Impact of Corporate Governance Practices on Stock Liquidity: Evidence from Karachi Stock Exchange (Pakistan)

By

Haseeb Hassan MM131077

MASTER OF SCIENCE IN MANAGEMENT SCIENCES

(FINANCE)

DEPARTMENT OF MANAGEMENT SCIENCES

CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY

ISLAMABAD

February, 2017

Impact of Corporate Governance Practices on Stock Liquidity: Evidence from Karachi Stock Exchange (Pakistan)

By

Haseeb Hassan

MM131077

A Research Thesis submitted to the Department of Management 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 SCIENCES

CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY

ISLAMABAD

February, 2017

CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY
ISLAMABAD

CERTIFICATE OF APPROVAL

Impact of Corporate Governance Practices on Stock Liquidity: Evidence from Karachi Stock Exchange (Pakistan)

By

Haseeb Hassan

MM131077

THESIS EXAMINING COMMITTEE

S No	Examiner	Name	Organization
(a)	External Examiner	Dr. Sumayya Fatima Chughtai	IIU, Islamabad
(b)	Internal Examiner	Dr. Ahmad Fraz	CUST, Islamabad
(c)	Supervisor	Dr. Muhammad Ramzan Akhtar	CUST, Islamabad

_____

Dr. Muhammad Ramzan Akhtar

Thesis Supervisor

February, 2017

_____

Dr. Sajid Bashir

Head

Department of Management and Social Sciences

Dated: February, 2017

_____

Dr. Arshad Hassan

Dean

Faculty of Management and Social Sciences

Dated : February, 2017

Certificate

This is to certify that **Mr. Haseeb Hassan** has incorporated all observations, suggestions and comments made by the external evaluators as well as the internal and thesis supervisor. The title of his thesis is: **Impact of Corporate Governance Practices on Stock Liquidity: Evidence from Karachi Stock Exchange (Pakistan).**

Forwarded for necessary action

_____

Dr. Muhammad Ramzan Akhtar
(Thesis Supervisor)

DEDICATION

This thesis is dedicated to my Father Muhammad Shafiq Sajid and to My Mother Aqeela Shafiq for their enduring patience, encouragement, and love. I thank my brother and sisters 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. Their confidence and faith in me helped me in achieving my goals.

ACKNOWLEDGEMENT

In the name of Allah, the Most Gracious and the Most Merciful, all praise to Allah for His blessings in completion of this task despite my weaknesses and limitations. I would like to thank my thesis supervisor Dr. Muhammad Ramzan Akhtar, who has provided me continuous inspiration, assistance, support and motivation to complete this study. I express my gratitude to Dr. Arshad Hassan for the knowledge and valuable guidance which he has provided me throughout my degree.

I sincerely thank to Shujahat Haidar Hashmi, for being so supportive and expressing such strong confidence in me. I am also thankful to my all friends for their patience in my whole of this journey.

Table of Contents

List of Tables

Abstract

Grounded in agency theory, this study examines the impact of corporate governance practices on stock liquidity using a sample of 81 non-financial firms listed on Karachi Stock Exchange during the period 2005 to 2014. Theory suggests that effective governance enhances financial and operational transparency, which in turn, reduces adverse selection. Facing less adverse selection problems, traders provide more liquidity to stocks of well-governed firms. This study is used the stock liquidity as a dependent variable, which is measured by turnover ratio, whereas corporate governance practices such as audit committee independence, board independence, board size, CEO duality and institutional ownership are used as an independent variable. Findings of the fixed effect model show that in corporate governance practices, institutional ownership and audit committee independence positively improve the stock liquidity in Pakistan which is consistent with the previous studies. But other corporate governance variables such as board independence, board size and CEO duality have no any impact on liquidity of stock in Pakistan, which shows the contradiction with the prior studies. It is concluded that effective corporate governance reduces the problems of information asymmetry and improves stock liquidity. The results of the study may be useful for managers, shareholders, investors, policy makers, risk managers, market makers, traders and financial analysts.

Keywords: *Corporate Governance Practices, Stock Liquidity, Multivariate Regression Analysis, Karachi Stock Exchange (KSE).*

Chapter 1

Introduction

Stock liquidity is considered as an essential element of market microstructure and is deemed to be most debated topic in the literature of finance. Stock liquidity has an importance in the measurement of growth and efficiency of the market (Singh et al, 2015). On the other hand, both developed and developing economies with high premium showing the high illiquidity risk. Increasing the liquidity of the stock improves the reputation of the company in the financial markets. As a result, it increases the value of the firm (Amihud & Mendelson, 2008), and decreases the cost of capital (Diamond & Verrecchia, 1991). To find out the means in improving the liquidity of the shares can develop the substantial attention towards the academic and professional, either they are regulators or financial analysts. Such as, these regulators help to secure a minority investor beside the risk of expropriation and promote their vigorous contribution in the market, which slightly increases liquidity (Brockman & Chung, 2003, 2008).

It has been identified that liquidity of financial assets is considered as an essential part in the smooth functioning of capital markets. It assists participants in the market place to meet unforeseen financial needs without incurring significant losses. Liquidity performs a central role in the price discovery of an asset and therefore, it has acknowledged considerable interest from researchers around the globe. A market which is fully liquid, every quantity of a particular stock of that market might be immediately transformed into cash, or conversely, at a zero cost. Therefore, Harris (1990) argue that the market with more liquidity having a less transaction cost to convert the assets into cash. Shareholders demand return in case of uncertainty and transaction cost which they bear when trade their shares in to the market (Amihud & Mendelson, 1986).

Investors are afraid about liquidity risk, because it affects their ability to trade and the amount of shares they want to buy or sell within the desired time frame. On behalf of emerging countries, good corporate governance decreases vulnerabilities in emerging market's financial crises, strengthens the property rights and hence to reduce the cost of transaction and capital, which leads to the development of the financial market and liquidity of the stock.

Corporate governance is a mechanism that provides the checks & balances to overcome the managerial behavior and therefore try to alleviate that managers proceed along their own interests at the cost of shareholders (Hart, 1995). While, as stated by Shleifer and Vishny (1997) corporate governance manage how those particular fund brokers of the organizations guarantee themselves to get a return on their investment. Thus the perception of corporate governance as a set of mechanisms that reduce agency costs by controlling managerial actions and reducing asymmetric information transmitted by shareholders. Actually, managers with weak corporate governance, seize the shareholder's wealth increasingly in circumstances of poor performance. Hence, good corporate governance helps the investors to produce a high cash flow which is available to them.

Efficient corporate governance facilitates to strengthen active and proficient stock markets. Firms with high corporate governance standards will lead to increase the confidence of investors in the market. Gilson (2000) said that investing in stocks needs good quality of corporate governance and good quality of corporate governance involves realistic business information. In this perspective, it will be imperative on recall that those adequacy of the corporate governance framework increases certainty of investor in the business sectors and promotes a more stable flow of investments over the long term. This is a way to put pressure on the establishment of a relationship of trust between the company and investors, and get the attention of new investors

and improve the liquidity of its stocks. Experimental research of developed markets that describes the governance mechanisms of domestic and foreign companies both to improve the liquidity of stock market (Bacidore & Sofianos, 2002).

Corporate governance is considered very important topic for the emerging countries, because it plays very important role in making a country financially and economically strong. The importance of corporate governance comes to know, when Security and Exchange Commission of Pakistan (SECP) had presented a first time code of corporate governance in March 2002. The code of corporate governance was made by combine efforts of SECP and Pakistan's Chartered which is associated with Cost and Management Accountants Institute of Pakistan and three Stock Exchanges of Pakistan. Corporate governance code consists of recommendations which are consistent with practices internationally. All firms which are publically listed in all three Stock Exchanges of Pakistan, the listing regulations had to implement the codes of corporate governance on that firms, because it was the requirement of SECP. The updated corporate governance code was implemented in 2005 and 2012. Code of corporate governance helps to provide the transparency in financial transactions, corporate dealings, auditing and other business.

In most prior studies and empirical literature the relationship between corporate governance and stock liquidity is considered a matter of much debate. Most of the studies have conducted on this issue in developed markets. Because developed economies have more noteworthy liquidity, investors have sound protection and ownership is broadly scattered. These developed countries studies are Heflin and Shaw (2000), Rubin (2007), Chen et al. (2007), Kanagaretnam et al. (2007) and Chung et al. (2010). They said that the main source to increase liquidity of stock is corporate governance. It is argued that corporate governance effects stock liquidity because more

monitoring is required to impose on managers through efficient corporate governance and thus to prevent ineffective/opportunistic managers from concealing information. Therefore, when corporate governance is strong then there is more chances to improve transparency and result to decline in information asymmetry (Chung et al., 2010). When there is no more asymmetry of information, then less adverse selection problems are faced by liquidity providers (Glosten & Milgrom, 1985). Consequently, well governed firms are estimated to show more liquidity of stock. While in developing economies, just few of research studies concentrate on this issue (Ben, Sedrine & Loukil, 2008; Belkhir & Bouri, 2008; Loukil & Yousfi, 2010; Prasanna & Menon, 2012; Bar-Yosef & Prencipe, 2013; Arazpour & Fadaeinejad, 2014 and Sharif, Bino & Tayeh, 2015). These studies have used limited time period, their markets have distinctive qualities and are poorly regulated due to less liquidity of market and high concentration of ownership. Specifically, from previous studies we have found no any such type of literature in Pakistan who can explore the relationship between corporate governance practices and liquidity of stock. So, it is the first study which examining this issue by studying the impact of corporate governance practices on stock liquidity.

1.1 Theoretical Background

Generally it is said that agency is a two parties relationship, one is the principal and other is an agent. This type of association arises at that time when one party (principal) appoint the other party (agent) to perform services on behalf of principal. If there have seen any inefficiency or incomplete information between the parties then agency problems could be arise. These agency problems that exist between the parties (principal and agent) could be resolved with the help of Agency theory. In keeping with agency theory (Jensen & Meckling, 1976; Fama & Jensen,

1983), companies should adopt measures of efficient corporate governance to reduce asymmetric information and improve liquidity of stock market.

Agency theory proposed by Fama and Jensen (1983) hypothesizes that the division of ownership and control causes asymmetry of information, if the concentrations of managers and shareholders as well as large shareholders and minority shareholders (Gomes, 2000) mismatch with each other. Hence, a good corporate governance strategy gives an advantage of appropriate information disclosure, avoiding insider trading and communicating efficient market prices. Therefore, it is considered that the connection among corporate governance and liquidity could be explained by using the important corporate governance variables such as board independence, board structure, and board activity.

Jensen (1983) argued that the effectiveness of board monitoring depends on its size, composition, and leadership structure. According to agency theory, it is argued that the agency costs of modern capitalism can be reduced if there are number of independent directors present in the board (Fama and Jensen, 1983). Additionally, it is said by Watts and Zimmerman (1986) that information asymmetry should be reduced with the help of board monitoring among the different stakeholders in the firm. Overall, stock market liquidity can be increased due to effective board monitoring.

Conflicts among the shareholders and the managers increase due to Separation of ownership in a firm because according to the assumption of agency theory that both parties (shareholders & managers) should maximize their benefits and there are no any alignment of interests in between them. Due to such separation of ownership lead to increase in information asymmetry. Information asymmetry can be differentiated through that the board of directors have more information about the company as compared to investors collectively. According to Watts and

Zimmerman (1986) information asymmetry gives the separation between the informed and uninformed investors because when one investor has more information regarding the company than other investor then problem of information asymmetry could be arise. When information asymmetry arise then it will lead to adverse selection costs. These adverse selection problems affect the liquidity suppliers which might bring wider spreads and more depths to stocks under this condition and as a result to drop in the liquidity of stock (Glosten & Milgrom, 1985).

1.2 Problem statement

Researchers have tested and studied the relationship between corporate governance and stock liquidity in developed markets (US and UK). Developed markets have high liquidity as far as investment and stock concerned e.g. investors are well protected and ownership is widely dispersed. But it is not necessary that the results of developed markets are also applicable in capital markets of developing countries like in Pakistan where the trading system of capital market is totally different than developed markets like information asymmetry is high in developing financial markets, different structure of ownership and limited access to debt financing than advanced markets. To the best of author knowledge only Chung et al. (2010) have investigated the effect of internal corporate governance on sock liquidity. However, sample of this study is only limited to the U.S stock market. Due to their institutional and regulatory differences, it is not possible to generalize results of this study in other financial markets specifically in emerging markets, where financial markets are not much developed.

In developing countries like in Pakistan, where most of the firms are controlled and owned by their family members therefore agency problem is more severe between controlling family and minority shareholders, and financial analyst do not provide information as efficiently to investors

as in developed markets. Consequently, it is more important for the investors in Pakistan that they rely on those information which is directly released by the company itself. The internal information of the firm is greatly depending upon the performance of corporate governance (Chung et al., 2010 & Leuz et al., 2003). Thus, it is more critical to describe the role of corporate governance in improving transparency and increasing stock liquidity in Pakistan than it is in developed countries. Due to these distinguishing characteristics, it is very interesting to investigate the effect of corporate governance on liquidity of stock in Pakistan.

1.3 Research Questions

The basic research question of the present study is:

Whether corporate governance practices affect liquidity of stock in Pakistan?

The current study employs the answers to the following sub questions on the basis of individually corporate governance variables:

i. What is the affect of institutional ownership on liquidity of stock in Stock Market of Pakistan?
ii. What is the affect of board size on liquidity of stock of Pakistani firms?
iii. Whether board independence have any impact on stock liquidity in Pakistan?
iv. Does CEO duality affects stock liquidity on Pakistani firms?
v. What is the impact of audit committee independence on stock liquidity in Pakistani stock market?

1.4 Research Objectives

The major purpose of this research is to investigate the association among corporate governance practices and stock liquidity of listed companies on Karachi Stock Exchange (KSE-100).

Further research objectives of this dissertation are:

i. To examine the relationship between institutional ownership and stock liquidity in Pakistani stock market.
ii. To analyze the relationship between board size and liquidity of stock in Pakistan.
iii. To explore the association among board independence and liquidity of stock of Pakistani firms.
iv. To find out the relationship between CEO duality and stock liquidity in Pakistan.
v. To examine the relationship between audit committee independence and liquidity of stock in Pakistan.

1.5 Significance and Contribution

current study's aim is to identify the relationship between corporate governance practices and stock liquidity. Few of the researches have done on corporate governance and stock liquidity relationship in developed countries, but no any study has to be found that can focus on finding the effect of corporate governance on liquidity of stock in Pakistan. This is the first study to shed light on this issue using 81 non-financial companies listed on Karachi Stock Exchange (KSE-100). Corporate governance system of emerging markets is different than developed markets. In developing economies, as in Pakistan, where the mostly companies are possessed and controlled by the families and key managerial positions hold by the family members. Hence, the major agency problem exists between the minority shareholders and the management (the controlling

family). These companies have the regularity of a different legal environment and distinctive market and institutional infrastructure than developed countries because of quality of corporate governance. Therefore, this study is an attempt to bridge this gap. That's why this study is a contextual contribution in this field of research.

In developed markets and other emerging markets, a lot of research is conducted in this area, but these studies have used the limited time frame in their researches and have a narrow scope as well. While this research thesis has been used the time period of 10 years from 2005 to 2014. So, this research thesis has a temporal extension towards the literature. The results of this study will present practical insights and significant contribution in literature from Pakistani capital market on how corporate governance practices can effect on stock liquidity and at which level it may affect Pakistani stock market. It may be useful for managers, shareholders, investors, policy makers, risk managers, market makers, traders and financial analysts. This study has importance for investors to help them in indentifying the most liquid stocks and will enable them to decide which stocks to acquire and which to dispose. The study will also helpful for academics and scholars to bridge the gap on the impact of corporate governance practices on equity liquidity. It will be useful for future researchers as well because it will become part of the empirical literature on corporate governance mechanisms.

1.6 Organization of study

This research thesis is further classified into following chapters. Chapter 2 contains the literature review which gives the theoretical and empirical discussion on corporate governance and stock liquidity relationship around developed and emerging markets. Chapter 3 discusses about the data description, methodology and related control variables. Chapter 4 explains the empirical

findings and discussion of the study. Chapter 5 provides the conclusion of the study, future research direction and policy recommendations.

Chapter 2

Literature Review

This chapter presents a review of relevant literature on corporate governance and stock liquidity. This segment help to develop the study hypothesis on the basis of previous related literature. This literature also proposed the theoretical and empirical explanations related to corporate governance and stock liquidity relationship. This chapter consists of three sections. Section 2.1 provides the individual stock liquidity explanation and their related measures. Section 2.2 reviews the literature on the relationship among corporate governance and liquidity of stock. Whereas, Section 2.3 explains the association between individually corporate governance practices and stock liquidity.

2.1 Stock liquidity

Various studies have been conducted worldwide on liquidity and reported different point of views. In start, study conducted by the Amihud and Mendelson (1986) reported positive and significant relationship between stock return and illiquidity. Furthermore, it is suggested the indications about the presence of a positive and significant association among expected returns and stock liquidity by Amihud and Mendelson. Eleswarapu and Reinganum (1993) studied the relationship between stock returns and liquidity. Amihud illiquidity measures have been used in this study and examined a significant relationship between estimated return and equity liquidity that is limited to the January effect.

Liquidity is the ability to transact quickly and with no considerably moving prices, whereas the depth of the market is the ability to make the deal on the current price of the market (Glen, 1994). Madhavan (1992) has described the relationship between liquidity and asymmetry of

information. He said that market makers and traders who possessed value of information significantly influence the size of the bid & ask spread and the depth of the market. So, due to broaden the spread, lower market depth and market liquidity, information asymmetry will be increased. Ahn and Chueng (1999) have concluded that there is represented a strong statistically significant negative correlation between the spread and the depth of the market with low liquidity. Pagano and Roell (1996) were observed that by reducing the opportunities to take advantage of less enlightened or participants who are not professional, market liquidity enhances through better transparency in the negotiation process. It has been found, as the increase in liquidity in the market with asymmetric information, because insiders have ability to achieve a better implementation compared to their trades for liquidity traders simultaneously. It is concluded that the existence of informed traders to the market does not inevitably means to diminish liquidity of the market (Cornell & Sirri, 1992).

Liquidity can be defined as there is no any extra charges will be incurred when we quickly sell an asset. As according to Fernandez (1999) "Liquidity is considered as the lifeblood of financial markets". For the purpose of smooth operations of an economy, liquidity is very important and critical. The sudden erosion of the instrument individually and the segment of the market at individual level may encourage troubles that are transferred during financial markets which are increasingly interconnected or overlapping around the world. Many of the difficulties encountered in measuring and monitoring liquidity risk in spite of its importance.

O'Hara (1995) has been documented a theoretical foundation in several ways to show the nature of liquidity regarding numerous trading system and guarantees them in the perspective of different models of market microstructure. Usually studies that are associated with market liquidity use either one or more liquidity measures to capture different aspects of liquidity.

Whereas Fernandez (1999) highlights the use of diverse liquidity dimensions to facilitate in measuring some aspects of liquidity. While the single dimension of liquidity used by the Chan & Pinder (2000), Elyasiani, Hauser & Lauterbach (2000).

A measure of liquidity that can be categorized into four groups such as the size of the company and the volume of transactions and the time between the continuation of the spread or transactions. A measure of liquidity such as firm size which is considered as a weak measure for this reason it does not normally serve. While, the measures of liquidity (trading volume and turnover) which includes volume related data have been used by the Barclay, Christie, Harris, Kandel & Schults (1999). But the other studies which have also been used the same measures, these studies are Chan, Chung and Fong (2000). These two measures such as trading volume and turnover are comparatively easy to compute because they only deal with trading. Considering that, the dimensions of time related liquidity indicate that how to place orders and frequently transactions are being done. When time-related liquidity measures will be high then liquidity will be high as well. Time related liquidity dimension which is measured through the proxy of no. of transactions per time used by the Peng (2001). While the other proxy for same dimension is number of orders per unit time is used by the Walsh (1998). At last, liquidity measures for spread are measured through the data of bid & ask prices that appears on the costs sustained during the trading. When these liquidity measures going to be smaller, then market would becomes more liquid. Moreover, studies which is conducted on New York Stock Exchange by Chordia, Roll & Subrahmanyam (2001) and in the German stock market by Grammig, Schiereck & Theissen (2001) have explored the spread related liquidity measure such as absolute spread which demonstrate the variation among lowest ask and lowest bid price. Although some of the other spread related liquidity proxies such as log absolute spread, relative spread with mid-price and

relative spread with last trade are used by the Hamao and Hasbrouck (1995), Levin and Wright (1999) and Fleming and Remolona (1999) respectively.

Price impact ratio of Amihud (2002) is the most commonly used measure which reveals that when trading occurs into the market then how the existing prices are changed during the transaction. Amihud (2002) illiquidity ratio can be easily calculated in the presence of data related to returns of the stock and trading volume. Whereas, Bouchaud (2009) indicates that price impact refers to the relationship among income order (to buy or to sell) and change the price later. If impact on the quoted price is smaller, then the market becomes more liquid. Therefore, when it increases liquidity, it will eventually reach a point where there is no more influence on the prices of a certain amount of stock. This means that stock market liquidity will be decreased due to higher price impact.

Turnover price impact, ratio of Illiquidity, and roll impact are the three different proxies which measure the price impact. Illiquidity ratio is measured by dividing the daily absolute stock return to its traded volume, on average over the period. It is an approximate measure of the price impact. Whereas, Goyenko et al. (2009) and Hasbrouck (2009) reported price impact measured by the ratio of illiquidity, because this measure is mostly used measure in the finance literature. This measure tells about the change in price impact relative to change in volume. It represents that if stock is not liquid then return will increase because for holding less liquid stock, investor claims more return. If this ratio enhances then liquidity of stock market will be decreased.

The ratio of turnover price impact is measured by the average monthly ratio of daily absolute stock return divided by the daily volume as a percentage of outstanding shares (Florackis et al., 2009). When turnover price impact increases then liquidity decreases and vice versa. Whereas,

Goyenko et al. (2009) have used the Roll impact measure in their study and gave this calculation by measuring the bid & ask spread over turnover volume. Whereas, Roll impact variable is a competent price impact measure and to be used daily data to measure it.

Investors have more liquid stocks for short time span, because the buying and selling process of those stocks are higher than the stocks which are less liquid (Amihud & Mendelson; 1986). Constantinides (1986) has also found that for less liquid stocks investors decrease their trading activity. It is concluded that those stocks are considered to be more liquid which have higher trading activity and vice versa. Trading activity consists of two proxies i.e. trading volume and turnover rate.

According to Datar et al. (1998) turnover rate is measured by dividing the average value of goods held in stock to the total value of stock sold in one year. Turnover rate can also be understand as an average reverse retention period, which shows that the stocks with highest turnover ratio generally take place for a shorter period of time and that's why these show a greater trading activity. Whereas, , actual number of daily shares traded explains the traded volume. Considering that, Volume of trade is measured by the suitable trading activity (Brennan et al., 1998). It means that when volume is high then the liquidity of share increases and vice versa.

Black (1971) recommends the other measurement of equity liquidity, that is immediacy, which characterizes the speed of trading, specifically, the speed at which trade can implement. While, the prior research studies related to liquidity of the equity in general do not depend on an absolute measure of equity liquidity on account of every measure has various extents and also require its personal restrictions (Goyenko *et al.*, 2009).

Value of an asset is reduced by the poor liquidity because the asset which cannot be easily sold, on anyone would want to hold that asset Amihud and Mendelson (1986). The stocks which are less liquid in compensation, investors demand more return from those stocks. Fernandez A. et al. (2011) has reported that the price impact, trading activity and cost of transaction are negatively related with each other.

Chordia et al. (2000) conducted study on aggregate market liquidity and divert attention from the field of market microstructure of the liquidity of single equity to the overall liquidity of the market. Find the idea of the common denominators of liquidity introduced by Chordia et al. (2000) which by definition played a part in the movement between the liquidity of single security and the liquidity of the market. Many of the researchers (like: Huberman & Halka, 2001; Hasbrouck & Seppi, 2001; Giouvris, 2003) state that commonalities survive in developed economies. Whereas, emerging economies also consist of these commonalities confirmed by the previous researchers (For further detail see: Brockman & Chang, 2002; Sujoto et al., 2005; Qin, 2007). Acharya and Pedersen (2005) have documented that due to unpredictable behavior of the market systematic liquidity risk may arise and there may be chances of disappearance of liquidity from the market. So in this way a lot of securities have been exaggerated at some point.

It is documented that low stock liquidity leads to higher level of losses and higher return in contrast with high liquid stock for investors due to price volatility in the financial market (Misra et al., 2015). Furthermore, a trader is uncertain about performing a large deal in illiquid markets because it can create a significant change in price which leads more losses. As a result, the stock market progress is self-conscious as stock returns are decreased due to more liquidity risk. It is also suggested that by increasing/decreasing the liquidity/liquidity risk the firms can minimize

the cost of their chosen stock. And by understanding the characteristics of market liquidity, investors can improve their trading tactics.

In literature of finance, illiquidity can be defined as due to presence of low number of buyers and sellers in the market securities are unable to sell quickly at their full price. The idea stock liquidity was completely clarified by Pastor and Stambaugh (2001) in their study. They have described that high sensitivities to stock liquidity has increased that for low sensitivity to sock from 1965 to 1998 is annually 7.6% approximately in U.S. capital markets. Moreover, Acharya and Pedersen (2005) have made a development in liquidity adjusted CAPM. They have investigated the two more sensitivities, liquidity of share to liquidity of the market and other is stock liquidity to market return. While for liquidity factor Liu (2013) has used turnover adjusted liquidity measures and in his model he explains the book to market size, investment and price ratios associated risk premium. Wide bid-ask spreads or in high price fluctuations are usually reflected by the liquidity risk. Larger the size of stock, greater the stock liquidity.

Doroshenko (2011) has examined the impact of liquidity on asset pricing in UK stock market with sample period of 2001 to 2011. Daily time series regression was used for both Fama French three and four factor models including liquidity factor. He also forms different portfolios increasing illiquidity for which investor would demand different expected return. Relative spread measures the stock liquidity. Results of this study reveal that illiquidity positively and significantly impact on return of the stock.

A study was conducted by Hassan and Javed (2011) to analyze the relationship between equity return and illiquidity. The study was done in Pakistan and all the data were gathered from Karachi stock exchange (KSE) for the year 2000-2007. This study employed the Fama and

French (1992 & 1993) approach and multivariate regression analysis to explore the relationship among selected variables. This study found the significant and negative relationship between equity return and illiquidity premium of stock. Simply it is suggested that in contrary to illiquid stocks, high liquid stock earn high returns. In context of Pakistan, low liquid stocks perform poor as compared to high liquidity stocks because investors are not rewarded for stock liquidity risk.

2.2 Corporate Governance and stock Liquidity

Most of the former studies have examined the differences in all countries and analyze the part of corporate governance for liquidity. For example, grounded in agency theory proposed by Jensen and Meckling (1976), Fama and Jensen, (1983), firms should implement better corporate governance measures to diminish asymmetry of information and improve market liquidity. Likewise, Diamond (1985) has given his argument that when information disclosures is high then it turns to lower asymmetry of information among management & traders and the trader's ability to acquire the private information will be decreased. As a result, fewer heterogeneity between trader values and lesser tentative sites amongst informed traders. Glosten and Milgrom, (1985) said that traders offer more liquidity for stocks of well governed firms, when they face less problems of adverse selection (Glosten & Milgrom, 1985). Therefore, theory entails that bad governance weakens the liquidity of the stock market because it is estimated that poor corporate governance lead to lowers the financial and operational transparency.

Traditional studies has drawn the attention towards the role of internal corporate governance quality (CGQ) in the liquidity of equities. For example, Coffee (1991) states that in order to intensify the stock liquidity under internal governance mechanism, enormous investors should support the firmness to surpass internal governance system, which will make the exit less

expensive. Regardless of such statement the empirical proof of this connection is restricted. Bhide (1993) explained that active shareholders who lessen costs related to the agency by through internal control to also ensure reduce the liquidity of the shares by creating problems of asymmetric information. On the other hand internal monitoring was dejected by stock liquidity through decreasing the cost of exit of discontented stockholders. The United States unusually has many actively traded companies whose stock is widely dispersed, as public policies have favored stock market liquidity in relation to active investments., In addition, the remuneration of liquidity of the stock market should be compared to the costs of deteriorating corporate governance.

Another study, that has examined the NYSE listed companies and reported that U.S stocks display greater liquidity as compared to non-U.S. stocks because they have lower depth, more spreads and more instability of transient as compared to stocks that based on United State. It is found that spreading larger than the United States is mainly because of the increased risk of adverse selection and to increase asymmetries of information. They summarized that liquidity providers claim higher reward when they trade shares outside the United State but this extra reward is essential to compensate the high risk of adverse selection. Similarly, Brockman and Chung (2003) have studied on the listed firms of Hong Kong stock exchange and reported that the companies which are related to Hong Kong have greater liquidity than the enterprises which are based on mainland China. Likewise, Jain (2003) estimates that the countries which have strong rights of shareholders protection, those countries have narrow bid-ask spread. While, that have provided cross-country evidence, including Chung (2006) and Eleswarapu and Venkataraman (2006).

Chen, Chung, Lee and Liao (2007) have investigated the association simultaneously among corporate governance and liquidity of share. They argued that bad governed firms face a greater

risk of information asymmetry and a high cost of agency. Firms which shows poor corporate governance, the share spreads of those companies will be widen by liquidity providers resulting in to reduce the market liquidity of these equities.

A study which has observed a positive associations between foreign ownership, corporate governance and liquidity in Southern Africa (Mangena & Tauringana, 2007). Hence, outside investors have the tendency to invest in those firms which have efficient corporate governance with improved liquidity of stocks, but this notion is consistent with the findings of Mangena and Tauringana (2007). While another cross sectional study has been conducted to discuss about the corporate governance and liquidity of firm relationship in context of China (Tang & Wang, 2011). They have found a strong supporting arguments in favor of positive connection among corporate governance and liquidity. Findings of this study shows that mechanism of better corporate governance may increase the assessment and improvement of the stock liquidity.

Chavez and Silva (2009) introduced the particular levels of corporate governance whose impact can play a vital role in improving the corporate transparency and investor protection on Brazilian stocks of liquidity. They documented that the companies who prefer to select particular levels of corporate governance enlisted, those companies have high liquid stocks and firm value. Whereas, Yun (2009) explores the effect of corporate governance on liquidity of stocks and concludes that those stocks have high liquidity who have stronger internal governance other than weak internal governance.

The description of Jiang et al. (2010) discover that tunnel movements with controlling shareholders in China are widely used. Empirical data showing the link between governance and liquidity, when both of the above agencies are current conflicts, will devise a more useful

governance composition and how the various policies help policy makers, investors and stakeholders govern the diverse kinds of clashes to diminish.

Prasanna and Menon (2012) have examined the association among the company and the level of corporate governance and liquidity of the stock market in India. This study includes the sample of 90 companies listed on the BSE-100 index from study period 2009 to 2010. They have constructed a CGI through the content analysis of annual reports of corporate governance of firms registered in Indian stock market. In this study, stock liquidity was to be measured through Amihud (2002) illiquidity ratio and the form of modification used Bortolotti et al. (2007). Empirical implications of this study shows that there has been observed the positive impact of corporate governance on stock liquidity, because companies with good corporate governance have greater liquidity.

According to the study of Kanagaretnam et al. (2007) have discussed the relationship between quality of corporate governance and stock market liquidity. They measured the liquidity by using the data of lesser bid & ask spreads and ordering a depth of about a earnings announcements quarter wise and quality of governance through principal component analysis (PCA) by including the independent variables of corporate governance such as activity of the board, structure of the board and board independence. In their study, they found that the stocks which have high level of governance that stocks would have high liquidity. Whereas, Chung et al. (2010) examined the variations in liquidity of those sample stocks that are registered on the stock exchanges such as NASDAQ and NYSE/AMEX during the period 2001 to 2004, but these variations held due to internal governance. They imagine that in case of poor corporate governance asymmetric information will be increased among inside and outside investors and to permit the liquidity providers to place wider bid-ask spreads. In this study proxies which are used

to measure the liquidity that are quoted spreads and effective spreads and others are the price impact of trades and the possibility of information based trading. While to measure the governance index, Institutional Shareholder Services (ISS) is used which consists of financial and operational transparency related traits. Their results of the study reveals that the companies which have best corporate governance, the liquidity of the stock market of those companies will also be high, but the possibility of information based trading and price impact of trades will be decreased.

Loukil and Yousfi (2010) have analyzed the association among corporate governance, asymmetry of information and equity liquidity. This study has used the 49 companies registered on Tunis Stock Exchange (TSE), but this sample has been taken from financial & non-financial sectors during the period of 1998 to 2007. Empirical results demonstrate that corporate governance can have direct and indirect relationship with liquidity of securities. It is argued that effective board of directors reduces the problems of information asymmetry which in turn decreases informed trading and increase financial liquidity. Actually, if the occurrence of informed agents is suspected by uninformed agents, they can trade only in a situation when their attentions are guarded in getting a more risk premium. This leads to increase in transaction costs and reduces in stock liquidity consequently. Cai et al. (2006) and Kanagaretnam et al. (2007) have presented a study on microeconomic level and show that due to increase in the percentage of informed agents, stock liquidity decreases.

Dumitrescu (2011) investigated the impact of corporate governance on the liquidity of the stock market. This research demonstrate that corporate governance system such as investor protection laws and the distribution of ownership influence the stock market liquidity of the company. Furthermore, the outcome of governance arrangements aimed at improving monetary

transparency depends on the additional governance distinctiveness of the company. Hence the leakage of information by the management linked with a poor governance methods can cause an increase in ambiguity about the insolvency value of the company and thus a reduction in market liquidity. In this Research, procedures to be observed by shareholders and ownership may have a negative effect on market liquidity. The model shows that companies with high monitoring costs of shareholders and high distribution of the owners have a high liquidity. Therefore, the ownership concentration decrease the problem of the agency among the manager and the shareholders, enhance the value of the company but lessen the liquidity of the market because raises the problem of the agency between manager and market maker. By enhancing market liquidity, the company lowers its cost of capital and hence, enhance its market value.

Li, Lin Wei (2013) studied the governance and liquidity relationship in the face of inefficient management's agency costs and shareholders self-service control. He used a listed firms of Chinese stock market that are listed on Shenzhen and Shanghai stock exchanges. He used a three years study period of 2006 and 2008. But their findings indicate a positive relationship between corporate governance and liquidity. In case of state-owned enterprises (SOEs), independence of the board is negatively related to the spread of bid & ask prices subject to management retrenchment.

Bar-Yosef and Prencipe (2013) have been conducted a study on impact of corporate governance system on liquidity in a surroundings portrayed by highly concentrated non-institutional ownership. First, it is documented that high non-institutional ownership can increase bid-ask spread and lowers trading volumes. Second, it shows that in the occurrence of high concentration of non-institutional ownership, if there is an improvement in the system of corporate governance such as independence of the board and partition of chairman and chief executive officer, then

trading volume tends to be privileged and spread related to bid & ask prices be likely to be lower for companies. In multivariate regression analysis, independent directors is negatively and significantly related to the spread of bid & ask prices and have a positive but insignificant impact on volume of trade. Whereas, CEO duality is significantly and positively related with the spread of bid & ask prices and negatively related with volume. It means that the efficiency of board independence mechanisms may be decreased in case of high ownership concentration, but in case of more efficient corporate governance will lead to increase the mutual dimensions of liquidity. While, in case of control variable, financial leverage is positively associated with bid-ask spread as recommended by Amihud and Mendelson (2012).

Prommin, P., et al., (2014) have identified a significant and positive relationship between corporate governance and stock liquidity. They have used the sample of 100 Thai firms which are listed on Stock Exchange of Thailand (SET-100) during the study period 2006-2009. Low frequency proxies are used in this study to measure the stock liquidity (For example: illiquidity ratio of Amihud (2002), turnover ratio and Liquidity ratio). In keeping with agency theory, it is suggested that financial and operational transparency will be enhanced in the light of effective corporate governance which lead to reduce the adverse selection problem. In case of lower adverse selection problem, traders supply additional liquidity to stocks of those companies which have good governance. Particularly, well governed firms helps to improve the liquidity.

Arazpour and Fadaeinejad (2014) have investigated the relationship between mechanisms of corporate governance and socks liquidity. This study has taken the sample of 66 sample of companies which is listed on Tehran Stock Exchange over the years from 2005 to 2009. Board composition and ownership structure are used to measure the governance's mechanisms and Amihud (2002) illiquidity proxy has been used to measure stock liquidity. Findings of this study

illustrate that due to increase in number of independent boards, higher will be liquidity. Furthermore, there was found a significant relationship between liquidity and ownership structure. Alternatively, positive relationship was observed between liquidity and individual investors and five biggest investors and negative association among liquidity and institutional ownership and the biggest investor ownership. In addition, no significant connection was found among liquidity and duality of managers.

Karmani, Ajina and Boussaada (2015) have conducted a research on the effect of corporate governance attributes on the liquidity of stocks in France context. This study has used the pooled regression analysis methodology by using data of 287 French firms for corporate governance variables and market stock liquidity over the period of 2007 to 2012. It is founded that good corporate governance might decrease the asymmetric information and get improvement in the liquidity of stock of French firms. Results of this study suggest that firms with best corporate governance practices may improve stock market liquidity. Previous literature suggests that companies have lower market values, if their governance structure is poor (Chung et al., 2010). Therefore, better governed firms are legally responsible to encompass their liquid stocks because efficient corporate governance may increase the financial transparency, which ultimately reduces asymmetric information.

Sharif, Bino and Tayeh (2015) analyzed the relationship between ownership structure and liquidity of shares with a sample of 213 companies listed on the Amman Stock Exchange. The results reveal that the shares liquidity of companies that "the biggest contributor" is a family that is very low compared to these companies on a large scale. The results of the analysis indicate that the ownership ratio of the presence of one or more "major shareholders" largely enlightens the cross-sectional discrepancy in the illiquidity ratio and the proportion of turnover. Percentage

of ownership transactions and the presence of the largest shareholder positively (negatively) related to the illiquidity ratio (turnover).

Ali, Liu and Su (2016) have been provided the first robust evidence of the determinants of equity liquidity in Australia using the Corporate Governance Quality Index (CGQ). The results of this study are consistent with the theory of agency and have used the 435 big capitalized companies during the study period of 2001-2008. It is assumed that quality of corporate governance have an effect on share liquidity, since efficient governance reduces asymmetry of information among managers and investors, in addition to between foreigners, through increasing the transparency of the company's information. This study is observed a significant and positive relationship among financial liquidity and CGQ. It should be noted that companies which are best governed have a high degree of financial liquidity. These results are a strong alternative to CGQ agents, liquidity and stock bias underground.

2.3 Corporate Governance Characteristics and Stock Liquidity

2.3.1 Institutional Ownership and Stock liquidity

Significant and positive relationship between institutional investors and liquidity of stock was observed by Cao and Petrasek (2014). According to them, ownership held by various institution influences liquidity of shares diverse than individual investors. Individual investor's stocks have less liquidity than institutional investor's stocks, as individual investors create more motivation towards sentiments as compared to institutional investors. Considering that, Baker and Stein (2004) say that institutional investors can enhance liquidity and thus reduce the liquidity risk of stocks. When studying relationship between institutional investors and stock liquidity, most of the researchers mostly focus on two hypothesis; adverse selection and trading hypothesis.

According to Kyle (1985) and O'Hara (2003) states that adverse selection hypothesis refers to create more information asymmetry and reduce liquidity because institutional investors acquire more information as compared to others. Whereas, trading hypothesis reveals that when investors turn to their portfolio, which lead to decrease transaction cost and increase liquidity (Schwartz, 1988).

Salahinezhad and Mansouri (2013) have investigated the impact of ownership structure on equity liquidity of those companies which are listed in Tehran Stock Exchange. This study has used the 45 registered firms of Tehran Stock Exchange for the data period 2005 to 2010. The findings of this study reveal that there are observed a significant and negative relationship between ownership concentration and liquidity due to increase in information asymmetry and reduce free float stock. But significant positive relationship is observed between institutional ownership and stock liquidity because this positive association is that consistent with the trade hypothesis and market liquidity increases due to the diversification of the institutional investor's portfolio. Institutional investors possess a high trading volume as compared to other investors. Mendelson and Tunca (2004) argued that institutions cause to increase the interest of investors, reduction of trade related losses, reduce uncertainty on the real price of assets, and at last increase liquidity in the market (Rahmani et al, 2010). Whereas, no significant relationship was found between managerial ownership and stock liquidity; that is the changes in the liquidity of shares quoted on the companies of the Tehran Stock Exchange cannot justify through change in the percentage of managerial ownership.

Boujelbene, Bouri and Prigent (2014) have investigated the relationship between market microstructure (stock liquidity) and corporate governance (institutional ownership) in the Tunisian Stock Market. They have used several proxies to measure liquidity. This study is found

that institutional ownership has a significant positive effect on liquidity of stock which is calculated by ratio of illiquidity (Amihud, 2002). This indicates that institutional ownership reduces market liquidity. Following study results are in favor of the notion that the association among equity liquidity & institutional ownership differs around institution significantly, while the spread of bid & ask prices will be increased due to ownership by insurance companies. Significant and negative effect was observed by investment companies over liquidity more than other types of institutions.

Syamala, Chauhan and Wadhwa (2014) have described the relationship between ownership by institution and liquidity of stock. They are used a large sample data of companies listed on National Stock Exchange of India (NSE) during the period of 2001 to 2012. The two liquidity measures used in this study, Amihud illiquidity and HL-spread. They found a negative impact of institutional ownership on liquidity of stock. It is documented that foreign institutional investors and ownership by banks have determined the negative impact of institutional ownership on stock liquidity. While, retail ownership has positive effect on stock liquidity. Prominently, it is documented that most liquid stocks are hold by institutional investors. Findings of this study are in favor of the theory that the intensity of institutional ownership proxies for informed investors, whereas, institutional investors prefer to keep a liquid stock to decrease the cost of trade and often trade in large quantity.

Ajina, Lakhal and Sougné (2015) have examined the impact of ownership by institutional investors and their nature on asymmetry of information and liquidity of equity in France. This study includes the sample of 162 listed companies of French market from study period of 2007-2009. Linear regression methodology has been used through ordinary least square method. To address the problem of endogeneity, a simultaneous equation model is used by applying double

least square method. Results show that there is a significant and positive connection among proportion of institutional investors and stock-market liquidity. These two variables results confirm the signal theory and trading hypothesis. Based on all above literatures from institutional ownership and stock liquidity relationship, following hypothesis is drawn:

H1: There is a significant effect of Institutional ownership on stock liquidity in Pakistan.

2.3.2 Board Size and Stock Liquidity

Factors that determine the effect of size of the board on liquidity usually factors are related to control and the quality of the decision making process. Agency theory assumes that the large board size supports the authority of the principal by increasing alliances and conflicts between group. The result is fragmented advice that has difficulties in effectively fulfilling its functions and reaching consensus on decisions. In this perspective, Jensen (1993) recommends guide for Small Sizes. Therefore, the exploitation of manager's consideration that greatly facilitates, which generates lower-quality published information, exacerbates the problem of information asymmetry, and decreases liquidity.

Anderson et al. (2004) says that if the large size of the board provides more control over their financial accounting process, so that the company presents greater transparency. According to this argument, the size of a large panel diminishes the problems of information asymmetry and allows investors to adjust the probability distributions of their own self. As a result, the demand for equities increases and the market becomes more liquid. The use of a sample of UK firms over the period 1999-2003, Cai et al. (2006) demonstrate that high board size will reduces the adverse selection problems. Consequently, this reduces the chances of informed trading and leads to improved liquidity.

In view of ownership structure, Attig (2007) tested the relationship between adverse selection and the characteristics of the board of directors of companies listed on the Canadian stock exchange. He demonstrates that the effect of the size of the board on the price spread depends on the ownership structure. This shows in the fact that the firms which have dispersed ownership and a large board connected with a low price spread. But when it comes to pyramidal business groups of the family, Attig (2007) believes that the size of the board and over the top control of the chiefs widen the price spread. From above literature we have observed following hypothesis on the basis of board size and stock liquidity relationship:

H2: There is a significant effect of board size on stock liquidity in Pakistan.

2.3.3 Board Independence and Stock Liquidity

In general, the role of management in tasks performed by the administration, to oppose bad decisions, and to advise the high-level control. The independence of the directors has become a much debated topic in the literature of corporate governance. Since the work of Fama and Jensen (1983), and was supposed to have the independence and effectiveness of the board, it is bound. Fama (1980), and Fama and Jensen (1983) says that the most influential members of the Board and of course be the internal organs, because they have correct and specific information about the activity of the organization. This information is obtained mainly through mutual internal control of other managers. In addition, Eng and Mak (2003) explored that rising the proportion of external administrators diminishes the voluntary disclosure of information by business leaders. As a result, it elevates the adverse selection problem and expand the price spread. In the same way, according to Ajinkya et al. (2005) that an independent board of directors improves the pace and worth of its profit predicts by effectively monitoring management.

Board effectiveness in monitoring management rely on the independence of the board (John & Senbet, 1998). And seen as objective independent directors, and therefore be used to protect themselves from the operating behavior of managers and controlling shareholders, in order to reduce the agency problem (Zahra & Pearce, 1989, Kaymak & Bektas, 2008). Independent directors can provide better control because of their knowledge and status (Fama & Jensen, 1983; Byrd & Hickman, 1992), and qualities that help to reduce the problem of separation and control. Moreover, the high proportion of independent non-executive directors associated with greater disclosure and high quality of reported income (Chen & Jaggi, 2000), which in turn are important for market liquidity (Heflin et al. 2000) .Thus, an independent board as a valuable assistance of the monitor to improve liquidity through improved detection.

In this regard, previous study shows that the best mechanisms of corporate governance for example: board Independence have a propensity towards the improvement of quality and regularity of information published by the department, thus dropping the asymmetry of information. For instance, Beasley (1996) recommends that the presence of independent directors on the board limit the fraud of financial statements. Chen and Jaggi (2000) observed a positive relationship between the total number of independent directors on corporate boards and the depth of financial information and liquidity in Hong Kong. While, Patelli and Prencipe (2007) explain that the Independence of board of directors have a positive influence on voluntary disclosure intensity within the Italian framework. Ajinkya, Bhojraj and Sengupta (2005) & Karamanou and Vafeas (2005) have their more focus on management earnings forecasts and argued that the firms which have more efficient boards, those firms are more concerned with numerous earnings forecasts. But these forecasts are considered to be more precise and more specific. The independence of the Board of directors is considered to be a most important factor

in improving the corporate governance of both developed and emerging markets. Gillan and Starks (2000) reported that in 1991 institutional investors used the shareholders process for companies to push for more independence of the board, because board independence is likely to improve the efficiency of stock markets and liquidity in the market (Klein, 2002; Choi et al., 2007).

Attig (2007) conducted a study on board characteristics and liquidity relationship. He used a firms sample listed on Canadian stock Exchange. In his study, he examined that price spread will be reduced during the occurrence of board independence. In the same way, Abbott et al. (2004) prove the same findings in his study. But, this study has used the sample of U.S based companies for the period of 1991-1999. Whereas, other studies which have examined the relationship between board composition and liquidity (see: Cai et al; 2006 and Kanagaretnam et al., 2007). These studies indicate that independence of the board plays a significant role in improving the liquidity in developed economies and as a result information asymmetry will be reduced.

On the other hand, according to the agency theory, internal managers do not have adequate authority to confront the choice of leadership. Conversely, the external managers evaluate more positive decisions on the managers. This would cause more restriction to inform the market on a regular basis (Dahya et al., 2008). According to these assumptions, managers outside the Board effectively control the management decisions and reducing the asymmetry of information between management and investors. Thus we expect that their presence leads to improve the stock liquidity.

Foo and Zain (2010) have studied the impact of independence of board and diligence of board on liquidity in context of Malaysian market. This study has used three measures of liquidity, for

instance, relative quoted depth, relative volume and proportion of zero-returns. Data sample of 481 public listed companies on Malaysian Stock Exchange were used in this study. Results of the study show that the existence of more independent directors on the board and board diligence will lead to increase the liquidity of shares.

Ameeri, Pakmaram and Jabbarzadeh (2014) have been conducted a study on the relationship between board characteristic, ownership structure and stock liquidity of listed companies in Tehran stock exchange. They have used 83 listed companies during the sample five years study period from 2007-2011. Findings of this study illustrate a positive but significance relationship is observed between the board independence, the institutional stockholder, the government ownership and authority with stock liquidity. After studying the literature on board independence and stock liquidity relationship, we have found following hypothesis:

H3: There is a significant effect of board independence on stock liquidity in Pakistan.

2.3.4 CEO Duality and Stock Liquidity

The study of Ho and Wong (2001) demonstrate that the cumulative distribution functions have no effect on voluntary information. Eventually, it is documented that the individual who has the dual role (CEO and Chairman) in a board in general is the main shareholder of the company. Whereas, another study explain that the role of management and control can widen to the dissemination of information to external managers of the company. For example, the existence of a dual company executive to have a low level of voluntary disclosure to the Board appears to be less effective in controlling management and make sure a great level of transparency. This is a low level of transparency can be used to mask fraud and incompetence (Gul & Leung, 2004). While, according to the findings of Cai et al; (2006), CEO duality may increase the publicly

information dissemination process and diminishes the chances for informed trading. Thus, this will deteriorate the component of adverse selection and liquidity of the stock will be improved.

The lack of separation between the role of President and CEO of duality causing this person is considered management advice and oversight. In this way, he should be chairman of the board which have more power that is wasted shareholders right. In perspective of agency theory, superior functionality and executive chairman of the board must be separated from each other sequentially to enlarge the independent oversight and audit of a company's supervisory board. Assigned to the position of Chairman and Chief Executive Officer throughout the facility and increased board capacity in the implementation of audits and management, it will be done in the best conditions. On the other hand, the board have the flexibility in evaluating the performance of senior executives respond and monitor the firm conviction that leads to the redistribution of the decision-making authority of the managers of the board of directors. From above literature we have observed following hypothesis on the basis of CEO duality and stock liquidity relationship:

H4: There is a significant effect of CEO duality on stock liquidity in Pakistan.

2.3.5 Audit Committee Independence and Stock Liquidity

The audit committee is considered to be the most excellent competent body of the board while in controlling a variety of available monetary information. And it explains the liquidity risks of checking the adverse selection, which can deal with investors in the market in the context of asymmetric information effect. Agency theory recommends that auditing is a mechanism that helps to alleviate the information asymmetry, resolve the divergence of interests between

principal and agent, and to reduce the associated agency cost (Jensen & Meckling,1976; Anderson et al., 1993).

Dechow et al. (1996) and Klein (2002) analyzed that the level of financial disclosure is significantly improved due to the presence of an audit committee. Because according to them, the purpose of the audit is to formulate the available accounting and financial information reliable. Whereas, most of the researchers have paid their attention on the role of audit committee. It is considered an important internal control mechanism that helps to reduce asymmetries of information among shareholders and management (Adams & Ferreira, 2007).

Foo and Zain (2010) documented the existence of a positive association among the independence of the audit committee and share liquidity. For further studies it is recommended that there might be a number of other corporate governance factors that can influence the stock liquidity, for example compensation, attributes of audit committee, and the presence of further committees. On the whole, findings of this study show that the presence of superiority of board sub-committees contribute their useful responsibility in monitoring and therefore liable to recover the informational efficiency and liquidity of the security.

Regarding the independence of independent directors within the audit committee, and said it is a dimension of the quality of the audit, which ensures that the published information is beyond oneself or manipulation, and may be the result of collaboration with one of the contracting parties in a firm (Raghunandan et al., 2001). Audit committee independence helps the board to make certain that the financial statements reflect the Company's faithful financial position (Platt and Platt 2012). On the basis of audit committee independence and stock liquidity relationship, following hypothesis is observed:

H5: There is a significant effect of audit committee independence on stock liquidity in Pakistan.

On a whole, the above literature indicates that corporate governance have positive influence on stock liquidity, which hypothesize that there is found a significant and positive relationship between corporate governance and stock liquidity (see for example: Mangena & Tauringana, 2007; While Tang & Wang, 2011; Prasanna & Menon, 2012; Chung et al., 2010; Arazpour & Fadaeinejad, 2014). They recommend that superior corporate governance lead to improves liquidity of stock. Recent study which have scrutinized the affect of corporate governance practices on stock liquidity in Australia (see; Ali, Liu & Su, 2016), findings of the study show a positive and significant connection among corporate governance practices and liquidity of stock. From the current literature, there is no found any such type of study on corporate governance practices and stock liquidity relationship in local market.

Chapter 3

Data Description, Measurement of Variables and Methodology

3.1 Data Description

The main purpose of the current study is to investigate the relationship between corporate governance practices and stock liquidity of 81 non-financial companies listed at Karachi Stock Exchange (KSE) 100 index. The sample period of this study is about 10 years from 2005 to 2014. Financial companies have been excluded from this study because they have different financial structure (Fama & French, 1992) as compared to non-financial companies. Secondary data is used in empirical analysis and financial data mainly for stock prices, shares traded or stock volume and market capitalization has taken from business recorder, KSE website and State bank of Pakistan. Data related to share outstanding and corporate governance variables are hand-collected from annual reports of 81 non-financial companies. While, the all sample, non-financial companies are selected on the basis of availability of data related to corporate governance variables.

3.2 Measurement of Variables

3.2.1 Measurement of Stock Liquidity (Dependent Variable)

Stock liquidity is used as a dependent variable in this study. Liquidity plays very important in finance field. It is defined as the ability to buy and sell shares easily irrespective of the amount at a low cost. Focused literature have numerous measures or explanations of liquidity because it is deemed to be a slippery and elusive concept (Kyle, 1985). Liquidity cannot be a directly measureable, so due to this ambiguous nature of liquidity, researchers have used the different

dimensions to compute the stock liquidity proxies. Furthermore, it is reported that 68 proxies to measure the stock liquidity were used in the literature Aitken (1997). Whereas, current study has used a turnover ratio to measure a liquidity of stock. Many of the researcher have used this liquidity measure in their study, such as Datar, Naik and Radcliffe (1998), Aitken and Forde (2003), Barinov (2014) and Prommin et al., (2014). A liquidity dimension which is used in this study calculated from share traded (volume) and outstanding share that are voluntarily accessible over a long periods of time. But other liquidity measures which are not used in this study because they require microstructure data related to transactions, quotes, Bid-Ask data and CRSP data that are not available in Pakistani market over a long period of time. Turnover ratio is easy to calculate than other methods such as Roll (1984) measure, Amihud measure (1986 & 2002), LOT measure (Hasbrouck, 2004 & 2006) and effective tick spread (Holden, 2009). Datar et al., (1998) measure is considered as one of the appropriate technique for current study because this measure is high correlated with stock liquidity and data is easily available. Stock liquidity is calculated as following formula:

$$Stock\ Liquidity\ (Turnover\ Ratio) = {}^{VOLi,t}/_{Ni,t}$$

Where, $VOLi,t$ is the number of shares traded of stock i during a year t and Ni,t is the total number of outstanding shares of stock i during a year t. While, it is argued that volume of share traded is related to information asymmetry (Bartov & Bodnar, 1996). They explain that when level of information asymmetry increase then it might be caused to lower trading volume because uninformed investors do not trade more in these stocks. This measure of stock liquidity shows that higher turnover ratio will lead to increase liquidity of stock.

3.2.2 Corporate Governance (Independent Variable)

3.2.2.1 Institutional Ownership

Institutional ownership is deliberated by total number of shares held by the institutional investors divided by total number of outstanding shares. This measure is followed by many researchers such as Shah (2009), Hassan and Ahmed (2012), Cao and Petrasek (2014), Boujelbene, Bouri and Prigent (2014) and Ajina et al., (2015). According to Hsu and Koh (2005) organizations are categorized into different types of institutional investors.

3.2.2.2 Board size

Board size is measured as the total number of directors on board in a given year. It is argued that a company presents better transparency in that case if large board size offers larger oversight of the process of financial accounting (Anderson et al., 2004). This argument shows that large board size reduces the problems of information asymmetry, the demand of shares increases and liquidity increases in the market. Similar evidence has given by Cai et al., (2006) which argued that large board size may be caused in lower adverse selection. This will result in decreasing the opportunities for informed trading and improvement in liquidity.

3.2.2.3 Board Independence

It is calculated by dividing the number of non-executive directors with total number of directors on board. Cai et al., 2006 and Kanagaretnam et al., 2007 show that information asymmetry is reduced due to independence of the board and therefore liquidity improve in developed markets. The researchers which have followed this proxy in their study are Kee et al., (2003), Cornet et al., (2007), Yang et al., (2009).

3.2.2.4 Audit Committee Independence

It is measured by dividing the total number directors in audit committee over the non-executive directors in audit committee. This measure is followed by many previous researchers (For example: Forker's, 1992; Chtourou et al., 2001; Xie et al., 2003; Ebrahim, 2007; Al-Matari et al., 2012). According to Foo and Zain (2010) suggest that audit committee independence might be play an effective monitoring role in improving informational efficiency and stock liquidity.

3.2.2.5 CEO Duality

CEO Duality (CEOD) is defined as a dummy variable which is given a value of 1 if the CEO is also the chairperson of the board of directors and 0 otherwise (Mcknight & Weir, 2009; Roodposhti & Chashmi, 2011; Yosef & Prencipe, 2013).

3.2.3 Control Variables

To analyze the effect of corporate governance practices on stock liquidity, a numerous determinants of stock liquidity beyond corporate governance structure are suggested in prior theoretical and empirical studies (Demsetz 1968; Stoll 1978; Glosten & Milgrom 1985; Chung, Elder, & Kim 2010; Prommin, Jumreornvong, & Jiraporn 2014). Following control variables are used in this study which can determine the liquidity of stock.

3.2.4.1 Firm Size

Size of firm (*FS)* might affects stock liquidity in the cross section. Furthermore, it is argued that less liquid companies also have a weak market capitalization (Chiang & Venkatesh, 1988; Laux, 1993; Heflin et al., 2005). Larger firms may experience a lower adverse selection risk because

more information is available on larger firms. Consequently, It is expected that there is a positive relationship among size of the firm and liquidity. A number of proxies have been used to measure the firm size in prior literature. Sales proxy for firm size is used by Rajan et al., (1995) and total assets is used by Ataullah et al., (2012) to measure firm size. Few studies are also used total sales to measure the firm size (Shaikh, Iqbal & Shah, 2012). While this study is used natural logarithm of year end market capitalization as a measure of firm size because market capitalization of all firms varies by a large scale which makes the firms unparalleled. Therefore, we have applied this proxy of firm size to make firms comparable with each other.

3.2.4.2 Return Volatility

Stoll (1978) has argued that return volatility is positively affects bid-ask spreads due to higher adverse selection and inventory risk. Whereas, there were observed a negative association among price volatility and liquidity by Heflin et al. (2000), Dennis and Weston (2001), Heflin et al. (2005), Chae (2005) and Espinosa et al. (2008). Proxy to measure the return volatility is annual average of the standard deviation of daily stock returns. It is expected that there may exist a positive relationship between liquidity and return volatility.

3.2.4.3 Leverage

Firm leverage is also used as a control variable in this study. Harris et al., (1991) argue that firms with high leverage are considered to be monitored by debt holders and hence reduce the information asymmetries. According to the argument of Cao and Petrasek (2014), they says that use of high leverage caused illiquidity because lenders can suddenly withdraw their finance at any time. Many research studies show that firm with high leverage is cross-sectionally related with higher spreads and illiquidity. Existing literature based on different measures of firm

leverage such as book value of debt over book value of debt plus market value of equity as a measure of firm leverage is used by Titman and Wessels (1988). However, in this study we have used proxy to measure the firm leverage is the ratio of interest bearing debt over total market value of equity. Because, the major source of debt in Pakistan is usually commercial banks relatively bond market. The reason is that Pakistani bond market is not so established as in developed countries. We expect a negative relationship between firm leverage and liquidity.

Table 3.1: Definition of variables and their expected relationship

Variable Names	Measures	Expected Relation
Dependent variable:		
Stock liquidity:		
Turnover Ratio	Number of shares traded of stock one during a financial year divided by total number of shares outstanding of stock one during a financial year	
Independent variables:		
Governance characteristics:		
Institutional ownership	Total number of shares held by the institutional investors divided by total number of outstanding shares following (Shah, 2009 and Ajina et al., 2015).	Positive
Board size	Total number of directors on board in a given year following Cai et al., (2006).	Positive
Board independence	Number of non-executive directors divided by total number of directors on board following Kee et al., (2003).	Positive
Audit committee independence	Non-executive directors in audit committee divided by total number of directors in audit committee following Foo and Zain (2010).	Positive
CEO Duality (CEOD)	CEO is also the chairperson of the board of directors and 0 otherwise following Mcknight and Weir (2009).	Positive

Control Variables:

Firm size	Natural logarithm of year end market capitalization	Positive
Return volatility	Annual average of the standard deviation of daily stock returns	Positive
Firm leverage	The ratio of interest bearing debt over total market value of equity	Negative

3.3 Data Analysis

The main focus of this study is to examine the affect of corporate governance practices on stock liquidity. Before starting a data analysis, unit root test is used to test the stationary of data of all variables. From data analysis, it indicates that some variables are stationary at level and some are at 1^{st} difference. To examine the dependence of liquidity of stock on corporate governance practices, we have employed the panel data analysis approach because the nature of the data is time series and cross-sectional.

The following methods are applied in panel data analysis:

3.3.1 Common Effect Model

In panel data analysis, this model shows that over the cross section and time both intercept and slopes remains constant.

3.3.2 Fixed Effect Model

This model assumes that slopes remains constant but the intercepts varies according to cross section and time.

3.3.3 Random Effect Model

After the fixed effect method, this model is applied in panel data analysis. In random effect model, intercepts used as random not fixed according to each cross section that distinguish among fixed effect & random effect model. Diagnostic effect tests are applied to make a decision between common, fixed and random effect model to indentify that which model would be best suitable for data analysis. To chose between these three models, decisions are made on the basis of significance of Chi-Square and F values.

3.4 Model Specification

The following linear multivariate regression model is formulated to check the relationship between corporate governance and stock liquidity. This model is extensively used in prior research studies.

$$STOCK\ LIQUIDITY_{i,t} = \beta_0 + \beta_1 CORPORATE\ GOVERNANCE_{i,t-1} + \beta_2 CONTROLS_{i,t-1} + \varepsilon_{i,t}$$

(1)

Now we conduct a collective and individual level analysis in following estimated cross sectional regression equation through regressing the dependent variable stock liquidity (turnover ratio) on past period corporate governance variables. A wide range of lagged firm characteristics are used as a control variables in following equation:

$$STOCK\ LIQUIDITY_{i,t} = \beta_0 + \beta_1 INSTO_{i,t-1} + \beta_2 BS_{i,t-1} + \beta_3 BI_{i,t-1} + \beta_4 ACI_{i,t-1} + \beta_5 CEOD_{i,t-1} + \beta_6 FS_{i,t-1} + \beta_7 PV_{i,t-1} + \beta_8 LEV_{i,t-1} + \varepsilon_{i,t}$$

(2)

Where,

$STOCK\ LIQUIDITY_{i,t}$ = stock liquidity is measured by Turnover ratio for stock *i* in a year *t*

$INSTO_{i,t-1}$= institutional ownership measures for stock *i* at the end of year *t*

$BS_{i,t-1}$ = board size measures for stock *i* at the end of year *t*

$BI_{i,t-1}$ = board independence measures for stock *i* at the end of year *t*

$ACI_{i,t-1}$ = audit committee independence measures for stock *i* at the end of year *t*

$CEOD_{i,t-1}$ = CEO duality measures for stock *i* at the end of year *t*

$FS_{i,t-1}$ = firm size is a control variable for stock *i* at the end of year *t*

$PV_{i,t-1}$ = price volatility is a control variable for stock *i* at the end of year *t*

$LEV_{i,t-1}$ = leverage is also a control variable for stock *i* at the end of year *t*

β_0 = intercept

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$ = common coefficients of respected variables

$\varepsilon_{i,t}$ = error term

Chapter 4

Results and Discussion

This chapter includes the descriptive statistics, correlation analysis, variance inflation factor and multivariate pool regression analysis. Before data analysis, panel unit root test has been applied to check the stationary of data. For this reason we have exploited the individual Augmented Dickey-Fuller test and individual Phillips-Perron test to see whether data is stationary or not. We cannot run regression until our whole data series comes to at stationary. Without stationary of data the regression will produce a spurious and invalid results. From both type of unit root test (ADF-Test and PP-Test), it is concluded that our some study variables were stationary at level and some were stationary at 1^{st} difference.

4.1 Descriptive statistics

Descriptive statistics is used to explain the type and behavior of the data. Descriptive statistic includes descriptive details of all dependent, independent and financial control variables. In following detail, mean describe the average of the data or shows the central tendency of the data, median is the middle figure of the data, maximum and minimum values of the data help to indentify the outliers, standard deviation tells about the uncertainty of the data and deviation of variables from their mean value, skewness shows that whether your data is positively or negatively skewed and zero skewness shows that data is normally distributed, which means that on both side (right and left) data shows symmetrical behavior. Kurtosis shows that whether the distribution of data is peaked or flat. If the value of kurtosis is equal to 3 then it indicate that data is normally distributed and this type of data behavior is called as mesokurtic. If the value of kurtosis is greater than 3, it indicates that data is in peaked nature and values are concentrated

around the mean, this type of pattern is called as leptokurtic. But when value of kurtosis is less than 3 it means that data is flat and values are dispersed around the mean and this type of data distribution is called platykurtic. In table 4.1, LIQ, BS, INSTO and PV shows the leptokurtic behavior (kurtosis value greater than 3). Whereas, ACI, BI, CEOD, FS and LEV have their value of kurtosis less than 3 it means it shows the platykurtic behavior.

Table 4.1: Descriptive statistics

	LIQ	ACI	BI	BS	CEOD	INSTO	FS	LEV	PV
Mean	0.084922	0.804486	0.452109	8.523457	0.319753	0.136057	13.75371	0.351993	0.027904
Median	0.066566	0.750000	0.428571	8.000000	0.000000	0.066169	14.90691	0.330000	0.023753
Maximum	0.263965	1.000000	0.714286	14.00000	1.000000	0.670310	24.65816	0.810000	0.081497
Minimum	0.026968	0.333333	0.222222	4.000000	0.000000	0.000000	8.129146	0.024996	0.010524
Std. Dev.	0.056588	0.179516	0.118278	1.820110	0.466669	0.173381	4.329734	0.213842	0.014871
Skewness	1.741678	-0.160328	-0.210446	0.783827	0.772960	1.772610	0.209563	0.406505	1.872720
Kurtosis	5.644181	1.927611	2.386788	3.415414	1.597468	5.414952	2.115741	2.267182	6.577835
Observations	810	810	810	810	810	810	810	810	810

Table 4.1 shows the descriptive statistics for all study variables of 810 observations for the period of 2005-2014. This table illustrates that on average the stock liquidity which is measured by turnover ratio is 8.5%. its maximum value is 0.2639 and minimum value is 0.02696 with standard deviation of 0.05658. Audit committee independence (ACI) shows that on average 80.4% non-executive directors represents the audit committee with standard deviation of 0.1795. maximum value for audit committee is 1 and minimum value is 0.333. Mean value of board

independence (BI) is 0.452, it shows that on average 45.2% non-executive directors represents the BI. The maximum value of BI is 0.714 and minimum value is 0.222 during the study period. Its standard deviation is 0.1182. On average the total number of directors on the board are 8.52. The maximum total number of directors on the board in data sample are 14 and it's minimum value is 4 with standard deviation of 1.8201. Mean value for CEO duality (CEOD) is 31.97% with standard deviation of 0.467. Mean value of institutional ownership indicates that on average 13.6% shares are held by the institutional investors with standard deviation of 0.1734. While other control variables such as firm size (FS), leverage (LEV) and return volatility (PV) which indicate the mean values of 13.7537, 0.35199and 0.02790 respectively with standard deviation of 4.3297, 0.2138 and 0.0149 respectively. In above descriptive statistic table, skewness indicate that only audit committee independence (ACI) and board independence (BI) are negatively skewed and all the other variables are positively skewed.

4.2 Multicollinearity Tests

4.2.1 Correlation Analysis

In panel A of table 4.2.1, correlation matrix is used to identify the problem of multicollinearity in the data set. The values of correlation should be range from -1.0 to +1.0. If the value of correlation is +1, then it means that there exist perfect positive correlation between explanatory variables. If the value of correlation is 0, then it is indication of no presence of correlation between variables. -1 value of correlation indicate that there is a presence of perfect negative correlation between explanatory variables. If any variable has correlation value 0.8 or above then it means there will be more chances of multicollinearity problem in that variable.

Table 4.2.1: Correlation Matrix

Panel A:	ACI	BI	BS	CEOD	INSTO	FS	LEV	PV
ACI	1.000000							
BI	0.250530	1.000000						
BS	0.158130	0.075447	1.000000					
CEOD	-0.114800	-0.321412	-0.119808	1.000000				
INSTO	0.072023	0.056424	0.050463	-0.100049	1.000000			
FS	0.102164	0.064296	0.052462	0.135326	0.059657	1.000000		
LEV	-0.062651	-0.092322	0.006648	0.105885	-0.063976	-0.018841	1.000000	
PV	0.061940	-0.013399	0.062101	-0.086735	0.066197	0.176170	-0.044002	1.000000

Note: This table reveals to check the multicollinearity problem in Panel-A for correlation matrix. The dependent variable is stock liquidity to capture the effect of corporate governance variables.

Table 4.2.1 shows the results for Pearson's correlation matrix to find out the degree of association among stock liquidity and independent variables. This table shows that no any high correlation is observed between explanatory variables. Above correlation table reveals that audit committee independence (ACI) has negative correlation with CEO duality (CEOD) and leverage (LEV), whereas all other explanatory and control variables shows a positive correlation with audit committee independence (ACI). Board independence (BI) is negatively correlated with CEO duality (CEOD), leverage (LEV) and price volatility (PV), but positively correlated with board size (BS), institutional ownership (INSTO) and firm size (FS). There is only negative correlation is observed between board size (BS) and CEO duality (CEOD), while all other variables shows a positive correlation with board size (BS). CEO duality (CEOD) has a negative correlation with institutional ownership (INSTO) and price volatility (PV), and positive correlation with firm size (FS), and leverage (LEV). Institutional ownership (INSTO) is negatively correlated with leverage (LEV) and positively correlated with firm size (FS) and price

volatility (PV). It means that more shares held by the institutional investors can decrease the leverage ratio and increase the size of a firm and volatility of stocks. Firm size has positive correlation with price volatility (PV) and negative correlation with leverage (LEV). leverage (LEV) has negative correlation with price volatility (PV). It is concluded that in table of correlation matrix, high positive correlation is observed between ACI and BI with magnitude of 0.250530 and high negative correlation is observed between board independence (BI) and CEO duality (CEOD) with value of magnitude -0.321412. Results of correlation analysis indicate that there is no any issue of multicollinearity in the data of selected variables.

4.2.2 Variance Inflation Factors (VIF)

Table 4.2.2: Variance Inflation Factors (VIF)

Panel B: Variance Inflation Factors Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.000297	84.00735	0.000000
ACI	0.000121	23.30855	1.104261
BI	0.000120	15.52617	1.195743
BS	1.48E-06	30.26532	1.042794
CEOD	2.14E-05	1.641544	1.195693
INSTO	4.82E-05	1.555192	1.023624
FS	5.27E-07	44.10554	1.087747
LEV	6.11E-05	2.373196	1.021615
PV	0.016924	4.782384	1.056805

Table 4.2.2 (Panel-B) confirms the results of correlation matrix to check the problem multicollinearity. For this purpose, we have computed the variance inflation factors (VIFs) by estimating the regression model between the explanatory variables. Results of variance inflation factors (VIFs) of Panel-B from table 4.2.2 illustrate that all the values of VIF are in tolerable limit ranging from 1.021615 to 1.195743 for all the explanatory variables which is below their

cut-off point 5. So overall results of variance inflation factors (VIFs) reveal that multicollinearity is not problematic in this study.

4.3 Multivariate Regression Analysis

To identify the impact of corporate governance practices on stock liquidity, we have applied the pooled ordinary least square (OLS) regression in our panel data analysis. Stock liquidity is used as a dependent variable which is measured as turnover ratio, whereas audit committee independence (ACI), board independence (BI), board size (BS), CEO duality (CEOD) and institutional ownership (INSTO) is used as a explanatory variables and firm size (FS), leverage (LEV) and return volatility (PV) is used as control variable in following pooled OLS model. We have used lagged values for all independent and control variables in our regression model. In estimating the multivariate regression equation, total 81 firms are used for a period of 2005 to 2014 in a regression equation.

4.3.1 Redundant Fixed Effects-Likelihood Ratio Test

For best appropriate model selection in panel data analysis we have applied the Redundant Fixed Effects-Likelihood Ratio test between common effect and fixed effect model. This Likelihood Ratio test tells us about that which is the best suitable model for our study.

Table 4.3.1: Likelihood Ratio Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	21.313087	(80,640)	0.0000
Cross-section Chi-square	946.673947	80	0.0000

The results of table 4.3.2 shows that Chi-square value is significant which represents that fixed effect model is the appropriate for this study and this model should be applied for further panel data analysis.

4.3.2 Hausman Test

For best appropriate model selection in panel data analysis we have applied the Hausman test between fixed effect and random effect. This Hausman test tells us about that which is the best suitable model for our study.

Table 4.3.2: Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	42.487671	8	0.0000

Above table of Correlated Random Effects - Hausman Test reveals that value of Chi-square is significant which means that fixed effect model is the right model for this study in panel data analysis.

4.3.3 Common Coefficient Model

In common coefficient model, first we estimate the pooled OLS regression for corporate governance attributes and stock liquidity. We have used the sample of 81 listed companies for the period of 2005 to 2014. Total 729 observations were used in our panel data analysis out of 810 observations due to lagged period effect of explanatory and control variables into the pooled OLS regression equation. The assumption of common coefficient model is that intercept and slope coefficients are constant across cross-section and time series. The results for common coefficient model are given in Appendix A.

In Appendix A, results of common coefficient model shows that common stock liquidity of all 81 non-financial sample companies is C = 0.001130 with insignificant p-value (0.9523>.05) which means that there is no any omitted variable case. Results indicate that explanatory variables such as audit committee independence (ACI), board independence (BI), and CEO duality have a positive and significant impact on stock liquidity (LIQ) with coefficient values of 0.032956, 0.029437 and 0.012035 respectively and their p-values are 0.0063, 0.0126 and 0.0163 respectively. These variables have their p-values < .05 and t-statistics values are greater than 1.96. While board size (BS) has positive and insignificant impact on stock liquidity with coefficient value of 0.001146 and p-value of 0.3917. Institutional ownership and control variable firm size has a negative and insignificant impact on stock liquidity with coefficient values of -0.002558 and -0.000121 and their p-values are 0.7357 and 0.8755 respectively (p-value < .05). Their t-statistics values are less than 1.96. Another control variables such as leverage (LEV) and return volatility (PV) have a positive and significant relationship with dependent variable stock liquidity (LIQ) with coefficient values of 0.017299 and 1.078853 respectively and their p-values are less than .05 which are 0.0430 and 0.0000 respectively. Value of adjusted R-square shows that 7.53% variations in stock liquidity are explained by the independent and control variables. F-statistic value is 8.414177 which is statistically significant, it means that our overall model is fit.

4.3.4 Fixed Effects Model

Table 4.3.1 shows the results for fixed effect pooled regression between corporate governance practices and stock liquidity. In this regression model stock liquidity is used as a dependent variable which is measure by turnover ratio. In fixed effect model, it is assumed that intercept varies over the cross-section but the coefficients of slope will remain constant. To indentify that

which model is the best appropriate model for our study, we have applied the Likelihood ratio test (between common effect and fixed effect) and Hausmen test (between fixed effect and random effect). From both model selection test, significant value of chi-square confirms that fixed effect model is a best model for this study. We again estimate the equation for our fixed effect model by using the dependent variable stock liquidity for the current period (i.e; year t) and explanatory & control variables for lagged periods (i.e; year t-1). In this model equation following variables have been regressed such as, audit committee independence (ACI), board independence (BI), board size (BS), CEO duality (CEOD) and institutional ownership (INSTO) are used as explanatory variables and firm size (FS), leverage (LEV) and return volatility (PV) are used as a control variables.

Results from the following table given below reveals that the common average liquidity for all non-financial stocks is C = -0.045964 which is statistically insignificant, it means that there is no any omitted variable case in the data. Audit committee independence (ACI) has a significant effect on liquidity of stock with p-value of 0.0010 and has a positive relationship with liquidity of stock with coefficient 0.043899, it signifies that if audit committee independence (ACI) increases by one unit then liquidity of all stocks will increase by 0.043899. Another explanatory variable such as institutional ownership (INSTO) also has a significant and positive impact on liquidity of stock. Positive coefficient value of institutional ownership (INSTO) demonstrates that for each one unit increase in institutional ownership (INSTO) will lead to marginal increase in stock liquidity by 0.033399. Both variables have their t-statistic values greater than 1.96, which shows their level of significance at 1% (***$p < 0.01$). The results of these two variables are consistent with the previous studies such as (see: Baker & Stein, 2004; Salahinezhad & Mansouri, 2013; Cao & Petrasek, 2014; Ali, Liu & Su, 2016). In case of explanatory variables

only board size (BS) has a negative relationship with stock liquidity. The negative coefficient value of board size (BS) shows that a unit change in board size (BS) will lead to decrease in stock liquidity by 0.002594. But this variable has no any effect on liquidity of stock in this study. Whereas board independence (BI) and CEO duality (CEOD) have a positive but insignificant relationship with stock liquidity. Positive coefficient of both variables explains that a unit change in board independence (BI) and CEO duality (CEOD) will lead to marginal increase in stock liquidity by 0.019154 and 0.001100 respectively. Findings of CEO duality (CEOD) and stock liquidity relationship are consistent with Arazpour and Fadaeinejad (2014). Overall results of the current study are consistent with Hypotheses H1 and H5, while inconsistent with Hypothesis H2, H3 and H4.

The control variable leverage (LEV) has a negative relationship with stock liquidity, which means that a unit change in leverage (LEV) will lead to decrease the liquidity by 0.004768. Negative and insignificant relationship between leverage (LEV) and stock liquidity is in line with the prediction and also consistent with previous findings such as Prommin *et al.* (2014) and Ali, Liu and Su (2016). Another control variable firm size (FS) is significant at 5% (**$p < 0.05$) level and positive correlated with stock liquidity. These results are supporting our previous prediction in which we had predict that firm size has a positive impact on stock liquidity. These results are also in favor of previous study argument that a big company which is pursued by analysts has more attraction towards the investors, because larger firms have the ability to disclose more information which help to reduce information asymmetry and improving liquidity. Our these findings are consistent with the study of Stoll (2000). Price volatility (PV) also has a positive but highly significant influence on stock liquidity with t-statistic value of 16.72903 which is greater than 1.96 and its p-value shows a 1% (***$p < 0.01$) level of significance.

Positive coefficient value of Price volatility (PV) shows that for every 1% increase in Price volatility (PV) will lead to marginal increase in liquidity by 2.575090. Positive and significant influence of firm size (FS) and Price volatility (PV) on liquidity are in line with the previous empirical findings of Bar-Yosef and Prencipe (2013), Prommin *et al.* (2014), Karmani, Ajina and Boussaada (2015) and Ali, Liu and Su (2016).

Table 4.3.3: Fixed effects model

Variables	Coefficients	Std. Error	t-Statistics	Prob.
C	-0.045964	0.026362	-1.743603	0.0817
$ACI_{i,t-1}$	0.043899	0.013257	3.311337	0.0010
$BI_{i,t-1}$	0.019154	0.018252	1.049423	0.2944
$BS_{i,t-1}$	-0.002594	0.001937	-1.339593	0.1809
$CEOD_{i,t-1}$	0.001100	0.007290	0.150858	0.8801
$INSTO_{i,t-1}$	0.033399	0.007604	4.392475	0.0000
$FS_{i,t-1}$	0.002224	0.000833	2.670162	0.0078
$LEV_{i,t-1}$	-0.004768	0.009011	-0.529084	0.5969
$PV_{i,t-1}$	2.575090	0.153929	16.72903	0.0000
R-Square	0.750418			
Adj. R-Square	0.716100	Pool Balanced Observations		729
F-statistic	21.86690	No. of Firms		81
Prob(F-statistic)	0.000000			

In above table value of adjusted R^2 is 0.716100, which reveals that 71.6% variations in stock liquidity are explained by the explanatory variables. Value of F-statistic is 21.86690 with highly significant probability means that our overall model is fit and correctly specified.

4.3.5 Random effects model

In random effect model, pooled OLS regression analysis has been used to identify the relationship among corporate governance practices and stock liquidity. In this model it is assumed that intercept is used as a random not fixed according to each cross section. In multivariate regression equation, all corporate governance variables are regressed with stock liquidity to check whether corporate governance variables have any effect on stock liquidity or not.

In Appendix B, results indicate that coefficient of random effect model is insignificant which defines that there is no any presence of omitted variables in the model. In case of corporate governance practices, only audit committee independence (ACI) and institutional ownership (INSTO) are positively and significantly correlated with stock liquidity with p-value less than .05 (***$p < 0.01$) and value of t-statistics is greater than 1.96. While other corporate governance practices for example board independence (BI) and CEO duality (CEOD) have positive coefficient value of 0.027461 and 0.006217 respectively, but their probability is insignificant which exhibits that there is no any impact of these two variables on stock liquidity. In governance practices, only board size (BS) has a negative effect on liquidity of stock, it means that total number of directors in a board has adversely affect on stock liquidity. But this relationship is insignificant with stock liquidity.

Whereas firm characteristics such as firm size (FS) and price volatility (PV) have positive and highly significant relationship with stock liquidity at 5% and 1% level of significance respectively. Adjusted R-square value is 0.343930 exhibits that 34% variations in stock liquidity

are explained by all explanatory variables. Value of F-statistic is 48.70465 and Prob(F-statistic) is 0.000000 which is statistically highly significant which indicates that our model is correctly specified.

4. 4 Discussion of Results

In this section we have only discuss about the results of fixed effects model, because our final appropriate model from both model selection tables was fixed effects model. In this section, we discuss whether or not corporate governance practices help to improve stock liquidity in Pakistan. Previous study of developed markets such as Chung et al. (2010) argued that firms with better corporate governance exhibit greater stock market liquidity. But it is still unclear that corporate governance and stock liquidity relationship exists in emerging markets or not. Therefore, We will try to find out this relationship in context of Pakistan. Furthermore, we will also find out the answer of the question that which corporate governance variable has more impact on liquidity of stock in Pakistan. To indentify the relationship between corporate governance practices and stock liquidity, we regress the pooled ordinary least square (OLS) fixed effects regression equation using lagged independent variables. Some of the previous studies who have linked the corporate governance and stock liquidity such as Loukil and Yousfi (2010) have analyzed the association among corporate governance and liquidity of stock. They argued that effective corporate governance reduces the problems of asymmetry of information and improves share liquidity. Overall findings of our study are consistent with the previous study.

Fixed effects pooled regression equation indicates that institutional ownership (INSTO) is positively and significantly correlated with stock liquidity; therefore our study hypothesis H_1: "*There is a positive effect of Institutional ownership on stock liquidity in Pakistan"* is accepted by our findings of study. This variable results are consistent with prior study of Salahinezhad and Mansouri (2013), Boujelbene, Bouri and Prigent (2014) and Ajina, Lakhal and Sougné (2015)

who argued that there is a positive and significant relationship between institutional ownership and stock liquidity.

Our second study hypothesis H_2: "*There is a positive effect of board size on stock liquidity in Pakistan"* is rejected. Because findings of our study reveals that there is no any significant impact of board size (BS) on stock liquidity. Our findings of this variable are contrary to previous study like Anderson et al. (2004) who argued that large size of the board reduces the information asymmetry problem which lead to increase the demand for share and the market becomes more liquid. Contrary results of this variable may be the reason of inefficient governance and ownership structure in firms of Pakistan. Because most of the firms in Pakistan having concentrated ownership.

Whereas our findings of study related to board independence (BI) does not support the hypothesis H_3, which shows that "*There is a positive effect of board independence on stock liquidity in Pakistan".* While this study indicates that there is no any significant impact of board independence on liquidity of stock. So that's why hypothesis H_3 is rejected by our study findings. These results are also inconsistent with the previous studies like Cai et al., 2006, Kanagaretnam et al., 2007, Foo and Zain (2010), and Ameeri, Pakmaram and Jabbarzadeh (2014). Their studies found a positive and significance relationship between the board independence and stock liquidity.

Findings from fixed effects regression table indicates that CEO duality (CEOD) has positive but insignificant impact on stock liquidity. Results shows that our study hypothesis H_4: "*There is a positive effect of CEO duality on stock liquidity in Pakistan"* is rejected. But these results are in

line with the previous study findings of Arazpour and Fadaeinejad (2014) who also observed a positive and insignificant relationship between CEO duality and stock liquidity.

Audit committee independence (ACI) has a positive and significant impact on liquidity of stock. This result shows that our hypothesis H_5*: "There is a positive effect of audit committee independence on stock liquidity in Pakistan"* is accepted by our study findings. These results are consistent with the study of Foo and Zain (2010), Prommin et al. (2014) and Ali, Liu and Su (2016) who found a positive and significant relationship between ACI and liquidity of stock. So it is suggested that Pakistan's code of conduct should realize the importance of that variable and should paid much attention on it and should also to incorporate this variable in determining the liquidity of stock.

Over all fixed effect regression results indicate that past institutional ownership and audit committee independence influences current stock liquidity. These results indicate that these two variables have an ability to predict stock liquidity. These evidences have been supported by much of the previous studies who also give a similar significant relationship between these two variables. But we have found no any supporting arguments against our three corporate governance attributes such as independence of the board, size of the board and CEO duality. Their insignificant relationship with stock liquidity indicate that past board independence, board size and CEO duality have no any impact on current stock liquidity. One possible reason of insignificant effect of these three governance variables on stock liquidity can be that corporate governance in firms of Pakistan doing poorly, their board structure is inefficient, different market dynamics and firm structure, weak trading system and mostly firms are owned by the families. Collectively it can be argued that corporate governance partially improves stock liquidity in Pakistan.

Chapter 5

Conclusion and policy Recommendation

5.1 Conclusion

The purpose of this study investigates the impact of corporate governance practices on stock liquidity in Pakistan's financial market. This study has used the sample of 81 non-financial stocks listed on Karachi Stock Exchange for the period of 2005 to 2014. This study has used the stock liquidity as a dependent variable, which is measured by turnover ratio, whereas corporate governance practices such as audit committee independence, board independence, board size, CEO duality and institutional ownership are used as an independent variable. In multivariate regression analysis, fixed effect model has been applied in this study. The findings of this study have been supported by the agency theory, as this theory states that firms should adopt good corporate governance measures which consequently reduces the asymmetric information and improves stock liquidity.

The finding of this study points out that there has been found a positive and significant relationship between institutional ownership and stock liquidity. It means that when institutional ownership increases, it will lead to a marginal increase in the stock liquidity. The result of this study is consistent with the prior research. Secondly, there are observed a negative, but insignificant effect of board size on the liquidity of stocks in the Pakistani financial market. It shows an inconsistent results with the prior research work. It is due to the fact of an inefficient governance system of Pakistani firms and inefficient capital markets in Pakistan. But, the

relationship between the independence of the board and liquidity of stock is positive and insignificant, which is not consistent with the previous research findings. There might be one reason of insignificant relationship between board independence and liquidity of stock , in Pakistan, there is no independent management non-executive concept. Further, actually they are not the independent. Whereas, CEO duality has a positive and insignificant affect on stock liquidity, our this result is inconsistent with the earlier studies. At the end, it is observed that ACI is positively related to stock liquidity. It plays a significant increasing role towards the liquidity of stocks and is in line with prior findings of the literature.

Based on our findings of the study, it could be argued that corporate governance practices truly subject to strategic decision making and in improving the liquidity of the financial market. As good corporate governance helps to improve the liquidity of the stocks. According to the best of my knowledge, this is the first study to indentify the impact of corporate governance practices on stock liquidity in the stock market of Pakistan. While the other previous research studies which have conducted other than developed markets, they have used the limited time frame in their empirical model that's why our study is also having a temporal contribution towards the financial literature. To sum up, we conclude that it is not necessary that all the corporate governance variables have the same effect on stock liquidity in emerging markets, such as it would have in developed markets. It totally depends upon the nature of the corporate governance, ownership structure and trading strategies of the capital markets. This study will be helpful for market makers know about the effects of liquidity risk toward taking initiatives to reduce market illiquidity. The result of this study can be used to determine risk management, financing and more effective governance variables determine the stock liquidity.

5.2 Policy Recommendations

This study presents the following recommendations:

i. It is recommended that managers, firms, and investors should supervise the corporate governance systems more strictly with the intention of formulating trading regulations, corporate environments and noise trading strategies respectively.

ii. This study also recommends that audit committee independence plays a significant role in predicting the stock liquidity, it means that this is very important determinant of stock liquidity and regulatory authority such as SECP should realize the importance of that variable and need to paid much attention on it by clearly defining their independent non executive directors in Code of corporate governance.

5.3 Future Research Directions

Mainly focus of this study is to examined the effect of corporate governance practices on stock liquidity. Furthermore, our study helps to indentify the factors that can influence the liquidity of stock. Likewise, this study recommends the following research directions for future work.

i. This study is only focused on limited variables of corporate governance while in predicting the stock liquidity. For further research other corporate governance variables may be incorporated to extend this study area.

ii. Only one liquidity measure has been used in this study. For further research studies, other measures of liquidity can be considered which is suggested in Roll (1984) and Amihud (2002).

iii. This study suggests that future research studies should be conducted to extend the findings of this research using larger sample size and the more diversity of firms.

References

Abbott, L. J., Parker, S., & Peters, G. F. (2004). Audit committee characteristics and restatements. Auditing: A Journal of Practice & Theory, 23(1), 69-87.

Acharya, V. V., & Pedersen, L. H. (2005). Asset pricing with liquidity risk. *Journal of Financial Economics, 77* (2), 375-410.

Adams, R. B., & Ferreira, D. (2007). A theory of friendly boards. *The Journal of Finance, 62* (1), 217-250.

Ahn, H.J. and Cheng, Y. (1999). The intraday patterns of spreads and depth in a market without market makers: The stock exchange of Hong Kong. *Pacific-Basin Finance Journal, 17*, 539-556.

Aitken, M., &Comerton-Forde, C. (2003). How should liquidity be measured?. *Pacific-Basin Finance Journal, 11*(1), 45-59.

Aitken, M.J., Winn, R., (1997). What is this thing called liquidity? Working Paper. Securities Industry Research Centre of Asia-Pacific.

Ajina, A., Lakhal, F., &Sougne, D. (2015). Institutional investors, information asymmetry and stock market liquidity in France. *International Journal of Managerial Finance, 11*(1), 44-59.

Ajinkya, B., Bhojraj, S., & Sengupta, P. (2005). The association between outside directors, institutional investors and the properties of management earnings forecasts. *Journal of accounting research, 43*(3), 343-376.

Ali Shah, S. Z., Butt, S. A., & Hassan, A. (2009). Corporate governance and earnings management an empirical evidence form Pakistani listed companies. *European Journal of Scientific Research, 26* (4), 624-638.

Ali, S., Liu, B., & Su, J. J. (2016). What determines stock liquidity in Australia?. *Applied Economics, 48*(35), 3329-3344.

Al-Matari, Y. A., Al-Swidi, A. K., Fadzil, F. H. B., Fadzil, H., & Al-Matari, E. M. (2012). Board of Directors, Audit Committee Characteristics and the Performance of Saudi Arabia Listed Companies. *International Review of Management and Marketing, 2*(4), 241-25.

Al-Sharif, F., Bino, A., & Tayeh, M. (2015). The Impact of Ownership Structure on Stock Liquidity: Evidence from Amman Stock Exchange. Jordan Journal of Business Administration, 11(1).

Ali Shah, S. Z. (2009). Corporate governance and financial performance: A comparative study of developing and developed markets (Doctoral dissertation, Muhammad Ali Jinnah University, Kartachi).

Ameeri S, Pakmaram A, Jabbarzadeh S. (2014). Evaluating the Effect of Board Characteristic and Ownership Structure on Companies ' Stock Liquidity. *J. Appl. Bus. Fin. Res. 3* (1), 23-32.

Amihud, Y, & Mendelson, H. (1986). Asset Pricing and the Bid-Ask Spread. *Journal of Financial Economics, 17*(2), 223-249.

Amihud, Y. (2002). Illiquidity and Stock Returns: Cross-Section and Time-Series Effects. *Journal of Financial Markets, 5*(1), 31-56.

Amihud, Y., & Mendelson, H. (2008). Liquidity, the value of the firm, and corporate finance. *Journal of Applied Corporate Finance, 20*(2), 32-45.

Amihud, Y., & Mendelson, H. (2012). Liquidity, the value of the firm, and corporate finance. *Journal of Applied Corporate Finance*, *24*(1), 17-32.

Anderson D., Francis R., Stokes J. (1993). Auditing Directorship and Demand for Monitoring. *Journal of Accounting and Public Policy*, *12*, 353-375.

Anderson, R. C., Mansi, S. A., & Reeb, D. M. (2004). Board characteristics, accounting report

integrity, and the cost of debt. *Journal of accounting and economics*, *37*(3), 315-342.

Arazpour, A., & Fadaeinejad, M. (2014). The effects of corporate governance on stock liquidity: Evidence from Tehran Stock Exchange. *Management Science Letters*, *4*(6), 1117-1122.

Ataullah, A., Davidson, I., Le, H., & Wood, G. (2012). Corporate diversification, information asymmetry and insider trading. *British Journal of Management*, *22*, 228-251.

Attig, N. (2007). Family pyramidal holdings and board of directors. *International Journal of Business Governance and Ethics*, *3*(4), 394-406.

Bacidore, J. M., & Sofianos, G. (2002). Liquidity provision and specialist trading in NYSE-listed non-US stocks. *Journal of Financial Economics*, *63*(1), 133-158.

Baker, M., Stein, J.C. (2004). Market liquidity as a sentiment indicator. *Journal of Financial market Markets*, *7*, 271-299.

Barclay, M. J., Christie, W. G., Harris, J. H., Kandel, E., & Schultz, P. H. (1999). Effects of market reform on the trading costs and depths of Nasdaq stocks. *The Journal of Finance*, *54*(1), 1-34.

Barinov, A. (2014). Turnover: Liquidity or Uncertainty?. *Management Science*,*60*(10), 2478-2495.

Bartov, E., & Bodnar, G. M. (1996). Alternative accounting methods, information asymmetry and liquidity: Theory and evidence. *Accounting review*, 397-418.

Beasley, M. S. (1996). An empirical analysis of the relation between the board of director composition and financial statement fraud. *Accounting Review*, 443-465.

Belkhir B. N. & Bouri A. (2008). Ownership structure and bid ask spread: evidence from Tunisian companies. Corporate Ownership and Control, 5 (3), 445-451.

Bhide, A. (1993). The hidden costs of stock market liquidity. *Journal of Financial Economics, 34*, 31-51.

Black, F. (1971). Toward a fully automated stock exchange. Financial Analysts Journal, 27(4), 28-35.

Bortolotti, B., De Jong, F., Nicodano, G., & Schindele, I. (2007). Privatization and stock market liquidity. *Journal of Banking & Finance, 31*(2), 297-316.

Bouchaud, J. P. (2009). Price impact. *Encyclopedia of quantitative finance*.

Boujelbene, N. B., Bouri, A., & Prigent, J. L. (2014). Corporate Governance and Market Microstructure: Evidence on Institutional Investors in the Tunisian Stock Exchange. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 4* (2), 58-71.

Brennan, M. J., Chordia, T., & Subrahmanyam, A. (1998). Alternative factor specifications, security characteristics, and the cross-section of expected stock returns. *Journal of Financial Economics, 49*(3), 345-373.

Brockman, P., & Chung, D. Y. (2002). Commonality in Liquidity: Evidence from an Order-Driven Market Structure. *Journal of Financial Research, 25* (4), 521-539.

Brockman, P., & Chung, D. Y. (2003). Investor protection and firm liquidity. The Journal of Finance, 58(2), 921-938.

Brockman, P., & Chung, D. Y. (2008). Investor protection, adverse selection, and the probability of informed trading. *Review of Quantitative Finance and Accounting, 30*(2), 111-131.

Byrd, J. W., & Hickman, K. A. (1992). Do outside directors monitor managers?: Evidence from tender offer bids. *Journal of financial economics, 32*(2), 195-221.

Cai, C. X., Keasey, K., & Short, H. (2006). Corporate governance and information efficiency in security markets. *European Financial Management, 12*(5), 763-787.

Cao, C., &Petrasek, L. (2014).Liquidity risk and institutional ownership. *Journal of Financial Markets, 21*, 76-97.

Chae, J. (2005). Trading volume, information asymmetry, and timing information. *The journal*

of finance, 60(1), 413-442.

Chan, H. W. H., & Pinder, S. M. (2000). The value of liquidity: Evidence from the derivatives market. *Pacific-Basin Finance Journal, 8*(3), 483-503.

Chan, K., P. Chung, and Fong W., (2000). The Informational Role of Stock and Option Volume. Review of Financial Studies, 15, 1049–1075.

Chavez, G.A., Silva, A.C., 2009. Brazil's experiment with corporate governance. *Journal of Applied Corporate Finance 21*, 34–44.

Chen, C. J., & Jaggi, B. (2001). Association between independent non-executive directors, family control and financial disclosures in Hong Kong. *Journal of Accounting and public policy, 19*(4), 285-310.

Chen, W. P., Chung, H., Lee, C., & Liao, W. L. (2007). Corporate governance and equity liquidity: Analysis of S&P transparency and disclosure rankings. Corporate Governance: *An International Review, 15*(4), 644-660.

Chiang, R., & Venkatesh, P. C. (1988). Insider holdings and perceptions of information asymmetry: A note. *The journal of finance, 43*(4), 1041-1048.

Choi, J. J., Park, S. W., & Yoo, S. S. (2007). The value of outside directors: Evidence from corporate governance reform in Korea. *Journal of Financial and Quantitative Analysis, 42*(04), 941-962.

Chordia, T., Roll, R., & Subrahmanyam, A. (2000). Commonality in liquidity. *Journal of financial economics, 56*(1), 3-28.

Chtourou, S. M. and Bedard, J. (2001). Corporate governance and earnings management. Social sciences research network SSRN: http//papers.ssrn.com/abstract=275053

Chung, H. (2006). Investor protection and the liquidity of cross-listed securities: Evidence from the ADR market. *Journal of Banking & Finance, 30*(5), 1485-1505.

Chung, K. H., Elder, J., & Kim, J. C. (2010). Corporate governance and liquidity. *Journal of*

Financial and Quantitative Analysis, 45(2), 265-291.

Coffee, J. C. (1991). Liquidity versus control: The institutional investor as corporate monitor. *Columbia law review, 91*(6), 1277-1368.

Constantinides, G. M. (1986). Capital market equilibrium with transaction costs. *The Journal of Political Economy, 94*(4), 842-862.

Cornell, B. and Sirri, E.R. (1992). The reaction of investors and stock prices to insider trading. *Journal of Finance, 47*, 1031-1059.

Cornett, M.M., Marcus A.J. & Tehranian H. (2007). Corporate Governance and Pay-for-Performance: the Impact of Earnings Management. *Journal of Corporate Finance, 15*, 412-430.

Dahya, J., Dimitrov, O., & McConnell, J. J. (2008). Dominant shareholders, corporate boards, and corporate value: A cross-country analysis. *Journal of Financial Economics, 87*(1), 73-100.

Datar, V. T., Naik, N. Y., & Radcliffe, R. (1998). Liquidity and stock returns: An alternative test. *Journal of Financial Markets, 1*(2), 203-219.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1996). Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary accounting research, 13*(1), 1-36.

Demsetz, H. (1968). "The cost of transacting", *Quarterly Journal of Economics, 82*(1).

Dennis, P., & Weston, J. (2001). "Who's informed? An analysis of stock ownership and informed trading". AFA 2002 Atlanta Meetings.

Diamond, D. W., & Verrecchia, R. E. (1991). Disclosure, liquidity, and the cost of capital. *The journal of Finance, 46*(4), 1325-1359.

Diamond, D. W., 1985. Optimal release of information by firms. *The Journal of Finance, 40*, 1071-1094.

Doroshenko, I. (2011). Liquidity risk and expected stock returns: Evidence from the UK (Doctoral dissertation, Central European University).

Dumitrescu, A. (2011). Corporate governance and market liquidity. *Financial Accounting and Reporting Research, 48*, 423-471.

Ebrahim, A. (2007). Earnings management and board activity: An additional evidence. *Review of Accounting and Finance, 6*(1), 42-58.

Eleswarapu, V. R., & Venkataraman, K. (2006). The impact of legal and political institutions on equity trading costs: A cross-country analysis. *Review of Financial Studies*.

Eleswarapu, V. R., &Reinganum, M.R. (1993)' "The Seasonal Behavior of the Liquidity Premium in Asset Pricing". *Journal of Financial Economics, 34*(3), 373-386.

Elyasiani, E., Hauser, S., & Lauterbach, B. (2000). Market response to liquidity improvements: Evidence from exchange listings. *Financial Review, 35*(1), 1-14.

Eng, L. L., & Mak, Y. T. (2003). Corporate governance and voluntary disclosure. *Journal of accounting and public policy, 22*(4), 325-345.

Espinosa, M., Tapia, M., & Trombetta, M. (2008). Disclosure and liquidity in a driven by orders market: Empirical evidence from panel data. *investigaciones económicas, 32*(3), 339-369.

Fama, E. F. (1980). Agency Problems and the Theory of the Firm. *The journal of political economy*, 288-307.

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *The Journal of Finance, 47*(2), 427-465.

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of financial economics*, *33*(1), 3-56.

Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The Journal of Law & Economics*, *26*(2), 301-325.

Fernandez, F. A. (1999). Liquidity Risk: new approaches to measurement and monitoring. Securities Industry Association Working Paper.

Fernandez-Amador, O., Gächter, M. L., Larch, M., & Peter, G. (2011). Monetary policy and its impact on stock market liquidity: Evidence from the euro zone. *Available at SSRN 1754366.*

Fleming, M. J., & Remolona, E. M. (1999). Price formation and liquidity in the US Treasury market: The response to public information. *The journal of Finance, 54*(5), 1901-1915.

Florackis, C., Gregoriou, A., & Kostakis, A. (2010). Trading frequency and asset pricing: Evidence from a new price impact ratio. SSRN eLibrary.

Foo, Y. B., & Zain, M. M. (2010). Board independence, board diligence and liquidity in Malaysia: A research note. *Journal of Contemporary Accounting & Economics, 6*(2), 92-100.

Forker, J. J. (1992). Corporate governance and disclosure quality. *Accounting and Business research, 22*(86), 111-124.

Gillan, S. L., & Starks, L. T. (2000). Corporate governance proposals and shareholder activism: The role of institutional investors. *Journal of financial Economics, 57*(2), 275-305.

Gilson, R. J. (2001). Globalizing corporate governance: Convergence of form or function. *The American Journal of Comparative Law, 49*(2), 329-357.

Giouvris, E. (2003). Systematic liquidity and expected returns: evidence from the London Stock Exchange.

Glen, J. (1994) An introduction to the microstructure of emerging markets. International Finance corporation Discussion Paper No. 2 Washington D.C. IFC.

Glosten, L. &Milgrom, P. (1985). Bid-ask and transaction prices in a specialist market with heterogeneously informed traders. *Journal of Financial Economics, 14*(1), 70-100.

Gomes, A. (2000). Going public without governance: Managerial reputation effects. *Journal of Finance, 52* (2), 615–646.

Goyenko,Y.R., Holden, W.C., &Trzcinka, A.C, (2009). Do liquidity measures measure liquidity? *Journal of Financial Economics, 92*, 153–181.

Grammig, J., Schiereck, D., & Theissen, E. (2001). Knowing me, knowing you:: Trader anonymity and informed trading in parallel markets. *Journal of Financial Markets, 4*(4), 385-412.

Gul, F. A., & Leung, S. (2004). Board leadership, outside directors' expertise and voluntary corporate disclosures. *Journal of Accounting and public Policy, 23*(5), 351-379.

Hamao, Y., & Hasbrouck, J. (1995). Securities trading in the absence of dealers: Trades and quotes on the Tokyo Stock Exchange. *Review of Financial Studies, 8*(3), 849-878.

Harris, L. 1990. Liquidity, Trading Rules and Electronic Trading Systems. *Monograph Series in Finance and Economics*, No. 1990–1994. New York: Salomon Brothers Center.

Harris, M., &Raviv, A. (1991).The theory of capital structure. *The Journal of Finance, 46*(1), 297-355.

Hart, O. (1995) Corporate Governance: Some Theory and Implications. *The Economic Journal, 105*, 678-689.

Hasbrouck, J. (2009). Trading costs and returns for US equities: Estimating effective costs from daily data. *The Journal of Finance, 64*(3), 1445-1477.

Hasbrouck, J., & Seppi, D. J. (2001). Common factors in prices, order flows, and liquidity. *Journal of financial Economics, 59*(3), 383-411.

Hasbrouck, J., (2004). Liquidity in the futures pits: Inferring market dynamics from incomplete data. *Journal of Financial and Quantitative Analysis, 39*, 305-326.

Hasbrouck, J., (2006). Trading costs and returns for U.S. equities: Estimating effective costs from daily data. Working paper, New York University, New York, NY

Hassan, A., &Javed, M. T. (2011). Illiquidity Premium and Stylized Equity Returns. The IUP *Journal of Financial Economics, 9*(1), 41-52.

Hassan, S. U., & Ahmed, A. (2012). Corporate governance, earnings management and financial performance: a case of Nigerian manufacturing firms. *American International Journal of Contemporary Research, 2*(7), 214-226.

Heflin, F., & Shaw, K. W. (2000). Block holder ownership and market liquidity. *Journal of Financial and Quantitative Analysis, 35*(04), 621-633.

Heflin, F., Shaw, W., & Wild, J. (2005). "Disclosure policy and market liquidity: impact of depth quotes and order sizes". *Contemporary Accounting Research, 22* (4), 829-866.

Ho, S. S., & Wong, K. S. (2001). A study of the relationship between corporate governance structures and the extent of voluntary disclosure. *Journal of International Accounting, Auditing and Taxation, 10*(2), 139-156.

Hsu, G. C. M., & Koh, P. S. (2005). Does the presence of institutional investors influence accruals management? Evidence from Australia. Corporate Governance: *An International Review, 13*(6), 809–823.

Huberman, G., & Halka, D. (2001). Systematic liquidity. *Journal of Financial Research, 24*(2), 161-178.

Jain, P., 2003. Institutional design and liquidity on stock exchanges around the world. SSRN working paper.

Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance, 48*(3), 831-880.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics, 3*(4), 305-360.

Jiang, G., Lee, C., & Yue, H. (2010). Tunneling in China: the remarkable case of inter-corporate loans. *Journal of Financial Economics,* Available at SSRN 1154314.

John, K., & Senbet, L. W. (1998). Corporate governance and board effectiveness. *Journal of Banking & Finance, 22*(4), 371-403.

Kanagaretnam, K., Lobo, G. J., & Whalen, D. J. (2007). Does good corporate governance reduce information asymmetry around quarterly earnings announcements?. *Journal of Accounting and Public Policy*, *26*(4), 497-522.

Karamanou, I., & Vafeas, N. (2005). The association between corporate boards, audit committees, and management earnings forecasts: An empirical analysis. *Journal of Accounting research, 43*(3), 453-486.

Karmani, M., Ajina, A., & Boussaada, R. (2015). An investigation of the relation between corporate governance and liquidity: empirical evidence from France. *Journal of Applied Business Research, 31*(2), 631.

Kaymak, T., & Bektas, E. (2008). East meets west? Board characteristics in an emerging market: Evidence from Turkish banks. Corporate Governance: *An International Review, 16*(6), 550-561.

Kee et al (2003). Corporate governance and market valuation of capital and R&D investments. *Review of Financial Economics, 12*(2), 161–172.

Klein, A. (2002). Audit committee, board of director characteristics, and earnings management. *Journal of accounting and economics, 33*(3), 375-400.

Kumar, G., & Misra, A. K. (2015). Closer View at the Stock Market Liquidity: A Literature Review. *Asian Journal of Finance & Accounting*, 7(2), 35-57.

Kyle, A.S. (1985). Continuous auctions and insider trading. *Econometrica, 53*(6), 1315–35.

Laux, P. A. (1993). Trade sizes and theories of the bid-ask spread. *Journal of Financial Research, 16*(3), 237-249.

Lei, Q., Lin, B., & Wei, M. (2013). Types of agency cost, corporate governance and liquidity. *Journal of Accounting and Public Policy*, *32*(3), 147-172.

Leuz, C., Nanda, D., & Wysocki, P. (2003). Earnings management and investor protection: An international comparison. *Journal of Financial Economics, 69*, 505-527.

Levin, E. J., & Wright, R. E. (1999). Explaining the intra-day variation in the bid–ask spread in competitive dealership markets–A research note. *Journal of Financial Markets, 2*(2), 179-191.

Liu, S. (2013). Institutional ownership and stock liquidity. *Manuscript*, Waseda University, 1, 79-83.

Loukil, N., & Yousfi, O. (2010). Does corporate governance affect stock liquidity in the Tunisian Stock Market?. *In 29th International Conference of the French Finance Association (AFFI).* 35-53.

Madhavan, A. (1992). Trading mechanisms in securities markets. Journal of Finance, XLVII (2), 607-641.

Mangena, M., Tauringana, V., 2007. Disclosure, corporate governance and foreign share ownership on the Zimbabwe stock exchange. *Journal of International Financial Management and Accounting 18*, 53–85.

McKnight, P. J., & Weir, C. (2009). Agency costs, corporate governance mechanisms and ownership structure in large UK publicly quoted companies: A panel data analysis. *The Quarterly Review of Economics and Finance, 49*(2), 139-158.

Mendelson, H., & Tunca, T. I. (2004). Strategic trading, liquidity, and information acquisition. *Review of Financial Studies, 17*(2), 295-337.

O'Hara, M. (2003). Presidential address: Liquidity and price discovery. *Journal of Finance, 58*(4).

O'hara, M. (1995). Market microstructure theory (Vol. 108). Cambridge, MA: Blackwell.

Pagano, M. and Röell, A. (1996). Transparency and liquidity. A comparison of auction and dealer markets with informed trading. *Journal of Finance* LI (2), 579-611.

Pastor, L., & Stambaugh, R. F. (2001). Liquidity risk and expected stock returns (No. w8462). *National Bureau of Economic Research.*

Patelli, L., & Prencipe, A. (2007). The relationship between voluntary disclosure and independent directors in the presence of a dominant shareholder. *European Accounting Review, 16*(1), 5-33.

Peng, L. (2001). Trading takes time. Yale School of Management Working Papers.

Platt, H., & Platt, M. (2012). Corporate board attributes and bankruptcy. *Journal of Business Research, 65*(8), 1139-1143.

Prasanna, P. K., & Menon, A. S. (2012). Corporate governance and stock market liquidity in India. *International Journal of Behavioural Accounting and Finance, 3*(1-2), 24-45.

Prommin, P., Jumreornvong, S., & Jiraporn, P. (2014). The effect of corporate governance on stock liquidity: The case of Thailand. *International Review of Economics & Finance, 32*, 132-142.

Qin, Y. (2007, April). Liquidity and commonality in emerging markets. *In 20th Australasian Finance & Banking Conference.*

Raghunandan, K., Rama, D. V., & Read, W. J. (2001). Audit committee composition,"gray directors," and interaction with internal auditing. *Accounting Horizons, 15*(2), 105-118.

Rahmani, S., Mendalek, N., & Al-Haddad, K. (2010). Experimental design of a nonlinear control technique for three-phase shunt active power filter. IEEE Transactions on Industrial Electronics, 57(10), 3364-3375.

Rajan, R. G., &Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *The journal of Finance, 50*(5), 1421-1460.

Roll, R. (1984). A simple implicit measure of the effective bid-ask spread in an efficient market. *The Journal of Finance, 39*(4), 1127–1139.

Roodposhti, F. R., & Chashmi, S. A. N. (2011). The impact of corporate governance

mechanisms on earnings management. *African Journal of Business Management, 5*(11), 4143–4151.

Rubin, A. (2007). Ownership level, ownership concentration and liquidity. *Journal of financial Markets, 10*(3), 219-248.

Salahinezhad, M., & Mansouri, K. (2013). The effect of ownership structure on corporate liquidity listed in Tehran Stock Exchange. *Interdisciplinary Journal of Contemporary Research In Business, 5*(8), 372.

Schwartz, R. (1988). Equity markets: Structure, trading and performance (Harperand Row, New York, NY).

Sedrine, B. N., & Loukil, N. (2008). Block holders, board structure and liquidity: evidence from Tunis Stock Exchange. Corporate Ownership and Control, 5(3), 428-433.

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.

Shleifer, A. & Vishny, R. (1997). A survey of corporate governance. *Journal of Finance, 52*(2), 737-783.

Singh, T., Gupta, M & Sharma, M. (2015). Stock market liquidity and firm performance. *Accounting, 1*(1), 29-36.

Stoll, H. R. (1978). The pricing of security dealer services: An empirical study of NASDAQ stocks. *The journal of finance, 33*(4), 1153-1172.

Sujoto, C., Kalev, P. S., & Faff, R. W. (2005). An examination of commonality in liquidity: new evidence, long-run effects and non-linearities. Working Paper, Department of Accounting and Finance, Monash University.

Syamala, S. R., Chauhan, Y., &Wadhwa, K. (2014). Institutional Investors and Stock Liquidity: Evidence from Indian Stock Market. *Global Business Review, 15*(3), 461-

476.

Tang, K., Wang, C., 2011. Corporate governance and firm liquidity: evidence from the Chinese stock market. *Emerging Markets Finance & Trade* 47 (Supplement 1), 47–60.

Titman, S., &Wessels, R. (1988). The determinants of capital structure choice. *The Journal of finance, 43*(1), 1-19.

Walsh, C. (1998). Monetary Theory and Policy, MIT Press.

Watts, R.L., & Zimmerman. J.L. (1986). Positive Accounting Theory. Prentice-Hall, London.

Xie, B., Davidson, W., & DaDalt, P. (2003). Earnings management and corporate governance: The roles of the board and the audit committee. *Journal of Corporate Finance, 9*(3), 295–317.

Yang, W. S., Chun, S. L., & Ramadili, S. M. 2009. The effect of board structure and institutional ownership structure on earnings management. *International Journal of Economics and Management, 3*(2): 332-353.

Yun, H., 2009. The choice of corporate liquidity and corporate governance. Review of Financial Studies 22, 1447–1475.

Zahra, S. A., & Pearce, J. A. (1989). Boards of directors and corporate financial performance: A review and integrative model. *Journal of management, 15*(2), 291-334.

Appendix: A

Common Coefficient Model

Variable	Coefficients	Std. Error	t-Statistics	Prob.
C	0.001130	0.018877	0.059862	0.9523
$ACI_{i,t-1}$	0.032956	0.012034	2.738627	0.0063
$BI_{i,t-1}$	0.029437	0.011767	2.501677	0.0126
$BS_{i,t-1}$	0.001146	0.001337	0.857011	0.3917
$CEOD_{i,t-1}$	0.012035	0.004996	2.408754	0.0163
$INSTO_{i,t-1}$	-0.002558	0.007574	-0.337676	0.7357
$FS_{i,t-1}$	-0.000121	0.000771	-0.156792	0.8755
$LEV_{i,t-1}$	0.017299	0.008531	2.027749	0.0430
$PV_{i,t-1}$	1.078853	0.165215	6.530007	0.0000
R-Square	0.085498			
Adj. R-Square	0.075336	Pool Balanced Observations		729
F-statistic	8.414177	No. of Firms		81
(Prob) F-Statistics	0.000000			

Appendix: B

Random Effects Model

Variables	Coefficients	Std. Error	t-Statistics	Prob.
C	-0.040970	0.023373	-1.752832	0.0801
$ACI_{i,t-1}$	0.040012	0.012308	3.250819	0.0012
$BI_{i,t-1}$	0.027461	0.015385	1.784950	0.0747
$BS_{i,t-1}$	-0.002229	0.001672	-1.333036	0.1829
$CEOD_{i,t-1}$	0.006217	0.006225	0.998685	0.3183
$INSTO_{i,t-1}$	0.028173	0.007138	3.946903	0.0001
$FS_{i,t-1}$	0.001817	0.000775	2.345573	0.0193
$LEV_{i,t-1}$	-0.001394	0.008405	-0.165910	0.8683
$PV_{i,t-1}$	2.392447	0.145474	16.44583	0.0000

R-Square	0.351139		
Adj. R-Square	0.343930	Pool Balanced Observations	729
F-statistic	48.70465	No. of Firms	81
Prob(F-statistic)	0.000000		

Appendix: C

List of Companies

Sr#	Companies Name	Symbols	Sr#	Companies Name	Symbols	Sr#	Companies Name	Symbols
1	AL- Abbas Sugar Mills	ALABS	29	Gharibwal cement	GWLC	57	Pakistan Cables Ltd	PCAL
2	Abbot Laboatories Ltd	ABBOT	30	Glaxosmithkline	GLAXO	58	Pak Telecommunication	PTC
3	Atlas Battery Limited	ATBA	31	Gul Ahmed Textile	GATM	59	Pakistan Intern. Airlines	PIAA
4	Atlas Honda Ltd	ATLH	32	HinoPak Motors Ltd	HINO	60	Pioneer Cement Limited	PIOC
5	Attock Refinery Limited	ATRL	33	Honda Atlas Cars Ltd	HCAR	61	Pakistan Oilfields Ltd.	POL
6	Attock Cem.Pak.Ltd	ACPL	34	Hub Power Company	HUBC	62	Premium Textile Mills	PRL
7	Azgard Nine Ltd	ANL	35	I.C.I Pakistan Ltd.	ICI PAK	63	Pakistan Refinery Ltd.	PRfL
8	Best way Cement Ltd	BWCL	36	Indus Motor Company	INDU	64	Pakistan Tobacco Co.	PAKT
9	Biafo Industries Limited	BIFO	37	Ittehad Chem. Ltd	ICL	65	Quality Textile Mills Ltd	QUAT
10	Blessed Tex.	BTL	38	Japan Power Limited	JPGL	66	Quetta Textile Mills Ltd.	QUET
11	BOC Pakistan ltd	BOC	39	karachi electric supply	KESC	67	Rafhan Maize products	RMPL
12	Byco Petroleum	BYCO	40	Kohat Cement Limited	KOHC	68	Saif Textile Mills	SAIF
13	Century Paper	CEPB	41	Kohat Textile Mills	KOHTM	69	Salfi Textile Mills	SALT
14	Cherat Cement Company	CHCC	42	Kohinoor Energy Ltd	KOHE	70	Sazgar Engineering	SAZEW
15	Crescent Fibres	CFL	43	Kohinoor Mills Limited	KML	71	Shell Pakistan Limited	SHELL
16	Crescent Sugar Mills	CSMD	44	Kohinoor Sugar Mills	KOHS	72	Siemens Pakistan Ltd	SIEM
17	Dawood Hercules	DAWH	45	Kohinoor Textile	KTML	73	Sitara Chemical Ltd.	SITC
18	Dawood Lawrancepur	DLL	46	Lafarge Pakistan Ltd	LFPK	74	Southern Electric Co. Ltd	SEPCO
19	Dewan Auto Engg	DWAE	47	Lucky Cement Limited	LUCK	75	Tata textile Mills Ltd.	TATM
20	Engro Corporation Ltd	ENGRO	48	Maple Leaf Cement	MLCF	76	Unilever Foods	UPFL
21	Exide Pakistan Ltd.	EXIDE	49	Mehmood Textile Mills	MEHT	77	Wah-Nobel Chemicals	WAHN
22	Faisal Sinning Mills Ltd.	FASM	50	Mirpurkhas Sugar Mills	MIRKS	78	WorldCall Telecom	WTL
23	Fauji Cement Company	FCCL	51	Nadeem textile mills	NATM/F	79	Wyeth Pak Ltd.	WYETH
24	Fauji Fertilizer Co. Ltd	FFC	52	National Refinery Ltd.	NRL	80	Zephyr Textile Ltd	ZTL
25	Fauji Fert Bin	FFBL	53	Nimir Ind.Chemicals	NICL	81	Zulfeqar industries Ltd	ZIL
26	Feroze 1888 mills limited	FML	54	Nishat Mills Ltd.	NML			
27	Ghandhara Nissan	GHNL	55	Oil & Gas Dev.Co	OGDC			
28	Ghani Glass Ltd	GHGL	56	Packages Limited	PKGS			