; Ofek, E.; Stulz R. 1996. Leverage, investment, and firm growth, *Journal of Financial Economics* 40: 3–29.
- Lawrence, D., Diewert, W. E., & Fox, K. J.(2004). The Contributions of productivity, price changes and firm size to profitability. *Journal of Productivity Analysis*, 26(1), 1-13.
- Lee, S.; Ratti, R. 2008. *Bank Concentration and Financial Constraints on Firm-level in Europe*. Department of Economics, University of Missouri, Columbia. Manufacturing Firms”, *Journal of Money, Investment and Banking*, 2, pp. 16-38
- McConnell, J.; Servaes, H. 1995. Equity ownership and the two faces of debt, *Journal of Financial Economics* 39: 131–157.
- Meyer, J., Kuh, E. 1957. *The Investment Decision*. Harvard University Press, Cambridge, MA.
- Mizen, P.; Vermeulen, P. 2004. *Corporate Investment and Financial Constraints: What Drives the Relationship?* University of Nottingham and European Centre Bank.
- Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American economic review*, 261-297.
- Moyen, N., 2004. *Investment cash-flow sensitivities: constrained versus unconstrained firms*
- Myers, S. 1977. The determinants of corporate borrowing, *Journal of Financial Economics* 5:

147–176.

Mukhtar, Z., Hashmi, S. H., & Asad, M. Are investment and financing decisions really independent? Evidence from chemical sector of Pakistan. *Editorial board*, 31.

Myers, S. C., & Turnbull, S. M. (1977). Capital budgeting and the capital asset pricing model: Good news and bad news. *Journal of Finance*, 32(2), 321-333.

Myers, S., Majluf, N., 1984. Corporate financing and investment decisions when firm have information that investors do not have. *J. Financ. Econ.* 13, 187-- 221.

Nair, P. (2011). Financial Liberalization and Determinants of Investment: A Study of Indian Manufacturing Firms. *International Journal of Management of International Business and Economic Systems*, 5(1), 121-133.

Ninh, Pham Thong and Huynh Khai, (2007), "Analysis of the factors that affect the investment decisions of non-state enterprises in the Mekong Delta", *Journal economic Research Journal*, Vol. 4 (347).

Nunes, P. M., Mendes, S., & Serrasqueiro, Z. (2012). SMEs' investment determinants: empirical evidence using quantile approach. *Journal of Business Economics and Management*, 13(5), 866-894.

Nwibo, S. U., & Alimba, J. O. (2013). Determinants of Investment Decisions among

- Agribusiness Investors in South-East, Nigeria. *Journal of Business and Management*, 8(6), 60-67.
- Odit, M. P., and Chitto, H. B., (2008). Does Financial Leverage Influence Investment Decisions? The Case of Mauritian Firms. *Journal of Business Case Studies*. Volume 4.
- Omet, G. S., & Yaseen, H. (2015). The Determinant of Firm Investment: The Case of Listed Jordanian Industrial Companies.
- Ooi, J. (1999). The determinants of capital structure evidence on UK property companies. *Journal of Property Investment & Finance*, 17(5), 464-480.
- Opler, T.C., Titman, S., 1994. Financial distress and corporate performance. *Journal of Finance* 49, 1015–1104.
- Pindyck, R. S. (1991). Irreversibility, uncertainty, and investment. *Journal of Economic Literature*, 29(3):1110–48.
- Rajan, R., Zingales, L., (1995). “What do we know about capital structure? Some evidence from international data”. *Journal of Finance*, Vol. 50, pp. 1421-1460.
- Ruiz-Porras, A., & Lopez-Mateo, C. (2011). Corporate governance, market competition and investment decisions in Mexican manufacturing firms.
- Saeed, M. B., Murtaza, Z., & Sohail, I. (2013). Corporate Governance and Firm Performance: A

Study on Moderating Effects of Firm Size and Leverage on the Relationship between Corporate Governance and Firm Performance in Banking Sector of Pakistan. *Jinnah Business Review*, 1(2), 40-46.

Saquido, A. P. (2003). Determinants of corporate investment. *Philippine Management Review*, Discussion paper, (0402), 1-15.

Shah, A., Hijazi, T., & Javed, A. Y. (2004). The Determinants of Capital Structure of Stock Exchange-listed Non-financial Firms in Pakistan [with Comments]. *The Pakistan Development Review*, 605-618.

Shaikh, A.M., Iqbal, M.J Syed & Shah, Z.A. (2012). Institutional Ownership and Discretionary Accruals: Empirical Evidences from Pakistani Listed Non-Financial Companies. *Information Management and Business Review*. 4(4), 217-222.

Siming, L., Chengqin, S., & Zhaohua, W. (2010). The impact of debt financing on firm Studies, Vol. 4 (347).

Stultz, R. (1990) Managerial Discretion and Optimal Financing Policies. *Journal of Financial Economics* 26, 3–27.

Sun, J.; Nobuyoshi, Y. 2009. Regional disparities and investment-cash flow sensitivity: evidence from Chinese listed firms, *Pacific Economic Review* 14: 657–667.

Tariq, B. Yasir, and Hijazi S. (2006), “Determinants of Capital Structure: A Case for Pakistani

- Cement Industry,” *The Lahore Journal of Economics*, 11(1): 63-80.
- Titman, S., Wessels, R., (1988), “The determinants of capital structure choice”. *Journal of Finance*, Vol. 43, pp. 1-19.
- Umutlu, M. (2010). Firm leverage and investment decisions in an emerging market. *Quality and Quantity*, 44, 1005-1013.
- Vermeulen, P. 2002. Business Fixed Investment: Evidence of a Financial Accelerator in Europe, *Oxford Bulletin of Economics and Statistics* 64: 213–231.
- Vo, D., & Phan, T. (2013). Corporate governance and firm performance: empirical evidence from Vietnam. *Journal of Economic Development*, 62-78.
- White, H., (1980). “A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity”. *Econometrica*, Vol. 48, pp. 817-838.
- Xiao, F. (2009). Does the stock market affect investment by Chinese firms? Some new evidence. *International Review of Applied Economics*, 23(2), 197-213.
- Yu, Darwin (2003). Determinants of Capital Structure for Philippine Listed Firms.
- Zwiebel, J. 1996. Dynamics capital structure under management entrenchment, *The American Economic Review* 86: 1197–1215.

iv.

Appendix

Appendix A: Results of Common Effect Model

Variables	Coefficient	t-statistic	P value
Intercept	-0.024	-0.324	0.743
CG Index	-0.013	-1.042	0.297
Cash Flow	0.22**	1.634	0.010
Fixed Capital Intensity	0.011	0.462	0.643
Financial Leverage	-0.018	-0.603	0.546
Firm Size (FS)	0.86**	2.173	0.039
Growth opportunity (TQ)	0.016**	2.03	0.045
R Square	0.047		
F statistic	3.02		
Prob F	0.006		

Note: This table presents the results for the balanced panel-data analysis using common effects models. Moreover, (**) denotes that the coefficient is statistically significant at 5% level of significance.

Appendix B: Results of Random Effect Model

Variables	Coefficient	t-statistic	P value
Intercept	-0.06	-0.96	0.34
CG Index	-0.04	-1.042	0.497
Cash Flow	0.02**	1.634	0.010
Fixed Capital Intensity	0.01	0.51	0.61
Financial Leverage	-0.02	-0.65	0.51
Firm Size (FS)	0.01**	2.14	0.03
Growth opportunity (TQ)	0.08**	1.95	0.05
R Square	0.047		
F statistic	3.26		
Prob F	0.01		

Note: This table presents the results for the balanced panel-data analysis using common effects models. Moreover, (**) denotes that the coefficient is statistically significant at 5% level of significance.

Appendix C: List of the Companies

S. No	Company Name	Symbol	Sector
1	Al-Abbas Sugar Mills Ltd.	AABS	Sugar sector
2	Abbott Laboratories (Pakistan) Ltd.	ABOT	Chemical & Pharmaceutical
3	Attock Cement Pakistan Ltd.	ACPL	Cement sector
4	Al-Ghazi Tractors Ltd	AGTL	Automobile sector
5	Ahmed Hassan Textile Mills Ltd.	AHTM	Textile sector
6	Attock Petroleum Ltd.	APL	Coke & Refined Petroleum
7	Atlas Battery Ltd	ATBA	Automobile sector
8	Atlas Honda Ltd.	ATLH	Automobile sector
9	Attock Refinery Ltd.	ATRL	Coke & Refined Petroleum
10	Ayesha Textile Mills Ltd.	AYTM	Textile sector
11	Bawany Air Products Ltd.	BAPL	Chemical & Pharmaceutical
12	Bata Pakistan Ltd.	BATA	Manufacturing sector
13	Berger Paints Pakistan	BERG	Chemical & Pharmaceutical
14	Bhanero Textile Mills Ltd.	BHAT	Textile sector
15	Biafo Industries Ltd.	BIFO	Chemical & Pharmaceutical
16	Blessed Textile Ltd	BTL	Textile sector
17	Bestway Cement Ltd.	BWCL	Cement sector
18	Baluchistan wheels ltd	BWHL	Automobile sector
19	The Climax Engineering Co. Ltd.	CECL	Electrical Machinery & Apparatus
20	Chashma Sugar Mills Ltd.	CHAS	Sugar sector
21	Cherat Cement Co. Ltd.	CHCC	Cement sector
22	Crescent textile Mill	CRTM	Textile sector
23	Crescent steel and allied products	CSAP	Manufacturing sector
24	Dadabhoy cement industries ltd	DBCI	Cement sector
25	Dewan Cement Limited	DCL	Cement sector
26	D.G. khan cement co	DGKC	Cement sector
27	Dawood Hercules Chemicals Ltd.	DHCL	Chemical & Pharmaceutical
28	Dewan Mushtaq Textile Mills Ltd	DMTM	Textile sector
29	Engro Chemical Pakistan Limited	EPCL	Food Product
30	Fateh textile Mill	FATEH	Textile sector
31	Fauji Cement Company Limited	FCCL	Cement sector
32	Fecto cement ltd	FECTC	Cement sector
33	Ferozsons laboratories ltd	FEROZ	Chemical & Pharmaceutical
34	Fauji Fertilizer Bin Qasim Limited	FFBL	Chemical & Pharmaceutical
35	Flying cement company	FLYNG	Cement sector

36	Fazal Cloth Mills Limited	FZCM	Textile sector
37	Gadoon textile Mill	GADT	Textile sector
38	Ghani Automobile Industries Ltd	GAIL	Automobile sector
39	Ghandhara Nissan Ltd	GHNL	Automobile sector
40	Glaxosmithkline (Pakistan) Ltd.	GLAXO	Chemical & Pharmaceutical
41	General tyre & rubber Co	GTYR	Automobile sector
42	Gharibwal Cement Limited	GWLC	Cement sector
43	Habib sugar mills limited	HABSM	Sugar sector
44	Highnoon Laboratories Ltd	HINOON	Chemical & Pharmaceutical
45	Huffaz seamless pipe industries ltd	HSPI	Manufacturing sector
46	Haseeb Waqas Sugar Mills Ltd.	HWQS	Sugar sector
47	ICI Pakistan limited	ICI	Chemical & Pharmaceutical
48	Ittehad Chemicals Limited	ICL	Chemical & Pharmaceutical
49	Indus Motor Company Limited	INDU	Automobile sector
50	Jdw sugar Mill	JDWS	Sugar sector
51	Johnson & Philips	JOPP	Electrical Machinery & Apparatus
52	Kohat Cement Company Limited	KOHC	Cement sector
53	Kohinoor Textile Mills Limited	KTML	Textile sector
54	Lucky Cement Limited	LUCK	Cement sector
55	Mari Gas Co. Ltd.	MARI	Fuel and Energy
56	Mahmood textile	MEHT	Textile sector
57	Maple leaf cement factory ltd	MLCF	Cement sector
58	Murree Brewery Co Ltd	MUREB	Food Product
59	Nestle Pakistan Limited	NESTLE	Food Product
60	Nimir industrial chemicals	NICL	Chemical & Pharmaceutical
61	National Refinery Limited	NRL	Coke & Refined Petroleum
62	Oil & Gas Development Co Ltd	OGDC	Fuel and Energy sector
63	Otsuka Pakistan Ltd.	OTSU	Chemical & Pharmaceutical
64	Pakistan cables ltd	PCAL	Electrical Machinery & Apparatus
65	Philip Morris Pak	PMPK	Manufacturing sector
66	Power Cement Ltd (Al-Abbas)	POWER	Cement sector
67	Pakistan Petroleum Limited	PPL	Coke & Refined Petroleum
68	Premium textile Mill	PRET	Textile sector
69	Pak Suzuki Motor Company Limited	PSMC	Automobile sector
70	Pakistan State Oil Company Limited	PSO	Coke & Refined Petroleum
71	Pakistan Telecommunication Ltd	PTC	Information & Telicom
72	Rafhan Maize Products Ltd	RMPL	Food Product
73	Sanofi-Aventis Pakistan Ltd	SAPL	Chemical & Pharmaceutical
74	Searle Pakistan Limited	SEARL	Chemical & Pharmaceutical

75	Shell Pakistan Limited	SHEL	Coke & Refined Petroleum
76	Siemens Engineering Co. Ltd.	SIEM	Electrical Machinery & Apparatus
77	Singer Pakistan Limited	SING	Electrical Machinery & Apparatus
78	Sitara Chemical Industries Limited	SITC	Chemical & Pharmaceutical
79	Shabbir tiles and ceramics ltd	STCL	Mineral Products
80	Tariq glass industry	TGL	Mineral Products
81	Unilever Pakistan Limited	UPFL	Food Product
82	Wyeth Pakistan ltd	WYETH	Chemical & Pharmaceutical