Impact of Corporate Governance Code on Firm Performance

A Comparative Analysis of Pakistan and Malaysia

By

Yasir Bin Tariq

A research thesis submitted to the Department of Management & Social Sciences,
Mohammad Ali Jinnah University, Islamabad
in partial fulfillment of the requirements for the degree of

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DEDICATED

TO

PROPHET MOHAMMAD (صل الله عليه وسلم)

THE GREATEST SOCIAL REFORMER

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LIST OF ABBREVIATIONS

ADB	Asian Development Bank
ASEAN	Association of South East Asian Nations
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CG	Corporate Governance
CGCI	Corporate Governance Compliance Index
CRS	Constant Return to Scale
DEA	Data Envelopment Analysis
DMU	Decision Making Unit
DPS	Dividend Per Share
ECGI	European Institute of Corporate Governance
EPS	Earnings Per Share
GIM	Gompers, Ishii & Metrick
ICAP	Institute of Chartered Accountants Pakistan
ICGP	Institute of Corporate Governance Pakistan
ICMA	Institute of Cost & Management Accountant
IFC	International Finance Corporation
IRRC	Investor Responsibility Research Center
ISE	Islamabad Stock Exchange
KLSE	Kuala Lumpur Stock Exchange
KSE	Karachi Stock Exchange
LSE	Lahore Stock Exchange
MCCG	Malaysian Code on Corporate Governance
MICG	Malaysian Institute of Corporate Governance
MSWG	Minority Shareholder Watchdog Group
OECG	Organization for Economic Cooperation & Development
PKR	Pakistani Rupees
PTE	Pure Technical Efficiency
ROA	Return on Assets
ROCE	Return on Capital Employed
ROE	Return on Equity
SBP	State Bank of Pakistan
SE	Scale Efficiency
SECP	Securities & Exchange Commission of Pakistan
SOE	State Owned Enterprises
TE	Technical Efficiency
UK	United Kingdom
UN	United Nations
US	United States
VRS	Variable Return to Scale

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Abstract

A series of high profile corporate collapses in the West due to fraud and inadequate system of check and balances, and 1997's East Asian financial crises brought the issue of governance in the corporate form of business in the spotlight. Governments around the globe have started adopting and implementing codes of good governance based on recommendations by international forums, and organization like OECD, IFC etc. The de-facto realities of the corporate environment in Pakistan and Malaysia are in contrast to what is promulgated by their respective codes of corporate governance. In this context, this study investigates the effectiveness of code of corporate governance in Pakistan and Malaysia (introduced in 2000 and 2002 respectively) by exploring the relationship between the extent of compliance and multi-dimensional performance of publicly listed firms.

This study collected and analyzed data of 119 publicly listed firms from Pakistan and 100 firms from Malaysia over the period of eight years i.e. 2003 to 2010. The aim is to investigate the impact of compliance with code of corporate governance on firms' financial performance and efficiency. The extent of compliance is measured through a custom built compliance index for Pakistan and Malaysia. This study uses ROA, ROE, ROCE and EPS to measure the financial performance and DEA efficiency scores for measuring technical and related efficiency for firms under investigation.

The compliance statistics showed that on an overall basis the level of compliance had increased over the period of eight years. The econometric analysis provides positive support for the compliance-performance hypothesis in the case of Pakistan and no support in case of Malaysia. In case of Pakistan CGCI is found to be positively related with ROA, ROE and ROCE. This study also finds that CGCI positively impacts technical efficiency. Further investigation exploring the weak impact reveals that high compliant firms, opposite to the expectations, are less profitable than average and low compliant firms. This could be attributed to the possible negative effect of high level of mandatory compliance, i.e. beyond a certain threshold, the mandatory compliance negatively impacts firm's performance. However, in the case of Malaysia, although there is no relationship between compliance and

performance, the evidence suggests that high compliant firms are more profitable than average or low compliant firms.

To control the potential omitted variable bias and to isolate the impact of compliance on firms' performance, this study uses ownership structure, ownership concentration, institutional shareholding, foreign shareholding, board size, CEO-Chairman duality, firm size, age, growth and dividend per share as control variables. It is found that firm size and DPS are positively related, whereas, firms' age and leverage are negatively related with financial performance. In DEA efficiency performance models, foreign shareholding is significantly related with efficiency measures.

The positive overall impact of compliance in Pakistan in contrast to no impact in Malaysia could be due to additional imperfections in the overall public governance structure in Pakistan. On the other hand, this study found that higher level of mandatory compliance could be detrimental to financial performance and efficiency. This study offers first time economic evidence of complying with the corporate code in Pakistan and compares the performance of a rule based and a principal based code of corporate governance. Finally, this study recommends an independent evaluation of efficacy of current corporate governance regime in Pakistan.

Keywords: Corporate Governance; Principle & Rule Based Codes; Compliance; Firm Performance; DEA; Efficiency; Pakistan; Malaysia

CHAPTER ONE

1 INTRODUCTION

Corporate Governance, a term initially used to refer different firm's based mechanisms to handle agency conflict between managers and suppliers of capital, is now an umbrella term which is used to refer all internal and external control mechanisms that are and can be employed to protect the interests of shareholders and stakeholders. The orientation to the concept of corporate governance is different for different systems of corporate governance. In Anglo-Saxon based corporate governance regimes, agency conflicts are still at the heart of it and major attention is paid to protect shareholders from the exploitation of management. Whereas, in stakeholder oriented economies like Europe and most of the Asian economies, concept covers all stakeholders, more or less in equitable proportions.

The most commonly cited definition of corporate governance is by Shleifer and Vishny (1997). According to them "Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment" (p. 737). This definition endorses the idea that corporate governance is a mechanism to deal agency problem in corporate form of business. Cadbury Committee is the first to define the broader view of corporate governance in 1992. It stated, ""*Corporate governance is the system by which companies are directed and controlled."* (Cadbury, 1992). This followed by an expanded definition of corporate governance given by Chair of the Committee, Sir Adrian Cadbury: He said,

> In its broadest sense, corporate governance is concerned with holding the balance between economic and social goals and between individual and communal goals. The governance framework is there to encourage the efficient use of resources and equally to require accountability for the stewardship of those resources. The aim is to align as nearly as possible the interests of individuals, of corporations, and of society. The incentive to corporations and to those who own and manage them to adopt internationally accepted governance standards is that these standards will assist them to achieve their aims and to attract investment. The incentive for their adoption by

> states is that these standards will strengthen their economies and encourage business probity (Foreword by Cadbury in Claessens (2003): p. vii).

Apart from the differences in orientations and dynamics, the concept of corporate governance is neither new nor novel. Although it gained importance mainly in the last and first decades of twentieth and twenty-first centuries, the concept came into being the very day, when the first joint stock company was formed. More than 200 years ago, Adam Smith (1776) discussed this problem in his monumental work. He noted,

> The directors of such companies, however, being the managers rather of other people's money than of their own, it cannot well be expected that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own. Like the stewards of a rich man, they are apt to consider attention to small matters as not for their master's honor, and very easily give themselves a dispensation from having it. Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company. (p. 311)

The number of corporate fiascos in the last two decades because of increasing fraud and inadequate systems of check and balance in the corporate form of business, made corporate governance reforms and regulations, a priority agenda for governments and market regulators around the globe. The demand for corporate governance reforms was not restricted to listed companies only; it also became a priority on the agenda of international lenders, donors, forums, e.g. World Bank, ADB, IFC and UN and investors alike.

In the wake of international demand for governance reforms in the capital markets, both Pakistan and Malaysia had introduced a number of reforms that included introducing new legislation to strengthen the equity market liberalization process and development and implementation of corporate governance codes for listed companies. Both Malaysia (in 2000) and Pakistan (in 2002) introduced code of corporate governance for publicly listed companies to improve the governance situation in their respective capital markets.

1.1 Background, Motivation and Statement of the Problem

A series of high profile corporate collapses (Claessens & Yurtoglu, 2012; F. L. Clarke, Dean, & Oliver, 1998; M. Davies & Schlitzer, 2008; Lavelle, 2002) due to increasing frauds and inadequate systems of check and balances and, 1997's East Asian financial crises (Johnson, Boone, Breach, & Friedman, 2000) brought the issue of governance in corporate form of the business in the spotlight. This worldwide attention made corporate governance reforms and regulations a priority agenda for governments and market regulators around the globe. This emphasis is evident from a number of published and issued reports around the world, during the last two decades, e.g. Cadbury Report (1992), Greenbury Report (1995), Hampel Report (1998), Turnbull Report (1999), Smith Report (2003) and Higgs Report (2003) in UK, Viénot Report (1995) in France, King-I report (1994) and King-II report (2002) in South Africa, Peters Report (1997) in Netherlands, Cardon Report (1998) in Belgium, the Olivencia Code (1998) in Spain, Preda Report (1999) in Italy.

As a result, as these reports have provided a basis, governments around the globe have started introducing and implementing corporate governance codes for corporate form of business, using different implementation protocols i.e. rule based or principle based. For example, United Kingdom in 1992 and 1998, South Korea in 1999, India and Malaysia in 2000, Singapore in 2001 and Pakistan and China in 2002, issued the code of corporate governance to tackle the problem of potential and opportunity for fraud, expropriation, malpractices and exploitation by controlling parties. The rise and diffusion of codes of good governance can be seen from the fact that there were 72 codes in 24 countries in 1999 (Aguilera & Cuervo-Cazurra, 2004) and in 2008 the website for European Corporate Governance Institute reported 189 codes in 63 countries (Zattoni & Cuomo, 2008). As per information on ECGI's website (as of February 2012), there are 92 countries and many international organizations (e.g. World Bank, OECD) that have issued one or more codes.

For every country, corporate governance structure has certain characteristics or constituent element because of which it is distinguished from corporate governance structures in other countries. Each model of corporate governance is identified and influenced by the following elements:

- key players in the corporate environment
- the ownership structure
- the composition of the board of directors (or boards as in case of stakeholder corporate governance model)
- the regulatory framework
- disclosure requirements for publicly listed companies
- corporate actions requiring shareholder approval, and
- interaction among key stakeholders.

Corporate governance models are generally divided into two broad types; Shareholder model type (e.g. Anglo-American model) and stakeholder model type (e.g. European Continental, German, and Japanese etc. corporate governance models (Jeffers, 2005). Shareholders oriented model (Anglo-Saxon corporate governance model) is generally prevalent in UK, US, Canada, Switzerland, Finland and Australia. European-Continental corporate governance model, German corporate governance model, Japanese corporate governance model and other variants of these models are categorized as stakeholder model type. The usual characteristics of the Anglo American model are; developed equity markets, active market for corporate control, widely dispersed ownership, management dominance, etc. On the other hand, stakeholder model types are characterized by concentrated ownership; group and family based firms, pyramid ownership structures, relatively more reliance on debt, a less active market for corporate control etc. These characteristics vary from country to country.

On the academic front, Anglo American corporate governance model is generally considered as optimal. Majority of the literature revolves around Anglo American corporate governance model. The reason for its superiority has been attributed to US and UK economic imperialism, dominance and the leading role played by them in formulating and framing best practices of corporate governance (Hill, 2005). Furthermore, the international financial community considers this model ‘effective’ as means for attracting business and investment (Chang, 2005).

Following the international demand for governance reforms in the capital markets, both Pakistan and Malaysia have introduced a number of reforms, which include introducing new

legislation to strengthen the equity market liberalization process and development and implementation of corporate governance codes. Malaysia in 2000 (Finance Committee on Corporate Governance, 2000) and Pakistan in 2002 (SECP, 2002) issued a corporate governance code for publicly listed companies to improve the governance situation in their respective capital markets. For both Pakistan and Malaysia, the requirements of the code are heavily influenced from UK and US governance regulations. Pakistan followed US style and made the requirements of the code as mandatory; whereas Malaysia followed the UK's combined code's comply-or-explain approach.

As mentioned previously the corporate governance structure in any country is determined by several factors: the legal and regulatory framework outlining the rights and responsibilities of all parties involved in corporate governance; the *de-facto* realities of the corporate environment in the country; and each corporation's articles of association. While developing the system of corporate governance both Pakistan and Malaysia were influenced by the international advertisement of Anglo-American model[1]. On the other hand the de-facto realities of the corporate environment are quite different from the system of corporate governance adopted. The capital markets of both countries are characterized by concentrated ownership structure through cross shareholdings and pyramid ownership structure (Thillainathan, 1999), family based business groups, debt (from banks) as a preferable form of financing instead of equity, an underdeveloped equity market (especially of Pakistan) and inactive market for corporate control, i.e. takeovers.

Rama (2007) suggested that adoption of Anglo-American system in countries with contrasting capital market characteristics may prove to be an unhealthy development if differences between the stage of economic development, history, culture and institutional capacity are not acknowledged. Keeping in the mind the underlying assumptions of Anglo-American corporate governance model, i.e., free market principle, and pre-requisites like

[1] Soederberg (2003) noted that "despite the claim that the international standard of corporate governance embodies 'universal principles', the definition advanced in the ROSCs intentionally draws on the Anglo-American variant".

entrepreneurship, free allocation of resources, free trade, competition, self-regulations, and minimum governament's intervention for its successful operation, the question arises that is this a rational choice to adopt a governance model that is quite contrary to the underlying realities of the corporate environment, and local values.

The extant literature on corporate governance has focused on exploring the relationship among different governance mechanism (individual and combined) and firms' performance (using market or accounting measures), corporate behavior and the development of theory on the comparison of corporate governance systems, i.e. American or Anglo-Saxon model and European or Continental model, convergence of these systems and their implications. Then there is dearth of literature on identifying the effectiveness of corporate governance systems by evaluating the performance of firm in capital markets of those economies whose capital market characteristics are in contrast with their choice of the governance system. Accordingly Hofstede and Hofstede (2004) and Rashid (2008) noted that due to inherently different organizational, political and social circumstances, the relevance and applicability of economic and management theories are different between developed and developing markets. Haque (2002) asserts that for third world countries, the Anglo-Saxon driven corporate governance model has serious implications.

There exists a vast anecdotal and empirical evidence both in developing and developed world that good corporate governance can cause or lead to improved financial performance and benefit shareholders through access to more capital, reduction in cost of capital (Reddy, Locke, & Scrimgeour, 2010), free cash flow be distributed among shareholders rather than being expropriated (Jensen, 1986; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2002), reduction of control rights of managers and the probability that managers make investment decisions that can enhance shareholder value (Shleifer & Vishny, 1997). It is further argued that poor quality regulations can increase compliance costs for business and other groups, cause unnecessary complexity and associated uncertainty as to regulatory obligations and reduces the ability of government to achieve its objectives (OECD, 2008). Therefore, a corporate governance system which is compatible with capital markets and corporate culture will, theoretically, facilitate the business and thus enable a firm to realize the previously noted benefits, in sum, improved financial performance and efficiency.

Therefore, in this context, the main purpose of this study is to find out the effectiveness of existing code of corporate governance by exploring the relationship between compliance with code and firm's efficiency and financial performance. This investigation is carried out in an international comparative setting i.e. comparing the findings of Pakistan and Malaysia. Both countries are included in the group of emerging economies by World Bank and IMF, although due to its political instability, Pakistan is included in the lower middle income group by World Bank, whereas Malaysia is included in the upper middle income group(World Bank, 2009).

1.2 Research Questions

The research questions that are explored in the present study are as follows.

1. How to measure and quantify the extent of compliance with code of corporate governance?
2. Is there any systematic relationship between the extent of compliance with code of corporate governance and firms' financial performance in Pakistan?
3. Is there any systematic relationship between the extent of compliance with code of corporate governance and firms' technical efficiency in Pakistan?
4. Is there any systematic relationship between the extent of compliance with code of corporate governance and firms' financial performance in Malaysia?
5. Is there any systematic relationship between the extent of compliance with code of corporate governance and firms' technical efficiency in Malaysia?
6. What is the difference between the findings of Pakistan and Malaysia?
7. Is there any significant difference between financial performances of firms with different levels of compliance with code of corporate governance?
8. Is there any significant difference between efficiency of firms with different levels of compliance with code of corporate governance?

1.3 Objectives of the Study

The main objectives of the study are as follows.

- To construct a compliance index to measure the extent of compliance with code of corporate governance in Pakistan and Malaysia
- To find out the effect of compliance with code of corporate governance on firm's financial performance.
- To find out the effect of compliance with code of corporate governance on firm's efficiency.
- To compare the empirical findings of effect of compliance with code of corporate governance on firms' financial performance and efficiency between Pakistan and Malaysia

1.4 Significance and Justification of the Study

The extant research on corporate governance has suffered from several problems as identified by Bohren and Odegaard (2004). These includes; context specificity, where most of the research is focused on large firms in US, thus the findings cannot be generalized for smaller firms in other emerging and developing countries settings; The absence of rich quality data in terms of variables and duration of study period, which may make conclusions invalid or less applicable over long period of time.

Almost entire research on governance-performance nexus in Pakistan and partially in Malaysia suffered from one or more of these reasons;

Firstly, the majority of studies have used KSE-100 firms or subset of them in addressing empirical governance-performance question. Similarly, the majority of the studies focusing Malaysia tends to use top 100 firms listed on Bursa Malaysia. Therefore, there exist a firm size bias and literature has already established that size is associated with performance and compliance.

Secondly, the study periods are short except Shah (2009) where he used data of six years.

Thirdly, almost all of studies in Pakistan have used market or market based hybrid measures e.g. Tobin's Q. The problem with using market based measures is that Pakistani stock

markets are inefficient, very volatile and there is clear evidence of insider trading and price manipulation by colluding stock broker (Hameed & Ashraf, 2006; Iqbal, 2012; Khawja & Mian, 2005; Mirza & Afzal, 2009; Tariq & Butt, 2008). This problem is common with stock markets of emerging economies (Mei, Wu, & Zhou, 2004); (Khanna & Sunder, 1999); (Siddiqi, 2007). Results and findings based on such measures can be misleading and questionable.

Fourthly, no study in Pakistan or Malaysia has tried to use DEA efficiency score as an alternative to market-based measures or as an added performance measurement dimension that could detect productivity loss in the short term which otherwise could have gone unnoticed, when financial ratios are used to measure performance (Destefanis & Sena, 2007).

Finally neither Securities & Exchange Commission of Pakistan (SECP)[2] nor any other study has attempted to evaluate the effectiveness of the Code of Corporate Governance. Therefore, there is a dire need for evaluating the economic impact and effectiveness of the code. The evaluation methodology in the field of law is quite different and as in general "Codes" are less like law and more like industry guidelines/best practices. Also they are equally applicable to all listed firms and every firm is required to comply with it within its unique firm settings. Therefore, it makes sense to evaluate outcomes of firm's core activities while complying with the code, to use as indicator of the impact and effectiveness of the code. Therefore, consistent with economics and social sciences research this study is using outcomes (financial & operational performance) to measure the effectiveness of the process i.e. the code of corporate governance. Also this is the first study which offers evidence on the economic consequences of mandatory compliance with code of corporate governance for Pakistani and voluntary compliance for Malaysian listed firms. This study is an attempt to overcome these shortcomings by analyzing a relatively large sample of 119 firms for Pakistan (large, medium and small sized firms with wider presence) and 100 firms for Malaysia (large,

[2] Except one study which was commissioned by SECP in 2003. This study was too early (just after one year) to see any meaningful compliance pattern and the number of firms covered is very low i.e. only 29 non-financial firms out of 76 reached responded to the survey.

medium and small sized firms) over a longer period of time, 2003 to 2010, i.e. 8 years and using a multi-theoretical and multi-dimensional performance measurement framework in a comparative settings. Finally as noted by Estrin (2002), the research in developing and transitional economies provides grounds for understanding evolution of corporate governance structure and for evaluating the impact of an alternative governance mechanisms and policy framework.

1.5 Contributions of the Study

This study is contributing towards academic literature and policy horizon in the following manners.

1. By developing a compliance index, which can be equally useful for academicians, regulators and investors to determine the letter and spirit of firm's compliance behavior.
2. By offering first time evidence of the economic impact of compliance with a code of corporate governance in Pakistan and Malaysia. Further, this study highlights the negative effects of higher levels of mandatory compliance for Pakistan.
3. Using multi-dimensional firm performance framework to assess the efficacy of code of corporate governance, this study is suggesting an economic approach to assess the effectiveness of the corporate governance regulations.
4. By contributing towards compliance-performance empirical literature, which is evolving internationally (yet immature) and non-existent in Pakistan and Malaysia
5. Use of DEA as a performance measurement tool, this study has contributed towards recently evolving efficiency-governance literature.
6. Finally, this study contributes towards governance-performance literature by using a multi theoretical framework and multi-dimensional performance measurement framework.

1.6 Limitations of the Study

Following are the limitations and constraints of this study.

This analysis is based on the hand-picked compliance data from annual reports of the sample firms. This type of research design hampers an in-depth analysis of the real attitude towards compliance practices, as this study had access only to publicly announced information.

This study has used subjective weighting criteria in the compliance index to differentiate the value of compliance with important clauses (as identified in the literature and through interviews with regulators and stakeholders). To minimize the effect of subjectivity this study tried to standardize how to assign a score, but the risk of subjectivity is still there. This study prefers this weighted index in comparison to an objective index, which only identifies if a particular clause/recommendation has been followed or not by either assigning a score of one or zero. In such an objective index there is much loss of information on the extent of compliance that can help in differentiating the firms following the code in letter only or both in letter and spirit.

This study did not look into the determinants of compliance or reasons for non-compliance

The sample was restricted to 119 firms in Pakistan because for the duration of the study, complete data were available for only those firms.

This study has only used accounting measures as indicators for financial performance in Malaysia and Pakistan. For Malaysia where stock market performance is more stable than Pakistan, market based firm performance measures could have been used.

As noted by Cleyn (2008), relying on only publicly available compliance data can be risky, as firms usually sugar coat their corporate governance and compliance practices to earn good will.

There is a need of an exploratory research with an in-depth qualitative framework by utilizing actual (insider) compliance data. Such type of study can provide further evidence on actual compliance practices of firms.

1.7 Outline of the Study

Chapter two offers an overview of the theoretical framework for this study. Further, it takes an account of previous empirical research on compliance-performance and governance-performance relationship.

Chapter three layouts the methodological framework for this study by operationalizing the variables in play, construction of compliance index, defining the population, sample and data collection methods, and finally the econometric models to be analyzed.

Chapter four presents the results of Uni-Variate, Bivariate, and Multivariate analysis for Pakistan and Malaysia and their comparison. Furthermore, the results are discussed and compared with previous empirical findings.

Chapter five draws the conclusions on the basis of analysis and discussion in chapter four. It ends with the identification of research avenues that can stem from this research, improve this research or complement this research.

CHAPTER TWO

2 LITERATURE REVIEW

This chapter contains theoretical framework for corporate governance research and theoretical and empirical literature concerning corporate governance, codes of corporate governance, compliance, data envelopment analysis and relationship between different mechanisms of corporate governance and firm's performance and firm's efficiency.

2.1 Defining Corporate Governance

There are many definitions of corporate governance, ranging from very narrow to very boarder perspectives. Here this study will take account of some of those definitions to understand the concept of corporate governance.

Ariff and Ratnatunga (2008) contends that despite the inherent complexity and different viewpoint towards the concept of corporate governance, most of the definitions refer to two key aspects i.e. (1) the mechanism by which firms are directed and controlled and (2) the supervision mechanism for those who direct and control a firm. One of the initial definitions of corporate governance is provided by the Cadbury committee's report in 1992. It states, "Corporate governance is the system by which companies are directed and controlled". Sir Adrian Cadbury, the chair of the committee offered a more detailed definition to the term corporate governance. According to him, "Corporate governance is concerned with holding the balance between economic and social goals, and between individual and communal goals. The governance framework is there to encourage the efficient use of resources and equally to require accountability for the stewardship of these resources. The aim is to align as nearly as possible the interests of individuals, of corporations and of society" (Cadbury, 1992).

Ariff and Ratnatunga (2008) assert that the concept of corporate governance can be look upon from four viewpoints i.e. economic, legal, societal (social) and applied finance.

- The economic viewpoint narrates that corporate governance has an impact on the integrity of the market system and its vitality, and this market system is even accepted by Cuba and North Korea.

- The legal viewpoint is concerned with rules and procedures, both explicit and implicit, which help firms to perform efficiently, by avoiding wastage of resources caused either by corruption or by inefficiency. Those looking at corporate governance from this perspective view it as a modern expression of the problem faced by firms for decades i.e. 'accountability'.

- The social viewpoint of corporate governance is about how a company communicates with its direct and indirect stakeholders. According to Monk & Minow (2008), this view rests on the premises that while corporate governance is concerned with the relationship between board, shareholders and management and board is responsible for determining the direction and performance of the corporation. However, the scope of corporate governance should be broader to envisage issues like crisis management, ethical standards and responsible reporting towards stakeholders, not only in terms of compliance towards the legal requirements of the country, but also from a social responsibility perspective.

- The applied finance viewpoint considers corporate governance as a set of accounting and finance tools and practices, used by management to improve the value creation ability of the firm after taking care the demands of stakeholders. Concurrent with the viewpoint, Shleifer and Vishny (1997, p. 737) defined the term as: "Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment.

Fernando (2006) noted that some economists define corporate governance as "a field in economics that investigates how to secure/motivate efficient management of corporations by the use of incentive mechanisms, such as contracts, organizational designs and legislation. This is often limited to the question of improving financial performance, for example, how

the corporate owners can secure/motivate that the corporate managers will deliver a competitive rate of return".

OECD offers a very comprehensive and functional definition of corporate governance. It states, "Corporate governance is the system by which business corporations are directed and controlled. The corporate governance structure specifies the distribution of rights and responsibilities among different participants in the corporation such the board, managers, shareholders, and other stakeholders and spells out the rules and procedures for making decisions on corporate affairs. By doing this, it also provides the structure through which the company objectives are set and the means of attaining those objectives and monitoring performance"(OECD, 1999).

Another operational definition of corporate governance is offered by Charles Oman of OECD. He stated, "Corporate Governance" refers to the mechanism prescribed by private and public institutions, including laws, regulations and accepted business practices, which together govern the relationship, in a market economy, between corporate managers ("corporate insiders") on the one hand, and those who invest resources in corporations, on the other. Investors can include suppliers of equity finance (shareholders), suppliers of debt finance (creditors), suppliers of relatively firm–specific human capital (employees) and suppliers of other tangible and intangible assets that corporations may use to operate and grow (Oman, 2001).

2.2 Overview of the Pakistani Capital Market

A dynamic and developed capital market is vital for economic growth. It helps in mobilizing idle monetary resources and places them in the productive channels of an economy. The most important function of a capital market is its help in the formation of capital. The lack of a vibrant and advance capital market can result in underutilization of financial resources. On the other hand, a developed capital market attracts foreign capital for domestic industries.

Pakistani capital market (equity and debt) consists of three stock exchanges namely, Karachi Stock Exchange (KSE), Lahore Stock Exchange (LSE) and Islamabad Stock Exchange (ISE).

A total of PKR 133.6 billion was mobilized through these stock exchanges during Jul-Mar 2011-12.

Currently these stock exchanges are operating in a mutualized structure in which the members of the stock exchanges have ownership as well as trading rights. This type of setup is creating conflict of interest and the predominance of members over the affairs of these stock exchanges has resulted in less transparent operations and compromised the interest of investors. However, recently, new legislation i.e. the Stock Exchanges (Corporatization, Demutualization and Integration) Act, 2012 has been introduced to cater these problems. Demutualization is a well-established and globally accepted trend and almost all stock exchanges worldwide are operating in this manner (Pakistan Economic Survey, (2012).

Provided below is a brief introduction and statistics of three stock exchanges of Pakistan.

2.2.1 Karachi Stock Exchange (KSE)

Among the three, KSE is the biggest and oldest stock exchange in Pakistan established in 1947. As of the first week of May 2012, KSE has an average daily turnover of 254 million shares and market capitalization of USD 41 billion. As on May 04, 2012, 591 firms were listed on KSE with a listed capital of PKR.10159.87 billion. The KSE-100 index is a diversified index of 100 largest firms (financial & non-financial) listed on KSE. In May 2012, KSE-100 index represent 92% of KSE total market capitalization. (Pakistan Economic Survey, (2012).

Table 2-1: Karachi Stock Exchange Statistics

Description	2007-2008	2008-2009	2009-2010	2010-2011	2011-12
Total listed companies	652	651	652	639	591
New companies listed	7	8	8	1	3
Fund mobilized (Rs. Billion)	62.88	44.95	111.83	31.04	107.29
Total Listed Capital (Rs. in Billion)	706.42	781.79	909.89	943.73	1,058.4
Total Market Capitalization (Rs. in Billion)	3,777.71	2,120.65	2,732.4	3,288.7	3,528.2
Total Shares Volume (in Billion)	63.316	28.332	42.959	28.018	23.633

Average Daily Share volume (million)	256.34	115.64	172.53	111.63	127.75

Source: Pakistan Economic Survey 2011-12 (latest figures are taken at the end of March 2012)

In 2002, Business Week declared KSE as the best performing world stock market. This brings KSE in the consideration list of international investors. In addition, KSE offers equal investment opportunities to both local and foreign investors (Finance Division, 2012). It may also be noted that the since 2007, only 27 new companies were listed on KSE indicating that economy is not progressing well.

2.2.2 Lahore Stock Exchange (LSE)

Established on 5 October 1970, LSE is the second largest stock exchange of Pakistan, located in Lahore, the provincial capital of the province of Punjab. As of March 2012, 460 companies were listed on LSE with a total paid up capital of PKR 981.7 billion. The total market capitalization stood at PKR 3294.1 billion. Lahore Stock Exchange uses twenty-five company index (LSE 25) to measure the stock performance of the major companies.

Table 2-2: Lahore Stock Exchange Statistics

Description	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Total Number of Listed Companies	520	514	511	510	496	460
New Companies Listed	10	2	9	25	9	2
Fund Mobilized (Rs billion)	38.8	29.7	32.8	67.5	18.1	5.5*
Listed Capital (Rs billion)	594.6	664.5	728.3	842.6	888.2	981.7
Turnover of Shares (billion)	8.2	6.5	2.7	3.4	1.1	0.6
LSE 25 Index	4,849.9	3,868.8	2,132.3	3092.7	3,051.1	3,707.6

Source: Economic Survey of Pakistan 2011-2012

2.2.3 Islamabad Stock Exchange (ISE)

With a listed capital of Rs. PKR 830.5 billion and 254 listed companies (as of March 2012), Islamabad Stock Exchange (ISE) is the third stock exchange of Pakistan. It was incorporated in 1989 in the capital city of Pakistan. Islamabad Stock Exchange's Ten Company Index (ISE10) monitors the stock performance of the major firms listed on ISE.

Table 2-3: Islamabad Stock Exchange Statistics

Description	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Number of Listed Companies	246	248	261	244	236	254
New Companies Listed	12	7	15	2	-	-
Fund Mobilized (Rs. Billion)	30.7	24.6	24.8	76.7	17.8	20.8
Listed Capital (Rs. Billion)	488.6	551	608.6	715.7	727	830.5
Turnover of Shares (billion)	0.2	0.6	0.3	0.2	0.04	0.01
ISE 10 Index	2,716	2,749.60	1,713	2,441.20	2,722.80	2,821.90
Aggregate Market Capitalization (Rs. Billion)	3,060.60	2,872.40	1,705.10	2,261.70	2,621.10	2,824.40

Source: Pakistan Economic Survey 2011-12

2.2.4 SECP Code of Corporate Governance

In the wake of international demand for corporate governance reforms, Pakistan responded with formulating and issuing a code of corporate governance for listed companies in March 2002. The code was subsequently revised in 2007 and the latest revision was introduced in 2012. All stock exchanges were required to add the requirements of the corporate governance code as their listing requirements. The code addresses six main areas i.e. board of directors, corporate and financial reporting framework, corporate ownership structure, audit committee and compliance with code of corporate governance. (See appendix-1 which provides the summary of clauses in each category and their compliance status i.e. whether they are for mandatory compliance or voluntary compliance.

2.3 Overview of Malaysian Capital Market

Malaysian capital market history can be traced back to 1870s (Securities Commission, 2004). After the independence, Malayan stock exchange was formed in 1960, which was later named as Kuala Lumpur Stock Exchange (KLSE) after the secession of Singapore from Malaysia in 1965. After demutualization from the Singapore Stock Exchange, KLSE was renamed as Bursa Malaysia Berhad[3] in April, 2004. The total number of listed firms[4]

[3] Berhad in Malayan means "Limited"
[4] All firms included i.e. listed on Main Board, Second Board and Mesdaq Market

increased from 280 in 1990 to 1021 in 2007. By the end of 2004, Malaysian stock market was the largest stock market in ASEAN region (Securities Commission of Malaysia, 2004).

The 1997-98 East Asian financial crises can be considered as a wake up call for Malaysia to improve its corporate governance regime. There were bad corporate governance incidents because of poor governance landscape, weak investor relations, low transparency and ineffectiveness of regulations enforcing agencies (Mohammad, 2010). In the backdrop of financial crises and an increasing international focus on corporate governance, Malaysia answered the call for corporate governance reforms by forming a 'High Level Finance Committee on Corporate Governance' in 1998. The committee produced a report known as "Report on Corporate Governance" in 1999, which later recognized as Malaysian code of corporate governance. Among other initiatives to improve corporate governance landscapes are; incorporation of Malaysian Institute of Corporate Governance (MICG) and Minority Shareholder Watchdog Group (MSWG).

Although, the Malaysian code on corporate governance (MCCG) is based on UK's combined code, the Malaysian corporate landscape is characterized by features of insider corporate governance system e.g. concentrated ownership[5], crossholdings and active participation of majority owners in management (Claessens, Djankov, & Xu, 2000). Similar to UK combined code, MCCG is following a UK style comply-or-explain approach (see appendix-3 for a summary of the requirements of the Malaysian code of corporate governance).

In the following section, this study discusses the theories of corporate governance that helped this study in formulating its theoretical framework.

2.4 Theories of Corporate Governance

For any discipline, theories provides the philosophical foundations to understand and improve the practical development. Further, without theoretical framework support, the findings of a study are meaningless. Given the inherent complexity of the subject, i.e. corporate

[5] According to World Bank report (2005), 60% or more equity is owned by top five shareholders

governance, there is no single theory that can capture the theoretical basis of corporate governance as a whole (Clarke, 2004b). Clarke (2004b) further argues that one of the reason for this complexity is that companies combine social and economic roles. Although governance structures are important, but there is no perfect form to be followed. What matters is, how people put these corporate governance structures and mechanism into work, thus their choices and motive matters. Another factor, which determines the complexity of corporate governance, is the diversity of system and structures around the word. Factors like economy type, political and legal backgrounds, history and culture and sources of finances influence shaping a nation corporate governance system.

Here the main theories that have defined the philosophical foundations of corporate governance will be discussed.

2.4.1 Agency Theory

It can be argued that the roots for agency theory can be found in the work of Berle and Means (1932). In their work, they argued that managers may act in their own self-interest because of the separation of ownership and control and this decentralized system of control is unable to constraint corporate manager to act in the best interest of shareholders. The Berle and Means work led the researchers and theorist to build literature on identifying the principal-agent problem and how incentives can be used to align manager's behavior with owners' interest.

During the earlier part of the twentieth century, numerous schools of thoughts tried to explain economic governance based on a new understanding of economic activity and resource allocation. Agency theory stands out among these new theories and became a major force in explaining the theoretical foundations of corporate governance especially in the last decades of twentieth century (Clarke, 2004b). The seminal work of Alchian and Demsetz (1972) and Jensen and Meckling (1976) became the source from which agency theory has emerged. They explained firm as a nexus of contracts among individual factors of production. This new concept was in contrast to what classical economics conceived. According to classical economics, a firm is single-point entity with objectives of profit maximization. On the other hand agency theory, as pointed out by Learmount (2002), posit that economics analyzed the

working of firms by considering it as constantly re-negotiated contract by individuals who are aiming to maximize their own utility.

Jensen and Meckling (1976) presented and argued that agency theory is based upon this contractual view of the firm. The theoretical foundations of agency theory are derived from separation of ownership and control, in other words, separation between management and finance. Managers raise funds from investors and then use these funds in a productive manner or cash out their holdings. On the other hand, investors (shareholders) need specialized human resource to earn a return on their investment. The relationship between the investors and managers is usually governed by a contact that narrates the responsibilities of managers and how the return would be divided between them. The uncertain nature of future makes it impossible to draft and impose complete contracts. From this perspective, corporate governance concerns with how to control managers and to make sure their interests are aligned with the interest of investors or shareholders.

Alchain and Demsetz (1972) assert that agency theory sees shareholders position in a firm as residual risk takers rather than firm's owners. Fama (1980) also endorses this point by arguing the "ownership of capital should not be confused with ownership of firm. Each factor in a firm is owned by somebody. The firm is just the set of contracts covering the way inputs are joined to create outputs and the way receipts from outputs are shared among inputs. In this 'nexus of contracts' perspective ownership of the firm is an irrelevant concept".

Jenson and Meckling (1976) while explaining the separation of ownership and control identified four major ways by which self-interested utility maximizing managers can misuse the funds of shareholders thus minimizing their wealth. First, managers may expropriate corporate resources by awarding themselves overgenerous remuneration packages. Second, they may use corporate resources to build an empire to earn them power or prestige, and thus using more perquisites. Third, the free cash flow problem, where in spite of absence of profitable investment opportunities, manager may choose to invest excess cash flow instead of paying dividends. Fourth, manager may not involve in activities that maximize shareholders value because they choose to spend less time, effort and skill on such task.

In order to minimize the divergence between interest of managers and shareholders and to reduce to agency cost, agency theory suggests the installation of internal and external control mechanism. This is what recently known as corporate governance (Haniffa & Hudaib, 2006b). Learmount (2002) argued that the solution to this principal-agent problem is efficient markets. An efficient market can mitigate the agency problem by introducing efficient markets for corporate control, management labor and corporate information. A presence of efficient market will ensure that management bear the costs of their own misconduct and therefore will be motivated to self-control them.

Williamson (1975) argued that agency theory approach is concerned with discovering and installing internal control mechanism which can reduce costs associated with contractual hazard problem as external control mechanisms cannot be relied upon to prevent or reduce these problems. Eisenhardt (1989) offered a contemporary review and assessment of agency theory. He argued that agency theory offered unique insights into issues like, outcome uncertainty, information systems, incentives and risk. Daily, Dalton and Cannella et al. (2003) explains why agency theory is so prevalent in governance literature. They attribute this acceptability to two factors: One, it is a very simple theory explaining a large corporation in terms of only two participants i.e. managers and shareholders and the interests and role of both participants are assumed clear and consistent. Two, "the notion of humans as self-interested and generally unwilling to sacrifice personal interests for the interests of others is both age old and wide-spread. Economists struggled with this problem for centuries until Jensen and Meckling (1976) provided their convincing rationale for how the public corporation could survive and prosper despite the self-interested proclivities of managers. In nearly all modern governance research governance mechanisms are conceptualized as deterrents to managerial self-interest".

In this regard, Shleifer and Vishny (1997) affirmed that the main purpose of the corporate governance is to provide a sense of security to capital providers. To ensure the interest of managers are aligned with shareholders, internal and external corporate governance mechanism employed includes an effectively structured corporate board, remuneration contracts that ensure/encourages a shareholder oriented behavior of managers, concentrated ownership structure and an external mechanism like market for corporate control when

internal mechanisms failed to work (Walsh & Seward, 1990). It may also add here that the corporate governance codes, whether 'rule based' or 'comply or explain' based are also now a prevalent external form of governance mechanism, largely in place because of the corporate disasters in the last decade of twentieth and first decade of twenty first century.

The following table, which is borrowed from Eisenhardt (1989), provides an overview of the agency theory.

Table 2-4 An Overview of Agency Theory

Key Idea	Principal-agent relationships should reflect efficient organization of information and risk-bearing costs.
Unit of Analysis	Contract between principal and agent
Human Assumptions	Self-interest; bounded rationality; risk aversion.
Organizational Assumptions	Partial goal conflict among participants; efficiency as effectiveness criterion; information asymmetry between principal and agent
Information Assumptions	Information as a purchasable commodity
Contracting Problems	Moral Hazard and adverse selection; risk sharing
Problem Domain	Relationships in which the principal and agent have partly different goals and risk preferences.

Source: Eisenhardt (1989: p59)

2.4.2 Information Asymmetry and Managerial Signaling Theory

This theory has been used in addition to agency cost theory in explaining the relationship between managers and shareholders (Shabbir & Padgett, 2005). This theory suggests that managers being insiders have more valuable information than shareholders or potential investors (Kapopoulos & Lazaretou, 2007). The potential investors while making portfolio decisions can face two main problems i.e. adverse selection problem and moral hazard problem. First problem is about choosing a firm with competent management. Second problem is similar to principal-agent issue in agency problem i.e. managers because of their access to superior and quality information can exploit shareholders money either by having extra perks or by investing irresponsibly (Kapopoulos & Lazaretou, 2007; Rhee & Lee, 2008). Shareholders facing these two problems can take one of two actions; either they

include the cost of moral hazard and adverse selection in the price of a security or they can simply forego the investment (Jensen & Meckling, 1976).

In either of above decision scenarios, the cost of equity will increase. To counter this situation, better governed firms, the ones with less moral hazard and adverse selection problem, have to signal the prospective investors about their corporate governance mechanisms, which can mitigate these problems. As noted by Ntim (2009), the one of the main way of sending these signals is to adopt and follow or comply with the codes of good governance. Therefore, if a firm is showing compliance towards governance laws/regulations, it is signaling the present and prospective shareholders about its status of a better governed firm and intentions to remain that way. As a result, investors will pay premium for better governed firms as there is less risk of expropriation either by managers or by majority owners. This is synonymous to decrease in cost of capital (Beiner, Drobetz, Markus, & Zimmermann, 2006; K. Y. Chen, Zhihong, & Wei, 2009; La Porta et al., 2002; Shabbir & Padgett, 2005).

An important thing to note here is signaling costs, similar to agency cost in agency theory. In order to send signals about the quality of their governance mechanism, a firm has to incur signaling cost. Among these costs are; the cost of hiring accounts, auditing, professionals and lawyers, proprietary costs associated with increased disclosure and incentive for private information (Core, 2001; Hassan & Martson, 2008).

2.4.3 Institutional Theory

Brown (2005) contends that proponents of institutional theory consider institutions as "algorithms that direct individuals with contrary objectives toward a common purpose". Or, in the words of Jepperson (1991) (as cited in Nanka-Bruce, 2009), institutions represent a social order or pattern that has attained a certain state or property [and] institutionalization denotes the process of such attainment. Nanka-Bruce (2009) cited North (1992) and argued that in a world of instrumental rationality institutions are very important. Since we live in an uncertain world, and institutions are important as they exist to reduce uncertainty, by guiding human interactions to create a stable environment by focusing on the most efficient choice alternatives. They impose the constraint or they are the constraints that limit human behavior

and these constraints may be formal or informal. Formal constraints are rules and informal constraints are like codes of behaviors. Actors that do not follow these norms are subject to a penalization depending on the severity of deviations from the norms.

In economic firms, the stakeholders may reduce their contributions or their assessment of the value of firms that are not complying with the norms. Humans, in their quest for structural exchanges put certain constraints on themselves. This can cause inefficiency. Institutional effects caused by human interactions can explain some part of the firm productive inefficiency. Issues like agency cost, misallocation of resources, and less than optimal output are because of choices generated by human ideas.

In this context, Nanka-Bruce (2009) argued that in order to be effective, corporate governance principles should be part of a firm's institutional environment. This means that the board of directors is responsible for ensuring the compliance and accountability of the corporate governance principles they adopt. Aguilera and Jackson (2003) used an actor-centered institutional approach to explain variations in international corporate governance systems in terms of labor, management and capital. In terms of labor, they argue that the development of skills, representation rights and how unions are organized in a country all affect its role in governance. They also argue that a country's management ideology and career development affect the contribution of management. They also offer insights as to how the inter-firm networks, property rights and financial system of a country affect the availability, acquisition and utilization of both financial and strategic capital. Their approach studies institutions and actors within a firm thus linking agency and institutional theories.

Aguilera and Cuervo-Cazurra (2004) argued that regardless of how technically efficient a firm is, isomorphic pressures push firms to adopt and implement good governance practices, in order to be a legitimate part of an industry. The amount of institutional pressure is dependent on the fact who issued the code. They identified six main bodies that have/can issue good governance codes. These are, the State, stock exchange, director's associations, management associations, investor associations and law or accounting professional bodies.

In a post-Enron era, O'Connell et al. (2003) explained the corporate governance and disclosure reforms from an institutional theory perspective. The good governance initiative taken by firms can be seen as an attempt to legitimize their role to other stakeholders. The principles of good corporate governance introduced by OECD in 2004 recognized the fact that due to global variations of institutional settings, there is a need to customize their principals according to a country's economic, legal and cultural context. The recent empirical research concluded that the institutional environment (that measures the degree of investor protection) does matter (Denis & McConnell, 2003; Durnev & Kim, 2005; La-Porta, Lopez-de-Salines, Shleifer, & Vishny, 1998; Shleifer & Vishny, 1997). Also studies in different countries have reported different effects of corporate governance on firm's performance and value because of different economic, legal and political factors (Klapper & Love, 2004).

2.4.4 Stewardship Theory

Contrary to agency theory, stewardship theory presents a positive view of the management. It can be argued that, agency theory is theory X of corporate governance and stewardship theory is theory Y of corporate governance. Davis, Schoorman and Donaldson (1997) took a different approach in explaining what agency theory assumes about self-interested, and own-interest maximizing managers. Stewardship theory assumes that there is no conflict of interest between managers and shareholders, and given an optimum governance structure, managers are good stewards who will act in the best interest of shareholders (Donaldson & Davis, 1991; Letza, Sun, & Kirkbride, 2004).

The background and motivation of this theory can be understood form the words of Wood and Bandura (1999) (as cited in Clarke, 2004), "Students of human behavior have identified a much larger range of human motive, including needs for achievement, responsibility, and recognition, as well as altruism, belief, respect for authority, and the intrinsic motivation for an inherently satisfying task". In line with this background, the theory is based on the following assumptions. First, since (usually) top managers spent a big part of their working lives in a company that they govern, so based on their firm-specific experience and understanding they can make superior decision than outside directors. Second, due to their position and interaction with firm daily routine, they have access to and possess superior knowledge and information (both formal & informal) about the firm, thus better decision

making (Donaldson & Davis, 1994). Third, the urge to maintain their professional goodwill in a competitive internal and external disciplinary environment, they try to minimize agency cost (Fama & Jensen, 1983). Based on above assumption, stewardship theory proponents argues that better financial performance can be associated with internal corporate governance practices that grants more power and control like combining CEO-Chairman role (Donaldson & Davis, 1991; Donaldson & Davis, 1994).

2.4.5 Resource Dependency Theory

Resource dependency theory takes a positive view of the board of directors. Board of directors, an important internal corporate governance mechanism, not only monitors managers but also an important link between a firm and the external resources which are essential for achieving wealth maximizing objective (Pfeffer, 1973). Board of directors can be useful in many ways. They can add value through their experience, expert advice, independence and knowledge. They can help and facilitate in accesses to financial information and capital and they also bring reputation and business contacts. More importantly, they can link a firm with its external environment and important stakeholders e.g. competitors, creditors, suppliers, etc. (Haniffa & Cooke, 2002; Haniffa & Hudaib, 2006b; Nicholson & Geoffrey, 2003). The better access to outside resource can lead to improved financial performance.

2.4.6 Stakeholder Theory

Stakeholder theory is quite older than agency theory. However, its impact on corporate governance thinking and policymaking is far less than agency theory in recent times (T. Clarke, 2004b). An organization is defined as multilateral agreements between a firm and its stakeholders (Freeman & Reed, 1990). The relationship between firm and its internal stakeholders, i.e. employees, managers and owners, are defined by formal and informal rules in place and these rules developed over time through history of relationship among stakeholders. Although managers receive funds from shareholders, the achievement of strategic goals is dependent on the performance of employees. Further, the relationship with external stakeholders i.e. customers, competitors, suppliers and special interest groups, are equally important and these relationship are also constrained by formal and informal rules.

Additionally, Government and society define a set of formal rules within which firms must operate (Post, Preston, & Sachs, 2002).

Blair (1996) assert that firms should not be seen as a bundle of assets, but as institutional arrangements that governs the relationship between and among all parties that are contributing firm-specific assets. And among these parties are not only shareholders but long-term committed employees who create value because of their specialized skills, customers, suppliers, and others who contribute in some useful manner. If firm's management is required to maximize the total wealth created by the firm rather than just of shareholders, then top management should consider the impact of decisions on all stakeholders in the firm. However, when defining stakeholders, only those should be included who have contributed in firm-specific assets that are at risk in a firm.

Clarke (1998) posit that with the growing emphasis on employees relations, customer relations, suppliers relations and investor relations, managers now needs to satisfy the interest of more stakeholders than just shareholders. The European and Asian business values are much closer to this conception where a firm is seen as a set of relationships rather than a series of transactions.

2.4.7 Convergence Theory

At present, more than one type of corporate governance models is in existence. Outsider market based corporate governance system that is also known as Anglo-Saxon model, is prevalent in the UK and US. This type of corporate governance system is characterized by widely dispersed ownership, a strong equity market, market for corporate control, and primacy of the shareholder value. The international corporate governance landscape is heavily dominated by this system. On the other hand, the relationship based system, known as the insider system, or European or Continental model is prevalent in Europe. Under this system, financing is more dependent on bank loan than equity and operate via close business networks. Then there is a family based corporate governance system, prevalent mostly in Asia, reflects different culture and tradition (T. Clarke, 2004a).

Because of the globalization, different corporate governance models are converging around some common international principals, but there still exist a diversity of approach in practice. There is an ongoing theoretical debate whether other regional corporate governance systems are converging towards Anglox-Saxon model of corporate governance(T. Clarke, 2004b). The motivation to move towards a market-based outsider model is come from the miraculous success of US economy. However, the mega corporate failure in the US did raise questions on the promulgated virtues of this corporate governance system. The globalization of equity markets in 1980s give companies access to more capital through foreign investors and at lower costs. As a result, firms restructured their operations to enhance owners' returns, redefined their relationship with foreign investors and at the same time international institutional shareholders started asking for standard international practices regarding governance and disclosure (Useem, 1998). Apart from support of influential quarters like G7, OECD, international investors and donors like World Bank, IFC, and leading US business schools towards the convergence thesis, there is also criticism on this convergence theory. Branson (2001) rightly argued that issue of global convergence is of less importance than problem like multinational growth, environmental degradation, economic imperialism, and other problems related to globalization. He further added, "These externalities are a result of managers over-performing in the pursuit of profit, yet the Anglo-Saxon model focuses on the problems of the managers underperforming".

2.5 Corporate Governance Codes

Codes are tools or medium to shape behaviors of organizations and those who worked there. A law firm which produced a policy report on corporate governance in Europe Union defined corporate governance codes as; [A] systematically arranged set of principles, standards, best practices and/or recommendations [that is] precatory in nature [, is] neither legally nor contractually binding [, relates] to the internal governance of corporations (covering topics such as the treatment of shareholders, the organization and practices of (supervisory) boards and corporate transparency) [,] and [is] issued by a collective body (Weil Gotshal & Manges LLP, 2002, p. 11).

The increased focus of the international community on the subject of corporate governance can be linked with the widely known corporate failures in the developed economies like US

and UK in the eighties (Mallin, 2007). In addition, Iturriaga (2009) contends that the increased interest in this soft type of regulation can be attributed to globalization of capital markets, increased investors awareness about quality governance and the general acceptance of shareholder value paradigm. Cadbury Report (1992) noted that the state of poor governance is the main cause for such mega failures. In response to these failures, UK formed the Cadbury committee in 1991, followed by many others around the world, e.g. King committee on corporate governance in South Africa. Furthermore, the corporate failures of 1990s, and 2000s made corporate governance a key phrase and concern for investors and other stakeholders (Ntim, 2009). In the US, the government responded furiously with the introduction of Sarbanes-Oxley Act in 2002. The code of corporate governance based on this legislation made mandatory, as non-compliance with the code is a punishable offense.

Monks and Minow (1992) documented that first code is dated back to 1970s when the business roundtable in the US created *the role and composition of the board of directors of the large publicly owned firms*. The second code was issued by Hong Kong in 1989 i.e. the *Code of Best Practices, Listing Rules*. This was followed by the Irish *Statement of Best Practices on the Role and Responsibilities of Directors of Publicly Listed Companies* in 1991. Back then at the beginning of 1990s, few counties have adopted or implemented codes of good governance were in effect (Iturriaga, 2009), and mostly these countries belong to Anglo-Saxon legal system. Afterwards, a sharp rise in popularity of good governance codes around the world can be seen. The rise and diffusion of codes of good governance can be seen from the fact that there were 72 codes in 24 countries in 1999 (Aguilera & Cuervo-Cazurra, 2004) and in 2008 the website[6] for European Corporate Governance Institute reported 189 codes in 63 countries (Zattoni & Cuomo, 2008)[7].

Following the international trend, countries around the world introduced respective governance codes. Most of these codes are following a "comply or explain" approach.

[6] http://www.ecgi.org, September, 2008

[7] As per information on ECGI's website, I counted 92 countries that have issued one or more codes (www.ecig.org (February, 2013))

Malaysia and Pakistan acted accordingly and introduced governance codes for listed companies in 2000 and 2002 respectively. Malaysia followed a “comply or explain” approach, whereas Pakistan started with “comply or explain” and ended with a mandatory approach i.e. comply or be punished.

Aguilera, Cuervo-Cazurra, and Kim (2009) offered a great insight into corporate governance research concerning codes of good governance and their diffusions worldwide. In one of first studies to explore the diffusion of corporate governance codes, Aguilera and Cuervo-Cazurra (2004) concluded that the countries with common-law legal system, weak shareholders protection, high governance liberalization and strong presence of foreign investors are likely to issue codes of good governance. In the similar manner, Zattoni and Cuomo (2008) confirms that counties with civil-law legal systems have issued less codes than common law countries and the recommendations about implementing a system of good governance are soft and ambiguous. By the expanding the work of Zattoni and Cuomo (2008), Haxhi and Van Ees (2010) using cultural and institutional approach, contends that the issuance and frequency of codes of good governance are strongly associated with cultural characteristics like masculinity, power distance, individualism, and risk aversion; and institutional characteristics like legal systems and financial markets.

2.6 Systems of Corporate Governance

In the sense of broader classifications, there are mainly two corporate governance systems, i.e. shareholder oriented system and stakeholder oriented system. The shareholder oriented systems are mainly prevailing in Anglo-Saxon countries whereas the stakeholder oriented system can be seen in different part of Europe and Asia under different names. For example, European or Continental model, Dutch corporate governance model, German corporate governance model, Japanese corporate governance model, etc. The shareholder approach is also known as a market based system where as stakeholder model is also known as relationship based system. Unlike market-based system, in relationship-based system, there is less emphasis on shareholders and more focus on relationships with employees and consumers.

Table 2-5 Comparison of Insider & Outsider Systems of Gorporate Governance

Attribute / Characteristics	Insider System	Outsider System
Focus	Stakeholder Participation	Shareholder Participation
Equity Ownership	Concentrated	Dispersed
Interests in the company	Pluralistic	Monistic
Relationship between interest groups	Interdependent	Independent
Existence of implicit contracts between interest groups	Relevant	Irrelevant
Investment specificity	High	Low
Objective function for management	Multidimensional	One-dimensional
Performance evaluation of management through	Supervisory Board	Capital Market
Predominant control strategy of relevant interest groups	Voice	Exit
Primary mechanism of control	Internal	External
Exercise mode of control	Active	Passive
Information relevant for control	Internalized	Externalized
Transparency of the firm	Low	High
Importance of liquid capital market	Low	High
System configuration	Stable	Flexible

Source: Rott (2009)

The above table, which is borrowed from Rott (2009), explains in details, the theoretical and operational difference between an insider system and outsider system. Rott (2009) noted that an insider system of corporate governance is usually characterized by a group of stakeholders not just shareholders. The group of stakeholders includes majority owners, banks and employees representatives. This multiplicity of stakeholders makes management's objective functions as multidimensional.

An important difference between the two systems is primary mechanism for control. In an insider system, the internal governance mechanisms are embedded in the organizational structure and are very crucial to the survival of the firm, thus the predominant control strategy is voice. On the other hand, in an outsider system the management performance is evaluated by the capital market. Therefore, in case of dissent, interest groups follow an exit strategy which means depending on an external governance mechanism, especially market for

corporate control. A liquid capital market and high transparency standards are prerequisite for an effective external governance mechanism (Rott, 2009).

Alves and Mendes (2009) cited the existence of two models in South America before 1999 i.e. Latin model and Continental model. In Latin model board of directors are composed of odd number of directors, and actively involved in managing the affairs of the company. In addition, the article of association can authorize some directors to be responsible for looking after day-to-day business. Thus this apparently single-tier looking body is translated into two-tier body by creating a two-step decision making process. They further explains the changes in Latin and continental model because of worldwide diffusion of corporate governance codes and reforms.

Unlike the counties, where insider or outsider systems of corporate governance are followed, countries like Pakistan, India, Malaysia presents a unique challenge. Mukherjee and Mallik (2009) pointed out toward this dilemma by asking the question "who is responsible for the trouble – the dominant shareholder or CEO". For countries that are following outsider system, where share ownership is widely dispersed, the powerful management poses a governance problem. On the other hand, countries that follow an insider system, where ownership is less dispersed, banks played a significant role in disciplining a firm. As it is mentioned above, in countries like Pakistan and Malaysia, the corporate structure is in between the main two corporate governance systems. The corporate legal structure is outsider system based whereas ownership is concentrated and financial institutions play a vital role in meeting financing needs. But unlike bank based insider model, financial institutions' governance role is passive. Additionally, as pointed out by Mukherjee and Mallik (2009) the dilemma is further complicated by the presence of problems like an under-developed equity market, no market for corporate control and corruption.

2.7 Corporate Governance Compliance and Financial Performance

As previously noted, mega corporate failures, globalization and increased awareness of investors are the triggers of worldwide popularity and diffusion of good governance codes (Iturriaga, 2009; Mallin, 2007). This much attention automatically made corporate

governance codes a topic of interest for academia and researchers. The research on corporate governance codes and compliance with these codes can be divided into three main categories.

First category includes those studies that have examined the extent of compliance with codes of corporate governance within a single country or across multiple countries. Some of these studies have attempted to identify reasons for non-compliance. A second set of studies are those which have examined the effect of compliance with codes of corporate governance on corporate behavior like CEO turnover. And finally the third category includes those studies that have investigated the relationship of compliance with codes of corporate governance and financial performance of firms.

2.7.1 Extent of Compliance with Codes of Good Governance & Disclosure

Due to reasons noted above, there are number of studies (Akkermans et al., 2007; Alves & Mendes, 2004; Berglöf & Pajuste, 2005; Chizema, 2008; M. Conyon & Mallin, 1997; Dedman, 2000, 2003; Fernández-Rodríguez, Gómez-Ansón, & Cuervo-García, 2004; Liu & Yang, 2008; Talaulicar & Werder, 2008; Weir & Laing, 2000) that have examined the extent of compliance with these evolving codes of good governance.

Codes of good governance around the world are either seeking voluntary compliance (self-regulations) or mandatory compliance. In most of the codes the common feature is comply-or-explain principle (Haxhi & Van Ees, 2010), which means that either firm follow the stated best practice, or explain why it chooses to deviate. In this study's case, Malaysia is following the comply-or-explain approach. The comply or explain approach recognizes this important consideration that 'one size fit all' approach can be misleading (OECD, 2004). In this context, the voluntary provision of non-compliance information is dependent on self-regulations (Wymeersch, 2005). Along with self-regulations, especially in Europe, shareholders monitor the extent of compliance with the codes of good governance. Seidl (2007) noted that if shareholders are not satisfied with the state of compliance or firm's decision to deviate from a particular best practice then either they can sell their investment or record their dissent at board level.

Cadbury Committee report (1992) can be considered as first formal code of corporate governance and followed by a number of studies aiming to find the acceptance level and efficacy of the Cadbury recommendations. Stile and Taylor (1993) analyzed compliance data of The Times top 100 UK companies and find that 73% of the companies are showing compliance. The main recommendations they evaluate include separation of CEO and chairman role, disclosure about directors' remuneration, addition of outside directors, and establishing nomination, remuneration and audit committee. Among other studies which have taken account of compliance pattern with Cadbury committee recommendations are Conyon and Mallin (1997) and Davies (2006). Davies (2006) has reported the compliance rate of FTSE 100 listed companies with UK Combined Code. He noted that 70 percent of the sample firms have shown full compliance with the recommendations of Combine Code.

De Jong, DeJong, Mertens, and Wasley (2005) assert that without legal enforcement, little can be expected from initiatives that demands self-regulations and monitoring. Though it is argued that obligatory reporting can be a powerful incentive to ensure compliance but obligatory reporting may only ensure compliance in terms of letter not in spirit (Cleyn, 2008). There are many arguments in favor of self-regulations or comply-or-explain approach as cited by Aguilera and Cuervo-Cazurra, (2004), Levis (2006), Wymeersch (2006) and Anand (2005). Seidl, Sanderson and Robersts (2012) analyzed compliance statements of 257 listed companies in UK and Germany and found 715 instances of deviation from standard requirements. They further divided the justifications/explanations offered by sample firms in case of deviation into three categories; Deficient justification, Context specific justification, principled justification. 56% companies in Germany and 41% in UK has offered just the information that they have not comply with a given clause or requirement. Only 6% firms in UK and 20% in Germany has offered a detailed and meaningful justification

Most of studies looking into the extent of compliance do not offer explanation/reasons for firms' non-compliance with codes' best practices (Hooghiemstra, 2012). Arcot and Bruno (2006) is among the few early studies that have examined the reasons for non-compliance with best practices defined by respective national codes. They used a sample of 250 UK listed firms for a period of 1998-2004 and found that they explanations offered by firms are generic in nature and un-informative. Extending the work of Arcot and Bruno (2006), Hooghiesmstra

(2012) used compliance and disclosure data of 85 non-financial Dutch listed firms for the period of 2005-2009, tried to find out the determinants for informativeness of the explanations offered by sample firms for deviation from best practices defined by Dutch code of corporate governance. He concluded that firms with weak board of directors, widely dispersed ownership, followed by fewer analysts, and relying on debt financing, usually offer generic but un-informative explanations for the deviations from best practices.

Arcot and Bruno (2011) finds that firms with better operational performance tend to offer better and informative explanations. The corporate governance disclosure literature compliments the literature on extent of compliance and reasons for deviations from standard practices. Bushman, Piotroski and Smith (2004) using disclosure data of firms in 46 countries found that legal origin of the country is the main determinant of corporate governance disclosure and firms in common law countries provides more governance related information. Vander Bauwhede and Willekens (2008) and Zattoni and Cuomo (2008) confirms the findings of Bushman et al. (2004) of high disclosure pattern in common-law countries. Further Zattoni and Cuomo (2008) asserted that unlike common-law countries, in civil law countries the issuances of codes are more because of legitimation reason and less by the determination to improve national corporate governance landscape.

Using a sample of 78 Belgian listed firms, Cleyn (2008) reported that after one year of introduction of the code, on average companies comply with 70% of the code requirements. The provisions where compliance is deficient includes executive individual remuneration and contents of shareholders' meetings. Werder, Talaulicar and Kolat (2005) analyzed 408 compliance statements of firms listed at Frankfurt stock exchange and concluded that the high level of conformity with code is observed and this will further increase in future. Talaulicar and Werder (2008) investigated an interesting question regarding compliance with recommendations of German code of corporate governance. They investigated if the compliance with the code is peculiar to the individual company's characteristic. In other words they looked for compliance patterns. For a sample of 671 firms listed on Frankfurt stock exchange, using factor analysis, they found eight patterns of compliance. Overall results indicate a high degree of compliance with code of corporate governance. Consistent with Dedman (2000), Werder et al., (2005) and Hooghiemstra and van Ees (2011), Talaluicar

and Werder (2008) reported a positive association between degree of compliance and firm size.

Akkerman et al., (2007) investigated the question of extent of compliance with the provisions of the Tabaksblat Code 2004 in Netherland. Using a sample of 150 largest Dutch firms, Akkerman et al., (2007) concluded that there is high degree of compliance shown by the firms and also the size is positively related to the compliance level. Areas where compliance is weak includes director's remuneration, internal control requirements, independence of members of supervisory board. Further the similarity of explanations offered by sample firms for non-compliance indicates the lack of spirit in following code's recommendations. Hooghiemstra and van Ees (2011) used a sample of 126 listed Dutch firms and reported that firms showed conformity to codes requirements in fear of damage to their reputations. Similar to the findings of Seidl et al., (2012), they have pointed that majority of the firms followed specific set of code requirements and use standard explanation for non-compliance. Authors raised the question about effectiveness of this form of soft law and suggested that a more restrict regulatory mechanism is required to ensure the compliance as per spirit of the code.

Liu and Yang (2008) noted the compliance patterns for Taiwanese listed firms. They reported that since the introduction of listing rules in 2002, all newly listed firms have complied with the requirements of placing independent directors. They also noted changes in ownership structure of newly listed firms following adoption of listing rules 2002. In addition, the numbers for average board size, proportional representation of outside directors and institutional investors has seen a significant shift. Price, Roman and Tountree (2011) documented a significant increase (from 28% of the sample firms showing compliance to at least three-quarters requirements in 2001 to 79% in 2004) in compliance for Mexican firms during the period of 2000-2004, showing that Mexican firms consider non-compliance costly.

2.7.2 Compliance with Codes and Corporate Behavior

There is another small stream of studies which have examined the effects of compliance with respective code of corporate governance on corporate behavior e.g. CEO Turnover, earnings management and board structure.

Dedman (2003) discussed the effects of Cadbury committee recommendations on board structure and how it can help in resolving agency conflicts. He also took a comprehensive account of studies focusing on how Cadbury Committee recommendations have affected the corporate behavior and governance structures. They concluded that compliance with Cadbury recommendations improves board oversight capabilities. Peasnell (1998) reported that during 1990-1996 there is no change in average board size; however the proportion of non-executive directors has increased considerably. Dahya, McConnell and Travolas (2002) reported using a sample of 460 UK firms, CEO turnover rate has significantly increased in the post-Cadbury scenario.

Cadbury committee conducted a compliance survey using a sample of 684 firms in 1993-1994 and reported that large companies are more inclined towards accepting recommendations like separation of CEO and Chairman Roles (Dedman, 2003). Dedman (2000) argued that older CEOs are less likely to separate the role of CEO & Chairman. Conyon (1994) using a sample of *Times* top 1000 companies during 1988-1993, report that there is 19% increase in accepting Cadbury recommendation on separating the two roles. Dedman (2003) also cited an increase of 18% among sample firms which have conformed to the Cadbury committee recommendations.

Chen, Elder and Hsieh (2011) investigated the relationship of adoption of Taiwanese code of corporate governance and earnings restatement. They concluded that firms with higher number of independent directors (as recommended by the code) have less instances of earnings restatements. Overall, the compliance with code's recommendations regarding independent directors and financial expertise resulted in fewer restatements. Peasnell, Pope and Young (2000) reported that after adding more outside directors as per Cadbury recommendations, less instances of earnings management are recorded. Cuomo, Zattoni and Valentini (2012) contends that adherence to new governance reforms in the forms of codes can change the ownership structure over time.

2.7.3 Compliance with Codes and Financial Performance

As noted previously, due to worldwide popularity and diffusion of corporate governance codes, the empirical question that how the extent of compliance can affect corporate

performance gained much attention. As a result there is evolving but still premature (Talaulicar & Werder, 2008; Teh, 2009) literature aiming at providing answers to this question. Here this study will take account of only those studies which focused on compliance with respective codes/regulations instead of general corporate governance structure.

Using panel data for top 50 companies listed on New Zealand stock exchange and covering the period of 1999 to 2007, Reddy et al., (2010) investigated the empirical question regarding code compliance and financial performance for New Zealand. Measuring financial performance through ROA, market to book ratio and Tobin's Q, they employed OLS and 2-stage least squares regression methods to explore whether firms that showed better conformity with code are better performers and firm performance is better in the post-code period. Due to the flexible nature of principal-based approach, overall large companies have adopted the recommendations of the code. Further, they carefully concluded, there is evidence that the recommendation of code has positive influence on firm performance. The presence of remuneration committee as recommended by the code is also positively related to the firm performance.

For Germany, Goncharov, Werner, and Zimmermann (2006) using a final sample of 61 largest listed firms, examined the price effect related with degree of compliance to German code of corporate governance. They reported that firms with higher degree of compliance are priced at premium in contrast to the firms with low degree of compliance. In other words, degree of compliance with the code is value-relevant after controlling for an endogeneity bias. The author's findings also support the hypothesis that due to capital markets pressure, boards adopt codes' recommended changes. In the similar manner, Nowak, Rott, and Mahr (2005) and Bassen et al. (2006) (as cited in Talaulicar & Werder, 2008) reported significant relationship between compliance with the German code of corporate governance and different financial performance Measures.

For European firms the evidence is mixed for compliance-performance relationship. Bauer, Guenster and Otten (2004) used Deminor corporate governance ratings for firms listed on FTSE Eurotop 300 and reported that though firm value is positively related with governance

ratings, firm performance as measured by ROE and Net Profit Margin is negatively related with governance standards. Further they reported substantial difference between UK markets and Eurozone markets. Bauwhede (2009) tested the relationship between the level of compliance with international best practices and operating performance of large European listed firms. They used a sample of 118 firms from 14 European countries. In contrast to Bauer et al. (2004), Bauwhede (2009) reported a positive relationship between operating performance and extent of compliance with international best practices.

Cadbury committee recommendations in 1992 are one of the first in corporate governance codes/recommendations land scape. There are number of studies which have tried to evaluate the efficacy of these recommendations by comparing & evaluating the financial performance of listed companies that have adopted or followed those recommendations. The overall results are inconclusive. Dedman (2003) asserted that although there is no empirical evidence for compliance with Cadbury committee recommendations and firm value, there is some evidence that due to implementing these recommendations, overall board oversight capacity has increased. Weir and Laing (2000) also reported similar inconclusive results. Interestingly the presence of outside directors is negatively related and presence of remuneration committee is positively related to firm performance. In contrast, Arcot and Bruno (2006) report the evidence consistent with the notion that optimal governance structure for each firm is different. They reported that well-organized firms that have deviated from code's requirement of comply or explain have performed well. Dahya and McConnel (2007) pointed out that firms that have, in compliance with code's direction, added outside directors to their boards have performed better than firms that do not. Dahya and McConnel (2007) verified their earlier findings by reporting that those firms that have complied with Cadbury Code recommendations over the period of 1986 to 1996, have outperformed their non-complying peers. However, firms which have splitted the roles of Chairman and CEO do not exhibit improved financial performance.

Jong et al., (2005) examined the relation between firm value and corporate governance structure before and after the implementations of "The Peter Committee" recommendations in Netherland. The Peter Committee was a private sector initiative promoting self-regulations. They evaluated 102 firms in pre-recommendations (1992-96) and post-

recommendations era (1997-99). They concluded that The Peter Committee recommendations had no effect on corporate governance characteristics or on firm value. Alves and Mendes (2004) used a multifactor model and tested the relationship between abnormal stock returns and level of compliance with recommendations of Portuguese Securities Market Commission. They concluded that there is a positive relationship between compliance with some of these recommendations and abnormal stock returns.

Fernández-Rodríguez, Gómez-Ansón, and Cuervo-García (2004) investigated the market reaction on statements issued by Spanish firms in compliance with the Olivencia Code. They used firms listed on Madrid stock exchange and reported that for an overall sample of announcements, the market reaction was positive. However no significant wealth effects are observed for those sample firms that have adopted specific recommendations of the code. They concluded that announcements about significant restructuring of the board of directors are positively valued by investors. Using The Corporate library board effectiveness ratings for a set of largest companies in US, Larcker , Richardson and Tuna (2005) find a positive relationship between overall ratings and next year return on assets (RoA).

For US there are numerous studies that have tried to measure the investor reactions on adoption of Sarbanes-Oxley Act by listed companies. As with other countries, the results are mixed. Larcker et al., (2005) reported a positive but weak relationship. Similarly, Li, Pincus and Rego (2004) cited an overall positive reaction from investors. In contrast, Zhang (2007) reported a negative reaction of investors towards adoption of recommendations of Sarbanes-Oxley Act. Litvak (2007) reported a negative reaction by investors for companies which are cross-listed and subjected to SOX compliance. Black and Khanna (2007) conducted an event study to determine whether major corporate governance reforms in India known as Clause 49 increased market value of firms. They cited a 4 percent increase in the price of big firms after the initial announcement for Clause 49. These results were in contrast with mixed results shown by many studies that have examined the effects of SOX in US.

Kouwenberg and Phunnarungsi (2012) tested the relationship between announcement of non-compliance by Thai listed firms and market reaction. They find no significant difference in market reaction between high and low compliance firms announced non-compliance.

However, when firms with passive past records violated the requirements of the code, the market reaction is negative. Price et al., (2011) used the compliance data of public firms in Mexico to assess the effects of compliance on firm performance. Using a sample of 107 firms over the period of 2000-2004, they tested hypotheses concerning compliance, firm performance, earnings management. They reported no association between compliance with code and operating performance. Also no relationship found between compliance and earnings management and compliance and governance quality. They explained that concentrated ownership in addition to weak legal systems has limited the desired impact of code of corporate governance. In a setting like this only market monitoring mechanism is not enough. Interestingly firms with high compliance score paid more dividends which can be seen as a costly mechanism of reducing agency conflicts. Authors attributed these findings to characteristics of Mexican business environment like concentrated ownership, interlocked directorships, and poor protection mechanism for minority shareholders.

In another study by Weir and Laing (2000), they reported interested findings regarding better performing firms and extent of compliance. The divided their sample of 320 listed UK firms into quartiles on the basis of financial performance. The compliance with Cadbury code do not resulted in better firm performance. They noted that the firms in the best performance quartiles are the once that have least complied with Cadbury code and the highest compliance was seen from firms in the lowest performing quartiles.

In the light of agency theory, information asymmetry & managerial signaling theory and convergence theory, this study formulates the following hypothesis to be tested.

***H_{1a}**: There is a positive impact of Compliance with Code of Corporate Governance on firms' financial performance as measured by ROA, ROE, ROCE & EPS*

***H_{1b}**: Firms with higher level of Compliance with Code of Corporate Governance have superior financial performance (ROA, ROE, ROCE & EPS).*

***H_{1c}**: There is a positive impact of Compliance with Code of Corporate Governance on firms' efficiency as measured by Technical, Pure Technical and Scale Efficiency*

H_{1d}: *Firms with higher level of Compliance with Code of Corporate Governance are more efficient (Technical, Pure & Scale Efficiency)*

2.8 Corporate Governance and Financial Performance

In contrast to code compliance-performance literature, the governance-performance literature is well populated. The governance-performance literature can be categorized into two main types. Fist type consists of those studies that have measured corporate governance through composite governance indices (non-compliance indices) whereas second type includes all those studies that have measured corporate governance through one or more proxies of internal corporate governance mechanisms. Here this study will briefly review both types of studies. The overview of second set of studies will also provide basis for this study's use of control variables.

Early research on governance-performance was mostly based on developed markets, but lately researchers began to look at corporate governance in the context of developing economies. The privatization of state owned enterprises and reforms to liberalize the markets in developing and transitional economies to meet the international requirements are the main motivators of increased focused on corporate governance. (Megginson & Netter, 2001).

2.8.1 Governance Indices based Governance-Performance Studies

Before 2001, studies dealing with the relationship among different governance mechanism (internal) and their impact on firm performance used one or more individual measures as a proxy of corporate governance. For example ownership concentration, ownership structure, managerial ownership, board independence, board size, CEO duality, executive compensation, etc. Initially as noted by Bhagat, Bolton and Romano (2008), the purpose of creating composite indices were to make academic inquiries, but the widely popularity of these studies resulted into commercialization of these indices. Here this study will discuss about three mainly used and cited indices i.e. GIM *G-Index*, Bebchuk, Cohen and Farrell's *E-Index* and Brown and Caylor's *Gov-Score* Index in specific and other governance-performance related studies in general.

2.8.1.1 Governance Index (G-Index)

Gompers, Ishii and Metrick (2003) were the first one to introduce and use a composite index based approach in corporate governance research. Although their work published in 2003, it was widely in circulation since 2001 (Bhagat et al., 2008). They have constructed their index (G-index) from data on 28 governance provisions compiled by investor responsibility research center (IRRC), a not-for-profit research group serving institutional shareholders. Since then there is an influx of index based studies all around the world.

Gompers et al. (2003) (GIM) index was built from governance data of approximately 1500 firms including the Standard & Poor's 500 and the Fortune 500. As noted above the data was compiled by IRRC. One thing to note here is that most of the governance characteristics tracked by IRRC are related to defensive against takeover threats. Out of the 28 provisions used to construct the index, 22 (out of which 17 provisions are take-over related) were obtained from firm's legal documents and six were from state's take over legislation. On the basis of this data, they constructed their index to reflect the "balance of power between shareholders and managers". They assign equal weights to all provisions and by adding up the scores assigned to these provisions; they get "Governance Index" score or simply G-Index.

After constructing the G-Index GIM grouped the sample firms into ten groups (portfolios) based on their G-Index score. They called the portfolio with the highest G-index score as "Democracy" and the lowest G-index score portfolio as "Dictatorship". They used Tobin's Q, Stock Returns, Net Profit Margin (NPM), return on equity (ROE) and Sales growth to measure financial performance. Then they compared the relationship between governance quality and financial performance especially between the "Democracy" portfolio and "Dictatorship" portfolio. They found a significant relationship between G-Index score and stock returns and Tobin's Q during 1990s. The firms with poorest corporate governance records were consistently underperformers. To further quantify the results they reported that if someone purchase shares of firms in the "Democracy" portfolio and sell shares of firms in "Dictatorship" portfolio, he would have earned an abnormal return of 8.5% per annum. At the end of study period one-point increase in G-Index score is associated with 11.4% decrease in Tobin's Q. They concluded that during the study period firms with strong shareholders rights

had higher firm value, higher sales growth, higher profits, fewer corporate acquisitions and lower capital expenditures.

Although results indicates a strong relationship between shareholders rights and financial performance, but it does not warrant a cause-effect relationship. Unlike the plethora of studies following these results, GIM were very cautionary in interpreting their empirical findings. They offered three possible explanations for their findings. First, the governance provisions can increase agency cost and during the 1990s investors may have underestimated these costs. Second, in anticipation of poor performance in 1990s, managers have placed these governance provisions in 1980s. And third, higher agency costs are not because of corporate governance provisions, and there are other unspecified factors that may have caused the firms abnormal performance in 1990s.

2.8.1.2 Entrenchment Index (E-Index)

Bebchuk, Cohen and Ferrell (2004, 2009)investigated the relative importance of GIM's G-Index that is composed of 24 corporate governance provisions followed by Investor Research Responsibility Center (IRRC). They argued that there is no reason to expect a correlation between all IRRC provisions and measures of market performance like Tobin's Q and stock returns. They tried to single out those provisions which are actually responsible for the correlation with firm value. As a result they proposed an alternate index composed of 6 out of 24 provisions of IRRC and they call it entrenchment index or E-Index as it is known.

The six provisions used to construct the E-index are; staggered board, poison pills, limits to shareholders bylaw amendments, super majority requirements for mergers and charter amendments and golden parachute. For constructing index, they followed the Gompers et al., (2003) approach i.e. by assigning one point for each of the provision. Therefore each company in their sample can obtain a score from zero to six. The inclusion of only these six entrenchment related provisions is justified by the regression estimation where they estimated each provision individually and reported that the above mentioned six provisions were the only ones turned out to be significant with firm performance.

They used a sample of more than 1500 firms for the period of 1990 to 2002. The findings were as follows. After controlling for the rest of 18 IRRC provisions, all of the six provisions of E-Index are significantly and negatively correlated with Tobin's Q- both individually and in aggregate. Further no evidence was found that the remaining 18 provisions are correlated with Tobin's Q. In terms of financial performance, they also verified the findings of Gompers et al., (2003). In terms of interpreting these results, Bebchuk et al. (2004, 2009) were very cautious like GIM. They did not conclude that there is causation between the phenomenons investigated, instead they concluded that evidence is suggestive that the provisions in their E-index can affect performance.

It is argued that their E-index is more preferable to G-index as it is better motivated, less costly, and it outperformed the G-Index. Although G-Index is widely used and cited in academic literature (e.g. Amit & Villalonga, 2006; Cremers, Nair, & Wei, 2007; Dittmar & Mahrt-Smith, 2007; Harford, Mansi, & Maxwell, 2008; Klock, Mansi, & Maxwell, 2005), E-Index has formed basis for commercial indices.

2.8.1.3 Governance Score Index (Gov-Score Index)

Brown and Caylor (2006) used firm level corporate governance information from Institutional Shareholders Service (ISS) and constructed a comprehensive and more extensive corporate governance index than G-Index and E-Index. Their index which they called "Gov-Score" is consist of 51 parameters covering eight corporate governance categories; board of directors, directors education, executive and director compensation, ownership, charter/bylaws, progressive practices and state of incorporation. 13 of the provision used to construct Gov-Score index are used in G-Index by GIM. Following Bebchuk et al., (2004, 2009) they also refined the main Gov-Score index and created a sub-index encompassing seven of the components from main Gov-Score index.

Using data for 1868 firms for the year 2003, Brown and Caylor (2006) concluded that better governance firms are relatively more profitable, valued more and pay more cash to their shareholders. They reported a significant and positive relationship between Gov-Score and Tobin's Q. It is important to note here, in contrast to G and E-index, higher Gov-Score indicates higher quality of corporate governance. They then further investigated that which of

the eight categories is more related to performance. Executive and director compensation category is the highly associated with firm performance and whereas charters/bylaws are highly associated with bad performance. Authors argued that Gov-Score index is better at assessing the governance-performance relationship then G-Index.

2.8.1.4 Indices based Governance-Performance Research in Pakistan and Malaysia

Following the international trend of using corporate governance indices, there are number of studies in Pakistan and Malaysia that have tried to address the empirical question regarding relationship between governance and performance.

Javed and Iqbal (2006, 2007) employed generalized methods of moments to control for endogeneity problem and constructed an corporate governance index comprising of 22 governance indicators or proxies, broadly divided into three categories i.e. Board of Directors, Ownership and Disclosure and Transparency. They used subjective weighting and assigned a score for 0-100 for each indicator. They used a sample of 50 non-financial firms (from KSE-100) for the period of three years i.e. 2003-2005. Measuring valuation through Tobin's Q, Javed and Iqbal (2006) documented a significant and positive relationship between quality of corporate governance and firm's valuation. Shah (2009) developed a governance index on the basis of the survey from academician and market participants like CEOs, CFOs & companies secretaries. Using a sample of 120 Pakistani firms and 1035 US firms for the period of 2002 to 2007, he reported a positive relationship between managerial ownership, CEO duality and governance scores with dividend payout. He also reported a positive association between corporate governance and financial performance.

Shaheen and Nishat (2007) used data of 226 firms during the year 2004 and constructed an composite index comprising of 37 factors. They measured firm performance using three operating measures i.e. ROE, profit margin, and sales growth, one market measure i.e. Tobin's Q and one payout measure i.e. dividend yield. Except for Tobin's Q they reported a positive correlation between financial performance and corporate governance. They also identified seven factors that are mostly associated with bad performance. These are; (1) prohibition of former CEO serving on the board, (2) limit on executive directors numbers on the board, (3) replying to shareholders proposal within 12 months of AGM, (4) inclusion of at

least one outside director on board, (5) three year re-election term, (6) a director should not serve more than 10 companies and (7) simple majority vote for merger approval. Among other studies that have construct and used corporate governance indices and related them with financial performance includes

Klapper and Love (2004) find in a study of 25 emerging economies including Pakistan, that ROA and market valuation are positively correlated with good corporate governance. However, they suggested that these result should be considered after taking endogeneity into account. Tariq and Butt (2008) also reported positive association between quality of corporate governance and firm's accounting performance.

As noted in chapter one, almost all of the research on corporate governance suffered from a number of problems. The study period are small, and most of the studies has used KSE-100 index firms, thus exist a size bias.

For Malaysia, Ariff, Ibrahim and Othman (2007) created two portfolios namely "Top 50 percent" and "Bottom 50 percent" from ranking data of 95 listed companies for the year 2003. Their analysis indicates that only firm size is significantly related to corporate governance rankings and there is no relationship found between corporate governance and profitability, growth, market valuation, and ownership structure. Ponnu and Ramthandin (2008) also used corporate governance ratings (developed by the consortium[8]) of 100 companies for 2006 and reported a significant and positive correlation between ROE and corporate governance structures whereas there is a negative but insignificant correlation with stock prices. In contrast, Mokhtar et al., (2009) did not find difference between firms with good and bad corporate governance practices.

[8] Malaysian Institute Corporate Governance (MICG), University Technology Mara (UiTM), BizAid Technologies Sdn Bhd and Ratings Agency Malaysia Berhad (RAM)

2.8.1.5 Problem with Corporate Governance Indices

As noted above that since publication of GIM's index, there is plethora of studies investigating governance-performance relationship using either one of above motioned indices or custom built corporate governance indices (non-compliance or voluntary indices).

Though it seems comprehensive, the use of such composite indices is not without its own problems. The two variables, governance and performance, are endogenous, meaning that their relationship is bidirectional rather than unidirectional. Bhagat et al., (2008) offered a very exhaustive overview of methodological problems and issues in indices based governance-performance research. They contend that academic literature using corporate governance indices has not satisfactorily established the cause-effect relationship between corporate governance and performance. They further argued that the use of an index can magnify that problem because they are built on two incorrect assumptions: first good governance components do not vary across firms; and, 2nd, such components are always complements and never substitutes. There is no one best measure of corporate governance. Given the context and firm's specific characteristics, an effective corporate governance system can be unique for each firm. Accordingly, measuring corporate governance through indices and making corporate and investment decisions can be misleading (Bhagat et al., 2008).

2.8.2 Corporate Governance and Firm's Efficiency

Using an alternative measures of firm performance, i.e. DEA efficiency scores, Bozec, Dia and Bozec (2010) used the corporate governance index published by the Globe and Mail in Canada and investigated the relationship between corporate governance and firm's efficiency. They reported an overall positive association between governance score and firm's efficiency. They also noted the positive association between board composition, disclosure, and compensation sub-indices and firm's efficiency. Wang, Jeng and Peng (2007) used three year panel data for insurance companies in Taiwan and tested the relationship between governance mechanisms i.e. insider ownership, cash-flow rights, board size, board independence, and CEO-chairman duality and firms efficiency. They reported an overall positive relationship between corporate governance and firm's efficiency.

Wang, Lu and Lin (2012) noted that corporate governance plays a very important role in affecting operating performance of bank holding companies. They employed a modified DEA model to assess the efficiency for sample firms. Lin, Ma and Su (2009) explained that the improvement in corporate governance structure in SOEs can enhance firm's efficiency. Su and He (2011) endorses the findings of Lin et al., (2009). The literature on internal corporate governance mechanisms and efficiency is discussed in respective headings of following section.

2.8.3 Internal Corporate Governance Mechanisms and Firm Performance

The other stream of studies has chosen one or more governance mechanisms (e.g. board size, board independence, Chairman-CEO duality, executive compensation, ownership structure and concentration etc.) and investigated their relationship with firm performance and corporate behavior. For this study, these internal control governance mechanisms are used as controls to single out the effect of compliance with code of corporate governance. Here this study will take brief review of previous empirical literature on these governance mechanisms.

2.8.3.1 Board Size

Board of directors is the most important institution of corporate governance. In the words of Fama and Jensen (1983) board of directors are "the apex internal decision control systems of organization". What should be an ideal board size and doe board size matters? This is a question of interest for academicians, researchers and practitioners alike for decades. Despite this much focus on this dimension, there is no clear cut answer to this question.

Traditionally it was believed that larger boards are better as they offer a wider range of expertise and it is difficult for a CEO to dominate a large board. Lately, it is argued that smaller board are better as larger boards are ineffective thus easier to be controlled by CEO (Jensen, 1993). Yermack (1996)used a sample of 452 large US industrial firms for the period of 1984 to 1991 and reported a negative association between board size and firm value. These findings were supported by future research but not consistently. Coles, Daniel and Naveen (2008) contends, based on their empirical analysis, that complex firms have bigger boards with more independent directors than simple firms. The relationship between board size and

firm value measured by Tobin's Q is U shaped indicating either very large or very small boards are better.

Eisenberg, Sundgren and Wells (1998) reported a negative relationship between board size and profitability for Finnish firms. Carline, Linn and Yadav (2002) cited similar results using operating profits for UK firms. Other studies that have reported negative association between board size and firm performance includes Bøhren and Ødegaard (2004) for Norwegian firms, Mak and Yuanto (2005) for Singaporean and Malaysian firms, Haniffa and Hudaib (2006a) for Malaysian firms and Aggarwal, Erel, Stulz and Williamson (2007) for US and 22 other countries. Dalton, Daily, Johnson and Ellstrand (1999) carried out a meta-analysis of 27 studies aggregating 131 samples and 20,260 firms reported a positive link between board size and performance. Among other studies supporting this positive relation includes Dahya et al., (2008), Ntim (2009) for South Africa, and Shah (2009), Abdullah, Shah and Hassan(2008), Shaheen and Nishat (2007) for Pakistan. Whereas, Renneboog (2000), Mir and Nishat (2004) and Reddy et al., (2010) find no evidence of relationship.

In contrast, literature linking board size and efficiency is slim. Nanka-Bruce (2011) find a negative association with technical efficiency and Chiang and Lin (2007) supported these findings by arguing that smaller board can help in improving productivity. Whereas, Chen, Chen and Wu (2011) confirms a positive relationship of board size with overall technical efficiency, and pure technical efficiency. Following Dalton et al., (1999) reasoning for larger boards and keeping in view the importance of resource dependency theory specially in developing and emerging economies, this study anticipates a positive relationship between board size and firm performance (profitability and efficiency).

H_{2a}: Board size is positively related with firms' financial performance (ROA, ROE, ROCE and EPS).

H_{2b}: Board size is positively related with firms' efficiency (Technical, Pure Technical and Scale Efficiency)

2.8.3.2 CEO-Chairman Duality

CEO duality is another dimension of internal corporate governance mechanisms which is widely investigated. Argument exists both in favor and against the separation of roles. However, lately due to the international dominance of Anglo-Saxon approach to corporate governance, the separation of roles of CEO and chairman of the board are strongly advised. Lam and Lee (2008) cited Rechner and Dalton (1991) and Rhoades et al., (2001) and noted that CEO duality has been a dominant leadership structure for the boards of US corporations, as approximately 80 percent of these corporations have combined roles. In contrast, Europe has a prevalent culture of separated roles of CEO and chairman. Further they noted that for Asian companies, board leadership structure lies in the middle of two extremes.

The extant research has positive, negative and inconclusive evidence on the relationship between duality and performance. Using data of Fortune 500 firms during the period of 1981 to 1990, Baliga, Moyer and Rao (1996) contends that's overall there is no relationship between the presence or absence of duality and firm performance. Lam and Lee (2008) argued that neither agency theory nor stewardship theory alone can explain the relationship between duality and performance. The CEO duality and financial performance is contingent on other factors like family control. Kang and Zardkhooni (2005) reviewed thirty studies and find that eight studies find positive association, seven reveals negative association and ten reported inconclusive relationship.

The review of literature indicates that among studies that have reported negative link between duality and financial performance measured by both market and accounting measures includes, Nanka-Bruce (2009), Solomon and Solomon (2004), Mir and Nishat (2004), whereas Ntim (2009) have reported a positive association of duality with profitability. Aggarwal et al., (2007), Coles and Hesterly (2000), Conyon and Murphy (2000) and Daily and Dalton (1997) reported mixed and insignificant results.

With reference to slim literature on duality and technical efficiency, Nanka-Bruce (2009) reported a negative relationship of duality with technical efficiency. Chiang and Lin (2007) contends that the combine role of CEO and board chairman can increase productivity. Nanka-

Bruce (2011) reported a positive link between the presence of duality and technical efficiency whereas Bozec and Dia (2007) found no evidence of relationship

The stewardship and resource dependency theory suggest a positive link between duality and firm performance. In contrast agency theory suggests a negative relationship.

H_{3a}: CEO-Chairman Duality decreases firms' financial performance (ROA, ROE, ROCE and EPS).

H_{3b}: CEO-Chairman Duality decreases firms' efficiency (Technical, Pure Technical and Scale Efficiency)

2.8.3.3 Ownership Structure

Besides board of directors (size and composition), ownership structure is another dimension of internal corporate governance mechanisms, which receives in depth attention from researcher of both developed and developing economies. Like other corporate governance mechanisms, the empirical studies examining the relationship between ownership structure and firm value have come up with inconclusive and mixed results (Bennedsen & Nielsen, 2006; Bøhren & Ødegaard, 2004; Claessens & Djankov, 1999; Demsetz & Villalonga, 2001; Himmelberg, Hubbard, & Palia, 1999; Morck, Nakamura, & Shivdasani, 2000; Wiwattanakantang, 2001). The explanation offered is that as long as managers maximize shareholders' values, ownership structure would not have any systematic impact on firm value (See Tam & Tan, 2007 and references thereafter). Lemmon and Lins (2003) concluded that firm performances differences can be explained by different ownership structures.

Agency theory poses that separation of ownership and control leads to potential conflict between managers and shareholders. To resolve the agency problem, the alignment hypothesis suggest that insider's equity ownership i.e. directors and officer share ownership is a better way to align self-interest manager's goals with shareholders' goals (Jensen, 1986). With the increase in insider's share of equity in a firm, the interest will coincide more with the owners and will result in improved financial performance. In response to this Demsetz

(1983) contends that the firm performance will only increase if there is dis-equilibrium in the ownership structure.

McConnel and Servaes (1990) investigated 1173 firms listed on New York stock exchange at two different point in time i.e. once at 1976 and secondly at 1986 and reported an inverted U shaped relationship between insider's ownership and firm value. The positive association between director's shareholdings and firm performance is also reported by Ntim (2009), Javed and Iqbal (2006, 2007), Shah (2009), Lichtenberg and Pushner (1994). Lemmon and Lins (2003) shows that differences in ownership structure can explain differences in firm performance in eight East Asian countries. Farroque, Van Zijl, Dunstan and Karim (2007) reported that there is linear and non-linear relationship between director's ownership and firm performance. In another study, Farroque, Van Zijl, Dunstan and Karim (2010) state that there is a positive co-deterministic relationship between firm performance and ownership concentration. On the other hand, Fama and Jensen (1983) reported a negative association between insider ownership and performance, thus promulgating entrenchment hypothesis. Similarly Ntim (2009) reported that director share ownership is statistically significant and negatively associated with firm's value.

Jensen and Meckling (1976) assert that the ownership structure is part of a firm's production function as well as technology and production resources. Therefore, if the technology and other input factors are kept same, and use ownership as a input variable then difference level of ownership can result in different efficiency levels for similar sized firms. As previously noted, the literature using technical efficiency as a measure of performance and linking it with ownership structure is slim. Zheka (2005) contends that domestic ownership of a firm can enhance efficiency whereas managerial ownership has a negative effect on efficiency. Chiang and Lin (2007) following the previous empirical evidence, posit that there exists a U shaped or curvilinear relationship between productivity and ownership structure. Their findings support this notion, that an increased level of ownership by board of directors decreases firm's productivity (Kao, Chiou, & Chen, 2004; Zheka, 2005).

Chen, Chen and Wu (2011) find that ownership structure is negatively related with over all technical efficiency and pure technical efficiency. Sheu and Yang (2005) reported that ownership concentration is monotonically negatively related with technical efficiency.

H_{4a}: Board's shareholding increases firms' financial performance (ROA, ROE, ROCE and EPS).

H_{4b}: Boards' shareholding increases firms' efficiency (Technical, Pure Technical and Scale Efficiency)

2.8.3.4 Ownership Concentration

Ownership concentration is considered both complement and a substitute to board structure, an internal governance mechanism. In emerging and developing economies, especially where active market for corporate control is absent, the share ownership concentration is considered a substitute mechanism for regulating firm's management. But lately the Anglo-Saxon dominated international reforms advocates are criticizing the concentration of ownership as a cause for bad governance. Claessens and Djankov (1999) and Cheema, Bari and Siddiqui (2003) commented that the concentration of family control in Pakistan, at any given threshold level is much higher than in many East Asian economies, which are known for excessive family control.

Share ownership of largest shareholder or shareholding of five percent or more (block holders) can be used as proxy for measured ownership concentration (Denis, 2001; Pedersen & Thomsen, 1999). Shleifer and Vishny (1986) argued that the presence of block holders can help in reducing agency cost thus increasing financial performance. Reddy et al., (2010) cited Agrawal and Mandelker (1990), Hill and Snell (1988, 1989), and Shleifer and Vishny (1986) contends that the presence of block holders can mitigate the free rider problem.

It is argued that high level of share ownership concentration can cause operational inefficiencies. This may happen when the majority share owners are interested in short term gains at the cost of long run value maximization (Nanka-Bruce, 2009). Kohler (1990) asserts that large shareholders may encourage managers to forego long run benefits and engaged in

risky short- term strategies. There is also literature suggesting large shareholder can be involved in tunneling and exploiting minority shareholders thus conforming expropriation hypothesis (Claessens & Fan, 2002; Lange & Sharpe, 1995). Classens and Fan (2002) pointed out that in Asian corporations due to high ownership concentration, minority shareholders faces the risk of expropriation and this can reflect in firm valuations. Also the rent-seeking behavior of majority shareholders (concentrated owners) can enhance the agency problem because of low transparency practices in such firms.

The vast empirical literature concerning ownership concentration and financial performance has produced mixed evidence. Li, Wang and Deng (2008) reported that large shareholders' ownership and the state ownership have negative effects on the probability of distress in an emerging economy. Mir and Nishat (2004), Shah (2009), Kapopoulous and Lazereto (2007), Earle, Kucsera and Telegdy (2005) and Denis and McConnell (2003) reported positive association between ownership concentration and financial performance. Whereas, Piesse and Khatri (2002) reported inverse relationship for Malaysian listed firms. Inconclusive results are reported by Nanka-Bruce (2009), Demsetz and Villalonga (2001) and Reddy et al., (2010).

Nanka-Bruce (2009) finds that ownership concentration is positively related with technical efficiency. Similar findings are reported by Zheka (2005), Zelenyuk and Zheka (2006) for Ukrain, Lehmann, Warning and Weigand (2004) for Germany, Nanka-Bruce (2007) for Spain, Destefanis and Sena (2007) for Italy. Lin, Ma and Su (2009) reported a U shaped relationship between firm's efficiency and ownership concentration. Nanka-Bruce (2011) used an unbalanced pool of manufacturing firms from sixteen countries and concluded that the presence of active large shareholders can enhance firm's technical efficiency provided that they have small balanced boards with unified leadership structure.

H_{5a}: Ownership concentration negatively impacts firms' financial performance (ROA, ROE, ROCE and EPS).

H_{5b}: Ownership concentration negatively impacts firms' efficiency (Technical, Pure Technical and Scale Efficiency)

2.8.3.5 Institutional Shareholding

The importance of institutional shareholding, either domestic or foreign, has a very vital role especially in developing economies with low investor protection and relatively under developed equity market (Khan, 2006). The presence of institutional shareholders can motivate a firm to have long-term planning, calculated risk taking and financial planning (Thomsen & Pedersen, 2000). Smith (1996) cited in Nanka-Bruce (2009) argued that for the given value of their investment, institutional shareholders can improve firm performance.

The literature on the role of institutional shareholders in improving governance and as a result corporate value yielded conflicting evidence (Shleifer & Vishny, 1997). Institutional investors are more efficient at monitoring the management and majority shareholders than minority and dispersed owners. Holmstrom and Tirole (1993) cited in Khan (2006) noted that being providers of controlling capital, institutional shareholders can act as independent directors and effectively monitor firms investment decisions. Using a sample of 434 listed Malaysian firms Wahab, How and Verhoeven (2008) suggested that institutional ownership is positively related to corporate governance.

Abdelsalam, El-masry, and Elsegini (2008) reported a positive relationship between institutional ownership and firm performance, dividend decision and payout ratio. Mir and Nishat (2004) reported that block holdings by individual, family members & institutional investors is positively associated with firm performance. Shah (2009), Ntim (2009), and McConnell and Servaes (1995), Smith (1996), Gorton and Schmid (2000b) and Boehmer (2000) as cited in Nanka-Bruce (2009) find similar positive results. Seifert, Gonenc and Wright (2005) and Ho (2005) reported inconclusive results. Whereas Goergen, Renneboog and Correia da Silva (2005), and Morck et al., (2000) find a negative relationship between institutional investors and financial performance. Chiang and Lin (2007) supported the view that institutional shareholding can neutralize the negative effects of ownership concentration on total factor productivity.

H_{6a}: Institutional shareholding increases financial performance (ROA, ROE, ROCE and EPS).

H_{6b}: Institutional shareholding increases firms' efficiency (Technical, Pure Technical and Scale Efficiency)

2.8.3.6 Foreign Shareholding

It is argued that firms with foreign investors are more efficient because of better production and distribution processes than firms with local shareholders. This efficiency can be attributed to the advance technology introduced by foreign investors (Dimelis & Louri, 2002). The similar argument is offered by Barbosa and Louri (2005) where they stated that the presence of foreign shareholding may improve firm performance due to factors like, product differentiation, ability to exploit economies of scales due to better access to financial resources and superior corporate governance mechanism. This argument is more valid for companies operating in developing economies than in industrialized economies

There is broader evidence that the presence of foreign investors (especially with control rights) have positive impacts on firm performance and technical efficiency (Dimelis & Louri, 2002; Douma, George, & Kabir, 2006; Huang, Ma, & Pope, 2012; Mok, Yeung, Han, & Li, 2007; Oxelheim & Randøy, 2003). As noted above that this is more valid for firms in the developing economies. Consistent with this Zheka (Zheka, 2005) noted that foreign owned firms are relatively inefficient in case of Ukrain. Debasish (2006) reported that Indian banks with foreign ownership outperformed banks with local & domestic shareholding. Zelenyuk and Zheka (2006) also attributed quality of governance and foreign ownership with firm efficiency. Sunyanto and Salim (2013) and Halkos and Tzeremes (2010) both reported similar positive impacts of presence of foreign shareholding on firm's efficiency.

H_{7a}: Foreign shareholding has a positive impact on firms' financial performance (ROA, ROE, ROCE and EPS).

H_{7b}: Foreign shareholding has a positive impact on firms' efficiency (Technical, Pure Technical and Scale Efficiency)

2.8.3.7 Dividend Policy

Among others, dividend policy also considered as internal mechanism which can alleviate agency problems (Setia-Atmaja, 2009). To this effect many authors consider it as a part of agency theory. The reduction in agency cost can lead to enhanced firm's value (Dhanani, 2005). Dividend policy can influence shareholders value either by providing information to investors or through wealth redistribution (Travolas, Trigeorgis, & Vafeas, 2001). In this context he following hypothesis is formulated.

H_8: Dividend Payout is positively related with firms' financial performance (ROA, ROE, ROCE and EPS).

2.9 Firm Specific Control Variables

There is a wider array of literature, which establishes the fact that governance characteristics and firms' characteristics are interrelated thus there is a dire need of using appropriate control variables to isolate the actual relationship between the phenomenon under investigation and firm's performance. The use of control variable help to neutralize the varying effects of other firm's related characteristics, which are not the directly addressed in the research design, but they can exert either downward or upward pressure on the dependent variable. This study is looking at governance from a strictly compliance perspective and trying to examine its relationship with firm's efficiency and financial performance.

Based on the review of literature, this study employed a comprehensive set of firm specific & corporate governance & ownership related variables to isolate the impact of compliance on firm's efficiency and financial performance. The corporate governance and ownership related variables are discussed in the previous section 2.8.3. There is extant of literature that has established the fact the following firm specific variables can exert an upward or downward impact on the firm's performance. In the following table this study has summarized the empirical studies that have suggested an impact of these variables on the firm's performance and/or used them as control variables.

Table 2-6 Summary of Empirical Studies on Control Variables

Control Variable	Empirical Studies References
Firm's Size	(Richard Bozec & Dia, 2007; Richard Bozec et al., 2010; J. Chen, 2001; de Jong et al., 2005; Dedman, 2003; Theodore Eisenberg, Stefan Sundgren, & Martin T. Wells, 1998; Farooque et al., 2007; Hall & Weiss, 1967; Mok et al., 2007; Ntim, 2009; Orlitzky, 2001; Reddy et al., 2010; Wahab et al., 2008)
Firm's Age	(Richard Bozec et al., 2010; J. Chen, 2001; Dedman, 2003; Dlugosz, Fahlenbrach, Gompers, & Metrick, 2006; Theodore Eisenberg et al., 1998; Farooque et al., 2007; Reddy et al., 2010; Wahab et al., 2008)
Firm's Growth	(J. Chen, 2001; de Jong et al., 2005; Dedman, 2003; Ntim, 2009)
Leverage	(Richard Bozec et al., 2010; J. Chen, 2001; de Jong et al., 2005; Dlugosz et al., 2006; Farooque et al., 2007; Wahab et al., 2008)

CHAPTER THREE

3 RESEARCH DESIGN & METHODOLOGY

This chapter contains the details of research design and the methodology employed to achieve study objectives. It explains details on population, sampling, the development of 'corporate governance compliance index', the non-parametric data envelopment analysis, measurement of predicted, predictors and control variables. Finally, it sheds light on the different statistical and econometric tools & techniques used to analyze the data in this study.

3.1 Population

For Pakistan, the population consists of all non-financial firms listed on three stock exchanges i.e. Karachi Stock Exchange (KSE), Lahore Stock Exchange (LSE) and Islamabad Stock Exchange (ISE). For Malaysia, population is all non-financial firms listed on Bursa Malaysia (formerly known as Kuala Lumpur Stock Exchange).

3.2 Sample

Most of previous studies regarding corporate governance in Pakistan have a sample selection bias, i.e. they tend to select larger firms e.g. KSE-100 firms. This may raise the question with respect to generalization of the findings of these studies to the general population or medium & smaller firms. To avoid this bias and to ensure a wider presence of the firms under study, this study selected those non-financial firms that are commonly listed on at least any of two stock exchanges out of three (i.e. KSE, LSE & ISE). 120 firms were purposely selected (convenience sampling) because for only these firms complete annual reports are available for the study period i.e. 2003-2010. For Malaysia, 100 non-financial listed firms are randomly selected.

3.3 Study Period

Pakistan issued its code of corporate governance for listed companies in March 2002 whereas; Malaysia issued its code of corporate governance in the year 2000. The study period is eight years, i.e. from 2003 to 2010.

3.4 Data Collection Methods

This study collected data mainly from secondary sources. In Pakistan, few interviews were administered during the process of development of a compliance index for Pakistani listed companies. Financial data for Pakistani sample firms was obtained from State Bank of Pakistan's publication i.e. Balance Sheet Analysis of Joint Stock Companies (SBP, 2007, 2011). Corporate Governance and compliance data was obtained from published annual reports. Financial data for sample Malaysian listed firms was obtained from DataStream. The corporate governance and compliance data was collected from published annual reports available at Bursa Malaysia's website. The following tables report the industry wise distribution of sample firms used in this study from Pakistan and Malaysia

Table 3-1 Industry-Wise Distribution of Sample firms (Pakistan)

Industry	No. of Sample Firms
Auto Manufacturers and Assembly	8
Auto Parts Manufacturers	5
Cement	11
Chemical	13
Communication & Networks	1
Energy	5
Engineering	5
Food & Beverages	6
Glass & Ceramics	5
Manufacturing (Misc.)	11
Oil & Gas	10
Paper & Board	3
Pharmaceutical	6
Services (Misc.)	1
Sugar	7
Textile	22
Transportation	1
Total Firms	120

Table 3-2 Industry-Wise Distribution of Sample firms (Malaysia)

Industry	No. of Sample Firms
Construction	10
Consumer Products	19
Industrial Products	42
Plantation	7
Properties	8
Technology	4
Trade & Services	10
Total Firms	100

3.5 Corporate Governance Compliance Index for Pakistan

Securities & Exchange Commission of Pakistan (SECP) released the code of corporate governance for publicly listed firms in March 2002 and revised it in 2007[9]. All stock exchanges were required to add the requirements of the corporate governance code as listing requirements. The code addresses six main areas i.e. board of directors, corporate and financial reporting framework, corporate ownership structure, audit committee and compliance with code of corporate governance[10](SECP, 2002).

The purpose of this study is to evaluate the effectiveness of code of corporate governance through its impact on firm's financial performance and efficiency. No standard or defined mechanism like a compliance index is available to measure the extent of compliance with code of corporate governance. Therefore based on the requirements of code of corporate governance, a custom corporate governance compliance index is developed to measure the extent of compliance with the code of corporate governance by the sample firms.

[9] The latest revision came in 2012, which is not covered by this study. This study used the requirements of the code applicable until 2011.
[10] See appendix-1 for a summary of SECP's code of corporate governance.

3.5.1 Compliance Index Development Process

1. First, the requirements of the SECP's code of corporate governance (clauses) were broke down into 81 main measureable blocks or units (see appendix-1).
2. Out of these 81 blocks, those requirements were dropped for which companies usually do not publish compliance data or cannot be estimated or obtained from published annual reports.
3. After excluding those 28 requirements, 53 requirements were left that are of recurring nature and/or for which compliance data can be obtained from published annual reports. Therefore compliance index comprises of 53 items (requirements)
4. Next step was to define the measurement and scoring criteria. Since the objective of this compliance index is to capture both letter & spirit of compliance and keeping in the mind the constraints that this study has only access to compliance data reported in annual reports, the measurement and scoring criteria was defined for each of the finally selected requirements of the code.
5. Since not all requirements are equal in importance, based on what is currently promulgated in governance literature, weights were assigned to differentiate among important and just for reporting requirements[11]. These relative weights were converted into absolute weights by multiplying the relative weight of each requirement by 100 and then dividing it by the total relative weight. This conversion makes the total weight to be hundred.
6. Then this index is shared with people from academia, stock exchanges (brokers and regulatory staff) and regulators (SECP) to get feedback on the adequacy of scoring criteria and weights. A number of interviews were also conducted to obtain feedback from these stakeholders especially SECP. Based on their feedback, the scoring criteria and weights were adjusted. For example, regulators and stockbrokers give more weight to the amount and quality of information regarding patterns of shareholding than percentage of independent directors on the board.

[11] It is argued that a binary index can avoid subjectivity, but much of the quality information is lost in this manner, therefore despite risk of subjectivity, this study prefers a weighted compliance index.

3.5.2 Measurement and Scoring Criteria

The purpose of developing this compliance index is to measure the extent of compliance shown by companies with the code of corporate governance. Keeping in mind the constraint, i.e. the extent of compliance can be measured or guessed from what is only reported in the annual report; this study defined how the compliance with each clause could be measured (for details please see appendix-2). The score on each clause ranges from zero to five. A score of zero is assigned in case of non-compliance and a score of 1 to 5 is assigned depending on the quality of information reported. For clauses that are not applicable in any year, a score of three is assigned. Given all clauses are applicable to a firm in a given year; the maximum score a firm can secure on this compliance index is 500. Minimum score a firm can get is 101 as many requirements of the code are also statuary requirements of the Companies Ordinance 1984, to which companies always shown compliance.

3.6 Corporate Governance Compliance Index for Malaysia

The Malaysian Code on Corporate Governance (Code) was developed by the Working Group on Best Practices in Corporate Governance (JPK1) and subsequently approved by the High Level Finance Committee on Corporate Governance. JPK1 was chaired by the Chairman of the Federation of Public Listed Companies. The members of JPK1 comprised a mix of private and public sector participation.

In contrast to Pakistani corporate governance code, Malaysian code of corporate governance is divided into three sections. First section describes broad principles of good corporate governance. The main stock exchange i.e. Bursa Malaysia listing requirements required companies to provide a narrative statement in the annual report that they have applied the relevant principles. The 2nd part of the code suggests best practices & guidelines for the companies to design their approach to corporate governance. Although compliance with 2nd part is voluntary, stock exchange listing requirement requires companies to report the extent to which they have complied with the best practices in their annual reports. The third part addresses principles for investors and auditors enhanced role in corporate governance. These principles are voluntary.

For constructing an index to measure the extent of compliance with code of corporate governance by Malaysian non-financial listed companies, a similar methodology is used. First, the requirements of the code were break down into measureable units (see appendix-3). Then those clauses which are of recurring nature and for which data can be obtained from annual reports are separated and used in the index. After defining the measurement, scoring criteria and weights, feedback was obtained from concerned stakeholders. Based on the feedback the weight for each requirement was adjusted (see appendix-4).

3.6.1 Measurements & Scoring Criteria

In contrast to Pakistan, Malaysian code of corporate governance defines principles of good corporate governance and expects firms to follow those principles or explain for their deviations from those principles. Keeping in mind this difference, a scoring criteria was defined. The score ranges from zero to five. Zero means non-compliance (i.e. neither a firm has followed a given principle nor it explained reason for its deviation or non-compliance) and five means full compliance. For clauses which are either not applicable in any given year or for which a firm do not followed the defined principles but provide explanation or justification for its deviation, a score of 2.5 is assigned. A firm can get a weighted score in between from maximum of 483.77 to minimum of 15.7.

3.7 Measuring Firm's Efficiency using Non-Parametric Data Envelopment Analysis

This study used data envelopment analysis (DEA), a non-parametric linear programming application to measure the firm's efficiency. Firm's efficiency is divided in to three components: Technical Efficiency (Global), Pure Technical Efficiency and Scale Efficiency.

3.7.1 Data Envelopment Analysis

Data envelopment analysis (DEA) is a non-parametric linear application based on and derived from economic theory of production and it compare firms (DMUs) that are operating under similar technology assumption by comparing the ratio of inputs & outputs. DEA employed a mathematical programme (linear programming) to estimate the efficient production (non-stochastic) frontier.

DEA was first introduced by Charnes, Cooper and Rhodes (1978) as a generalization of the concept of technical efficiency proposed by Farrell (1957). Its function is to compare the inputs and the outputs of firms (DMUs) by defining a non-parametric frontier and than by evaluating the efficiency of each DMU relative to other DMUs on or below that frontier. All DMUs that lies on the efficient frontier are considered as efficient in comparison to other DMUs (Richard Bozec & Dia, 2007).

Compared to other parametric methods, there are many advantages of DEA as tool for measuring DMUs performance or efficiency (Banker & Maindiratta, 1988). One of the main advantages of DEA over other forms of production or cost efficiency measurement is that it does not require a pre-defined analytical form of the production function (Richard Bozec & Dia, 2007). The literature on DEA has reported the following advantages of DEA.

First, DEA allows certain flexibility in the treatment of the inputs and the outputs for measuring efficiency (Charnes et al., 1978).

Second, unlike parametric approaches, DEA makes no assumption about the distribution of the underlying data, thus all deviations are assumed to be due to inefficiency (Banker, Charnes, & Cooper, 1984).

Third, DEA analyzes each firm separately by measuring its efficiency relative to all the firms (DMUs) in the sample (Nanka-Bruce, 2007).

Fourth, DEA has an advantage over the stochastic frontier models when it comes to multiple input and multiple output settings.

Fifth, DEA models can take all forms of quantitative variables as proxies for inputs and output.

Sixth, DEA models do not need weights of prices to be assigned to input & output to measure firm's efficiency.

DEA assumes that a firm (DMU) must lie on or below the best practice (non-stochastic) frontier. Multiple inputs and outputs are aggregated into a composite input and output for each firm (DMU). Efficiency is then measured by taking the ratio of the composite output to the composite input. Either DEA can be input oriented or output oriented. With input

orientation method frontier is defined by seeking the maximum proportional reduction in inputs holding the outputs constant. On the other hand, in output orientation method, a maximum increase in outputs is desired while holding the inputs constant. In case of CRS technology (Charnes et al., 1978), the results from the two orientations are the same. In the case of a *VRS* technology (Banker et al., 1984), the technical efficiency scores of the two measures are different.

For DEA analysis to be meaningful, a general rule of thumb is that the number of DMUs analyzed should be greater than three times the number of inputs and outputs (R. Bozec, Dia, & Breton, 2006; Richard Bozec & Dia, 2007; Cooper, Li, Seiford, Thrall, & Zhu, 2001; W.-K. Wang, Lu, & Tsai, 2011). In this case (for Pakistan), except for 'Communications & Network', 'Paper & Board' and 'Services Misc.' sectors, in all other sectors the number of firms analyzed are greater than three times the number of inputs & outputs i.e. nine. In case of Malaysia, for all sectors the numbers of firms analyzed are three times larger than combined inputs & outputs.

3.7.2 CCR Model (Global Technical Efficiency)

Technical efficiency is measured through input oriented CCR model to determine the best practices frontier that is based on constant return to scale (CRS) technology (Charnes et al., 1978). Technical Efficiency is the deviation of an observed output from its potential production frontier. The ratio of the observed to potential production is its efficiency level (Simar & Wilson, 2007).

3.7.3 BCC Model (Local Pure Technical Efficiency)

CCR model is only appropriate when efficiency is measured based on constant return to scale assumption. If this assumption do not hold than the BCC model proposed by Banker, Charnes and Cooper (1984) to be used instead. BCC model is based on variable return to scale (VRS) assumption. The BCC model is an extension of CCR model and it adds a parameter to CCR model to capture variable return to scale.

3.7.4 Scale Efficiency

The CCR score are called global technical efficiency, whereas BCC scores are called local pure technical efficiency (Cooper, Seiford, & Tone, 2007). Based on efficiency scores from CCR and BCC models, scale efficiency is defined as

$$Scale\ Efficiency\ (SE) = \frac{CCR\ Score}{BCC\ Sore} = \frac{Global\ Technical\ Efficiency}{Pure\ Technical\ Efficieny} \qquad Equation\ 3\text{-}1$$

Scale efficiency is not greater than one. A firm that is both CCR and BCC efficient will yield a score of one.

The Equation 3.1 demonstrate a decomposition of efficiency as

$$Technical\ Efficiency\ (TE) = [Pure\ Technical\ Efficiency\ (PTE)]\ X\ [Scale\ Efficiency\ (SE)] \qquad Equation\ 3\text{-}2$$

This decomposition helps in identifying the sources of inefficiency, i.e. whether inefficiency is a result of inefficient operations (PTE) or due to disadvantageous conditions measured by scale efficiency.

3.7.5 DEA Inputs & Outputs

This study used Total Assets and Costs (cost of goods sold and operating cost) as inputs and Revenue as output for DEA analysis. The selection of inputs and outputs are consistent with previous studies using DEA to measure efficiency.

3.7.6 Reasons for Using Firm's Efficiency as a Measure of Performance

There is an increasing interest in determining the impact of corporate governance by using a performance measure (Technical Efficiency) that is directly linked to the production process (Nanka-Bruce, 2011). In the perspective of agency theory, Shliefer and Vishny (1986) suggested that controlling managers (or owner-mangers) sometimes undertake projects that do not add value or productivity to the firm. Technical efficiency is helpful in this situation to gauge this productivity loss which otherwise could have gone unnoticed in the short term,

when financial ratios are used to measure performance (Destefanis & Sena, 2007). The use of frontier efficiency approach like DEA captures the evaluation of inventories and depreciation in the short term than with financial ratios (Destefanis & Sena, 2007; Pi & Timme, 1993; Sheu & Yang, 2005). Nanka-Bruce (2011) contends that technical efficiency is very useful when it comes to international data analysis of equity markets across counties. The equity markets of different counties are different in sizes and market efficiency, thus when performing an international comparison, technical efficiency make it possible to predict the impact of corporate governance on firm's performance (Nanka-Bruce, 2011).

Furthermore, given the interest of investors in firm value, studies on corporate governance-performance relationship usually used some measures of market value e.g. Tobin's Q to measure firm's performance (Zheka, 2005). In this study's case, due to very volatile nature of the Pakistani stock market, the evidence of price manipulation, insider trading and inefficiency (Hameed & Ashraf, 2006; Iqbal, 2012; Khawja & Mian, 2005; Mirza & Afzal, 2009; Tariq & Butt, 2008), it is very difficult to measure true market value of firms. The results and findings based on such market measures can be misleading. Therefore, firm's performance is measured in an alternate framework of standard production function. This type of analysis allows us to look at the root of the corporate governance problem i.e. inefficient usage of resources that is usually cannot be detected by the traditional financial ratio analysis in the short run. As Copeland, Koller, and Murrin (2000) argued that based on the theory of value creation, firms with higher productivity are more likely to create more value than those with lower productivity. Therefore following Zheka (2005), it is argued that firm's efficiency and firm's value go together and firm's efficiency is more preferable measure when stock markets are inefficient, rigid and volatile.

3.8 Measuring Firm's Financial Performance

In line with governance research, this study uses Return on Assets (ROA), Return on Equity (ROE), and Return on Capital Employed (ROCE) and Earnings per Share (EPS) to measure firm's financial performance.

3.8.1 Return on Assets (ROA)

One of the most commonly used accounting ratio as a proxy for financial performance in both governance and non-governance research. It is measured by dividing firm's net income by total assets. This is a measure of how efficiently the assets have been utilized in the production process and reflects the performance of the management (Naqvi & Ikram, 2004). On average, higher ROA suggests the effective and efficient use of a firm's assets in maximizing the value of its shareholders' investments by management i.e., internal corporate governance structures. ROA is an effective measure of performance because it eliminates the problem of size, which makes it easier for comparisons to be drawn across firms (Lev & Sunder, 1979). Demsetz and Lehn (1985) suggest that as accounting profit, *RO*A may reflect year-to-year fluctuations in underlying business conditions better than stock market rates of return. This is because stock market rates of return reflect expected future developments that may mask current fluctuations in business conditions. ROA is also a measure of choice because of its more desirable distributional properties and because it is not affected by leverage and other items (Core, Guay, & Rusticus, 2006).

Along with its advantages, ROA has been criticized on the following grounds.

- ROA is a historical measure, but past profits can be a poor reflection of true future profitability (Ross, Westerfield, & Jaffe, 2002).
- ROA is based on historical cost accounting; it is unable to directly reflect current changes in valuation by the equity markets (Krivogorsky, 2006).
- Through changes in accounting policies, methods and techniques, ROA is suggested to be susceptible to all kinds of managerial manipulations. (Alexander, Britton, & Jorissen, 2007; Mangena & Chamisa, 2008).
- As an accounting-based measure of profitability, ROA ignores risk, but it would be wrong to conclude, for example, that two firms with identical current profits are equally profitable if the risk level of one is higher than the other (Ross et al., 2002).
- Finally, *ROA* has been criticized for its inability to reflect industry and environmental differences, non-financial performance factors, such as customer and employee satisfaction, short-term fluctuations in business fortunes, and changes in the value of

money as a result of inflation and fluctuations in exchange rates (Alexander et al., 2007). However, the impact of these weaknesses can be minimized through the inclusion of extensive control variables, which takes into account how time, credit risks, and industry, and size, for example, affect a firm's financial performance.

For the purpose of this study, ROA is defined as:

$$\text{Return on Assets (ROA)} = \frac{\textit{Earnings Before Interest \& Taxes (EBIT)}}{\textit{Total Assets}} \qquad \text{Equation 3-3}$$

3.8.2 Return on Equity (ROE)

Though conceptually similar to ROA, ROE is also cited frequently as a measure of performance in corporate governance related research. ROE indicates management's effectiveness in generating a return on the funds invested by the common shareholders, to whom management is ultimately responsible and accountable. One may argue that ROE is relatively better as it measures operating performance from shareholders' point of view (i.e., interest expense is removed from earnings (L. D. Brown & Caylor, 2009).

Financial management texts suggest that financial leverage can be estimated by calculating the difference between ROA and ROE. The one thing that should be kept in mind that capital structure purpose is to improve ROE, not to improve operational performance. With a same operational performance you can have different returns on equity, depending on the capital structure used.

For the purpose of this study return on equity (ROE) is computed by dividing net income by average shareholders' equity. The average shareholder's equity is calculated by taking the average of years starting and ending level of shareholder's equity. The extraordinary income items will be removed from the net income, as these are non-recurring items.

$$\textit{Return on Equity (ROE)} = \frac{\textit{Net Income (Net of extra ordinary income items)}}{\textit{Average Shareholder's Equity}} \qquad \textit{Equation 3-4}$$

3.8.3 Return on Capital Employed (ROCE)

Along with return on assets (ROA) and return on equity (ROE), the third financial variable for measuring firm's performance is return on capital employed (ROCE). Return on capital employed is also commonly cited in corporate governance literature (Barbu & Bocean, 2007). The one main reason for the using ROCE is that it is a commonly cited measure of financial performance in the annual reports of Pakistani listed firms. ROCE captures the efficiency with which a company uses all its capital resources. ROCE gives comprehensive information about the economic performance of the business, since both operating and non-operating results (e.g. proceeds from the sale of property) are accounted for. An added advantage is that it permits a comparison between businesses, without regard to accounting convention (e.g. depreciation), and different capital mobilization and financing strategies, since the operating profit is viewed in relation to the total funds employed. ROCE shows the rate of return on capital employed for the period, and captures the efficiency in the total use of capital resources (Thillainathan, 1999).

Return on Capital employed will be calculated as:

$$\textit{Return on Capital Employed (ROCE)} = \frac{Earnings\ Before\ Interest\ \&\ Taxes}{Long\ Term\ Loan + Shareholder's\ Equity} \qquad \textit{Equation 3-5}$$

3.8.4 Earnings per Share (EPS)

Earnings per Share (EPS) is also widely used in financial and business literature for judging the operating performance of a firm. This measure is frequently cited in financial statements and business publications. It is perhaps the one most significant figure because it summarizes the data of current income statement into one figure with respect to the number of shares outstanding. Current accounting practice requires that earnings per share should be disclosed prominently in the income statement (Vance, 2003). Clause 236(2)(f) of the Companies Ordinance 1984 (Pakistan) requires that director's report should include earning per share (EPS) figure and commentary on any increase or decrease from the previous year.

From investors' point of view, EPS is an important figure reflecting firm's operating success. A higher EPS may likely translate into high dividend per share and market price per share. Graham, Harvey and Rajgopal (2005) cited in their comprehensive survey of chief financial officers that earnings per share (EPS) is the key figure mostly focused by investors. This is because in comparison to other financial performance measures, earning per share (EPS) received better coverage by media, analyzed and validated by analysts and accepted as a simple benchmark to evaluate a firm's performance which reduces the costs of information processing due to the availability of abundant information.

The commonly used definition of earning per share (EPS) is:

$$Earnings\ Per\ Share\ (EPS) = \frac{Net\ Income}{No.of\ Shares\ Outstanding} \qquad Equation\ 3\text{-}6$$

However, if the capital structure contains the preferred stock on which dividends have been paid, then EPS will be computed after deducting preferred dividend from the net income.

$$Earnings\ Per\ Share\ (EPS) = \frac{(Net\ Income - Preferred\ Stock\ Dividend)}{No.of\ Shares\ Outstanding} \qquad Equation\ 3\text{-}7$$

3.9 Control Variables

There is a wider array of literature, which establishes the fact that governance characteristics and firm's characteristics are inter-related thus there is a dire need of using appropriate control variables to isolate the actual relationship between phenomenon under investigation and firm's performance. These control variable help to neutralize the varying effects of other firm's related characteristics, which are not the directly addressed in the research design, but they can exert either downward or upward pressure on the dependent variable. This study is looking at governance from a strictly compliance perspective and trying to examine its relationship with firm's efficiency and financial performance.

Based on the review of literature, this study uses both firm-specific variables like firm's size, firm's age, firm's growth, leverage and dividend policy and corporate governance and

ownership specific variable like ownership structure, ownership concentration, institutional ownership, foreign ownership, board size and CEO duality as control variables to isolate the impact of compliance on firm's efficiency and financial performance. In addition to these control variables, all regression specifications are also controlled for time and industry effects by employing year and industry dummies as control variables.

3.10 Summary of Variables and Measures

Following table contains the summary of all dependent and independent variables used in this study.

Table 3-3 Summary of Variables & Measures

Variable	Symbol	Proxy for	Operationalization	Expected Sign
Independent & Control Variables				
Asset Growth	AG	Growth	$\frac{(Total\ Assets_t) - (Total\ Assets_{t-1})}{Total\ Assets_{t-1})}$	+
Board Shareholding	BSH	Ownership Structure	% Shareholding of Directors	+
Board Size	BSz	Governance	No. of Directors	+
CEO Duality	Duality	Governance	Dummy Variable takes value of 0 if Chairman and CEO are different persons, 1 otherwise	-
Compliance Score	CGCI	Compliance with Code	Score calculated from Corporate Governance Compliance Index for Pakistan & Malaysia	+
D/E ratio	DE	Leverage	Ratio taken directly from SBP's BSA for Pakistan and from DataStream for Malaysia	-
Dividend	DPS	Dividend Payout	Dividend Per Share	+
Firm Size	FSz	Firm Size	Natural log of total assets	+
Firm's Age	Age	Learning Curve	Number of AGM	+
Foreign Shareholding	FSH	Ownership Structure	% Shareholding held by foreign investors	+
Institutional Shareholding	ISH	Ownership Structure	% Shareholding held by financial Institutions	+
Ownership Concentration	LSH 5LSH 10LSH Bhldrs	Corporate Control & Governance	% Shareholding of Largest Shareholder (LSH) % Shareholding of 5 Largest Shareholders (5LSH) % Shareholding of 10 Largest Shareholders (10LSH) No. of Block holders holding 5% or more shares(Bhldrs)	-
Firm Performance Variables: Financial & Efficiency				
Return on Assets	ROA	Financial Performance	EBIT divided by total assets	
Return on Equity	ROE	Financial Performance	Net Income divided by Shareholder's Equity	

Return on Capital Employed	ROCE	Financial Performance	EBIT divided by Capital Employed
Earnings Per Share	EPS	Financial Performance	Ratio taken directly from SBP's BSA for Pakistan and from DataStream for Malaysia
DEA Efficiency Scores	TE PTE SE	Firm's Efficiency	Inputs: Total Assets & Costs (Cost of Goods Sold and Operating Expenses) Outputs: Revenue TE calculated through CCR Model PTE calculated through BCC Model SE calculated by dividing TE by PTE

3.11 Hypothesis of the Study

Based on the literature review and theoretical & conceptual framework, as explained in chapter two and earlier part of chapter three, following hypotheses are tested for empirical answers.

Table 3-4: Summary of Hypothesis

Hypothesis	**Theoretical Framework**
H_{1a}: *There is a positive impact of Compliance with Code of Corporate Governance on firms' financial performance as measured by ROA, ROE, ROCE & EPS* H_{1b}: *Firms with higher level of Compliance with Code of Corporate Governance have superior financial performance (ROA, ROE, ROCE & EPS).* H_{1c}: *There is a positive impact of Compliance with Code of Corporate Governance on firms' efficiency as measured by Technical, Pure Technical and Scale Efficiency* H_{1d}: *Firms with higher level of Compliance with Code of Corporate Governance are more efficient (Technical, Pure & Scale Efficiency)*	Agency Theory; Information Asymmetry & Managerial Signaling Theory; Convergence Theory
H_{2a}: *Board size is positively related with firms' financial performance (ROA, ROE, ROCE and EPS).* H_{2b}: *Board size is positively related with firms' efficiency (Technical, Pure Technical and Scale Efficiency)*	Stewardship Theory & Resource Dependency Theory
H_{3a}: *CEO-Chairman Duality decreases firms' financial performance (ROA, ROE, ROCE and EPS).* H_{3b}: *CEO-Chairman Duality decreases firms' efficiency (Technical, Pure Technical and Scale Efficiency)*	Agency Theory
H_{4a}: *Director's shareholding increases firms' financial performance (ROA, ROE, ROCE and EPS).* H_{4b}: *Director's shareholding increases firms' efficiency (Technical, Pure Technical and Scale Efficiency)*	Agency Theory
H_{5a}: *Ownership concentration negatively impacts firms' financial performance (ROA, ROE, ROCE and EPS).* H_{5b}: *Ownership concentration negatively impacts firms' efficiency (Technical, Pure Technical and Scale Efficiency)*	Agency Theory

***H_{6a}**: Institutional shareholding increases firms' financial performance (ROA, ROE, ROCE and EPS).* ***H_{6b}**: Institutional shareholding increases firms' efficiency (Technical, Pure Technical and Scale Efficiency)*	Agency Theory
***H_{7a}**: Foreign shareholding has a positive impact on firms' financial performance (ROA, ROE, ROCE and EPS).* ***H_{7b}**: Foreign shareholding has a positive impact on firms' efficiency (Technical, Pure Technical and Scale Efficiency)*	Agency Theory
***H_{8}**: Dividend Payout is positively related with firms' financial performance (ROA, ROE, ROCE and EPS).*	Agency Theory

Table 3-5: Summary of Hypothesis

Hypothesis for firm-specific control variables
H_{9a}: Firm's financial performance is positively related with firm's growth *H_{9b}: Firm's efficiency is positively related with firm's growth*
H_{10a}: Firm's financial performance is related with firm's age *H_{10b}: Firm's efficiency is related with firm's age*
H_{11a}: Firm's financial performance is negatively related with leverage (Debt to equity ratio) *H_{11b}: Firm's efficiency is negatively related with leverage (Debt to equity ratio)*
H_{12a}: Firm's financial performance is positively related with firm's size *H_{12b}: Firm's efficiency is negatively related with firm's size*

3.12 Data Analysis and Econometric Models

The following econometric models for Pakistan and Malaysia are tested by employing econometrics techniques for pooled and time-series cross section (Panel data) data. This study first tested financial performance and efficiency models without using compliance score group dummies, and then to see the inter-group difference added dummies for high and low compliance groups.

3.12.1 Econometric Models for Pakistan

Compliance & Financial Performance Model

$$Financial\ Performance = f(CGCI, AG, Age, DE, Fsz, BSH, Bhldrs, ISH, FSH, Bsz, Daulity, DPS, Ind, Year, IndTyp)$$

Equation 3-8

Compliance & Efficiency Model

$$Efficiency = f(CGCI, AG, Age, DE, Fsz, BSH, Bhldrs, ISH, FSH, Bsz, Daulity, DPS, Ind, Year, IndTyp)$$

Equation 3-9

Where

Financial Performance	ROA, ROE, ROCE, EPS
Efficiency	TE, PTE, SE
CGCI	Corporate Governance Compliance Index Score
HCG	Dummy for firms in high compliance score group
LCG	Dummy for firms in Low compliance score group
AG	Asset Growth
Age	Firm's Age
DE	Debt Equity Ratio
DPS	Dividend per Share
Fsz	Firm Size
BSH	Percentage Shareholding by Board of Directors
Bhldrs	Number of block holders holding 5% or more shares
ISH	Percentage Shareholding by Financial Institutions
FSH	Percentage Shareholding by Foreign Shareholders
BSz	Board Size
Duality	CEO-Chairman Duality
Ind	Industry dummy
Year	Year dummy
IndTyp	Industry type dummy (whether a firm is a manufacturing concern or services)

3.12.2 Econometric Model for Malaysia

Compliance & Financial Performance Model

Financial Performance = f (CGCI, AG, Age, DE, Fsz, BSH, LSH10, Bsz, Duality, DPS, Year, Ind) *Equation 3-10*

Compliance & Efficiency Model

$$Efficiency = f(CGCI, AG, Age, DE, Fsz, BSH, LSH10\ Bsz, Daulity, DPS, Year, Ind)$$ *Equation 3-11*

CHAPTER FOUR

4 DATA ANALYSIS & RESULTS

This chapter presents the findings of detailed Uni-Variate, Bi-Variate and Multivariate data analysis for Pakistan and Malaysia along with discussion and comparison with empirical findings of previous studies.

4.1 Data Handling & Dealing with Influential or Extreme Observations

The data on compliance with code of corporate governance, ownership and firm specific governance variables were obtained from the published annual reports of the sample firms. The financial data (dependent and control variables) was obtained from State Bank of Pakistan's publication named 'Balance Sheet Analysis of Joint Stock Companies' for Pakistan and from DataStream Malaysia. The data was entered in MS Excel and then exported into statistical packages (STATA & SPSS) for further exploration and analysis. The initial review of the data revealed that there are influential or extreme observations in every dependent variable. Since this data will be used for econometric analysis, the influential observations can distort the regression estimates.

In order to deal with this situation this study employed winsorization technique (Black & Khanna, 2007; Dlugosz et al., 2006; Gong & Li, 2012) to replace observations above or below the cut-off point with last observation before cut-off point. The respective distribution of each variable was winsorized by using Tukey's Hinges and inter-quartile range. The upper & lower cutoff points were defined as.

Upper Bound = 75^{th} Percentile + 1.5*(Inter-quartile range)

Lower Bound = 25^{th} Percentile – 1.5*(Inter-quartile range)

After winsorizing the data, the standard deviation and skewness of the distributions reduced significantly.

4.2 Uni-Variate Analysis

This section contains the descriptive analysis of corporate governance, ownership and financial variables. Further, it includes the summary statistics of compliance data for Pakistan & Malaysia.

4.2.1 Descriptive Analysis- Pakistan

The following tables report descriptive statistics of financial, ownership, corporate governance and compliance index variables.

Table 4-1: Descriptive Analysis of Financial Variables 2003-2010 (Pakistan)

	Mean	Standard Error	Median	Standard Deviation	Skewness	Minimum	Maximum
AG	0.16	0.01	0.13	0.23	1.12	-0.46	0.79
SG	0.18	0.01	0.15	0.25	-0.09	-0.40	0.71
DPS	4.05	0.21	1.00	6.60	3.90	0.00	25.72
D/E	1.46	0.05	1.13	1.56	0.54	-2.25	5.03
ROA	0.11	0.00	0.09	0.12	0.05	-0.12	0.36
ROE	0.14	0.01	0.14	0.21	0.31	-0.32	0.61
ROCE	0.19	0.01	0.17	0.21	0.39	-0.32	0.70
EPS	8.79	0.43	5.02	13.12	0.21	-21.95	37.41
LnTA	8.10	0.05	7.99	1.59	-0.24	3.93	12.33

AG: Asset's Growth SG: Sales Growth DPS= Dividend Per Share D/E: Debt to Equity ratio ROA= Return on Assets ROE: Return on Equity ROCE: Return on Capital Employed EPS: Earnings Per Share LnTA= Natural log of Total Assets

Average annual growth rates for assets and sales are 16% and 18% respectively. The average ROA of sample firms is approx. 11%, whereas, the average ROE and ROCE is 14% and 19.4% respectively. Average EPS is 8.793 rupees with a standard deviation of 13.12 rupees, which indicates the volatility of earnings among Pakistani sample firms. The average debt-equity ratio of 1.462 indicates the higher levels of debt in the sample firms. On average, sample Pakistani firms paid a dividend of Rs. 4 with a standard deviation of Rs. 6.60. The standard deviation figures revealed the extent of volatility in the data.

Table 4-2: Descriptive Analysis of Governance Variables 2003-2010 (Pakistan)

	Mean	Median	Standard Deviation	Skewness	Minimum	Maximum
Age	33.254	29.500	16.841	0.995	5.000	116.000
BSH	0.176	0.079	0.223	1.322	0.000	0.932
ISH	0.154	0.127	0.130	1.293	0.000	0.851
LSH	0.348	0.281	0.221	0.80	0.030	0.999
5LSH	0.640	0.668	0.198	-0.22	0.159	1.000
10 LSH	0.755	0.801	0.163	-0.61	0.266	1.000
Bhlder	3.774	4.000	1.895	0.53	1.000	10.000
FSH	0.191	0.001	0.281	1.23	0.000	0.950
BSz	8.302	8.000	1.869	1.87	7.000	16.000

BSH: Board Shareholding ISH: Institutional Shareholding LSH: Largest Shareholding 5LSH: %shares held by 5 largest shareholders 10LSH: % share held by 10 largest shareholders. Bhlrds: No. of Block Holders holding 5% or more shares FSH: % Foreign Shareholding, Bsz: Board Size

The average age of firm in the sample is approx. 33 years with a standard deviation of approx. 17 years. The median firm's age is 29.50 years. Average shareholding by board of directors is approx. 17%, whereas median is 7.9%. Average Institutional shareholding stands at 15.4% with a standard deviation of 13%. The range of institutional ownership is zero to maximum of 85.1%. Average percentage ownership by largest, five largest and ten largest shareholders is 34.8%, 64% and 75.5% respectively. These figures indicate the concentration of ownership in Pakistan. Average number of block holders owning 5% or more shares is 3.77. Foreign ownership stake average is 19.1%. It is interesting to note that, there are approx. 63 firms in the sample that do not have any foreign shareholder. The average of only those firms that have positive foreign ownership is approx. 40%. Average board size is 8 and board size ranges from minimum seven to maximum of sixteen members. The company law of Pakistan defines the minimum size of the board of director is to be seven.

Table 4-3: Descriptive Analysis- CG Compliance Index 2003-2010 (Pakistan)

	Mean	Median	St. Dev	Skewness	Minimum	Maximum
CGCI Score	364.212	365.768	48.646	-0.358	203.758	459.804
No. of ED	2.996	3.000	1.755	0.480	1	10
% of NEDs	0.625	0.667	0.217	-0.944	0.100	0.933
No. of BoD Meetings	5.460	5.000	3.042	47.827	0	33
No. of Days to AGM	110.133	117.000	20.258	3.370	55	210

Audit Committee Size	3.359	3.000	0.729	5.200	3	7
%NED on AC	0.77	0.75	0.26	1.52	0	1.00
AC Meetings	1.03	0.00	1.98	1.13	0.00	9.00

CGCI scores are obtained from a custom-built compliance index that measures the extent of compliance with code of corporate governance. The compliance score can range from minimum of 101 to maximum of 500. Majority of the clauses of Pakistani code of corporate governance are based on rules and regulations already defined and implemented by Companies Ordinance 1984, so companies do show some level of compliance (at least on paper) with these requirements. This is why the minimum score (theoretically) a firm can get is approx. 101. Average CGCI score is 364.21, which is just below median. The minimum score obtained by any firm is 203.76 and maximum is 459.80. Average number of executive directors during 2003-2010 is approx. 3 and presence of non-executive directors (percentage) is in range of 10% to 93% with an average of 63% approx. There is not much increase in the percentage of non-executive directors (independent directors included) since the implementation of code of corporate governance. A year wise analysis of board composition indicates that the average percentage of NEDs was 61% in year 2003, increased to a maximum of 65% in 2008 and then reduced to 63% in 2010. This may indicates that family/group oriented firms (which makes majority of stock market) are not willing to let go of control. The board of directors of Pakistani sample firms, on average met 5 times a year with a standard deviation of three. On the other hand, average number of audit committee meetings is one. This difference indicates that audit committees, the average size of which is approx. three are not very active. This also indicates the lack of spirit in following the code of corporate governance.

Table 4-4 Descriptive Analysis –Disclosure & Compliance Practices 2003-2010 (Pakistan)

2003		2004		2005		2006		2007		2008		2009		2010	
Percentage of Companies reporting the affiliation of directors in the annual report															
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
27 %	73 %	27 %	73 %	27 %	87 %	31 %	69 %	34 %	66 %	37 %	63 %	35 %	65 %	34 %	66 %
Presence of Director(s) representing Minority Shareholders															
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No

18 %	82 %	18 %	82 %	18 %	82 %	21 %	79 %	21 %	79 %	21 %	79 %	20 %	80 %	20 %	80 %
Percentage of Companies in which Chairman and CEO are the same person															
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
35 %	65 %	35 %	65 %	30 %	70 %	32 %	68 %	34 %	66 %	34 %	66 %	35 %	65 %	35 %	65 %
Percentage of Companies which conducted orientation courses for its directors															
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
66 %	34 %	67 %	33 %	67 %	33 %	62 %	38 %	63 %	37 %	61 %	39 %	62 %	38 %	60 %	40 %
Percentage of Companies which have reported academic qualification of Company Secretary															
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
6 %	94 %	6 %	94 %	6 %	94 %	5 %	95 %	5 %	95 %	5 %	95 %	5 %	95 %	5 %	95 %
Percentage of Companies which have reported academic qualification of CFO															
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
6 %	94 %	6 %	94 %	6 %	94 %	7 %	93 %	7 %	93 %	7 %	93 %	7 %	93 %	7 %	93 %
Percentage of Companies which have non-executive director as chairman of the audit committee															
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
67 %	33 %	68 %	32 %	68 %	32 %	72 %	28 %	71 %	29 %	77 %	23 %	79 %	21 %	80 %	20 %

The code of corporate governance encourages the inclusion of independent non-executive directors on the board and their participation in the decision-making. The spirit demands to identify the affiliation of directors i.e. whether they are executive directors, non-executive directors or independent non-executive directors. However, the findings are not very encouraging. During 2003 to 2010, on average, only 32% of the sample firms have reported the affiliation of directors. The above table also provides the year-year reporting percentages. Similarly, during the 8-year study period, on average only 20% of sample firms have reported that they have director(s) representing minority shareholders. Approx. 34% firms have same person as Chairman and CEO. In 2003, 66% companies have reported that they have arranged some sort of orientation course(s) for their directors. This percentage declined and in 2010, 60% companies claimed about orientation program/course for their directors. Code of corporate governance also requires a certain level of educational qualification for the positions of CFO and company secretary. However, only approx. 5% companies have reported the qualification of company secretary and approx. 7% companies have reported the

qualification of chief financial officer. During the study period (2003-2010), approximately 73% companies complied with the requirement of an NED as chair of the audit committee.

4.2.2 Descriptive Analysis –Malaysia

In the following table descriptive analysis of financial, ownership, corporate governance and compliance index variables are reported.

Table 4-5 Descriptive Analysis of Financial Variables 2003-2010 (Malaysia)

Variables	Mean	Median	St. Dev	Skewness	Minimum	Maximum
AG	0.058	0.04	0.135	0.069	-0.365	0.340
SG	0.094	0.070	0.239	0.402	-0.360	0.640
DPS	4.377	2.500	5.251	1.191	0.000	16.250
D/E	0.428	0.287	0.474	0.882	-0.870	1.570
EPS	11.544	8.730	15.647	0.414	-24.530	46.740
ROA	0.061	0.06	0.062	-0.006	-0.0777	0.202
ROE	0.064	0.059	0.090	-0.098	-0.126	0.260
RoCE	0.091	0.085	0.093	0.003	-0.117	0.297
LnTA	5.477	5.395	0.986	0.407	3.131	8.148

Average assets & sales growth of Malaysian companies is approx. 6% and 9%, which is quite low in comparison with Pakistani sample firms. The debt to equity ratio of 0.428 indicates that Malaysian firms are less leveraged than Pakistani firms are. The mean values of ROA, ROE, ROCE and EPS indicates that Pakistani firms are more profitable.

Table 4-6 Descriptive Analysis Ownership Data 2003-2010 (Malaysia)

Variables	Mean	Median	St. Dev	Skewness	Minimum	Maximum
AGE	20.110	16	14.099	1.656	1.000	84.000
BSH	0.139	0.05	0.165	1.04	0.000	0.650
5LSH	0.524	0.52	0.155	-0.067	0.150	0.930
10LSH	0.625	0.643	0.143	-0.34	0.208	0.950
BSz	7.069	7.000	1.719	0.431	3.000	11.000

The average age of Malaysian sample firms is 20 Years. Board of directors holds Approx. 14% of shares outstanding. Average percentage shareholding by top five and ten shareholders indicates the extent of ownership concentration in Malaysian sample firms. Comparatively, Malaysian firms have smaller boards than Pakistani firms.

Table 4-7 Descriptive Analysis- CG Compliance Index 2003-2008 (Malaysia)

	Mean	Median	St. Dev	Skewness	Minimum	Maximum
CGCI Score	376.656	377.704	27.983	0.421	276.913	443.931
No. of iNEDs	2.895	3.00	0.865	0.450	1.000	6.000
% of iNEDs	0.416	0.40	0.103	0.771	0.200	0.800
No. of Board Meetings	4.876	5.00	1.277	6.332	1.000	13.000
AC Size	3.318	3.00	0.644	3.302	2.000	7.000
%iNEDs.AC	0.742	0.67	0.140	-0.302	0.500	1.000
No .of AC Meetings	4.657	5	0.877	7.194	0.000	10.000

Like Pakistan, a custom-built index is employed to assess the extent of compliance of Malaysian firms with code of corporate governance. The requirements of Malaysian code of corporate governance are different from Pakistani Code where the former requires comply or explain approach whereas the requirements of the later are mandatory. Average CGCI score is 376, just below the median. The compliance score ranges from minimum of 276.913 to maximum of 443.931. Contrary to Pakistan, Malaysian firms do provide details on affiliation of directors; therefore, it was easy for us to identify the presence of independent non-executive directors. On average Malaysian firms board consist of approx. 3 independent directors out of seven, the average size of the board. In other words, on average 42% of the board members are independent non-executive directors. Average number of board of directors and audit committee meetings held during a year are approx. 5. An audit committee is on average composed of approx. 3 members with an average of 74% members as independent non-executive directors.

Table 4-8 Descriptive Analysis –Disclosure & Compliance Practices (Malaysia)

2003		2004		2005		2006		2007		2008		2009		2010	
Chairman and CEO are the same person															
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
16 %	84 %	15 %	85 %	17 %	83 %	17 %	83 %	18 %	82 %	20 %	80 %	18 %	82 %	20 %	80 %

An iNED as Chairman of BoD															
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
30 %	70 %	32 %	68 %	33 %	67 %	36 %	64 %	36 %	64 %	34 %	66 %	37 %	63 %	35 %	65 %
Identification of an iNEDs as Senior Independent Director (SID)															
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
55 %	45 %	56 %	44 %	58 %	42 %	59 %	41 %	58 %	42 %	57 %	43 %	57 %	43 %	58 %	42 %
Formation of Nomination Committee															
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
86 %	14 %	86 %	14 %	88 %	12 %	88 %	12 %	90 %	10 %	90 %	10 %	90 %	10 %	90 %	10 %
Formation of Remuneration Committee															
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
87 %	13 %	87 %	13 %	89 %	11 %	89 %	11 %	90 %	10 %	91 %	9 %	91 %	9 %	90 %	10 %

Approximately, on average 80% of the sample companies have different persons as chairman and CEO. Only approximately 34% of sample firms had an iNED as chairman of the board. Malaysian code of corporate governance requires nominating and identifying an iNED other than chairman of the board as senior independent non-executive director. During the study period, approx. 57% firms complied with this requirement. Following code of corporate governance requirements, approx. 89% firms have formed nomination and remuneration committees.

4.3 Non-Parametric Data Envelopment Analysis (DEA)

For the two-stage analysis, this study employed non-parametric linear programming technique (DEA) to calculate the efficiency score of the sample firms in the first stage. This study used Total Assets and Costs (Cost of goods sold and operating costs) as inputs and Total Revenue as outputs. These inputs and outputs are selected based on comprehensive review of literature. The accounting data for inputs and outputs was obtained from State Bank of Pakistan publication; Balance Sheet Analysis of Joint Stock Companies (for Pakistan) and from Thomson Reuters database DataStream (for Malaysia).

One of the main assumptions of DEA is that the DMUs analyzed should be characterized by similar production function. For this purpose, the sample firms were grouped based on industry. Further as argued by Bozec and Dia (2007), Boussofiane, Dyson and Thanassoulis (1991) and Cooper et al., (2001) that the number of firms analyzed should be greater than three times the number of inputs & outputs. In this study's case the total number of inputs and outputs are three i.e. two inputs and one output. Therefore, the minimum number of firms used for DEA analysis should be at least nine. To fulfill this requirement this study borrowed firms (which this study called as reference firms) from the same industry with approx. similar size and used them along with the sample firms in order to conduct a meaningful analysis.

The following tables report the distribution of sample and reference firms used for data envelopment analysis to calculate efficiency scores.

Table 4-9 Sample & Reference Firms Used for DEA (Pakistan)

Sectors (Industry)	Sample Firms	Reference Firms	Total Firms
Auto Manufacturer & Assembly	8	3	11
Auto Parts Manufacturers	5	6	11
Cement	11	0	11
Chemical	13	0	13
Communications & Networks	1	5	6
Energy	5	5	10
Engineering	5	4	9
Food & Beverages	6	5	11
Glass & Ceramics	5	2	7
Manufacturing (Misc.)	11	0	11
Oil & Gas	10	1	11
Paper & Board	3	4	7
Pharmaceutical	6	3	9
Services Misc.	1	5	6
Sugar	7	4	11
Textile	22	0	22
Transportation	1	0	1
Grand Total	120	47	167

Transportation sector was excluded from the analysis because only one firm was available in this sector. Except for Communication & Networks, Glass & Ceramics, Paper & Board and

Services (Misc.), the number firms analyzed in all other sectors are at least nine. For these four sectors, the total population of firms is less than nine. In total, this study used 166 Pakistani firms for data envelopment analysis.

Table 4-10 Sample & Reference Firms Used for DEA (Malaysia)

Sectors (Industry)	Sample Firms	Reference Firms	Total Firms
Construction	10	0	10
Consumer Products	19	0	19
Industrial Products	42	0	42
Plantation	7	3	10
Properties	8	2	10
Technology	4	6	10
Trade & Services	10	0	10
Grand Total	100	11	111

For Malaysia, total eleven reference firms were borrowed from respective industries to meet the three times inputs & outputs requirement. In total, 111 Malaysian firms are used for data envelopment analysis.

4.3.1 Descriptive Analysis of DEA Inputs & Outputs

Following tables report the industry wise descriptive analysis of DEA inputs & outputs.

Table 4-11 Industry Wise Descriptive Analysis of DEA Inputs & Outputs 2003-2010 (Pakistan)

Statistic	Mean	Median	Standard Deviation	Skewness	Minimum	Maximum
All Firms (N= 166)						
Total Assets	9625.90	2129.10	23564.123	5.182	0.00	228867.65
Total Costs	8967.34	2011.90	20846.14	4.22	0.00	194345.61
Revenue	10150.57	2198.44	22959.33	3.86	0.00	197530.91
Sample Firms Only (N = 119)						
Total Assets	12,264.64	2,977.11	27,096.71	4.45	0.00	228,867.65
Total Costs	11204.77	2945.20	23373.73	3.72	0.00	194345.61
Revenue	12775.02	3282.95	25823.23	3.36	0.00	197530.91
Auto Manufacturer & Assembly (N= 11)						
Total Assets	6402.41	4704.22	5873.212	1.406	181.00	27138.28
Total Costs	11712.32	6659.94	14083.18	1.70	52.20	57243.79
Revenue	12439.26	7297.80	14830.92	1.69	14.60	60747.83

Statistic	Mean	Median	Standard Deviation	Skewness	Minimum	Maximum
Auto Parts Manufacturer (N = 11)						
Total Assets	1549.18	734.82	2048.261	2.134	66.30	8704.65
Total Costs	2903.75	1109.53	5012.12	2.91	19.69	24598.13
Revenue	3091.81	1158.58	5248.45	2.87	18.47	25554.77
Cement (N= 11)						
Total Assets	10888.09	6061.01	12232.581	1.896	1145.80	51992.93
Total Costs	4658.10	3264.63	4427.92	2.16	423.38	20524.00
Revenue	5368.66	3493.71	5265.91	2.20	0.00	26330.40
Chemical (N= 13)						
Total Assets	11977.74	2961.65	17092.893	2.279	83.40	93709.44
Total Costs	9417.43	2978.95	14102.79	2.13	93.40	67991.81
Revenue	11575.38	3639.45	17678.65	2.28	47.00	88154.70
Communication & Networks (N = 6)						
Total Assets	36013.43	5656.87	64869.040	1.821	321.40	215139.89
Total Costs	13881.54	2923.10	24123.70	1.97	26.24	84393.10
Revenue	18420.34	2848.94	32698.46	1.68	17.70	98905.77
Energy (N= 10)						
Total Assets	10794.79	2478.60	21403.429	3.275	176.31	126032.23
Total Costs	5957.18	1248.94	15866.73	4.19	7.29	92491.90
Revenue	6900.22	1449.45	17244.94	3.99	0.00	99694.26
Engineering (N= 9)						
Total Assets	4,338.11	1,578.37	6,588.08	2.22	99.70	25,530.14
Total Costs	3815.09	1145.76	6724.11	2.70	68.20	34016.71
Revenue	4156.57	1329.77	7247.17	2.64	62.60	36149.39
Food & Beverages (N= 11)						
Total Assets	1398.96	747.10	1570.657	1.918	133.59	7259.95
Total Costs	2056.43	1485.05	2000.96	2.36	8.87	11164.34
Revenue	2310.39	1548.30	2454.52	2.61	2.50	13912.77
Glass & Ceramics (N= 7)						
Total Assets	1,672.79	1,130.82	1,423.74	1.66	443.71	5,725.79
Total Costs	1268.82	1033.48	1060.63	1.75	14.35	5202.13
Revenue	1400.89	1033.12	1294.21	2.07	0.00	6533.76
Manufacturing – Misc. (N= 11)						
Total Assets	2527.13	1010.75	3432.625	1.741	0.00	13554.03
Total Costs	6408.47	1007.27	11065.03	1.95	0.00	45227.04
Revenue	7035.78	1142.16	12146.57	1.95	0.00	49053.93
Oil & Gas (N = 11)						
Total Assets	45251.68	31776.50	42758.149	1.834	0.00	228867.65
Total Costs	58070.69	47308.56	45013.26	0.79	0.00	194345.61
Revenue	66764.02	60770.84	46186.86	0.55	0.00	197530.91
Paper & Board (N= 7)						
Total Assets	5229.38	1051.69	9856.765	2.539	40.70	40892.31
Total Costs	2718.18	732.29	4486.51	2.45	7.91	20631.54
Revenue	2865.87	900.78	4442.29	2.28	3.75	20695.79

Statistic	Mean	Median	Standard Deviation	Skewness	Minimum	Maximum
Pharmaceutical (N= 9)						
Total Assets	2692.46	1575.11	3083.101	2.355	288.00	14891.80
Total Costs	3241.36	2056.42	3338.33	2.25	399.80	17362.14
Revenue	3712.41	2238.26	3820.65	2.03	454.20	18916.19
Services-Misc. (N= 6)						
Total Assets	2960.36	685.92	5228.558	2.666	12.85	25739.16
Total Costs	944.94	293.37	1398.94	1.88	1.80	4882.54
Revenue	1117.41	390.95	1594.26	1.78	3.36	5679.65
Sugar (N= 11)						
Total Assets	2167.18	1357.74	2569.673	2.639	215.00	12406.79
Total Costs	2041.57	1251.74	1796.87	1.85	303.30	9110.91
Revenue	2108.82	1383.02	1841.12	1.69	227.40	8807.73
Textile (N= 22)						
Total Assets	5687.33	2768.70	7726.051	2.860	259.50	46182.31
Total Costs	4113.17	3180.66	4150.03	2.44	247.00	28104.31
Revenue	4451.26	3434.88	4590.56	2.50	260.80	31535.65

Table 4-12 Industry Wise Descriptive Analysis of DEA Inputs & Outputs (Malaysia)

Statistics	Mean	Median	Standard Deviation	Skewness	Minimum	Maximum
All Firms (N= 111)						
Total Assets	497.7594	238.7315	1022.759	6.365	22.9	11820.57
Total Costs	273.3769	129.835	480.7642	4.947	2.419	4699.901
Revenue	298.1384	142.382	523.1605	5.083	2.953	5131.793
Sample Firms (N= 100)						
Total Assets	489.4072	220.211	1063.674	6.286	22.9	11820.57
Total Costs	267.4408	129.3655	478.718	5.172	2.419	4699.901
Revenue	291.7534	138.402	523.0457	5.297	2.953	5131.793
Construction Industry (N = 10)						
Total Assets	409.08	412.73	138.08	0.15	135.55	678.91
Total Costs	240.25	199.74	155.62	2.03	62.71	976.01
Revenue	271.12	240.27	168.10	1.68	68.04	964.26
Consumer Products (N = 19)						
Total Assets	426.32	161.55	977.44	4.08	37.81	5507.77
Total Costs	372.58	127.99	805.61	3.84	8.74	4699.90
Revenue	403.35	132.99	883.58	3.86	5.47	5131.79
Industrial Products (N= 42)						
Total Assets	320.01	180.39	441.63	5.39	22.90	4412.71
Total Costs	256.29	145.03	345.77	2.94	10.01	2103.21
Revenue	275.74	157.88	370.79	2.91	8.43	2528.75
Plantation (N= 10)						

Total Assets	628.78	353.34	764.92	2.10	92.78	3258.95
Total Costs	203.69	36.82	509.07	3.85	2.42	3226.18
Revenue	224.62	49.67	530.32	3.97	2.95	3452.16
Properties (N= 10)						
Total Assets	882.63	503.21	1099.79	2.51	176.54	4676.64
Total Costs	172.18	115.08	147.74	1.56	27.29	617.51
Revenue	201.38	123.85	176.80	1.56	33.67	719.36
Technology (N= 10)						
Total Assets	295.0608	161.2235	410.2357	2.650	36.33	1826.965
Total Costs	198.7115	99.184	235.7863	2.685	23.105	1215.615
Revenue	216.6008	109.677	260.2702	2.764	27.801	1395.078
Trade & Services (N= 10)						
Total Assets	1155.495	289.219	2512.029	3.192	91.111	11820.57
Total Costs	435.3127	160.555	646.5915	3.191	25.057	3659.462
Revenue	471.155	171.9555	716.3107	3.492	29.328	4150.992

This study also calculated correlation between DEA inputs & Outputs to judge the relatedness of inputs & outputs used in the DEA analysis. There is a high positive correlation among inputs & outputs.

4.3.2 Industry Wise Efficiency Scores- Descriptive Analysis (2003-2010) (Pakistan)

The following table reports the industry wise descriptive analysis of efficiency scores for Pakistan.

Table 4-13 Descriptive Analysis- Industry Wise Efficiency Scores 2003-2010 (Pakistan)

	Mean	Median	St. Dev	Skewness	Minimum	Maximum
All Firms (N= 166)						
Technical Efficiency	0.888	0.936	0.158	(2.822)	0	1.000
Pure Technical Efficiency	0.949	1.000	0.088	(2.760)	0.317	1.000
Scale Efficiency	0.935	0.988	0.144	(4.045)	0	1.000
Reference Firms (N= 47)						
Technical Efficiency	0.84	0.92	0.216	-2.160	0.00	1.00
Pure Technical Efficiency	0.94	1.00	0.11	-3.01	0.32	1.00
Scale Efficiency	0.89	0.98	0.21	-2.81	0.00	1.00
Sample Firms (N= 119)						
Technical Efficiency	0.90	0.94	0.13	(3.06)	0	1.00

Pure Technical Efficiency	0.95	1.00	0.09	-3.94	0.00	1.00
Scale Efficiency	0.95	0.99	0.12	-4.90	0.00	1.00
Auto Manufacturer & Assembly (N= 11)						
Technical Efficiency	0.85	0.89	0.179	-2.086	0.18	1.00
Pure Technical Efficiency	0.95	0.98	0.08	-2.65	0.51	1.00
Scale Efficiency	0.90	0.95	0.17	-2.79	0.18	1.00
Auto Parts Manufacturers (N= 11)						
Technical Efficiency	0.94	0.95	0.068	-1.534	0.69	1.00
Pure Technical Efficiency	0.97	1.00	0.04	-1.63	0.82	1.00
Scale Efficiency	0.96	0.99	0.06	-2.32	0.70	1.00
Cement (N= 11)						
Technical Efficiency	0.89	0.92	0.146	-3.067	0.00	1.00
Pure Technical Efficiency	0.95	1.00	0.07	-1.28	0.75	1.00
Scale Efficiency	0.93	0.98	0.14	-4.31	0.00	1.00
Chemical (N= 13)						
Technical Efficiency	0.87	0.90	0.137	-1.375	0.38	1.00
Pure Technical Efficiency	0.92	0.98	0.11	-1.81	0.52	1.00
Scale Efficiency	0.95	0.99	0.10	-3.26	0.38	1.00
Communications and Networks (N= 6)						
Technical Efficiency	0.84	0.94	0.183	-0.672	0.46	1.00
Pure Technical Efficiency	0.90	1.00	0.15	-1.30	0.52	1.00
Scale Efficiency	0.93	0.98	0.11	-1.62	0.62	1.00
Energy (N= 10)						
Technical Efficiency	0.73	0.81	0.30	(1.20)	-	1.00
Pure Technical Efficiency	0.90	1.00	0.16	-1.96	0.32	1.00
Scale Efficiency	0.80	0.98	0.29	-1.65	0.00	1.00
Engineering (N=9)						
Technical Efficiency	0.94	0.97	0.09	(1.63)	0.62	1.00
Pure Technical Efficiency	0.97	1.00	0.05	-2.77	0.70	1.00
Scale Efficiency	0.96	0.99	0.06	-2.20	0.71	1.00
Food & Beverages (N= 11)						
Technical Efficiency	0.87	0.89	0.148	-2.622	0.15	1.00
Pure Technical Efficiency	0.94	0.95	0.06	-0.47	0.80	1.00
Scale Efficiency	0.93	0.99	0.15	-3.33	0.15	1.00
Glass & Ceramics (N= 7)						

Technical Efficiency	0.87	0.93	0.20	(2.46)	-	1.00
Pure Technical Efficiency	0.96	1.00	0.09	-2.82	0.60	1.00
Scale Efficiency	0.91	0.99	0.19	-3.07	0.00	1.00
Manufacturing Misc. (N= 11)						
Technical Efficiency	0.88	0.93	0.166	-2.695	0.00	1.00
Pure Technical Efficiency	0.93	0.96	0.10	-1.91	0.54	1.00
Scale Efficiency	0.94	0.99	0.15	-4.51	0.00	1.00
Oil & Gas (N= 11)						
Technical Efficiency	0.86	0.87	0.149	-2.447	0.00	1.00
Pure Technical Efficiency	0.92	1.00	0.09	-0.87	0.68	1.00
Scale Efficiency	0.93	0.98	0.14	-4.39	0.00	1.00
Paper & Board (N= 7)						
Technical Efficiency	0.91	0.97	0.141	-2.474	0.35	1.00
Pure Technical Efficiency	0.99	1.00	0.02	-3.30	0.91	1.00
Scale Efficiency	0.91	1.00	0.14	-2.55	0.35	1.00
Pharmaceutical (N= 9)						
Technical Efficiency	0.95	0.98	0.052	-1.010	0.81	1.00
Pure Technical Efficiency	0.97	1.00	0.05	-1.81	0.81	1.00
Scale Efficiency	0.98	0.99	0.03	-1.71	0.87	1.00
Services- Misc. (N= 6)						
Technical Efficiency	0.85	0.94	0.240	-2.235	0.00	1.00
Pure Technical Efficiency	0.95	1.00	0.12	-3.21	0.45	1.00
Scale Efficiency	0.89	0.99	0.23	-3.00	0.00	1.00
Sugar (N= 11)						
Technical Efficiency	0.93	0.95	0.078	-1.676	0.60	1.00
Pure Technical Efficiency	0.97	1.00	0.05	-1.24	0.83	1.00
Scale Efficiency	0.96	0.99	0.07	-3.08	0.60	1.00
Textile (N= 22)						
Technical Efficiency	0.95	0.96	0.056	-2.235	0.60	1.00
Pure Technical Efficiency	0.96	0.99	0.05	-2.78	0.61	1.00
Scale Efficiency	0.98	0.99	0.03	-3.14	0.83	1.00

The DEA efficiency score ranges from zero to one if they are computed on the assumption of input orientation i.e. the inputs are minimized to achieve the current level of output. This

study employed an input oriented CCR model that assumes a constant return to scale (CRS) technology to compute the technical efficiency scores (TE). In addition, this study also employed input oriented BCC model that assumes a variable return to scale (VRS) technology to compute pure technical efficiency (PTE) score. Dividing CCR scores by BCC scores results in scale efficiency.

DEA measures relative efficiency. An efficiency score of one mean that the firm is relatively efficient than its peers in the same industry. In other words, a firm with a score of one is converting inputs into outputs more efficiently than its peer firms. A BCC efficient firm is always CCR efficient but the opposite may not always hold true. As it is known that the scale efficiency can be computed by dividing CCR score by BCC scores, therefore using this concept, the decomposition of efficiency can be as follows.

Technical Efficiency (TE) = Pure Technical Efficiency (PTE) X Scale Efficiency (SE)

This decomposition of efficiency helps in identifying the source of inefficiency i.e. whether the inefficiency is caused by inefficient operations or management (measured by PTE) or it is because of disadvantageous market conditions as indicated by scale efficiency (SE). If a firm is both CCR and BCC efficient, than it is operating in the most productive scale size (Cooper et al., 2007). If a firm is BCC efficient but depicted low CCR score than it is locally efficient but not globally due to scale size effect of the firm.

The average technical efficiency score for all firms' analyzed (sample and reference firms) is 0.888 whereas the pure technical efficiency score is 0.949. Pharmaceutical sector has highest average technical efficiency score whereas the energy sector is the least efficient in terms of technical efficiency with an average score of 0.73. Textile (0.95), Engineering (0.94), Auto Parts (0.94), Sugar (0.93) and Paper & Board (0.91) are among the sectors with an average technical efficiency score of more than 0.90. Auto Manufacturers, Services (Misc.), Communications and Networks and Energy are sectors with least technical efficiency score.

On the other hand, when efficiency score were calculated with a variable return to scale (VRS) assumptions, the Paper & Board sector scored highest i.e. 0.99. Energy sector is still

the last on the list. Overall, the sector wise results indicate that firms are BCC efficient then CCR efficient.

4.3.3 Industry Wise Efficiency Scores- Descriptive Analysis (2003-2010) (Malaysia)

The following table reports the industry wise descriptive analysis of efficiency scores for Malaysia.

Table 4-14 Descriptive Analysis- Industry Wise Efficiency Scores 2003-2010 (Malaysia)

	Mean	Median	St. Dev	Skewness	Minimum	Maximum
All Sample Firms (N= 100)						
Technical Efficiency	0.87	0.89	0.11	(1.04)	0.44	1.00
Pure Technical Efficiency	0.93	0.96	0.08	-1.36	0.52	1.00
Scale Efficiency	0.94	0.98	0.09	-2.46	0.44	1.00
Construction (N = 10)						
Technical Efficiency	0.89	0.92	0.11	(0.75)	0.62	1.00
Pure Technical Efficiency	0.93	0.99	0.09	-1.39	0.67	1.00
Scale Efficiency	0.95	0.99	0.07	-1.83	0.70	1.00
Consumer Products (N= 19)						
Technical Efficiency	0.88	0.90	0.11	(1.04)	0.48	1.00
Pure Technical Efficiency	0.93	0.96	0.09	-1.36	0.65	1.00
Scale Efficiency	0.95	0.98	0.09	-2.76	0.48	1.00
Industrial Products (N= 42)						
Technical Efficiency	0.86	0.87	0.10	(0.96)	0.46	0.90
Pure Technical Efficiency	0.91	0.92	0.08	-1.25	0.52	1.00
Scale Efficiency	0.94	0.97	0.08	-2.17	0.55	0.98
Plantation (N= 10)						
Technical Efficiency	0.81	0.89	0.20	(0.91)	0.27	1.00
Pure Technical Efficiency	0.93	1.00	0.12	-1.91	0.51	1.00
Scale Efficiency	0.87	0.95	0.17	-1.10	0.44	1.00
Properties (N= 10)						
Technical Efficiency	0.89	0.89	0.09	(0.57)	0.57	1.00
Pure Technical Efficiency	0.94	1.00	0.08	-0.94	0.77	1.00
Scale Efficiency	0.95	0.97	0.08	-2.54	0.57	1.00
Technology (N= 10)						
Technical Efficiency	0.90	0.93	0.10	(0.92)	0.62	1.00
Pure Technical Efficiency	0.96	1.00	0.08	-2.44	0.63	1.00
Scale Efficiency	0.94	0.96	0.07	-1.54	0.66	1.00
Trade & Services (N= 10)						
Technical Efficiency	0.92	0.95	0.10	(1.74)	0.59	1.00
Pure Technical Efficiency	0.97	1.00	0.05	-2.05	0.78	1.00
Scale Efficiency	0.95	0.99	0.09	-2.31	0.59	1.00

During the period 2003-2010, Trade and Services sector scored highest average technical efficiency score i.e. 0.92 and Plantation score the least i.e. 0.81. When efficiency scores were computed with VRS assumption, Trade & Services sector still top the list with an average efficiency score of 0.97. No firm in the industrial product segment achieved the score of one, which may indicates that the firms in this sector are locally efficient but not globally efficient due to their scale size.

4.4 Bivariate Analysis

This section contains the results of correlation analysis (Pearson) among different financial, ownership and corporate governance variables.

4.4.1 Pair wise Pearson Correlation (Pakistan)

Table 4-15 reports the correlation among all variables for Pakistan. Corporate Governance Compliance Index score (CGCI) is positively and significantly correlated with ROA, ROE, ROCE and EPS. The highest is with ROA, where it is 36%. The low magnitude of the coefficients is due to high dispersion in the data set. CGCI is also positively correlated with age, firm size, technical efficiency, pure technical efficiency, scale efficiency and all ownership variables except number of block holders with five percent or more shares (Bhldrs) and board shareholding (BSH), where it is negatively correlated. Highest magnitude of coefficient is for percentage ownership by largest shareholder (LSH) where it is 0.45. ROA, ROE and ROCE are positively correlated with firm's age, but the magnitude of the coefficients is low. All ownership variables except number of block holders owning 5% or more shares, institutional shareholding and board shareholding are positively correlated with financial performance measures. Debt to equity ratio is negatively correlated with financial performance measures and pure technical efficiency, whereas it is positively correlated with scale efficiency, firm size and board shareholdings. DPS showed high positive correlation with financial performance indicators, and foreign shareholding. It is also positively associated with CGCI, board size, measures of ownership concentration except block holders and measures of DEA efficiency, whereas it is negatively correlated with board shareholding

and block holders. Technical efficiency, pure technical efficiency and scale efficiency showed significant positive correlation with foreign shareholding and age. Number of block holders is negatively correlated with technical efficiency and scale efficiency. Board size is positively correlated with CGCI, ROA, ROE, ROCE, EPS, and firm size whereas it is negatively correlated with number of block holders and board shareholdings. Institutional shareholding is positively correlated with age and firm size.

4.4.2 Pair wise Pearson Correlation (Malaysia)

CGCI is positively and significantly correlated with ROA and EPS. Firm size, age, dividend per share, board size is also positively correlated with CGCI. Among measures of efficiency, only scale efficiency is positively correlated with CGCI, but the coefficients magnitudes are very low.

On the other hand, CGCI is negatively correlated with debt to equity ratio, and board share ownership. The four measures of financial performance i.e. ROA, ROE, ROCE and EPS are positively correlated with assets growth, firm size, technical efficiency, pure technical efficiency, scale efficiency, % ownership by five and ten largest shareholders, board size and DPS. Firm's age is only positively correlated with EPS. Debt to equity ratio is significantly negatively correlated with all four measures of financial performance.

Table 4-15 Pair wise Correlation among Dependent, Independent and Control Variables (Pakistan)

	CGCI	ROA	ROE	ROCE	EPS	AG	D/E	DPS	Age	Fsz	Bhldrs	TE	PTE	SE	LSH	5LSH	10LSH	ISH	BSH	BSz
ROA	.359**	1																		
ROE	.258**	.614**	1																	
ROCE	.311**	.785**	.725**	1																
EPS	.255**	.637**	.546**	.573**	1															
AG	.060	.102**	.182**	.130**	.216**	1														
D/E	.033	-.177**	-.369**	-.144**	-.091**	.074*	1													
DPS	.292**	.524**	.439**	.529**	.664**	.038	-.105**	1												
Age	.236**	.169**	.094**	.113**	.269**	.014	-.039	.360**	1											
Fsz	.380**	.162**	.147**	.119**	.242**	.130**	.226**	.193**	.118**	1										
Bhldrs	-.353**	-.231**	-.164**	-.193**	-.010**	.024	-.035	-.230**	-.140**	-.232**	1									
TE	.127**	.522**	.217**	.343**	.361**	.047	-.020	.229**	.151**	.047	-.074**	1								
PTE	.018	.389**	.250**	.378**	.276**	.068*	-.175**	.196**	.084**	-.042	-.019	.562**	1							
SE	.140**	.339**	.074*	.134**	.228**	.005	.109**	.129**	.120**	.088**	-.074*	.798**	-.045	1						
LSH	.450**	.356**	.305**	.350**	.210**	-.003	-.023	.372**	.220**	.222**	-.593**	.023	-.001	.027	1					
5LSH	.351**	.256**	.233**	.270**	.164**	.000	-.028	.306**	.182**	.056	-.225**	-.040	-.043	-.020	.795**	1				
10LSH	.264**	.200**	.181**	.220**	.131**	.007	-.004	.252**	.162**	-.042	.047	-.052	-.051	-.028	.645**	.931**	1			
ISH	.160**	-.025	.006	-.024	.017	.059	-.009	.045	.096**	.117**	-.0.30	.037	.020	.030	-.130**	-.072*	-.110**	1		
BSH	-.490**	-.208**	-.187**	-.171**	-.183**	-.021	.078*	-.238**	-.201**	-.355**	.457**	-.048	-.049	-.021	-.413**	-.269**	-.090**	-.235**	1	
Bsz	.390**	.209**	.224**	.199**	.117**	-.019	.049	.178**	.053	.431**	-.250**	.030	-.009	.044	.223**	.103**	.001	.168**	-.288**	1

FSH	.310**	.305**	.224**	.312**	.305**	-.020	-.040	.471**	.205**	.147**	-.362**	.175**	.090**	.145**	.633**	.517**	.423**	-.139**	-.407**	.047

** *Correlation is significant at 0.01 Level* * *Correlation is significant at 0.05 Level*

Table 4-16 Pair wise Correlation among Dependent, Independent and Control Variables (Malaysia)

	CGCI	ROA	ROE	ROCE	EPS	AG	AGE	Fsz	DE	TE	PTE	SE	BSH	5LSH	10LSH	Bsz
ROA	.080*	1														
ROE	.054	.897**	1													
ROCE	.037	.936**	.926**	1												
EPS	.173**	.706**	.672**	.649**	1											
AG	.001	.427**	.472**	.431**	.373**	1										
AGE	.284**	.032	.002	-.029	.258**	-.026	1									
Fsz	.168**	.228**	.279**	.254**	.464**	.211**	.249**	1								
DE	-.090*	-.250**	-.170**	-.11**	-.221**	-.011	-.202**	.114**	1							
TE	.045	.639**	.600**	.614**	.437**	.341**	.037	.172**	-.109**	1						
PTE	-.009	.451**	.414**	.407**	.413**	.219**	.108**	.116**	-.262**	.629**	1					
SE	.078*	.428**	.409**	.436**	.232**	.259**	-.034	.177**	.111**	.669**	-.078*	1				
BSH	-.097**	.056	.041	.036	-.162**	.073*	-.387**	-.210**	.014	.058	.002	.079*	1			
5LSH	.059	.127**	.096**	.060	.230**	.082*	.155**	-.007	-.204**	.082*	.099**	.033	-.171**	1		
10LSH	.045	.153**	.129**	.096**	.235**	.104**	.101**	.010	-.180**	.119**	.157**	.037	-.094**	.932**	1	
Bsz	.097**	.133**	.125**	.135**	.205**	.103**	.207**	.386**	-.032	.096**	.051	.064	-.097**	.038	.037	1
DPS	.135**	.486**	.404**	.383**	.657**	.197**	.355**	.323**	-.335**	.331**	.336**	.155**	-.162**	.292**	.289**	.224**

*** Correlation is significant at 0.01 Level* * *Correlation is significant at 0.05 Level*

4.5 Comparing Group Means (Financial Performance) Using One Way ANOVA

One of the objectives of this study is to find out whether compliance with code of corporate results in better performance or not. In this context, based on compliance score sample firms were divided into three groups namely (1) High Compliance, (2) Average Compliance & (3) Low Compliance. The purpose is to test if there is a significant difference between and among average financial performance indicators of these three groups. The following criteria is used to divide the sample firms in to following three groups.

Group	Criteria	Group Title
Group 1	Firms with compliance score ≤ 40th Percentile	Low Compliance
Group 2	Firms with compliance score > 40th Percentile ≤ 75th Percentile	Average Compliance
Group 3	Firms with compliance score > 75th Percentile	High Compliance

Table 4-17 Compliance Score Distribution

	Pakistan	Malaysia
Total No. of Sample Firms	119	100
No. of firms Year	119 X 8 = 952	100 X 8 = 800
40th Percentile CGCI Score	356.41	373.25
No. of Observations (≤ 40th Percentile)	380	320
No. of observations between 40th and 75th Percentile	332	283
75th Percentile CGCI Score	401.63	395.65
No. of Observations (> 75th Percentile)	238	197

4.5.1 One Way ANOVA for Comparing Mean Financial Performance (Pakistan)

The following hypothesis was tested for Return on Assets (ROA), Return on Equity (ROE), Return on Capital Employed (ROCE) and Earnings Per Share (EPS).

H_0: The average financial performance measure of firms belongs to three compliance score based groups is same i.e. $\mu_1 = \mu_2 = \mu_3$

H_1: The average financial performance measure of firms belongs to three compliance score based groups is different i.e. $\mu_1 < \mu_2 < \mu_3$

Table 4-18 Descriptive for ANOVA (Pakistan)

						95% Confidence Interval for Mean			
		N	Mean	SD	SE	Lower Bound	Upper Bound	Min	Max
ROA	Group 1	380	0.06	.10	.00525	.0515	.0722	-.16	.37
	Group 2	332	0.12	.11	.00609	.1066	.1306	-.16	.37
	Group 3	238	0.17	.12	.00792	.1519	.1831	-.16	.37
	Total	950	0.10	.11	.00384	.1006	.1157	-.16	.37
ROE	Group 1	380	0.09	.19	.01010	.0701	.1098	-.32	.61
	Group 2	332	0.13	.20	.01131	.1124	.1569	-.32	.61
	Group 3	238	0.23	.19	.01286	.2063	.2569	-.32	.61
	Total	950	0.14	.20	.00675	.1278	.1543	-.32	.61
ROCE	Group 1	380	0.13	.18	.00953	.1086	.1460	-.32	.70
	Group 2	332	0.20	.19	.01056	.1759	.2175	-.32	.70
	Group 3	238	0.30	.21	.01389	.2712	.3259	-.22	.70
	Total	950	0.19	.20	.00670	.1813	.2076	-.32	.70
EPS	Group 1	380	4.95	12.11	.62168	3.7308	6.1756	-21.95	37.41
	Group 2	332	9.43	12.77	.70122	8.0496	10.8084	-21.95	37.41
	Group 3	238	14.04	13.19	.85539	12.3499	15.7201	-21.95	37.41
	Total	950	8.79	13.11	.42553	7.9575	9.6277	-21.95	37.41

Group 1: Low Compliance Score Firms *Group 2: Average Compliance Score firms*
Group 3: High Compliance Score Firms

Group 1 i.e. low compliance firms group comprises of 380 firms-year observations whereas, group two and group 3 consists of 332 and 238 firm-year observations respectively. Apparently, from the above table it can be seen that group 3 i.e high compliance group have higher performance indicators than others.

Table 4-19 Test for Homogeneity of Variances (Pakistan)

	Levene Statistic	df1	df2	Sig.
ROA	12.191	2	947	.000
ROE	.960	2	947	.383
ROCE	10.678	2	947	.000
EPS	5.725	2	947	.003

Levene Test of homogeneity returned significant for ROA, ROCE and EPS, which means equality of population variance cannot be assumed. For this purpose, this study also computed Welch test.

Table 4-20 ANOVA Results (Pakistan)

		Sum of Squares	df	Mean Square	F	Sig.
ROA	Between Groups	1.689	2	.844	69.115	.000
	Within Groups	11.571	947	.012		
	Total	13.260	949			
ROE	Between Groups	2.956	2	1.478	36.774	.000
	Within Groups	38.063	947	.040		
	Total	41.019	949			
ROCE	Between Groups	4.294	2	2.147	56.145	.000
	Within Groups	36.212	947	.038		
	Total	40.506	949			
EPS	Between Groups	12276.907	2	6138.453	38.505	.000
	Within Groups	150969.147	947	159.418		
	Total	163246.054	949			

Table 4-21 Welch Test- Robust Test for Equality of Means (Pakistan)

		Statistic[a]	df1	df2	Sig.
ROA	Welch	67.130	2	557.892	.000
ROE	Welch	37.709	2	579.863	.000
ROCE	Welch	52.227	2	561.782	.000
EPS	Welch	38.036	2	569.623	.000

a. Asymptotically F distributed.

The mean difference among all three groups is significant. The post-hoc Games-Howell test also indicates that the difference of between alternate groups is also significant. Therefore, it is posed that there is a significant difference in average financial performance between and among the three groups.

4.5.2 One Way ANOVA for Comparing Mean Financial Performance (Malaysia)

The following table contains the descriptive information about the three groups formed based on corporate governance compliance index score.

Table 4-22 Descriptive for ANOVA (Malaysia)

						95% C.I for Mean			
	Group	N	Mean	St. Dev	SE	LB	UB	Min	Max
ROA	1	320	0.06	0.07	0.00	0.05	0.07	(0.08)	0.20
	2	283	0.06	0.06	0.00	0.06	0.07	(0.08)	0.20
	3	197	0.07	0.06	0.00	0.06	0.07	(0.08)	0.20
	Total	800	0.06	0.06	0.00	0.06	0.07	(0.08)	0.20
ROE	1	320	0.06	0.10	0.01	0.05	0.07	(0.13)	0.26
	2	283	0.06	0.08	0.00	0.05	0.07	(0.13)	0.26
	3	197	0.07	0.08	0.01	0.06	0.08	(0.13)	0.26
	Total	800	0.06	0.09	0.00	0.06	0.07	(0.13)	0.26
ROCE	1	320	0.09	0.10	0.01	0.08	0.10	(0.12)	0.30
	2	283	0.09	0.08	0.00	0.08	0.10	(0.11)	0.30
	3	197	0.09	0.09	0.01	0.08	0.11	(0.11)	0.30
	Total	800	0.09	0.09	0.00	0.08	0.10	(0.12)	0.30
EPS	1	320	9.06	15.55	0.87	7.35	10.77	(24.53)	46.74
	2	283	12.30	15.19	0.90	10.52	14.08	(24.53)	46.65
	3	197	14.49	15.91	1.13	12.25	16.73	(23.52)	46.65
	Total	800	11.54	15.65	0.55	10.46	12.63	(24.53)	46.74

Group 1: Low Compliance Score firms | Group 2: Average Compliance Score firms | Group 3: High Compliance score firms

320 firms-year observations falls in group 1 i.e. low compliance group, whereas 293 in group 2 and 197 in group three. The ANOVA descriptive table indicates that there is slight mean difference among three groups in respect of ROA, ROE and ROCE. For EPS mean values, the three compliance score based groups differ significantly.

Table 4-23 Test of Homogeneity of Variances (Malaysia)

	Levene Statistic	df1	df2	Sig.
ROA	6.133	2	797	.002
ROE	7.676	2	797	.000
ROCE	9.201	2	797	.000
EPS	1.100	2	797	.333

The homogeneity of variance test shows that three out of four populations have different variances. The test for EPS returns insignificant thus it is safe to assume for EPS that population variances are equal.

Table 4-24 ANOVA Results (Malaysia)

		Sum of Squares	df	Mean Square	F	Sig.[1]
ROA	Between Groups	0.008	2	0.004	1.010	0.19
	Within Groups	3.091	797	0.004		
	Total	3.099	799			
ROE	Between Groups	0.008	2	0.004	0.489	0.31
	Within Groups	6.620	797	0.008		
	Total	6.628	799			
ROCE	Between Groups	0.003	2	0.001	0.161	0.43
	Within Groups	6.975	797	0.009		
	Total	6.978	799			
EPS	Between Groups	3842.457	2	1921.229	7.984	0.000
	Within Groups	191787.580	797	240.637		
	Total	195630.037	799			

[1] P-values based on one-sided rejection region

The p-values for ROA, ROE and ROCE indicate the insignificance, therefore this study failed to reject the null hypothesis of no difference among groups financial performance. Only for EPS, the results are significant. Since the homogeneity tests indicated that underlying populations have unequal variances, this study also employed robust Welch test and post hoc Games Howell test for testing means difference between three groups.

Table 4-25 Robust Tests of Equality of Means (Malaysia)

		Statistic[a]	df1	df2	Sig.
ROA	Welch	.944	2	494.827	0.19
ROE	Welch	.465	2	495.638	0.31
ROCE	Welch	.157	2	494.254	0.43
EPS	Welch	7.792	2	480.756	.000

a. Asymptotically F distributed.

Table 4-26 Post Hoc Test - Games Howell Test (Multiple Comparison) (Malaysia)

Dependent Variable	(I) CG123	(J) CG123	Mean Difference (I-J)	SE	Sig.	95% Confidence Interval	
						LB	UB
ROA	1	2	(0.005)	0.005	0.583	(0.017)	0.007

		3	(0.008)	0.006	0.379	(0.021)	0.006
	2	1	0.005	0.005	0.583	(0.007)	0.017
		3	(0.002)	0.005	0.888	(0.015)	0.010
	3	1	0.008	0.006	0.379	(0.006)	0.021
		2	0.002	0.005	0.888	(0.010)	0.015
ROE	1	2	(0.005)	0.008	0.803	(0.022)	0.013
		3	(0.008)	0.008	0.607	(0.027)	0.012
	2	1	0.005	0.008	0.803	(0.013)	0.022
		3	(0.003)	0.008	0.913	(0.021)	0.015
	3	1	0.008	0.008	0.607	(0.012)	0.027
		2	0.003	0.008	0.913	(0.015)	0.021
ROCE	1	2	(0.002)	0.008	0.954	(0.020)	0.016
		3	(0.005)	0.009	0.841	(0.025)	0.015
	2	1	0.002	0.008	0.954	(0.016)	0.020
		3	(0.003)	0.008	0.945	(0.021)	0.016
	3	1	0.005	0.009	0.841	(0.015)	0.025
		2	0.003	0.008	0.945	(0.016)	0.021
EPS	1	2	-3.24*	1.253	0.027	(6.181)	(0.292)
		3	-5.43*	1.429	-	(8.789)	(2.068)
	2	1	3.24*	1.253	0.027	0.292	6.181
		3	(2.192)	1.449	0.286	(5.601)	1.218
	3	1	5.43*	1.429	-	2.068	8.789
		2	2.192	1.449	0.286	(1.218)	5.601

* *The mean difference is significant at the 0.05 level. | CG123: Compliance Score Based Three Groups 1= Low Compliance Group 2= Avg Compliance Group 3= High Compliance Group*

The robust Welch test results are similar to ANOVA. The post-hoc Games Howell test also endorses the same results. The inter-groups mean differences are significant for EPS only. Therefore, it can be conclude that there is not enough evidence to reject the null hypothesis of equality of means for ROA, ROE and ROCE. The null hypothesis for EPS is rejected indicating that earnings per share (EPS) are significantly different for three corporate governance compliance score based groups.

4.6 Comparing Group Means (Efficiency) Using Parametric Tests ANOVA

Following the criteria defined in section 4.6 for categorizing sample firms into three groups based on 'corporate governance compliance index score', this study also compared mean efficiency (technical efficiency, pure technical efficiency & scale efficiency) of these three groups.

The following hypothesis is tested for technical efficiency (TE), pure technical efficiency (PTE) and scale efficiency (SE).

H_0: The average efficiency score of firms belongs to three compliance score based groups is same i.e. $\mu_1 = \mu_2 = \mu_3$

H_1: The average efficiency score of firms belongs to three compliance score based groups is not same i.e. $\mu_1 < \mu_2 < \mu_3$

Where

μ_1 is the average efficiency of group 1 i.e. low compliance score group

μ_2 is the average efficiency of group 2 i.e. average compliance group

μ_3 is the average efficiency of group 3 i.e. high compliance group

4.6.1 One-Way ANOVA for Comparing Mean Efficiency (Pakistan)

Table 4-27 Descriptive for ANOVA-Efficiency Scores (Pakistan)

		N	Mean	SD	SE	Lower Bound	Upper Bound	Min	Max
TE	1	379	0.89	0.15	0.01	0.87	0.90	0.00	1.00
	2	331	0.91	0.11	0.01	0.90	0.92	0.00	1.00
	3	238	0.92	0.09	0.01	0.91	0.93	0.55	1.00
	Total	948	0.90	0.13	0.00	0.90	0.91	0.00	1.00
PTE	1	379	0.95	0.09	0.00	0.94	0.96	0.51	1.00
	2	331	0.95	0.07	0.00	0.94	0.96	0.52	1.00
	3	238	0.95	0.08	0.01	0.94	0.96	0.57	1.00
	Total	948	0.95	0.08	0.00	0.95	0.96	0.51	1.00
SE	1	379	0.93	0.14	0.01	0.92	0.95	0.00	1.00
	2	331	0.96	0.09	0.00	0.95	0.97	0.00	1.00
	3	238	0.97	0.06	0.00	0.96	0.97	0.62	1.00
	Total	948	0.95	0.11	0.00	0.94	0.96	0.00	1.00

The average technical efficiency (TE) and scale efficiency (SE) for group one, two and three is different, whereas the average scale efficiency is same for the three compliance score based groups.

Table 4-28 Test of Homogeneity of Variances (Pakistan)

	Levene Statistic	df1	df2	Sig.

TE	13.210	2	945	0.000
PTE	0.592	2	945	0.554
SE	21.053	2	945	0.000

Except for PTE, the Levene test for testing homogeneity of variances is significant for TE and SE, which indicates that for TE, and SE variances cannot be equal. For PTE, the equal variances assumption holds.

Table 4-29 ANOVA Results-Efficiency Score (Pakistan)

		Sum of Squares	df	Mean Square	F	Sig.
TE	Between Groups	0.203	2	0.101	6.513	0.001
	Within Groups	14.721	945	0.016		
	Total	14.923	947			
PTE	Between Groups	0.005	2	0.003	0.426	0.326
	Within Groups	5.949	945	0.006		
	Total	5.955	947			
SE	Between Groups	0.213	2	0.106	9.373	0.000
	Within Groups	10.729	945	0.011		
	Total	10.942	947			

The null hypothesis is rejected for TE and SE whereas in case of PTE, there is not sufficient evidence available to reject the null hypothesis of equality of means. To address violation of assumption of equal variances in the case of TE and PTE, this study also employed Welch Test. The robust Welch test also returns the same results. The p-value for Welch test indicates that there are significant differences in terms of technical efficiency (TE) and scale efficiency (SE) score among three groups. Like ANOVA, the Welch test is insignificant for pure technical efficiency (PTE).

To see the inter groups differences post hoc Games-Howell test was also employed.

Table 4-30 Post Hoc Games-Howell Test –Efficiency Scores (Pakistan)

Dependent Variable	(I) CG123	(J) CG123	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
TE	1	2	-0.024*	0.01	0.02	(0.05)	(0.00)
		3	-0.035*	0.01	0.00	(0.06)	(0.01)
	2	1	0.024*	0.01	0.02	0.00	0.05
		3	-0.011	0.01	0.20	(0.03)	0.01

	3	1	0.035*	0.01	0.00	0.01	0.06
		2	0.011	0.01	0.20	(0.01)	0.03
PTE	1	2	0.003	0.01	0.42	(0.01)	0.02
		3	-0.003	0.01	0.46	(0.02)	0.01
	2	1	-0.003	0.01	0.42	(0.02)	0.01
		3	-0.006	0.01	0.31	(0.02)	0.01
	3	1	0.003	0.01	0.46	(0.01)	0.02
		2	0.006	0.01	0.31	(0.01)	0.02
SE	1	2	-0.028*	0.01	0.00	(0.05)	(0.01)
		3	-0.033*	0.01	0.00	(0.05)	(0.01)
	2	1	0.028*	0.01	0.00	0.01	0.05
		3	-0.005	0.01	0.34	(0.02)	0.01
	3	1	0.033*	0.01	0.00	0.01	0.05
		2	0.005	0.01	0.34	(0.01)	0.02

* The mean difference is significant at 0.05 level. 1= Low Compliance Group 2= Avg Compliance Group 3= High Compliance Group

The mean difference among group one and two, one and three and two and three are insignificant for PTE where mean difference between group two and three is significant for TE and SE.

4.6.2 One-Way ANOVA for Comparing Mean Efficiency (Malaysia)

The following table depicts the groups descriptive for ANOVA. There are 320 observations in group 1 (Low Compliance), 283 in group 2 (Avg Compliance) and 197 in group 3 (High Compliance). This dynamic approach helps us in comparing mean efficiency of firms belongs to different groups over the study period.

Table 4-31 Descriptive for ANOVA- Efficiency Scores (Malaysia)

		N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Min	Max
TE	1	320	0.87	0.11	0.01	0.86	0.88	0.59	1.00
	2	283	0.88	0.10	0.01	0.87	0.89	0.59	1.00
	3	197	0.87	0.11	0.01	0.85	0.88	0.59	1.00
	Total	800	0.87	0.11	0.00	0.87	0.88	0.59	1.00
PTE	1	320	0.93	0.08	0.00	0.93	0.94	0.71	1.00
	2	283	0.93	0.08	0.00	0.93	0.94	0.71	1.00
	3	197	0.92	0.09	0.01	0.91	0.93	0.71	1.00
	Total	800	0.93	0.08	0.00	0.93	0.94	0.71	1.00
SE	1	320	0.94	0.07	0.00	0.94	0.95	0.80	1.00
	2	283	0.95	0.06	0.00	0.94	0.96	0.80	1.00
	3	197	0.96	0.06	0.00	0.95	0.96	0.80	1.00

	Total	800	0.95	0.06	0.00	0.94	0.95	0.80	1.00

The Levene test statistic for equal variances is significant for TE and SE; therefore, equal variances for these two variables cannot be assumed. For PTE it is insignificant at 1% level of significance. To ensure reliability of results, a robust Welch test is also computed for equality of means.

Table 4-32 ANOVA Results- Efficiency Scores (Malaysia)

		Sum of Squares	df	Mean Square	F	Sig.
TE	Between Groups	0.03	2	0.01	1.26	0.143
	Within Groups	9.28	797	0.01		
	Total	9.31	799			
PTE	Between Groups	0.04	2	0.02	2.95	0.054
	Within Groups	5.17	797	0.01		
	Total	5.21	799			
SE	Between Groups	0.02	2	0.01	2.63	0.036
	Within Groups	3.20	797	0.00		
	Total	3.22	799			

The one-way p-values for F-test are significant for PTE and SE at 5% level. All three efficiency measures are insignificant at 1% level of significance. Similar results were obtained from robust Welch test. The post hoc Games-Howell test indicates that there is no significant mean difference among three groups.

4.7 Multivariate Analysis (Pakistan)

This section contains the models specifications and results of multivariate analysis for Pakistan. Here results from pooled regression model (OLS) and panel data model (fixed effects) and respective regression diagnostic tests and remedies for the violation of assumptions are reported. To address the violation of classical regression assumptions, results from a more robust model i.e. PCSE Prais-Winsten regression are also reported. These models are used to analyze and compare the cause and effect relationship when the dependent variables i.e. financial performance indicators (ROA, ROE, ROCE and EPS) were used. 2SLS estimation is also carried out to confirm the robustness of this study's findings and the

results are reported in the appendix IX. To make the results of this study comparable with past studies, results and discussion from random-effects model are reported in appendix XI. In case of DEA efficiency measures (TE, PTE & SE) as dependent variables, pooled Tobit regression with robust standard errors and bootstrapped Tobit models are employed to test the hypothesis.

4.7.1 Pooled OLS Regression- Model, Results & Discussion (Pakistan)

A pooled (Common Effect) OLS regression model assume common coefficients across the cross sectional units or firms. The cross-sectional and time-series data is pooled in one data set in a way that one column represent one variable distribution. A pooled (Common Effect) model takes the form (Equation 4.1) where y is the dependent variable β represents the coefficients of independent and control variables X_1 *to* X_k and ε is the error term. The '*i*' and 't' notations represents the respective cross-section and time-period. Under this model, it is assumed that there is no systematic individual influence, therefore the error term accounts for individual differences. In other words, it assumes a constant intercept and slope regardless of firm types. The general specification form for a pooled OLS model is as follows.

$$Y_{it} = \beta_0 + \beta_1 x_{1it} + \beta_2 x_{2it} + \beta_k x_{kit} + \epsilon_{it} \qquad \textit{Equation 4-1}$$

The common-effect model specifications for Pakistan are as follows.

Compliance & Financial Performance Model

$$Performance_{it} = \beta_0 + \beta_1 CGCI_{it} + \beta_2 AG_{it} + \beta_3 Age_{it} + \beta_4 DE_{it} + \beta_5 Fsz_{it} + \beta_6 BSH_{it} + \beta_7 Bhldrs_{it} + \beta_8 ISH_{it} + \beta_9 FSH_{it} + \beta_{10} Bsz_{it} + \beta_{11} Duality_{it} + \beta_{12} DPS_{it} + \beta_{13} Year_{it} + \beta_{14} Ind_{it} + \beta_{15} Indtype_{it} + \varepsilon_{it}$$

Equation 4-2

Compliance & Financial Performance Model with Complaiance Group Dummies

$$Performance_{it} = \beta_0 + \beta_1 HCG_{it+} + \beta_2 LCG_{it} + \beta_3 AG_{it} + \beta_4 Age_{it} + \beta_5 DE_{it} + \beta_6 Fsz_{it} + \beta_7 BSH_{it} + \beta_8 Bhldrs_{it} + \beta_9 ISH_{it} + \beta_{10} FSH_{it} + \beta_{11} Bsz_{it} +$$

$$\beta_{12}Duality_{it} + \beta_{13}DPS_{it+} + \beta_{14}Year_{it} + \beta_{15}Ind_{it} + \beta_{16}Indtype_{it} + \varepsilon_{it}$$

Equation 4-3

Where Performance is measured through Return on Assets (ROA), Return on Equity (ROE), Return on Capital Employed (ROCE) and Earnings per Share (EPS).

4.7.2 Diagnostic Tests for Pooled OLS Regression Estimation

The Gaussian, standard or classical linear regression model (CLRM), an important estimation technique in the econometrics theory is based on 10 assumptions (Gujarati, 2004).

1. The regression model is linear in its specification.
2. X is assumed as non-stochastic.
3. The conditional mean of disturbance term ε_i is zero i.e. $E(\varepsilon_i | X^i) = 0$
4. Homoscedasticity: Variance for error term is same for all observations.
5. No Serial or Autocorrelation: Error term should not follow a systematic pattern
6. Zero Covariance between ε and X
7. The total number of observations should be greater than the number of predictors (explanatory variables)
8. Variance of X must be a finite positive number i.e. there should be variability in values of X.
9. Correct specification of regression model
10. No perfect multicollinearity

This study employed number of OLS regression diagnostic tests to check the integrity of important assumptions like, multi-collinearity, auto correlation and heteroskedasticity.

Multicollinearity:

A STATA collinearity command, which returns several measures for assessing the degree of multicollinearity was employed.

Table 4-33 Collinearity Diagnostic Table for Pooled OLS Regression (Pakistan)

Variable	VIF	SQRT VIF	Tolerance	Eigenval
CGCI	2.07	1.44	0.4845	8.52
AG	1.04	1.02	0.9677	1.28
Age	1.15	1.07	0.8716	0.7
DE	1.09	1.05	0.9106	0.58
Fsz	1.49	1.22	0.671	0.52
BSH	1.79	1.34	0.5679	0.51
Bhldrs	1.40	1.18	0.7131	0.37
ISH	1.17	1.08	0.8546	0.21
FSH	1.41	1.19	0.7206	0.14
Bsz	1.39	1.18	0.7225	0.02
Duality	1.41	1.19	0.7032	0.02
DPS	1.52	1.23	0.6597	0.00
Mean VIF	1.45			

As a rule of thumb, a VIF value greater 10 indicates the problem of multicollinearity. The low VIF values indicate that the pooled OLS dataset for Pakistan do not have the problem of multicollinearity.

Heteroskedasticity:

An important assumption in ordinary least squares (OLS) regression estimation is that variances of the residuals should be homoskedastic. To test the validity of this assumption this study employed Cameron & Trivedi's decomposition of the IM - test and Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Table 4-34 Cameron & Trivedi's IM Test- Pooled OLS (Pakistan)

Dependent Variable	ROA		ROE		ROCE		EPS	
Source	chi2	p	chi2	P	chi2	p	chi2	p
Heteroskedasticity	300.21	0.000	244.64	0.000	310.60	0.000	220.19	0.000
Skewness	39.25	0.000	36.93	0.000	17.00	0.108	49.58	0.000
Kurtosis	3.43	0.064	10.64	0.001	15.03	0.000	10.60	0.001
Total	342.89	0	29.21	0.000	342.64	0.000	280.37	0.000

Table 4-35 Breusch-Pagan / Cook-Weisberg test for heteroskedasticity- Pooled OLS (Pak)

Variables	ROA	ROE	ROCE	EPS
chi2(1)	26.49	2.61	19.17	38.44

Prob > chi2	0.0000	0.1065	0.0000	0.0000

H0: Constant Variance

Both of the above tests test the null hypothesis that the residual's variances are homoskedastic for the four OLS model tested. A small p-value indicates the rejection of null hypothesis, which means there is presence of heteroskedasticity. To overcome this problem, in the coming sections this study employed models that corrects for heteroskedasticity.

Endogeneity

The econometric solution for endogeneity, unobservable heterogeneity and simultaneity is the use of instrumental variable regression or two stage least square regression. The usefulness of two-stage least square regression depends on the selection of approprate instruments which can fullfill the required conditions i.e. (1) they are correlated with the independent variable of interest and (2) uncorrelated with error term. If these two conditions are not met than the results of 2SLS estimation could be more misleading than OLS approach. Finding suitable instrumetns in governance and accounting research is a challenge (Larcker, Richardson, & Tuna, 2007; Larcker & Rusticus, 2010). Bai, Liu, Lu, Song, and Zhang (2004) suggests that fixed-effects esimation of panel data sets mitigates the enogeneity problem. This study do benefits from advantages of panel dataset and also employed a comprehensive list of control variables (both governance and firm-specific) to address unobservable heterogneity and omitted variable bias.

To ensure the robustness of this study's findings, a two-stage least square regression was estimated. The results are not significantly different from OLS estimation, therefore the results of 2SLS are reporeted in appendix VII.

Serial or Autocorrelation:

Due to the unique nature of panel data, commonly used statistical packages do not offer the traditional tests for testing the extent of serial correlation in panel data. Among the various tests proposed for testing serial correlation, the test by Wooldridge (2002) is very attractive because it is easy to implement and requires relatively few assumptions (Drukker, 2003). This study also employed Wooldridge (2002) test for serial correlation in pooled & panel-

data models to test the assumption of serial correlation. The test results indicate the presence of autocorrelation.

Model Specification

The regression model can face a specification error when either one or more relevant predictors are omitted from the model or irrelevant variables are included in the model. Specification errors in regression models can seriously affect the regression coefficient's estimates. This study employed Ramsey regression specification error test (RESET) to test any model specification error in regression models.

The Ramsey RESET test tests the following hypothesis i.e. *H_0: model has no omitted variables*. The Ramsey regression specification error test results indicate that the Ramsey RESET test is failed to reject the assumption that regression model is correctly specified.

4.7.3 Pooled OLS Model with Robust Standard Errors

To deal with the problem of heteroskedasticity, this study uses White-Huber estimators or sandwich robust estimators of variance. OLS estimation technique assumes that error term is independent and identically distributed. The use of robust standard errors relaxes either or both of these assumptions. It is noted that the use of robust standard errors does not change coefficient estimates, however since standard errors are changed, the test-statistic provides a reasonably accurate p-value.

Table 4-36 CGCI & Financial Performance: Pooled OLS Model with Robust Standard Errors (Pakistan)

	1[a]	5[b]	2[a]	6[b]	3[a]	7[b]	4[a]	8[b]
	ROA		ROE		ROCE		EPS	
Variables	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)
CGCI	0.00026***		0.00033*		0.00058***		-0.009	
	(0.000)		(0.000)		(0.000)		(0.010)	
HCF		0.001		0.020		0.038**		-0.699
		(0.009)		(0.016)		(0.017)		(1.016)
LCF		-0.022***		-0.005		-0.021		-0.317
		(0.007)		(0.013)		(0.014)		(0.775)
AG	0.028**	0.027*	0.139***	0.139***	0.074***	0.074***	8.646***	8.636***
	(0.014)	(0.014)	(0.024)	(0.024)	(0.026)	(0.027)	(1.483)	(1.479)

Age	-0.000*	-0.000*	-0.002***	-0.002***	-0.002***	-0.002***	0.011	0.010
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.021)	(0.021)
DE	-0.011***	-0.012***	-0.053***	-0.053***	-0.015***	-0.014***	-0.822***	-0.848***
	(0.002)	(0.002)	(0.005)	(0.005)	(0.005)	(0.005)	(0.260)	(0.258)
Fsz	0.012***	0.013***	0.030***	0.031***	0.014**	0.014**	1.922***	1.897***
	(0.003)	(0.003)	(0.006)	(0.006)	(0.006)	(0.006)	(0.347)	(0.350)
BSH	0.013	0.012	0.014	0.006	0.051	0.041	0.243	0.619
	(0.019)	(0.019)	(0.034)	(0.034)	(0.035)	(0.035)	(1.833)	(1.798)
Bhldrs	-0.005**	-0.005***	-0.005	-0.005	-0.006*	-0.006*	0.405*	0.423*
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.217)	(0.217)
ISH	-0.088***	-0.083***	-0.039	-0.037	-0.092*	-0.089*	-5.854**	-5.873**
	(0.027)	(0.027)	(0.054)	(0.054)	(0.050)	(0.050)	(2.771)	(2.773)
FSH	0.003	0.006	-0.036	-0.035	0.012	0.012	-0.726	-0.745
	(0.016)	(0.016)	(0.028)	(0.028)	(0.029)	(0.029)	(1.517)	(1.530)
Bsz	0.012	0.015	0.114***	0.116***	0.094**	0.093**	-0.780	-0.873
	(0.026)	(0.026)	(0.041)	(0.041)	(0.043)	(0.043)	(2.418)	(2.403)
Duality	-0.022***	-0.024***	0.018	0.011	-0.001	-0.009	-2.331***	-1.990***
	(0.008)	(0.007)	(0.014)	(0.013)	(0.015)	(0.014)	(0.763)	(0.758)
DPS	0.008***	0.008***	0.009***	0.009***	0.014***	0.013***	1.175***	1.175***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.081)	(0.081)
Constant	-0.126**	-0.040	-0.310***	-0.201**	-0.225**	-0.015	-5.548	-8.367
	(0.054)	(0.053)	(0.095)	(0.090)	(0.103)	(0.098)	(4.994)	(5.132)
Obs	950	950	950	950	950	950	950	950
R-sq	0.44	0.44	0.45	0.45	0.41	0.41	0.54	0.54
Adj R-sq	0.42	0.42	0.43	0.43	0.39	0.39	0.52	0.52
F-test	22.28***	21.53***	20.81***	20.41***	18.54***	17.97***	39.31***	40.01***

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

[a] Pooled OLS regression with robust standard errors(Regression No. 1, 2, 3 & 4) | [b] Pooled OLS regression with robust standard errors and compliance group dummies (Regression No.5, 6, 7, 8) |Results for year, industry and industry type dummies are not reported above.

The above table provides a comparison of Pooled OLS regression with robust standard errors with and without compliance score based groups.

Pooled OLS Regression with Robust Standard Errors (Without Compliance Group Dummies):

R-square or coefficient of determination is the proportion of variance in the predicted variables (dependent variables) that can be explained by the predictor variables (independent variables). In sum, this is an overall measure of strength of association. The adjusted R square value for the above four estimated equations are in the range of 41% to 53% approx. The highest value is for EPS model i.e. 0.54. This means approx. 54% variation in firm's performance measured through EPS is explained by compliance with code of corporate

governance. The p-values of F-test indicate that overall all four models are significant. Considering the increased heterogeneity in panel data, an R square in the range of 0.43 to 0.53 is quite good.

The beta coefficient for main independent variable of concern i.e. CGCI ('Corporate governance compliance index score', a measure for the extent of compliance with code of corporate governance) is positively associated with ROA & ROCE (significant at 1% level of significance), and ROE (at 10% level of significance). This indicates the positive impact of compliance with code of corporate governance on financial performance. The increased discipline through mandatory compliance is positively affecting firms' performance.

To further investigate the low magnitude of the CGCI coefficient and whether this positive relationship between compliance and firm performance is consistent among firms with different compliance score, firms are divided into three groups i.e. 'Low Compliance Firm', 'Average Compliance Firms' and 'High Compliance Firms'. Firms with compliance score below 40^{th} percentile were considered 'Low Compliance', firms with compliance score greater then 40^{th} percentile but less than 75^{th} percentile were considered as 'Average Compliance Firms', and firms with compliance score greater than 75^{th} percentile are categorized as 'High Compliance Firms'. Regression number 5, 6, 7, & 8 reports the results of Pooled OLS regression with compliance score based group dummies included.

The coefficient of dummy (LCF) for firms belonging to low compliance group is negative, as expected, in all cases and significant under ROA model. However, the results for HCF, dummy for firms belonging to high compliance group are not consistent. The dummy is positive & significant in case of ROCE, therefore suggesting, high compliant firms are financial superior to other two groups. For remaining three financial performance models, the results are insignificant.

As expected, the beta coefficient of control variable asset growth (AG) and firm size (Fsz) is positive and significant at 1% level of significance. Firm learning curve measured through firm's age, is negatively associated with ROA, ROE and ROCE and statistically significant.

Firm's financial leverage (DE) is negatively correlated with all measures of financial performance and results are statistically significant. Board Shareholding, the proxy for ownership structure is positively associated with financial performance but the coefficient is insignificant in all cases. Institutional shareholding is negatively associated with financial performance, significant at 1% for ROA and EPS and significant at 10% for ROCE. Foreign shareholding showed mixed and inconclusive results. Number of Block Holders holding 5% or more shares (Bhldrs) is negatively associated with ROA, ROE and ROCE and significant only in case of ROA and ROCE. In case of EPS, the number of block holders is positively associated with financial performance and significant at 10% level of significance.

Board size and CEO duality showed mixed results. Board size is positively associated with ROA, ROE and ROCE, significant in case of ROE and ROCE. CEO duality is negatively associated and significant with ROA and EPS. DPS is positively related and significant with all four measures of financial performance. Year Dummies for year 2007 and afterwards are negative and significant except for EPS where they are insignificant. This may be an indication of effect of declining macro-economic factors since 2007.

4.7.4 Panel Data (Time Series Cross Section) Linear Regression Models

This section reports the results of panel data regression model i.e. Fixed-effect model. Given the nature of panel data i.e. both time series and cross section dimensions are involved, the correct choice of estimation model is very important. Although it is possible to use OLS multiple regression for panel data but this may not be optimal. The estimates of OLS multiple regression may have suffered from omitted variable bias. In case of panel data, it is possible to control some types of omitted variables even without considering them in the analysis. This is possible by observing changes in the dependent variable over time. By doing so one can control for omitted variables that are firm wise different, but constant over time. Panel data is useful as it also offers the possibility to control for such omitted variables that may vary over time, but are constant on a case-to-case basis.

Generally, a Hausman test is used to choose between fixed or random-effect specification. Statistically fixed-effect models are preferred with panel data because it gives consistent results. However fixed-effect models are may not be most efficient models and also cannot run on time-invariant variables. On the other hand, random-effect model are less consistent

but efficient estimators. Based on Hausman test, the fixed - effects model is employed here. To make this study comparable with previous studies, random-effects results are also reported in the appendix (See appendix IX).

4.7.4.1 Fixed-Effect Regression Model (Pakistan)

Fixed-effect models are useful when one is interested in analyzing the effect of variables that vary over time. In other words, fixed-effect model helps in exploring the relationship between independent and dependent variables within a cross-section i.e. in this study's case a firm. Every firm is unique in some way and its individual characteristics may or may not influence the explanatory variables. Therefore, when employing fixed-effect models it is assumed that something within firms may affect or bias the dependent or independent variables and there is a need to control for this. It is why this study assumes a correlation between firm's specific error terms and independent variables. Fixed effect model control for those time-invariant characteristics of a firm from independent variables so that the real or the net effect of the independent variable (explanatory variable) can be assessed.

A general equation for fixed-effect model is as follows.

$$Y_{it} = \alpha_i + \beta_1 x_{1it} + \beta_2 x_{2it} + \beta_k x_{kit} + \varepsilon_{it}$$

α_i is the unknown intercept for each firm (n firm-specific intercepts).

Before running the fixed-effect regression, this study also employed Hausman test to confirm which panel data regression method is preferable for this study's data set. The p-vlaue of zero for chi-square indicates that this study's data set for Pakistan, fixed-effect is preferable to random-effect regression.

The following table reports the result for fixed effect-effect regression for Pakistan using financial performance measures as dependent variable.

Table 4-37 Fixed-Effect Regression Model- CGCI & Financial Performance (Pakistan)

	09[a]	10[b]	11[a]	12[b]
	ROA		ROE	
Variables	Coefficient (robust SE)	Coefficient (robust SE)	Coefficient (robust SE)	Coefficient (robust SE)
CGCI	0.00013		0.00012	
	(0.000)		(0.000)	
HCG		-0.019*		-0.040**
		(0.011)		(0.019)
LCG		-0.018*		-0.010
		(0.010)		(0.015)
AG	0.026**	0.025**	0.128***	0.127***
	(0.012)	(0.012)	(0.023)	(0.023)
Age	-0.002	-0.004	-0.004	-0.006
	(0.007)	(0.006)	(0.009)	(0.009)
DE	-0.005	-0.005	-0.065***	-0.065***
	(0.004)	(0.004)	(0.012)	(0.012)
Fsz	-0.048***	-0.047***	-0.010	-0.009
	(0.012)	(0.012)	(0.021)	(0.021)
BSH	0.043	0.046	0.003	0.002
	(0.035)	(0.034)	(0.105)	(0.106)
Bhldrs	0.001	0.001	-0.001	-0.001
	(0.003)	(0.003)	(0.005)	(0.005)
ISH	-0.032	-0.024	0.121	0.130
	(0.045)	(0.046)	(0.106)	(0.106)
FSH	-0.015	-0.013	-0.071	-0.065
	(0.100)	(0.097)	(0.128)	(0.124)
Bsz	0.003	0.012	0.003	0.021
	(0.063)	(0.064)	(0.131)	(0.126)
Duality	0.013	0.011	-0.012	-0.021
	(0.016)	(0.015)	(0.026)	(0.025)
DPS	0.008***	0.008***	0.012***	0.011***
	(0.002)	(0.002)	(0.003)	(0.003)
Constant	0.446*	0.519**	0.306	0.387
	(0.243)	(0.232)	(0.405)	(0.406)
Observations	950	950	950	950
Rho	0.79	0.82	0.51	0.57
F	7.245***	6.453***	11.70***	11.32***

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

[a] *Fixed-effects Regression with robust standard errors* | [b] *Fixed-effects Regression with robust standard errors and compliance based group dummies*

HCG = High Compliance Group Dummy | LCG = Low Compliance Group Dummy

Table 4-45 (Cont.) Fixed-Effect Regression Model- CGCI & Financial Performance (Pakistan)

Variables	13[a]	14[b]	15[a]	16[b]
	ROCE		EPS	
	Coefficient (robust SE)	Coefficient (robust SE)	Coefficient (robust SE)	Coefficient (robust SE)
CGCI	0.000		0.051**	
	(0.000)		(0.021)	
HCG		-0.018		-0.468
		(0.017)		(1.136)
LCG		-0.023		-1.858**
		(0.017)		(0.888)
AG	0.040*	0.039*	6.621***	6.585***
	(0.022)	(0.022)	(1.276)	(1.283)
Age	-0.006	-0.008	0.226	0.068
	(0.011)	(0.011)	(0.430)	(0.380)
DE	-0.007	-0.007	-0.876**	-0.885**
	(0.011)	(0.011)	(0.347)	(0.353)
Fsz	-0.018	-0.017	-0.017	0.077
	(0.026)	(0.026)	(1.037)	(1.059)
BSH	0.128	0.127	-0.794	-1.118
	(0.103)	(0.101)	(3.713)	(3.784)
Bhldrs	0.005	0.004	0.075	0.016
	(0.006)	(0.006)	(0.391)	(0.410)
ISH	0.039	0.046	0.817	1.209
	(0.105)	(0.105)	(4.109)	(4.257)
FSH	-0.093	-0.086	-0.929	-0.088
	(0.189)	(0.185)	(4.538)	(4.320)
Bsz	-0.104	-0.089	-9.532	-8.434
	(0.142)	(0.142)	(6.860)	(6.961)
Duality	0.052	0.042	-0.573	-1.757
	(0.032)	(0.029)	(1.640)	(1.556)
DPS	0.014***	0.013***	1.047***	1.032***
	(0.003)	(0.003)	(0.212)	(0.229)
Constant	0.500	0.685	-0.953	20.271
	(0.425)	(0.418)	(19.130)	(17.947)
Observations	950	950	950	950
Rho	0.67	0.72	0.54	0.49
F	6.21***	5.96***	7.42***	5.92***

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

[a] Fixed-effects Regression with robust standard errors | [b] Fixed-effects Regression with robust standard errors and compliance based group dummies

HCG = High Compliance Group Dummy | LCG = Low Compliance Group Dummy

The value of rho indicates that the given percentage of variance is due to difference across panels. It is also known as intra-class correlation. The probability of F-test is zero for all four financial performance models, thus indicating the overall fitness of the models. The R^2 values

for fixed-effect models are usually very low. The main reason for low R^2 values is that, in fixed-effect regression the estimation method is controlling or washing out the explanatory effects of the intercepts. Further, the R^2 values for fixed-effect models are not comparable with linear regression models; therefore these values are not reported in the above table

CGCI, measuring extent of compliance with code of corporate governance is positive but insignificant in first three models i.e. with ROA, ROE and ROCE. It is significant and positively associated with EPS. This indicates that for fourth financial performance model, mandatory compliance with code of corporate governance is positively impacting financial performance. To answer the other research question i.e. are firms belonging to high compliance group are financially superior to the firms in the low compliance group, the model was re-run with compliance score based group dummies included.

The results are unexpected as the dummy for high compliant firms is negative in all four regression specifications, and significant in first two. This indicates that high compliant firms are not performance-wise superior to low compliant firms. The coefficient of dummy for low compliant is negative, as expected. One plausible explanation for negative coefficient of High Compliance Group dummy is that high level of mandatory compliance is adversely affecting financial performance.

Asset growth, a proxy for firm's growth is positively associated and significant for all four financial performance models. Consistent with previous regression models, debt equity ratio, the proxy for leverage, is negatively associated with all measures of financial performance, significant only with ROE and EPS.

Firm size is negatively associated with financial performance but only significantly related with ROA. Board shareholding is positively associated with ROA, ROE and ROCE, whereas it is negatively related with EPS, insignificant in all cases. Dividend per share is positively associated with financial performance and significant in all cases. All remaining variables i.e. firm's age, number of block holders, institutional shareholding, foreign shareholding, board size and CEO-Chairman duality showed mixed and insignificant results. The plausible explanation for their insignificance is that in majority of the sample firms, these variables had no variation during the time-period of study.

4.7.4.2 Testing Heteroskedasticity, Serial Correlation and Cross-Sectional Dependence (Contemporaneous Correlation)

In Pooled OLS regression analysis, it is observed that there are indication of potential heteroskedasticity and serial correlation problems in the dataset. To handle this problem, this study also reported the results from panel corrected standard error pooled OLS regression with robust standard errors. For the fixed effect regression, the model was tested for the possible violation of these important regression assumptions.

Baltagi (2005) argued that cross-sectional dependence is an issue in macro-panels data with longer time-series i.e. 20-30 years. In our case where number of cross-sections is large and Time-period is small, this is not an issue. Furthermore, the traditional cross-sectional dependence tests require T (Time-Series span) greater than N (number of cross-section), a condition not met by our case.

However, to be on the safe side this study employed Pesaran Cross-Sectional dependence test to see if residuals are correlated across firms i.e. if there is a presence of contemporaneous correlation. This test tests the null hypothesis that residuals are not correlated.

Table 4-38 Pesaran Cross-Sectional Dependence Test (Pakistan)

	ROA	ROE	ROCE	EPS
Pesaran's test of cross sectional independence	4.752	-0.406	3.447	-0.426
Probability	0.000	0.685	0.000	0.670
Avg. absolute value of the off-diagonal elements	0.371	0.351	0.368	0.351

The Pesran CD test results in above table indicates the presence of contemporaneous correlation in model one (ROA) and model three (ROCE) only. There is no evidence of cross-sectional dependence in model two (ROE) and model four (EPS).

To detect the presence of heteroskedasticity and auto correlation this study employed modified Wald test for group-wise heteroskedasticity and Wooldridge test for auto-correlation in panel data. The result indicates the potential presence of heteroskedasticity and serial correlation.

4.7.5 PCSE Prais-Winsten Regression with AR1 and Panel-Specific AR1

To handle the potential presence of heteroskedasticity, contemporaneously cross-sectional correlation and auto-correlation of type AR1 and panel-specific AR1, this study employed panel corrected standard error (PCSE) Prais-Winsten regression. The SE estimates in a PCSE regression are robust to disturbances being heteroscedastic, contemporaneously cross-sectional correlated and auto-correlation of type AR1 and panel-specific AR1. The following table reports the results for PCSE regression.

Table 4-39 PCSE Prais-Winsten AR(1) & PSAR(1) Regression- ROA (Pakistan)

	17[a]	18[b]	19[c]	20[d]
	Return on Assets (ROA)			
Variables	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)
CGCI	0.00021***		0.00014*	
	(0.000)		(0.000)	
HCG		-0.006		-0.004
		(0.006)		(0.006)
LCG		-0.026***		-0.017***
		(0.006)		(0.006)
AG	-0.012	-0.013	0.004	0.002
	(0.013)	(0.012)	(0.010)	(0.010)
Age	-0.000	-0.000	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
DE	-0.012***	-0.012***	-0.011***	-0.011***
	(0.003)	(0.003)	(0.003)	(0.003)
Fsz	0.009*	0.010**	-0.000	0.001
	(0.005)	(0.005)	(0.004)	(0.004)
BSH	-0.003	0.001	-0.011	-0.007
	(0.018)	(0.017)	(0.016)	(0.016)
Bhldrs	-0.002	-0.002	-0.002	-0.003
	(0.003)	(0.003)	(0.002)	(0.002)
ISH	-0.052	-0.048	-0.035	-0.031
	(0.037)	(0.037)	(0.030)	(0.031)
FSH	0.007	0.010	-0.020	-0.016
	(0.019)	(0.020)	(0.019)	(0.018)
Bsz	0.012	0.015	0.024	0.032
	(0.032)	(0.032)	(0.029)	(0.031)
Duality	-0.014	-0.014	-0.010	-0.011
	(0.009)	(0.009)	(0.009)	(0.009)
DPS	0.008***	0.008***	0.008***	0.008***
	(0.001)	(0.001)	(0.001)	(0.001)
Constant	-0.095	-0.020	0.015	0.048
	(0.067)	(0.064)	(0.062)	(0.056)
Observations	950	950	950	950

R^2	0.31	0.31	0.55	0.55
$P > \chi^2$	0.000	0.000	0.000	0.000

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 | [a] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and AR1 | [b] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and AR1and with Compliance Group Dummies| [c] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and Panel Specific AR1 autocorrelation structure|[d] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and Panel Specific AR1 autocorrelation structure and Compliance Group Dummies*

HCG = High Compliance Group Dummy | LCG = Low Compliance Group Dummy | The results for year, industry, industry type and province dummies are not reported here.

Table 4-40 PCSE Prais-Winsten AR(1) & PSAR(1) Regression- ROE (Pakistan)

	21[a]	22[b]	23[c]	24[d]
	Return on Equity (ROE)			
Variables	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)
CGCI	0.00039**		0.00029	
	(0.000)		(0.000)	
HCG		-0.007		-0.007
		(0.016)		(0.014)
LCG		-0.026*		-0.022*
		(0.013)		(0.012)
AG	0.082***	0.082***	0.096***	0.097***
	(0.023)	(0.023)	(0.020)	(0.020)
Age	-0.002***	-0.002***	-0.002***	-0.002***
	(0.000)	(0.000)	(0.001)	(0.001)
DE	-0.060***	-0.060***	-0.063***	-0.063***
	(0.008)	(0.008)	(0.007)	(0.007)
Fsz	0.032***	0.034***	0.018***	0.019***
	(0.006)	(0.006)	(0.006)	(0.007)
BSH	0.018	0.016	0.038	0.034
	(0.041)	(0.039)	(0.030)	(0.027)
Bhldrs	-0.004	-0.005	-0.002	-0.003
	(0.004)	(0.004)	(0.003)	(0.003)
ISH	0.042	0.048	0.127	0.129
	(0.084)	(0.085)	(0.080)	(0.079)
FSH	-0.037	-0.030	-0.043*	-0.034
	(0.034)	(0.036)	(0.026)	(0.028)
Bsz	0.075	0.085*	0.053	0.063
	(0.049)	(0.048)	(0.044)	(0.044)
Duality	0.018	0.011	-0.006	-0.010
	(0.017)	(0.016)	(0.020)	(0.019)
DPS	0.010***	0.010***	0.011***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)
Constant	-0.257**	-0.143	-0.068	0.019
	(0.114)	(0.102)	(0.093)	(0.088)
Observations	950	950	950	950
R^2	0.35	0.35	0.45	0.45

Prob > χ^2	0.000	0.000	0.000	0.000

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 | [a] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and AR1 | [b] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and AR1and with Compliance Group Dummies| [c] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and Panel Specific AR1 autocorrelation structure|[d] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and Panel Specific AR1 autocorrelation structure and Compliance Group Dummies*

HCG = High Compliance Group Dummy | LCG = Low Compliance Group Dummy| The results for year, industry, industry type and province dummies are not reported here.

Table 4-41 PCSE Prais-Winsten AR(1) & PSAR(1) Regression- ROCE (Pakistan)

	25[a]	26[b]	27[c]	28[d]
	Return on Capital Employed (ROCE)			
Variables	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)
CGCI	0.00047***		0.00031**	
	(0.000)		(0.000)	
HCG		0.008		0.004
		(0.014)		(0.011)
LCG		-0.033**		-0.015
		(0.014)		(0.013)
AG	0.032	0.031	0.050***	0.049***
	(0.023)	(0.023)	(0.018)	(0.019)
Age	-0.001**	-0.001**	-0.002***	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)
DE	-0.012**	-0.012**	-0.010**	-0.011**
	(0.006)	(0.006)	(0.005)	(0.005)
Fsz	0.014	0.015	-0.001	0.001
	(0.010)	(0.010)	(0.010)	(0.010)
BSH	0.037	0.037	-0.014	-0.018
	(0.036)	(0.035)	(0.033)	(0.033)
Bhldrs	-0.003	-0.003	-0.003	-0.004
	(0.005)	(0.005)	(0.004)	(0.004)
ISH	-0.036	-0.032	-0.004	-0.003
	(0.063)	(0.063)	(0.049)	(0.048)
FSH	0.011	0.016	0.008	0.016
	(0.044)	(0.045)	(0.042)	(0.043)
Bsz	0.067	0.072	0.025	0.032
	(0.065)	(0.064)	(0.050)	(0.050)
Duality	0.003	-0.003	0.004	-0.001
	(0.018)	(0.018)	(0.019)	(0.019)
DPS	0.013***	0.013***	0.013***	0.013***
	(0.001)	(0.002)	(0.001)	(0.002)
Constant	-0.145	0.015	0.124	0.215**
	(0.101)	(0.097)	(0.109)	(0.100)
Observations	950	950	950	950
R^2	0.28	0.28	0.43	0.43

Prob > χ^2	0.000	0.000	0.000	0.000

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 | [a] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and AR1 | [b] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and AR1and with Compliance Group Dummies| [c] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and Panel Specific AR1 autocorrelation structure|[d] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and Panel Specific AR1 autocorrelation structure and Compliance Group Dummies*

HCG = High Compliance Group Dummy | LCG = Low Compliance Group Dummy| The results for year, industry, industry type and province dummies are not reported here.

Table 4-42 PCSE Prais-Winsten AR(1) & PSAR(1) Regression- EPS (Pakistan)

	29[a]	30[b]	31[c]	32[d]
	Earnings per Share (EPS)			
Variables	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)
CGCI	0.0014		0.004	
	(0.011)		(0.009)	
HCG		-1.312		-0.400
		(0.885)		(0.823)
LCG		-1.570**		-0.562
		(0.705)		(0.590)
AG	4.791***	4.677***	5.226***	5.170***
	(1.310)	(1.314)	(1.095)	(1.114)
Age	-0.004	-0.003	0.027	0.027
	(0.033)	(0.034)	(0.023)	(0.023)
DE	-1.055***	-1.078***	-1.189***	-1.188***
	(0.243)	(0.242)	(0.222)	(0.222)
Fsz	1.910***	1.945***	1.445***	1.473***
	(0.532)	(0.529)	(0.483)	(0.513)
BSH	0.091	0.593	0.746	1.003
	(1.615)	(1.637)	(1.672)	(1.756)
Bhldrs	0.451*	0.434*	0.367	0.337
	(0.242)	(0.246)	(0.244)	(0.244)
ISH	-3.098	-2.776	-2.130	-1.807
	(4.590)	(4.663)	(4.224)	(4.296)
FSH	-0.558	-0.371	1.504	1.498
	(1.687)	(1.850)	(1.792)	(1.856)
Bsz	-2.374	-2.210	-2.861	-2.841
	(3.791)	(3.736)	(3.257)	(3.240)
Duality	-1.490*	-1.246	-2.082**	-2.005**
	(0.869)	(0.854)	(0.821)	(0.799)
DPS	1.136***	1.133***	1.052***	1.047***
	(0.107)	(0.109)	(0.093)	(0.094)
Constant	-5.587		-2.246	-0.829
	(6.315)		(5.389)	(5.165)
Observations	950	950	950	950
R^2	0.39	0.39	0.53	0.55
Prob > χ^2	0.000	0.000	0.000	0.000

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 | [a] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and AR1 | [b] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and AR1and with Compliance Group Dummies| [c] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and Panel Specific AR1 autocorrelation structure|[d] Prais-Winsten Regression with Panel Corrected Standard Errors (PCSE) and Panel Specific AR1 autocorrelation structure and Compliance Group Dummies*
HCG = High Compliance Group Dummy | LCG = Low Compliance Group Dummy| The results for year, industry, industry type and province dummies are not reported here.

When controlled for panel heteroskedasticity, common autocorrelation AR1, CGCI showed significant positive association with ROA, ROE and ROCE. In a panel-specific AR1 controlled specification, CGCI is still positively related with ROA (at 10% level of significance) and with ROCE (at 5% level of significance). In compliance group dummies model, the dummy for high compliance group is negative in all cases, though insignificant. The dummy for low complaint firm is also negative and significant in case of ROA and EPS.

These results do indicate that firms with below than average compliance are less profitable than average and high compliant firms. On the other hand the negative coefficient of dummy for high compliance group presents an interesting case. The negative coefficient coupled with very low magnitudes of CGCI coefficients suggests that (1) the relationship between compliance and performance is may not be fully explained by a linear estimation and (2) the compliance may have diminishing returns i.e. beyond a certain point the increase in compliance does not translated into increased financial performance.

Asset growth showed a significant positive relationship with all measures of financial performance except ROA. Firms' age is negatively associated with ROA, ROE and ROCE and the coefficients are significant. The results for leverage are consistent with previous regressions i.e. negatively associated with all measures of financial performance and statistically significant. Firm size is positively related at 1% level of significance with ROCE and EPS and at 10% level of significance with ROA. Number of block holders holding 5% or more shares, a proxy for ownership concentration is negatively associated with ROA, ROE and ROCE and the coefficient is statistically insignificant. On the other hand ownership concentration is positively associated with EPS at 10% level of significance under PCSE AR1 specification and positive but insignificant under PSAR1 specification.

Board's shareholding, institutional shareholding, foreign shareholding and board size have mixed and insignificant results in all financial performance models except, board size coefficient is positive and significant at 10% level of significance in PCSE-AR1 specification and foreign shareholding's coefficient is negative and significant at 10% level of significance under PCSE-PSAR1 specification. CEO-Chairman duality found to be negatively associated with EPS at 10% and 5% level of significance. The coefficient for dividend per share is positive and significant in all four financial performance models and in both AR1 and PSAR1 controlled specifications.

4.7.6 Internal Corporate Governance Mechanisms & Financial Performance

In addition to the main analysis, I also estimated all regression specifications without CGCI i.e. to see the effect of internal governance mechanisms i.e. board size, ownership concentration, ownership structure, institutional shareholding & CEO duality. In fixed-effects estimation, all internal governance variables were insignificant. In random-effects specifications, only CEO Duality is negatively associated with EPS and significant at 10%. In a more robust specifications i.e. PCSE Prais-Winsten regression, only CEO duality is significant and negatively associated with ROA & EPS. The recent revision (released in 2012) in the SECP code of corporate governance has acknowledged this adverse effects of duality and made the requirement of separation of CEO and Chairman of the BoD mandatory.

4.7.7 Bootstrapped Tobit Regression Model: CGCI & Firm's Efficiency

The purpose of this study is to evaluate the effectiveness of existing corporate governance system by looking at the cause and effect relationship of firm compliance with code of corporate governance and firm's performance (financial ratios and efficiency scores). In addition to comparing financial performance, this study employed two-stage method to explore the effects of complying with code of corporate governance on firm's efficiency (technical, pure technical and scale efficiency). In the first stage, efficiency scores using DEA methodology were computed. In the second stage these score were regressed with corporate governance compliance score and control variables to answer the empirical & theoretical questions raised by this study.

Since the dependent variable in this case is efficiency scores bounded between 1 and 0 (a case of limited dependent variable), therefore the use of OLS will result in biased and inconsistent estimation results. Therefore, this study employed bootstrapped censored Tobit regression (random-effect) for testing the empirical relationship between compliance and efficiency. There is debate on the conditions under which random-effect or fixed effect Tobit regression is appropriate. Greene (2004) noted that in case of fixed-effects, the Tobit panel data estimators are considered problematic. Further, the "incidental parameters problem" is an issue of concern, as MLE in non-linear panel data models (e.g. Tobit & Logit) with fixed effects can be biased and inconsistent, when the length of time-series (T) is small and fixed and the number of observations (n) in the cross-section is large (Baltagi, 2005; Greene, 2004).

For comparison and analysis purpose, this study has reported results from pooled Tobit regression (with robust standard error), random-effect Tobit regression and Bootstrapped Tobit regression.

Table 4-43 Pooled Tobit Regression with Robust Standard Errors (Pakistan)

	33[a,1]	34[b,2]	35[a,3]	36[b,4]	37[a,5]	38[b,6]
	TE		PTE		SE	
Variables	Coefficients (robust standard errors)	Coefficients (robust standard errors)	Coefficients (robust standard errors)	Coefficients (robust standard errors)	Coefficients (robust standard errors)	Coefficients (robust standard errors)
CGCI	0.000		0.000		0.000	
	(0.000)		(0.000)		(0.000)	
HCG		-0.009		0.007		-0.016**
		(0.009)		(0.007)		(0.007)
LCG		-0.021**		0.003		-0.025***
		(0.010)		(0.007)		(0.009)
AG	0.009	0.008	0.019*	0.020*	-0.010	-0.012
	(0.016)	(0.016)	(0.011)	(0.011)	(0.014)	(0.014)
Age	0.000	0.000	0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DE	-0.007**	-0.008***	-0.009***	-0.009***	0.002	0.002
	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
Fsz	0.015***	0.016***	-0.001	-0.001	0.016***	0.017***
	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)
BSH	0.034	0.037	-0.014	-0.015	0.050**	0.054**
	(0.027)	(0.027)	(0.017)	(0.017)	(0.025)	(0.025)
Bhldrs	-0.001	-0.001	0.002	0.002	-0.003	-0.003

	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
ISH	0.015	0.020	-0.026	-0.027	0.040	0.046
	(0.035)	(0.036)	(0.023)	(0.023)	(0.032)	(0.032)
FSH	0.106***	0.108***	0.039***	0.038***	0.072***	0.075***
	(0.017)	(0.017)	(0.012)	(0.012)	(0.014)	(0.014)
Bsz	0.070**	0.073**	0.077***	0.075***	-0.001	0.004
	(0.029)	(0.029)	(0.019)	(0.019)	(0.024)	(0.024)
Duality	-0.016*	-0.015*	0.009	0.009	-0.024***	-0.023***
	(0.009)	(0.009)	(0.006)	(0.006)	(0.008)	(0.007)
Constant	0.494***	0.534***	0.769***	0.777***	0.702***	0.739***
	(0.066)	(0.059)	(0.048)	(0.042)	(0.056)	(0.050)
Observations	948	948	948	948	948	948
F	12.11***	11.21***	9.216***	9.211***	5.530***	4.726***

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*
***a:** Pooled Tobit Regression (with robust standard errors) | **b:** Pooled Tobit Regression (with robust standard errors) and Compliance group dummies*
***1&2:** All industries dummies are significant except Communication & Networks and Oil & Gas. **3&4**:All industry dummies are significant except for Chemical, Food& Beverages, Glass & Ceramics, Manufacturing (Misc) Oil & Gas, and Pharmaceutical. **5&6**: All industry dummies are significant except Communication & Networks, Oil & Gas and Paper & Board.*
Dummy for industry type i.e. services or manufacturing is significant for TE and PTE.

Table 4-44 Random-Effect Tobit Regression & Bootstrapped Rregression- TE (Pakistan)

Model	39[a,1]	40[b,2]	41[c]	42[d]
	Technical Efficiency (TE)			
	Coefficient (standard error)	Coefficient (standard error)	Coefficient (bootstrapped standard error)	Coefficient (bootstrapped standard error)
Variables				
CGCI	0.000**		0.000*	
	(0.000)		(0.000)	
HCG		0.001		-0.001
		(0.014)		(0.013)
LCG		-0.020*		-0.017
		(0.011)		(0.012)
AG	-0.014	-0.016	-0.008	-0.009
	(0.016)	(0.016)	(0.018)	(0.016)
Age	0.000	0.000	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
DE	-0.001	-0.002	0.001	0.001
	(0.003)	(0.003)	(0.005)	(0.005)
Fsz	-0.010	-0.008	-0.017**	-0.015*
	(0.008)	(0.008)	(0.008)	(0.008)
BSH	0.004	0.001	0.027	0.022
	(0.039)	(0.039)	(0.058)	(0.058)
Bhldrs	0.002	0.001	0.002	0.001
	(0.003)	(0.003)	(0.004)	(0.004)
ISH	0.021	0.025	0.031	0.034
	(0.047)	(0.047)	(0.064)	(0.059)

FSH	0.162***	0.167***	0.117***	0.121***
	(0.037)	(0.037)	(0.042)	(0.041)
Bsz	0.098**	0.105**	0.050	0.059
	(0.048)	(0.048)	(0.052)	(0.051)
Duality	0.000	-0.007	0.005	-0.004
	(0.015)	(0.015)	(0.022)	(0.021)
Constant	0.509***	0.621***	0.756***	0.862***
	(0.117)	(0.111)	(0.140)	(0.107)
Observations	948	948	948	948
Wald χ^2	81.52***	81.17***	30.93***	22.95***

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

a: *Random-Effect Tobit Regression* ***b:*** *Random-Effect Tobit Regression with Compliance Group Dummies* ***c****: Random-Effect Tobit Regression with bootstrapped standard errors.* ***d****: Random-Effect Tobit Regression with bootstrapped standard errors with compliance group dummies*

Year & Industry dummies are dropped due to computational complexities in bootstrap estimation.

1& 2*: All industry dummies are significant at 5% level of significance except Chemical, Communication & Networks, Energy, Manufacturing (Misc.) and Oil & Gas*

Table 4-45 Random-Effect Tobit Regression & Bootstrapped Rregression- PTE (Pakistan)

Model	43[a,1]	44[b,2]	45[c]	46[d]
	Pure Technical Efficiency (PTE)			
Variables	Coefficient (standard error)	Coefficient (standard error)	Coefficient (bootstrapped standard error)	Coefficient (bootstrapped standard error)
CGCI	0.000		0.000	
	(0.000)		(0.000)	
HCG		0.002		0.008
		(0.008)		(0.013)
LCG		-0.002		-0.004
		(0.006)		(0.013)
AG	0.001	0.001	0.005	0.005
	(0.009)	(0.009)	(0.023)	(0.022)
Age	0.000	0.000	0.001	0.001
	(0.000)	(0.000)	(0.001)	(0.001)
DE	0.001	0.001	-0.000	-0.000
	(0.002)	(0.002)	(0.005)	(0.006)
Fsz	-0.009**	-0.008**	-0.018**	-0.016**
	(0.004)	(0.004)	(0.008)	(0.008)
BSH	-0.008	-0.011	0.043	0.032
	(0.022)	(0.022)	(0.063)	(0.062)
Bhldrs	0.002	0.002	0.002	0.001
	(0.002)	(0.002)	(0.005)	(0.004)
ISH	0.002	0.002	0.036	0.036
	(0.028)	(0.028)	(0.080)	(0.080)
FSH	0.057***	0.059***	0.095*	0.100**
	(0.021)	(0.021)	(0.049)	(0.050)
Bsz	0.032	0.035	0.041	0.051

	(0.027)	(0.027)	(0.065)	(0.070)
Duality	0.001	-0.002	0.006	-0.004
	(0.009)	(0.008)	(0.026)	(0.028)
Constant	0.860***	0.894***	0.879***	0.983***
	(0.066)	(0.062)	(0.159)	(0.142)
Observations	948	948	948	948
Wald χ^2	66.68***	65.60***	11.70***	9.33***

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

a: *Random-Effect Tobit Regression* ***b:*** *Random-Effect Tobit Regression with Compliance Group Dummies* ***c****: Random-Effect Tobit Regression with bootstrapped standard errors.* ***d****: Random-Effect Tobit Regression with bootstrapped standard errors with compliance group dummies*

Year & Industry dummies are dropped due to computational complexities in bootstrap estimation.

1 & 2*: All industry dummies are insignificant except Communication & Services (Misc)*

Table 4-46 Random-Effect Tobit Regression & Bootstrapped Rregression- SE (Pakistan)

Model	47[a,1]	48[b,2]	49[c]	50[d]
	Scale Efficiency (SE)			
Variables	Coefficient (standard error)	Coefficient (standard error)	Coefficient (bootstrapped standard error)	Coefficient (bootstrapped standard error)
CGCI	0.000*		0.000	
	(0.000)		(0.000)	
HCG		-0.005		-0.002
		(0.017)		(0.007)
LCG		-0.040***		-0.010
		(0.014)		(0.007)
AG	-0.023	-0.026	-0.007	-0.007
	(0.020)	(0.020)	(0.008)	(0.009)
Age	-0.000	-0.000	0.001	0.001
	(0.001)	(0.001)	(0.000)	(0.000)
DE	-0.001	-0.001	0.001	0.001
	(0.004)	(0.004)	(0.002)	(0.003)
Fsz	0.012	0.014*	-0.002	-0.002
	(0.008)	(0.008)	(0.005)	(0.005)
BSH	-0.020	-0.017	0.014	0.016
	(0.045)	(0.044)	(0.054)	(0.052)
Bhldrs	0.001	0.001	-0.000	-0.000
	(0.004)	(0.004)	(0.002)	(0.003)
ISH	-0.000	0.007	0.021	0.023
	(0.056)	(0.056)	(0.057)	(0.060)
FSH	0.104***	0.108***	0.045*	0.045*
	(0.039)	(0.039)	(0.025)	(0.025)
Bsz	0.060	0.063	0.018	0.018
	(0.055)	(0.055)	(0.025)	(0.028)
Duality	-0.011	-0.013	-0.006	-0.005
	(0.018)	(0.017)	(0.013)	(0.013)
Constant	0.550***	0.675***	0.883***	0.904***
	(0.130)	(0.121)	(0.077)	(0.077)
Observations	948	948	948	948

Wald χ^2	78.70***	83.92***	24.93***	24.32**

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

a: *Random-Effect Tobit Regression* ***b:*** *Random-Effect Tobit Regression with Compliance Group Dummies*
c*: Random-Effect Tobit Regression with bootstrapped standard errors.* ***d****: Random-Effect Tobit Regression with bootstrapped standard errors with compliance group dummies*
Year & Industry dummies are dropped due to computational complexities in bootstrap estimation.
1 & 2: *All industry dummies are significant except Communication & Networks, Energy, Oil & Gas, and Paper & Board).*|

The extent of compliance with code of corporate governance measured through CGCI score is positively related with technical efficiency at 5% level of significance and with scale efficiency at 10% level of significance under random-effects Tobit specification. In the more robust bootstrapped model, CGCI's positive relationship with technical efficiency sustained at 10% significance level.

In contrast to the positive relationship found between compliance and efficiency, the dummy for firms belongs to high compliance group is negative in most cases, although insignificant. It suggests that the high compliant firms are not more efficient than low compliant firms and it is average compliant firms that are more efficient than both high and low compliant firms.

Among the control variables, variables that displayed a significant relationship with DEA efficiency scores i.e. TE, PTE and SE, under random-effect and bootstrapped regression are firm size and foreign shareholding. Firm size is negatively correlated with TE and PTE under random-effect Tobit regression and also under a more robust bootstrapped Tobit regression. This could be interpreted as size does not necessarily translate into efficiency for Pakistani sample firms. Foreign shareholding is positively related and significant with all three efficiency measures under random-effect specification. The coefficient for foreign shareholding is positive in bootstrapped regression but insignificant. The presence of foreign shareholding proves to be beneficial for firms as they bring robust management practices and technology transfer as well.

4.8 Multivariate Analysis (Malaysia)

Following the previous section, this section reports the model specifications and results of multivariate analysis for Malaysia. This includes pooled and panel data models, diagnostic tests and remedies for the violation of the regression assumptions. When DEA efficiency

scores are used as dependent variable, this study employed pooled Tobit regression and bootstrapped Tobit models to test the relationship and hypothesis.

4.8.1 Pooled OLS Regression (Common-Effect) - Model, Results & Discussion (Malaysia)

As previously noted, a pooled OLS model (also known as common-effect model) assumes common coefficients across the cross sectional units or firms. The cross-sectional and time-series data is pooled in one data set in a way that one column represent one variable distribution. A pooled (Common Effect) model takes the form (Equation 4.1) where y is the dependent variable β represents the coefficients of independent and control variables X_1 *to* X_k and ε is the error term. The '*I*' and 't' notations represent the respective cross-section and time-period.

Equation 4.6 to 4.9 denotes the Common-effect model for Malaysia when financial performance ratios are used as dependent variables.

Compliance & Financial Performance Model

$$Performance_{it} = \beta_0 + \beta_1 CGCI_{it} + \beta_2 AG_{it} + \beta_3 Age_{it} + \beta_4 DE_{it} + \beta_5 Fsz_{it} + \beta_6 BSH_{it} + \beta_7 LSH5_{it} + \beta_8 Bsz_{it} + \beta_9 Duality_{it} + \beta_{10} DPS_{it} + \beta_{11} Year_{it} + \beta_{12} Ind_{it} + \varepsilon_{it}$$

Equation 4-4

Compliance & Financial Performance Model with Compliance Group Dummies

$$Performance_{it} = \beta_0 + \beta_1 AG_{it} + \beta_2 Age_{it} + \beta_3 DE_{it} + \beta_4 Fsz_{it} + \beta_5 BSH_{it} + \beta_6 LSH5_{it} + \beta_7 Bsz_{it} + \beta_8 Duality_{it} + \beta_9 DPS_{it} + \beta_{10} HCG_{it} + \beta_{11} LCG_{it} + \beta_{12} Year_{it} + \beta_{13} Ind_{it} + \varepsilon_{it}$$

Equation 4-5

Where Performance is measured through Return on Assets (ROA), Return on Equity (ROE), Return on Capital Employed (ROCE) and Earnings per Share (EPS).

Before reporting Pooled OLS regression results, this study tested and are reporting the important assumptions of regression analysis on Malaysian data set so that the appropriate remedies can be applied in case of violation of assumptions.

4.8.1.1 Regression Analysis Diagnostics

Multicollinearity

This study used STATA for detecting the presence of multicollinearity in the Malaysian data set. The moderate eigen values and VIF values indicate that regressions for Malaysian data set do not have any indication of multicollinearity.

Heteroscedasticity:

This study employed Cameron & Trivedi's decomposition of IM-test and Breusch-Pagan / Cook-Weisberg test for testing the presence of heteroskedasticity. Small p-values in case of both tests indicate the voilation of assumption of homoscedastic variances. This is handled by using models & options that are robust to heteroskedasticity.

Serial or Auto Correlation

This study used Wooldridge (2002) test for serial correlation in pooled & panel-data models to test the assumption of serial correlation. The test results indicate the presence of autocorrelation in all models except when ROE is used as dependent variable and when 1% and 5% level of significance is used. At the 10 % level of significance, all four models are showing signs of first order correlation.

Model Specification Test

For checking the specification error in the regression models, this study employed Link test and Ramsey regression specification error test (RESET). The results indicate that both tests fail to reject the null hypothesis, i.e. the models are correctly specified.

4.8.2 Pooled (Common-Effect) Model with Robust Standard Errors and Prais-Winsten AR1 Linear Regression Model

After testing the important regression assumptions and diagnostic tests, the following table contains the results of pooled OLS (common-effect) model with robust standard errors.

Table 4-47 CGCI and FP (ROA & ROE) - Common Effect Model (Malaysia)

	1[a1]	2[b2]	3[a3]	4[b4]
	ROA		ROE	
Variables	Coefficients (Robust SE)	Coefficients (Robust SE)	Coefficients (Robust SE)	Coefficients (Robust SE)
CGCI	0.000		-0.000	
	(0.000)		(0.000)	
AG	0.155***	0.154***	0.261***	0.261***
	(0.017)	(0.017)	(0.026)	(0.027)
Age	-0.000***	-0.000***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
DE	-0.020***	-0.020***	-0.023**	-0.023**
	(0.005)	(0.005)	(0.009)	(0.009)
Fsz	0.005**	0.005**	0.015***	0.015***
	(0.003)	(0.003)	(0.004)	(0.004)
BSH	0.026**	0.026**	0.023	0.023
	(0.012)	(0.012)	(0.018)	(0.018)
LSH5	-0.011	-0.012	-0.017	-0.018
	(0.013)	(0.013)	(0.020)	(0.020)
Bsz	0.000	0.000	-0.001	-0.001
	(0.001)	(0.001)	(0.002)	(0.002)
Duality	0.011***	0.012***	0.008	0.008
	(0.004)	(0.004)	(0.006)	(0.006)
DPS	0.004***	0.004***	0.005***	0.005***
	(0.000)	(0.000)	(0.001)	(0.001)
HCG		0.006		0.007
		(0.005)		(0.007)
LCG		0.001		0.008
		(0.004)		(0.007)
Constant	-0.004	0.022	-0.017	-0.024
	(0.030)	(0.018)	(0.047)	(0.025)
N	800	800	800	800
R^2	0.410	0.410	0.378	0.379
Adj R^2	0.393	0.392	0.359	0.360
F	22.02	21.35	20.39	19.98
Prob > F	0.000	0.000	0.000	0.000

*Standard errors in parentheses | *** p<0.01, ** p<0.05, * p<0.10 |*
***a**. Pooled OLS (Common-Effect) with robust standard errors **b**. Pooled OLS Common-Effect) with robust standard errors & compliance group dummies*
***1&2:** All industry dummies are significant except construction & Properties. All year dummies are insignificant | **3&4:** All industry dummies are insignificant except Trade & Services and Technology. All year dummies are insignificant*

Table 4-48 CGCI and FP (ROCE & EPS) – Common Effect Model (Malaysia)

	5[a1]	6[b2]	7[a3]	8[b4]
	ROCE		EPS	
Variables	Coefficients (Robust SE)	Coefficients (Robust SE)	Coefficients (Robust SE)	Coefficients (Robust SE)

CGCI	0.000		0.028	
	(0.000)		(0.017)	
AG	0.251***	0.251***	24.894***	24.617***
	(0.028)	(0.028)	(3.550)	(3.541)
Age	-0.001***	-0.001***	-0.092**	-0.089**
	(0.000)	(0.000)	(0.042)	(0.041)
DE	-0.010	-0.010	-2.857**	-2.820**
	(0.009)	(0.009)	(1.241)	(1.245)
Fsz	0.010**	0.011**	4.743***	4.779***
	(0.004)	(0.004)	(0.515)	(0.511)
BSH	0.011	0.011	-4.952*	-4.965*
	(0.019)	(0.019)	(2.750)	(2.710)
LSH5	-0.040**	-0.041**	5.723*	5.526*
	(0.020)	(0.020)	(2.994)	(2.982)
Bsz	0.001	0.001	-0.201	-0.237
	(0.002)	(0.002)	(0.218)	(0.217)
Duality	0.009	0.009	0.490	0.709
	(0.007)	(0.007)	(0.860)	(0.850)
DPS	0.005***	0.005***	1.448***	1.458***
	(0.001)	(0.001)	(0.103)	(0.103)
HCG		0.007		2.619***
		(0.007)		(0.927)
LCG		0.005		0.359
		(0.007)		(0.903)
Constant	0.026	0.032	-32.052***	-22.412***
	(0.049)	(0.027)	(7.043)	(3.896)
N	800	800	800	800
R^2	0.346	0.346	0.578	0.580
Adj R^2	0.326	0.326	0.565	0.567
F	18.52	18.22	49.78	48.09
Prob > F	0.000	0.000	0.000	0.000

*Standard errors in parentheses | *** p<0.01, ** p<0.05, * p<0.10 | Dummies coefficients are not reported.*
***a**. Pooled OLS (Common-Effect with robust standard errors) **b**. Pooled OLS Common-Effect) with robust standard errors & compliance group dummies **1&2:** All industry dummies are significant except construction.**3&4:** Only Construction and Plantation dummies are significant.*
All year dummies are insignificant for Year 2009 in regression 5&6, which is significant at 10% level of significance for ROCE.

The coefficient for corporate governance compliance index score (CGCI) is insignificant in all four financial performance models. The dummies for firms belonging to high and low compliance groups are also insignificant except for EPS model where under common-effect specification the dummy for high compliance group is positive and significant. This indicates there is no significant relationship between firm performance and its compliance with code of corporate governance, though for one case, high compliant firms are financially superior.

Asset growth (AG) is positively related and significant with all measures of financial performance. Firm's age showed significant negative association with measures of financial performance. Debt to equity ratio (DE), as expected is negatively associated and significant with measures of financial performance except ROCE where it is insignificant. Firm size is also positively related and significant. Ownership structure measured through board shareholding showed mixed results. It is positively related but significant only in case of ROA (at 5% level of significance). Board shareholding is negatively related with EPS and significant at 10% level of significance under common-effect specification only. Ownership concentration also showed mixed results. It is negatively related with ROA, ROE and ROCE (significant) and positively related with EPS and significant. Board size showed mixed and inconclusive results. CEO-Chairman Duality is positively related and significant with ROA under both regression specifications. Dividend per share, the proxy for dividend payout and policy is positive and significant in all cases.

4.8.3 Panel Data (Time Series Cross Section) Linear Regression Models

This section starts with the tests to determine which type of regression model (fixed-effects or andom-effect) is suitable for our data set. Then it reports the results of fixed-effect model along with diagnostics tests for testing heteroskedasticity, serial correlation and cross-sectional dependence (Contemporaneous Correlation) in fixed-effect models.

4.8.3.1 Fixed-Effect Regression Model (Malaysia)

As discussed previously fixed-effect model helps in exploring the relationship between independent and dependent variables with in a cross-section i.e. in this case a firm. Every firm is unique in some way and its individual characteristics may or may not influence the explanatory variables. Therefore, when employing fixed-effect models it is assumed that something within firms may affect or bias the dependent or independent variables and there is a need to control for this. It is why correlation between firm's specific error terms and independent variables is assumed.

A general equation for fixed-effect models is as follows.

$$Y_{it} = \alpha_i + \beta_1 x_{1it} + \beta_2 x_{2it} + \beta_k x_{kit} + \varepsilon_{it}$$

α_i is the unknown intercept for each firm (n firm-specific intercepts).

The following table reports the fixed-effect regression results for Malaysia.

Table 4-49 CGCI and Financial Performance (ROA & ROE) - Fixed-Effect Regression (Malaysia)

	9	10	11	12
	ROA	ROA	ROE	ROE
Variables	Coefficients (Robust standard errors)	Coefficients (Robust standard errors)	Coefficients (Robust standard errors)	Coefficients (Robust standard errors)
CGCI	-0.000		-0.000	
	(0.000)		(0.000)	
AG	0.100***	0.100***	0.177***	0.179***
	(0.019)	(0.019)	(0.029)	(0.030)
AGE	0.001	0.001	0.003	0.002
	(0.001)	(0.001)	(0.002)	(0.002)
DE	-0.026***	-0.026***	-0.049***	-0.050***
	(0.009)	(0.009)	(0.017)	(0.017)
FSZ	-0.006	-0.006	-0.002	-0.003
	(0.008)	(0.008)	(0.012)	(0.012)
BSH	0.117**	0.115**	0.111	0.112
	(0.053)	(0.052)	(0.087)	(0.089)
LSH10	-0.000***	-0.000***	-0.000**	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
BSZ	-0.001	-0.001	-0.003	-0.003
	(0.002)	(0.002)	(0.003)	(0.003)
DUALITY	0.013	0.014*	-0.001	0.002
	(0.008)	(0.008)	(0.012)	(0.011)
DPS	0.005***	0.005***	0.006***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
HCF		0.002		-0.001
		(0.006)		(0.008)
LCF		-0.005		0.004
		(0.007)		(0.009)
Constant	0.048	0.057	0.087	0.021
	(0.066)	(0.044)	(0.096)	(0.065)
N	800	800	800	800
Rho	0.552	0.540	0.613	0.582
F	42.01	25.91	12.66	13.30
Prob > F	0.000	0.000	0.000	0.000

*Standard errors in parentheses | *** p<0.01, ** p<0.05, * p<0.1 | HCG= High Compliance Group Dummy LCG= Low Compliance Group Dummy*

Table 4-50 CGCI and Financial Performance (ROCE & EPS)- Fixed-Effect Regression (Malaysia)

	13	14	15	16

Variables	ROCE Coefficients (Robust standard errors)	ROCE Coefficients (Robust standard errors)	EPS Coefficients (Robust standard errors)	EPS Coefficients (Robust standard errors)
CGCI	-0.000		-0.037	
	(0.000)		(0.041)	
AG	0.155***	0.156***	18.323***	18.764***
	(0.028)	(0.029)	(3.930)	(3.900)
AGE	0.003*	0.002	0.546*	0.435
	(0.002)	(0.002)	(0.301)	(0.274)
DE	-0.039**	-0.040**	-2.535	-2.569
	(0.016)	(0.016)	(1.880)	(1.883)
FSZ	-0.009	-0.009	2.392	2.167
	(0.012)	(0.012)	(2.348)	(2.390)
BSH	0.135*	0.134	13.231	13.356
	(0.080)	(0.082)	(14.259)	(14.612)
LSH10	-0.001***	-0.001***	-0.047	-0.048
	(0.000)	(0.000)	(0.045)	(0.043)
BSZ	-0.001	-0.001	-0.337	-0.326
	(0.003)	(0.003)	(0.639)	(0.647)
DUALITY	0.001	0.003	1.394	1.953
	(0.012)	(0.012)	(3.142)	(3.089)
DPS	0.007***	0.007***	1.355***	1.351***
	(0.001)	(0.001)	(0.187)	(0.186)
HCF		-0.005		0.349
		(0.008)		(1.337)
LCF		-0.000		0.780
		(0.010)		(1.576)
Constant	0.122	0.056	-3.983	-14.900
	(0.095)	(0.069)	(20.072)	(12.919)
N	800	800	800	800
Rho	0.651	0.624	0.525	0.476
F	13.92	12.84	9.353	8.939
Prob > F	0.000	0.000	0.000	0.000

*Standard errors in parentheses | *** p<0.01, ** p<0.05, * p<0.1 | HCG= High Compliance Group Dummy LCG= Low Compliance Group Dummy*

The Hausman test suggested that fixed-effects would be preferable method of estimation for Malaysian dataset. In fixed model specification, CGCI is negative but insignificant and the coefficient magnitude is very low. Similarly dummies for high and low compliance group firms are also insignificant. This indicates that within a cross-section, compliance with code of corporate governance is not related with financial performance for Malaysian sample firms. Assets growth is consistently positively related with financial performance measures. Firm age is positively related and significant in all cases except ROA. Leverage (DE) is

negatively related and significant in all cases. All measures of financial performance are positively related and significant with ownership structure (BSH). Firm size, ownership concentration (LSH10), board size and Chairman-CEO duality showed mixed and inconclusive results.

4.8.3.2 Wald Test for Time Fixed-Effect Regression Model (Malaysia)

Wald test is employed to check if time fixed-effect regression is required. The test results are reported in the following table.

Table 4-51 Wald Test for Time-Fixed Effects (Malaysia)

Wald Test	ROA	ROE	ROCE	EPS
F (6,682)	0.62	0.46	0.59	0.53
Prob > F	0.71	0.84	0.74	0.79

Wald test is a joint test to test the hypothesis that dummies for all years are equal to zero. The above table indicates that null hypothesis cannot be rejected. Therefore, for financial performance models time fixed-effect regression is not needed.

4.8.3.3 Testing Heteroskedasticity, Serial Correlation and Cross-Sectional Dependence (Contemporaneous Correlation) in Fixed-Effect Models

Wald test for group-wise heteroskedasticity and Wooldridge test for auto-correlation in panel data were employed. The modified Wald test for group-wise heteroskedasticity shows that the assumption of homoscedastic variances is not valid. The results of Wooldridge test indicate the presence of serial correlation in all four financial performance models.

4.8.4 PCSE Prais-Winsten Panel Regression with AR1 and Panel-Specific AR1 Auto-Correlation Structure

To handle the presence of heteroskedasticity, contemporaneously cross-sectional correlation and auto-correlation of type AR1 and panel-specific AR1, this study employed panel corrected standard error (PCSE) Prais-Winsten regression. The SE estimates in a PCSE regression are robust to disturbances being heteroscadestic, contemporaneously cross-

sectional correlated and auto-correlation of type AR1 and panel-specific AR1. The following table reports the results for PCSE regression with AR1 and panel-specific AR1.

Table 4-52 PCSE Prais-Winsten AR(1) & PSAR(1) Regression (Malaysia)

	17[a,1]	18[b,2]	19[a,3]	20[b,4]
	ROA		ROE	
Variables	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)
CGCI	0.000	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
AG	0.095***	0.097***	0.171***	0.172***
	(0.017)	(0.012)	(0.024)	(0.020)
AGE	-0.001**	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
DE	-0.020***	-0.025***	-0.029**	-0.026***
	(0.005)	(0.004)	(0.012)	(0.008)
FSZ	0.006*	0.007**	0.016***	0.017***
	(0.003)	(0.004)	(0.005)	(0.005)
BSH	0.036*	0.025	0.032	0.006
	(0.019)	(0.018)	(0.023)	(0.022)
LSH10	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.001)	(0.001)
BSZ	0.001	0.000	-0.001	-0.002
	(0.001)	(0.001)	(0.002)	(0.001)
DUALITY	0.012***	0.009***	0.008	0.003
	(0.004)	(0.003)	(0.006)	(0.005)
DPS	0.005***	0.005***	0.006***	0.006***
	(0.000)	(0.000)	(0.001)	(0.000)
Constant	-0.006	-0.032	0.003	-0.068
	(0.047)	(0.042)	(0.056)	(0.054)
N	800	800	800	800
R^2	0.31	0.48	0.27	0.38
Prob > χ^2	0.000	0.000	0.000	0.000

Table 4-58 (Cont.) PCSE Prais-Winsten AR(1) & PSAR(1) Regression (Malaysia)

	21[a,5]	22[b,6]	23[a,7]	24[b,8]
	ROCE		EPS	
Variables	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)	Coefficients (Panel Corrected Standard Error)
CGCI	-0.000	0.000	0.013	0.031
	(0.000)	(0.000)	(0.024)	(0.021)
AG	0.149***	0.162***	18.182***	19.597***
	(0.026)	(0.020)	(3.585)	(3.183)

AGE	-0.001***	-0.001***	-0.090*	-0.101*
	(0.000)	(0.000)	(0.048)	(0.057)
DE	-0.020*	-0.019***	-2.821**	-2.464**
	(0.011)	(0.007)	(1.398)	(1.087)
FSZ	0.013**	0.011**	4.672***	4.874***
	(0.005)	(0.005)	(0.735)	(0.827)
BSH	0.030	0.007	-3.773	-5.580
	(0.028)	(0.027)	(3.686)	(3.504)
LSH10	-0.000	-0.000	-0.013	-0.027
	(0.001)	(0.001)	(0.071)	(0.069)
BSZ	0.001	-0.001	-0.103	-0.146
	(0.002)	(0.001)	(0.239)	(0.253)
Duality	0.009	0.004	0.699	-0.164
	(0.006)	(0.006)	(1.037)	(1.040)
DPS	0.006***	0.006***	1.502***	1.405***
	(0.001)	(0.001)	(0.125)	(0.125)
Constant	0.035	0.022	-23.987**	-29.322***
	(0.081)	(0.072)	(10.923)	(11.129)
N	800	800	800	800
R^2	0.24	0.40	0.43	0.50
Prob > χ^2	0.000	0.000	0.000	0.000

*Standard errors in parentheses | *** p<0.01, ** p<0.05, * p<0.1| [a] PCSE Prais-Winsten Regression with correction for autocorrelation AR1 [b] PCSE Prais-Winsten regression with correction for Panel Specific autocorrelation AR1*

***1**: All year dummies are significant except for 2008. Only dummy for Trade & Services is significant.*
***2**: Only dummies for year 2004 & 2009 are significant. All industry dummies are insignificant except for Technology.* ***3**: All year dummies are significant except for Year 2006. All industry dummies are insignificant except Technology* ***4**: Dummies for Year 2004, 2008, 2009 & 2010 are significant. All industry dummies are insignificant except Properties and Technology.* ***5**: All Year dummies are significant. All industry dummies insignificant except Plantation, Trade & Services and Technology* ***6**: All year dummies are significant except for year 2008. Only dummy for Plantation, Properties and Technology is significant.* ***7**: All year dummies are significant except for year 2006 and 2009. All industry dummies are insignificant except construction & Plantation* ***8**: All year dummies are insignificant except for 2005, 2007 and 2010. Only dummy for Construction, Plantation and properties are significant.*

After controlling for panel level heteroskedasticity and autocorrelation, CGCI remained insignificant. In the compliance groups dummy model (results not reported above), dummy for high compliance group is positive and significant for ROA and EPS when regression is controlled for panel level heteroskedasticity and panel specific autocorrelation. The low compliance group dummy showed mixed and inconclusive results.

Assets growth remains positively related with financial performance measures. Firm's age is negatively associated with financial performance measures and all coefficients are significant. Consistent with all previous regression specifications, leverage (DE) showed

significant negative relationship with all four measures of financial performance i.e. ROA, ROE, ROCE and EPS. Firm size remains significant and positively related. Board shareholding is positively associated with ROA, ROE & ROCE, significant only in case of ROA at 10% under PCSE AR1 specification.

Results for ownership structure and board size are inconclusive. Chairman-CEO duality shows significant positive relation with ROA, when controlled for heteroskedasticity and autocorrelation. DPS is positively related with measures of financial performance and all coefficients are significant.

4.8.5 Bootstrapped Tobit Regression Model for CGCI Score & DEA Efficiency Scores (Malaysia)

Along with using financial ratios as measures of financial performance, this study also employed a two-stage methodology to explore the effects of complying with code of corporate governance on firm's efficiency (technical, pure technical and scale efficiency). In the first stage, efficiency scores were computed using non-parametric DEA methodology. In the second stage, DEA scores were regressed with corporate governance compliance score and control variables to answer the empirical & theoretical questions raised by this study.

As noted previously, the dependent variable in this case are efficiency scores bounded between 1 and 0 (a case of limited dependent variable), therefore the use of OLS will result in biased and inconsistent estimation results. Therefore, this study employed bootstrapped censored Tobit regression (random-effect) for testing the empirical relationship between compliance and efficiency.

For comparison purpose, the results from random-effect Tobit regression with and without bootstrapping are reported.

Table 4-53 CGCI & Efficiency (TE) : Random-Effects Tobit Regression (Malaysia)

	25[a1]	26[b]	27[c]	28[d]
	Technical Efficiency (TE)			
	Coefficient (standard error)	Coefficient (standard error)	Observed Coefficient (bootstrapped standard error)	Observed Coefficient (bootstrapped standard error)
Variables				
CGCI	0.000		-0.000	
	(0.000)		(0.000)	
AG	0.177***	0.054***	0.169***	0.289***
	(0.027)	(0.018)	(0.030)	(0.033)
AGE	0.002**	0.001	0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.000)
DE	-0.037***	-0.002	-0.039	-0.035***
	(0.011)	(0.008)	(0.026)	(0.009)
FSZ	-0.003	0.014**	0.004	0.018***
	(0.009)	(0.006)	(0.014)	(0.006)
BSH	0.087*	0.080**	0.088	0.054*
	(0.045)	(0.032)	(0.057)	(0.029)
LSH10	-0.001	0.001	-0.001	-0.000
	(0.001)	(0.001)	(0.042)	(0.033)
BSZ	-0.001	0.001	-0.001	-0.001
	(0.004)	(0.002)	(0.005)	(0.003)
DUALITY	0.003	0.003	0.007	0.011
	(0.018)	(0.012)	(0.017)	(0.010)
HCG		0.005		-0.004
		(0.007)		(0.010)
LCG		-0.002		0.006
		(0.007)		(0.010)
Constant	0.873***	0.866***	0.849***	0.777***
	(0.083)	(0.037)	(0.112)	(0.038)
Observations	800	800	800	800
Prob > χ^2	0.000	0.000	0.000	0.000

Standard errors in parentheses | *** p<0.01, ** p<0.05, * p<0.1 | [a] Random-Effect Tobit Regression [b] Random-Effect Tobit Regression with compliance group dummies [c] Bootstrapped Random-Effect Tobit Regression | [d] Bootstrapped Random-Effect Tobit Regression with compliance group dummies |Industry dummies coefficients are not reported| [1]All industry dummies are insignificant are insignificant except Plantation and Trade &Services.

Table 4-54 CGCI & Efficiency (PTE) : Random-Effects Tobit Regression (Malaysia)

	29[a1]	30[b]	31[c]	32[d]
	Pure Technical Efficiency (PTE)			
	Coefficient (standard error)	Coefficient (standard error)	Observed Coefficient (bootstrapped standard error)	Observed Coefficient (bootstrapped standard error)
Variables				

CGCI	-0.000		-0.000	
	(0.000)		(0.000)	
AG	0.127***	0.126***	0.121***	0.149***
	(0.027)	(0.027)	(0.031)	(0.035)
AGE	0.001*	0.002**	0.001	0.001**
	(0.001)	(0.001)	(0.001)	(0.000)
DE	-0.056***	-0.057***	-0.059**	-0.073***
	(0.011)	(0.011)	(0.030)	(0.011)
FSZ	-0.011	-0.008	-0.002	0.021***
	(0.009)	(0.009)	(0.019)	(0.005)
BSH	0.012	0.019	0.021	0.027
	(0.045)	(0.045)	(0.047)	(0.026)
LSH10	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.043)	(0.038)
BSZ	-0.004	-0.004	-0.004	-0.003
	(0.004)	(0.004)	(0.005)	(0.003)
DUALITY	0.029	0.026	0.029	0.013
	(0.018)	(0.018)	(0.031)	(0.010)
HCG		-0.020*		-0.019*
		(0.011)		(0.010)
LCG		0.010		0.018*
		(0.011)		(0.010)
Constant	1.072***	1.013***	1.070***	0.870***
	(0.084)	(0.055)	(0.127)	(0.043)
Observations	800	800	800	800
Prob > χ^2	0.000	0.000	0.000	0.000

Standard errors in parentheses | *** p<0.01, ** p<0.05, * p<0.1 | [a] Random-Effect Tobit Regression [b] Random-Effect Tobit Regression with compliance group dummies [c] Bootstrapped Random-Effect Tobit Regression | [d] Bootstrapped Random-Effect Tobit Regression with compliance group dummies |Industry dummies coefficients are not reported| [1]All industry dummies are insignificant at 1% |

Table 4-55 CGCI & Efficiency (SE) : Random-Effects Tobit Regression (Malaysia)

	33[a1]	34[b]	35[c]	36[d]
	Scale Efficiency (SE)			
	Coefficient (standard error)	Coefficient (standard error)	Observed Coefficient (bootstrapped standard error)	Observed Coefficient (bootstrapped standard error)
Variables				
CGCI	0.000		0.000	
	(0.000)		(0.000)	
AG	0.056***	0.054***	0.054**	0.140***
	(0.018)	(0.018)	(0.024)	(0.024)
AGE	0.000	0.001	0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.000)

DE	-0.003	-0.002	-0.003	0.014**
	(0.008)	(0.008)	(0.009)	(0.007)
FSZ	0.014**	0.014**	0.015	0.014***
	(0.006)	(0.006)	(0.011)	(0.005)
BSH	0.079**	0.080**	0.077**	0.049**
	(0.031)	(0.032)	(0.032)	(0.020)
LSH10	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.039)	(0.024)
BSZ	0.001	0.001	0.001	-0.001
	(0.002)	(0.002)	(0.003)	(0.002)
DUALITY	0.004	0.003	0.006	0.006
	(0.012)	(0.012)	(0.014)	(0.008)
HCG		0.005		0.021**
		(0.007)		(0.008)
LCG		-0.002		0.000
		(0.007)		(0.007)
Constant	0.803***	0.866***	0.788***	0.876***
	(0.056)	(0.037)	(0.074)	(0.030)
Observations	800	800	800	800
Prob > χ^2	0.000	0.000	0.000	0.000

Standard errors in parentheses | *** p<0.01, ** p<0.05, * p<0.1 | [a] Random-Effect Tobit Regression [b] Random-Effect Tobit Regression with compliance group dummies [c] Bootstrapped Random-Effect Tobit Regression | [d] Bootstrapped Random-Effect Tobit Regression with compliance group dummies |Industry dummies coefficients are not reported| [1]All industry dummies are insignificant at 1% |

In both random-effects and a more robust regression specification i.e. random-effects Tobit with bootstrapped standard errors, CGCI showed no relationship with efficiency. In compliance dummies model, dummy for high compliance group firms is negative and significant at 10% level in case of PTE, whereas for SE it is positive and significant. This indicates that neither overall nor among groups better compliance is related with efficiency.

Asset's growth consistently showed positive association with technical, pure technical and scale efficiency under both regression specifications. Leverage showed significantly negative association with all three measures of efficiency. Firm size is positively correlated with TE, PTE & SE in compliance dummies model.

Ownership structure is significant and positively related with technical efficiency and scale efficiency. Firms' age, ownership concentration, board size and duality results are inconclusive.

4.9 Summary, Discussion and Comparison of Regression Estimations

This section compares and discusses the findings (Pakistan & Malaysia) of financial performance models under common-effect (pooled OLS with robust standard errors) and fixed-effects. The robustness and/or sensitivity of results to potential violations of regression assumption e.g. heteroskedasticity, autocorrelation etc. are addressed by estimating Prais-Winsten panel regression with correction for panel level heteroskedasticity, first-order autocorrelation and panel specific first-order correlation. For efficiency measures, the results of random-effects Tobit and a more robust Bootstrapped censored Tobit regression are compared. Then these findings are compared with the findings of previous empirical studies.

4.9.1 Corporate Governance Compliance Index Score (CGCI)

CGCI & Financial Performance measured by ROA, ROE, ROCE and EPS

Corporate Governance Compliance Index score (CGCI), which measures the extent of compliance with respective code of corporate governance showed significant positive association with ROA, ROE & ROCE under common-effects specification with EPS under fixed-effects.

When the financial performance models were controlled for panel level heteroskedasticity, autocorrelation and panel specific autocorrelation, CGCI maintained its significant positive relationship with ROA, ROE and ROCE. Under all regression specifications, except for EPS, the very low magnitude of coefficients for CGCI made me wonder if the positive relationship between compliance and financial performance is consistent across all firms with different level of compliance patterns. To confirm this, firms were divided into three groups on the basis of their compliance scores i.e. 'High Compliance Group (HCG)', 'Average Compliance Group' and 'Low Compliance Group (LCG)'.

All regression specifications were estimated again after adding these compliance group dummies. The outcome is very interesting. As expected, the coefficient of LCF dummies for firms belonging to low compliance group is negative and significant in regression number 05, 10, 16,18, 20, 22, 24, 26 & 30. But in case dummy for HCG, results were opposite to what was cited in compliance-performance analysis i.e. compliance positively impacts financial performance which means higher the level of compliance, higher will be the financial

performance. However this was not the case. The dummy for firms belonging to high compliance group (HCG) is negative in all specifications. The coefficient for HCG is significant in case of ROA & ROCE. The negative coefficient of HCG suggests that high compliant firms are less profitable than low compliant firms. This unexpected finding has one possible implication i.e. higher levels of compliance are hurting firm's financial performance.

For Malaysia, the impact of CGCI on all measures of financial performance is insignificant and under all regression specifications. The size of beta coefficient for CGCI is almost zero in all models except with EPS where it is relatively high. The compliance score based group dummies' results are inconsistent and insignificant. Only when controlled for panel specific heteroskedasticity and autocorrelation, the dummy for high compliance group is found positive and significant with ROA and EPS. In contrast to Pakistan, this indicates that firms that have showed above average compliance towards code of corporate governance are more profitable than average and below average compliant firms. This could also means that the compliance performance relationship in Malaysian firm is more linear in nature than Pakistan.

Therefore, for Malaysia this study is unable to find evidence that overall compliance has any positive impact on financial performance. Further in contrast to Pakistan, HCG is positive & significant. This may show that in absence of an overall relationship between compliance and performance; financially high performing firms are more compliant towards the requirement of code of corporate governance. The imperfections in public governance system of Pakistan could also explain the positive relationship of compliance with financial performance for Pakistan, as the mandatory corporate governance regime could be considered a substitute for weak public governance system. In contrast to Pakistan, Malaysia has a strong public governance system, which can also be seen from the choice of corporate governance implementation protocol i.e. comply or explain (principle based) instead of mandatory compliance (rule based). This could be why from a strict compliance perspective no relationship is found between compliance and financial performance.

Comparison with Previous Studies

For Pakistan, the general positive compliance-performance relationship is in line with Bauwhede (2009), Dahya & McConnel (2007) and Alves & Mendes (2004), where they have

reported positive association between compliance and firm performance. Further, Arcot & Bruno (2006) reported that firms that have deviated from code's requirement have performed well, thus confirming the notion that optimal governance structure for each firm is different. It is important to note here that the studies that have reported positive relationship between compliance and performance mainly investigated compliance in the countries that have adopted principle based codes with comply-or-explain based approach.

For insignificant Malaysian results, it is noted that Bauer et al., (2004) reported mixed results for European firms and Dedman (2003) asserted that although there is no empirical evidence for compliance with Cadbury committee recommendations and firm value, there is some evidence that due to implementing these recommendations, overall board oversight capacity has increased. The similar inconclusive results are also reported by Weir & Laing (2000) and Price et al., (2011).

Among studies that have employed non-compliance governance indexes, Shah (2009) reported that there is no relationship between governance index score and ROA & ROE when a random-effect model was applied. Javed & Iqbal (2006), and Shaheen & Nishat (2007) reported positive association between governance score and firm performance. Ariff, et al., (2007) reported no relationship between corporate governance ratings and profitability for Malaysia.

CGCI & Firm's Efficiency measured by Technical Efficiency (TE), Pure Technical Efficiency and Scale Efficiency (SE)

CGCI is positively associated with technical efficiency (at 5% level of significance) and scale efficiency (at 10% level of significance) under random-effects Tobit specification. The positive relationship between CGCI and TE holds in robust bootstrapped regression at 10% level of significance. Similar to financial performance models, the CGCI coefficient magnitude is very low. To further investigate the low magnitude of CGI coefficient, all efficiency models were re-estimated with dummies for high and low compliant firms included. The absence of significant positive coefficient of HCG suggests earlier assertion i.e. beyond a certain point the mandatory compliance is detriment al to firm's efficiency.

In case of Malaysia, CGCI is positively and significantly related with technical efficiency under pooled Tobit regression model. However, when a more robust specification is used i.e. bootstrapped regression, the CGCI turns insignificant. An interesting observation is regarding the dummy coefficient for high compliance and low compliance score firms. It is negative for high compliance firms and positive for low compliance firms when TE and PTE are used as efficiency measures. Under random-effect Tobit regression HCG is negative and significant which means that firms showing high compliance towards code are less efficient than firms with average or below average compliance records. This may indicate that firm with inefficient operations may tried to be more compliant with governance codes to avoid any scrutiny into their operations or management style. On the other hand, efficient firms are less concerned about complying with code of corporate governance.

Comparison with Previous Studies

Sun & Duncan (2009) used corporate governance index (non-compliance) provided by Brown & Caylor (2008) to measure extent of governance practices reported positive and significant association between corporate governance and technical efficiency for Chemical and Services industries in US. Bozec et al., (2010) concluded for Canada that overall, better-governed firms are more efficient. Wang et al., (2007), Wang et al., (2012), Lin et al., (2009), and Zelenyuk and Zheka (2006) have reported that improvements in quality corporate governance mechanisms and structures can enhance firm's efficiency. For Indonesia Lipturi and Tirok (2009) concluded that there is no significant relationship between firm's efficiency and corporate governance.

4.9.2 Firm's Growth (AG)

AG & Financial Performance

Firm's growth measured by annual growth in total assets is significantly and positively correlated with all measure of financial performance, under all regression specification except with ROA under PCSE-PW specification. For Malaysian sample firm's growth is consistently positively correlated with all four measures of financial performance and under all regressions specifications. These positive results justify the use of firm's growth as control variables.

Similar results have been cited by previous empirical studies. Shah (2009), Klapper and Love (2004), Ntim (2009) have reported positive correlation between growth and financial performance measured by ROA and ROE.

AG & Firm's Efficiency

Firm's growth is negatively related with technical efficiency (TE) and scale efficiency (SE) but the relationship is statistically insignificant. Only significant relationship is with PTE is under pooled Tobit regression (regression 35). In contrast, for Malaysia, firm's growth is positively correlated with all three measures of firm's efficiency and results are statistically significant. If it is assumed that both Pakistani and Malaysian firms have equal growth opportunities, then these results may indicates that Malaysian firms are more efficient and effective in exploiting the available growth opportunities.

Previous studies have cited mixed results concerning firm's growth and efficiency. Nanka-Bruce (2009, 2011) have reported negative association between opportunities for growth and technical efficiency.

4.9.3 Firm's Age

Age & Financial Performance

Firm's age, representing the learning curve of an organization is negatively associated with firm's financial performance. The coefficient is negative and significant for ROA, ROE and ROCE under the robust PCSE-PW regression. For Malaysia, age coefficient is significant and negatively related with all financial performance measure under heteroskedasticity and autocorrelation controlled regression specifications. This suggests that older firms are getting less profitable. Couple the slow growth, rise in costs, assets obsoleting with poor governance, large board size, and increased CEO compensation, the negative relationship of age and financial performance should start making sense.

These findings are similar to previous empirical findings. Chen J. Chen (2001) reported negative association of firm's age with Tobin's Q. For Germany, Andres (2008) and Tuschke and Sanders (2003) found negative correlation between firm's age and firm's performance measured by return on sales, return on assets, market to book ratio and Tobin's Q.

Age & Efficiency

For both Pakistan and Malaysia, this study finds no significant relationship between firm's age and efficiency. In case of Pakistan, the coefficient of age is negative for TE and SE.

Chen et al., (2011), using pooled Tobit and random-effects Tobit regression and suggested that a negative relationship exist between firm's age and overall technical efficiency. Nanka-Bruce (2011) also reported a positive but an insignificant association of age and TE.

4.9.4 Leverage (Debt to Equity ratio)

Leverage & Financial Performance

Financial Leverage, measured by debt to equity ratio is included in the analysis to control for a different risk profile of firms. It is also acting as a proxy for financial policy. As anticipated, this study finds significant negative correlation between debt-to-equity ratio and all measures of financial performance. The relationship stands under all regressions specifications. These results are consistent with Mir and Nishat (2004), Chen (2001) and Nanka-Bruce (2009), they also cited negative association with ROA and valuations. Similar significant negative association between debt-to-equity ratio and financial performance measures is observed for Malaysia.

Leverage & Firm's Efficiency

In case of Pakistan, this study finds mixed evidence concerning financial leverage and measures of efficiency. Under bootstrapped regression, leverage coefficient is positive but statistically insignificant for all three efficiency measures. On the contrary, for Malaysia, the results are consistent. Leverage is negatively correlated with TE and PTE. The relationship is statistically significant with TE and PTE under random-effects specification and with PTE bootstrapped regression. One plausible explanation for a negative coefficient is that inefficient firms may borrow more than others to overcome losses due to inefficient operations and management.

These mixed results are in line with previous empirical findings. Nanka-Bruce (2009, 2011) reported negative association of leverage with technical efficiency. On the other hand Chen (2011) and Lauterbach and Vaninsky (1999) reported positive association.

4.9.5 Firm Size

Firm size & Financial Performance

In line with previous research factors affecting firms' performance, firm size is used to control the potential advantages of scale & scope and market power. Firm size is positively related with financial performance in robust PCSE-PW regression. Size positive association with profitability is firmly established in the finance literature. These results are in line with that assertion.

For Malaysian firms, firm's size is significant and positively correlated with all four measures of financial performance under all regression specifications except for fixed-effects where it is negatively related and insignificant. These results are in line with previous empirical studies. Shah (2009), Andres (2008) and Nanka-Bruce (2009) reported positive correlation of firm size with ROA and ROE. In contrast, Chen (2001) for China, Andres (2008) and Tuschke et al., (Tuschke & Sanders, 2003) for Germany, and Seifert et al., (2005) reported negative relationship of size and financial performance. Kapopoulous and Lazereto (2007) find no relationship between size and profitability.

Firm size & Efficiency

The evidence on firm size and efficiency is mixed for Pakistani firms. Firm size is negatively associated with TE and PTE in both random-effects Tobit and bootstrapped specification. This indicates the size is not translating into efficiency. For Malaysian firms, firm size is negatively related with TE and PTE (significant only with PTE under random-effects regression) whereas it is positively related with SE, though coefficients are insignificant.

Among previous studies, Chen et al., (2011), Nanka-Bruce (2009), Sheu and Yang (2005) and Lauterbach and Vaninsky (1999) reported positive effects of size on technical efficiency.

4.9.6 Ownership Structure (BSH)

Board Shareholdings & Financial Performance

Ownership structure measured through percentage shareholding by the board of directors, showed insignificant positive association with financial performance.

For Malaysian listed firms, board shareholding showed positive association with ROA, ROE and ROCE. Under fixed-effects specification board shareholding is significantly and positively related to all four measures of financial performance. In more robust, heteroskedasticity and autocorrelation controlled specification, BSH is positively and significantly related with ROA.

Among previous studies, Javed & Iqbal (2006, 2007), Shah (2009), Ntim (2009) reported a positive association of director share ownership with financial performance including ROA and ROE. Shah (2009) also reported an insignificant negative association between ROE and board shareholdings under the random - effect model. Fama & Jensen (1983) and Ntim (2009) reported negative effects of ownership structure on firm's performance. There are also number of studies which reported no or insignificant relationship between the two. These includes Bennedsen and Nielsen (2006), Demsetz and Villalonga (2001), Bøhren and Ødegaard (2004).

Board Shareholdings & Firm's efficiency

The findings for board shareholdings and efficiency are mixed and inconclusive for Pakistan. Overall it is negative and insignificant. This may confirm Fama and Jensen (1983) entrenchment hypothesis. On the contrary, in case of Malaysian listed firms, board share ownership is significant and positively related with technical efficiency and scale efficiency. It is also positively related with pure technical efficiency but statistically insignificant.

Nanka-Bruce (2006) reported no significant relationship between corporate performance and technical efficiency. Chiang and Lin (2007), Sheu and Yang (2005) and Chen et al., (2011) has reported negative effects of directors shareholding on technical efficiency.

4.9.7 Ownership Concentration (Bhldrs)

Ownership Concentration & Financial Performance

Overall, ownership concentration has no significant relationship with financial performance. For Malaysian sample ownership concentration is negatively associated with financial performance under fixed-effects specification and significant in first three models. When the specifications were controlled for panel level heteroskedasticity and auto correlation, the relationship was still negative but insignificant.

These types of mixed results are in line with previous empirical evidence. Mir and Nishat (2004) and Shah (2009) reported positive relationship between ownership concentration and firms' performance. Li et al., (2008) and Piesse and Khatri (2002) reported a negative relationship whereas Nanka-Bruce (2009), Demsetz and Villalonga (2001) and Reddy et al., (2010) found no relationship between ownership concentration and profitability.

Ownership Concentration & Efficiency

The results for ownership concentration are insignificant, although the coefficients are positive. Results are mixed but insignificant in case of Malaysia.

This study's results are in line with previous empirical studies where Nanka-Bruce (2009, 2011), Lehmann et al., (2004), Zheka (2005), Zelenyuk and Zheka (2006), and Destefanis and Sena (2007) have reported positive effects of ownership concentration on technical efficiency.

4.9.8 Institutional shareholding (ISH)

Institutional Shareholding & Financial Performance

Institutional shareholding is negatively related with ROA, ROCE and EPS, whereas positively related with ROE. However, the coefficient is insignificant in all cases. For Malaysian sample data on institutional shareholding was not available, therefore, it was excluded from Malaysian multivariate analysis.

The negative results are in contrast with previous empirical studies where, Abdelsalam et al., (2008), Shah (2009), Mir and Nishat (2004) and Ntim (2009) reported a positive relationship between institutional ownership and performance.

Institutional Shareholding & Efficiency

Institutional shareholding is positively but insignificantly related with the three measure of efficiency. This may indicate that presence of institutional investors is beneficial as they can improve governance and operations of a firm, if they want to.

4.9.9 Foreign Shareholding (FSH)

Foreign Shareholding & Financial Performance

The results for foreign shareholding are also mixed and insignificant except under robust PCSE-PWR regression where FSH is negatively related with ROE and significant at 10% level of significance. For Malaysia, this variable was also exclude from multi-variate analysis due to un-availability of data.

Foreign Shareholding & Efficiency

The presence of foreign shareholding is positively and significantly associated with efficiency. The relationship is significant with all three measures of efficiency under random-effects Tobit regression and a more robust bootstrapped estimation. The presence of foreign shareholding could mean access to new technology and management talent, thus positive linked with efficiency.

Debasish (2006) reported that in Indian banking sector, banks with foreign shareholdings perform are more efficient than privately and publicly owned local banks. Similarly, Zelenyuk and Zheka (2006), Suyanto and Salim (2013) and Halkos and Tzeremes (2010) find positive association of foreign shareholding with firms' efficiency.

4.9.10 Board Size (Bsz)

Board Size & Financial Performance

Size of the board is positively related with ROE and ROCE and the relationship is significant under common-effect model. In PCSE-PWR specification, board size is positively related with return on equity, significant at 10% level of significance. This positive association may indicate that in a family and group dominated Pakistani capital market, the increase in board size reduces the chance of tunneling and expropriation and hence increased profitability. In case of Malaysian sample, the results are mixed and inconclusive.

The results are consistent with Shah (2009) where he reported significant positive association with ROA under a random-effect model. Similarly, Dahya et al., (2008), Ntim (2009) and Abdullah et al., (2008) reported a positive relationship between board size and financial performance. Mir & Nishat (2004) and Aggarwal et al. (2007) find no evidence of

relationship. Yermack (1996), Mak and Yuanto (2005) and Carline et al., (2002) reported that board size and profitability are negatively associated.

Board Size & Efficiency

Overall board size is positively related with firm's efficiency and the relationship is significant with TE under random-effects model at 10% significance level. The coefficient is positive for other two measures of efficiency but insignificant. For Malaysian sample, this study finds no evidence of a relationship between board size and firm's efficiency. The findings are mixed and insignificant.

Chen et al., (2011) reported a positive but insignificant relationship with overall technical and pure technical efficiency, whereas negative relationship with scale efficiency. Nanka-Bruce (2011) and Chiang and Lin (2007) reported inverse relationship therefore concluded that smaller boards can help in increasing productivity and efficiency.

4.9.11 CEO-Chairman Duality (Duality)

Duality & Financial Performance

A negative association is found between CEO-Chairman duality with ROA and EPS but the relationship is insignificant. Contrary to findings for Pakistan, for Malaysian firms, the combined role has a positive and significant effect on performance. The relationship with ROA is significant under all regression specification, except fixed-effects model.

For Pakistan, the results are consistent with Mir & Nishat (2004), Nanka-Bruce (2009) and Solomon and Solomon (2004) that have reported inverse relationship of duality with performance. The presences of insignificant and mixed results are in line with the findings of Aggarwal et al., (2007) and Daily et al., (2003). On the other hand, Ntim (2009), Bozec and Dia (2007) has reported positive association with profitability.

Duality & Efficiency

The relationship between different measures of efficiency and CEO-Chairman duality is inconclusive for Pakistan sample firms. For Malaysia duality is positively, but insignificantly related to three measures of firm's efficiency. Nanka-Bruce (2009) reported a negative

relationship of duality with technical efficiency. Whereas, Nanka-Bruce (2011) and Chaing and Lin (2007) find that duality is positively related to technical efficiency.

4.9.12 Dividend per Share (DPS)

DPS & Financial Performance

DPS is positively related with all measures of financial performance and under all regression specification. Similar results are observed for Malaysian sample firms. Similar findings are also reported by Reddy et al., (2010).

CHAPTER FIVE

5 SUMMARY AND CONCLUSION

The primary purpose of this study is to find out the efficacy of code of corporate governance by employing finance approach to corporate governance, i.e. by investigating the relationship between compliance with the respective code of corporate governance and firms' performance (financial performance and efficiency) in a comparative setting i.e. comparing the compliance-performance relationship in Pakistan and Malaysia. These objectives are explored in the background that the de facto realities of the capital markets in Pakistan and Malaysia are quite different than what is promulgated by current Anglo-American driven codes. It is to be noted here that Pakistan is following the US style of rule based code of corporate governance, the compliance with which is mandatory for all publicly listed companies. On the other hand, Malaysia is following the UK style of principle based code of corporate governance, where firms are expected to comply with the governance practices recommended in the code or explains the reasons for their non-compliance. The two main questions explored are (1) Does compliance with the respective code of corporate governance result in positive financial performance and (2) Does compliance with the respective code of corporate governance result in increased efficiency?

Along with the above mentioned empirical objectives, one important objective of this study was to develop a compliance index through which extent of compliance with the code of corporate governance can be measured. The index was constructed in such a way to capture both the letter & spirit of compliance with the requirements of the code of corporate governance. This study used a multi-theoretical approach and multidimensional firm performance approach, i.e. financial performance and technical efficiency to investigate the posed research questions. The extent of compliance with code of corporate governance was measured through the aforementioned compliance index. Firm performance was measured through accounting ratios, i.e. ROA, ROE, ROCE and EPS. Along with financial performance, study also used non-parametric DEA efficiency estimates for measuring the technical and related efficiency. This study did not use market based or hybrid financial performance measures for reasons cited in section 3.7.6.

Compliance data were collected from annual reports. The areas where Pakistani companies' practices deviated from the desired practices are; board of directors' roles in making significant decisions, clearly defining the roles of the board of directors, and clearly defined roles and function of CEO, chairman of the board and audit committee. On the other hand, though Malaysian companies were not bounded by mandatory compliance with the requirements of the code, this comply- or-explain approach did not translate into high compliance patterns. The areas where the majority of the sample Malaysian companies deviated from what is recommended are; an independent non-executive director should be chairman of the board of directors and identification of an iNED as senior independent director.

The correlation analysis for Pakistan indicated a significant positive correlation between compliance index score (CGCI) and measures of financial performance, i.e. Return on Assets (ROA), Return on Equity (ROE), Return on Capital Employed (ROCE) and Earnings per Share (EPS). Similarly, compliance index scores were found positively correlated with measures of efficiency. In case of Malaysia, similar positive correlation results were observed between CGCI and measures of financial performance and efficiency. Before estimating econometric models, this study also employed parametric and non-parametric tests (ANOVA and Kruskal-Wallis test) for comparing mean financial performance and efficiency among the three compliance groups, i.e. high compliance group (HCG), average compliance group (ACG) and low compliance groups (LCG). The results indicated that mean financial performance and efficiency of three compliance based groups were significantly different for Pakistan. In case of Malaysia, only EPS among financial performance indicators was significantly different for three compliance groups. Among efficiency measures, three groups were significantly different from each other in respect of PTE and SE only.

For estimation of econometric models, this study employed common-effect and fixed-effects specification of regression. The robustness and/or sensitivity of results to the potential violation of assumptions were addressed by employing panel corrected standard error (PCSE) Prais-Winsten regression which is robust to both general and panel specific heteroskedasticity and auto correlation.

For Pakistan, this study found positive impact of compliance on ROA, ROE and ROCE. The study also found significant positive impact on EPS but under only fixed-effects specification. Similarly, this study found a significant positive impact of compliance on technical efficiency. This significant positive relationship sustained in a more robust bootstrapped model. However, beside the significance of the beta coefficient of CGCI, it is noted that the magnitude of the CGCI's beta coefficient is very low. To further investigate this issue, dummies for high and low compliant firms were added to the equation to find out evidence for the sub hypothesis, i.e. whether firms showing higher compliance with the code are superior in financial performance and efficiency. This was followed by the re-estimation of all econometric models with compliance group dummies included. The results are very interesting. Dummy for low complaint firms, as expected, is negative in all cases and significant in few cases. This indicates that low complaint firms are less profitable than average complaint firms. The interesting finding is for the dummy for high compliant firms. Contrary to the expectations, the dummy for high compliant firms is negative in almost all cases and significant in regression number 10, 12 and 38. This means that high compliant firms are less profitable than average or low compliant firms. Further, this indicates that for the firms that have shown a high level of compliance with the code of corporate governance; the compliance has an adverse effect on financial performance and efficiency.

Further, it is argued that compliance might have a negative impact beyond a certain point i.e. after a certain point increase in compliance did not translate into increase in financial performance and efficiency. This could be due to the fact that every firm had a unique governance structure and because of the mandatory compliance with the requirements of the code of corporate governance, a firm's indigenous governance settings were in clash with imposed settings. This is why; high compliant firms were less profitable than average or low compliant firms.

On the other hand, in the case of Malaysia, this study did not find any evidence of a positive relationship between compliance and firm performance. The model was also estimated after adding compliance group dummies. Results indicate that high compliant firms are more profitable than average or below average compliant firms.

To control potential omitted variable bias and to single out the impact of compliance on firm's performance and efficiency, this study used firm's size, firm's age, firm's growth, leverage, ownership structure, ownership concentration, institutional ownership, foreign ownership, board size, CEO duality and Dividend per Share as control variables. Further study also controlled all regression specifications for time and industry effects. Results indicated that asset growth, firm size and DPS were positively related to financial performance, whereas leverage and firm's age were negatively related. DPS was also positively related to all measures of efficiency and under all regression specifications. Among others notable relationship study found a negative association between CEO-chairman duality and EPS, positive association between ownership concentration and EPS and positive relation between board size and ROA. In efficiency performance models, foreign shareholding and dividend per share were positively related with efficiency measures.

In case of Malaysia, study found no relationship between compliance with code of corporate governance and firm performance measured through four accounting ratios, i.e. ROA, ROE, ROCE and EPS and DEA efficiency scores. Similar to Pakistan, asset growth, firm size and DPS were positively related, whereas firm's age and leverage were negatively related with financial performance. Among efficiency performance models, asset growth, director's shareholding and DPS were positively related with efficiency. Leverage was negatively associated with technical efficiency and pure technical efficiency. The following table provides a summary of the hypothesis tested in this study and findings.

The difference in the findings of Pakistan and Malaysia could be due to difference in overall public governance regimes. Both Pakistan and Malaysia are identified by the World Bank as emerging economies, though Malaysia is on the line of emerging and developed economies. The difference in results could also be explained by the additional imperfections in public governance landscape in Pakistan. This is why in the Pakistan certain level of mandatory compliance is positively related to performance as it may be considered as a substitute for imperfections in overall public governance regime.

Table 5-1: Summary of Hypothesis

Hypothesis	**Direction of Hypothesized Sign**	**Supported**	
		Pakistan	Malaysia

H_{1a}: Compliance with Code of Corporate Governance increases firms' financial performance.	+	Supported	Not Supported
H_{1b}: Firms with higher level of Compliance with Code of Corporate Governance have superior financial performance.	+	Not Supported	Not Supported
H_{1c}: Compliance with Code of Corporate Governance increases firms' efficiency.	+	Supported	Not Supported
H_{1d}: Firms with higher level of Compliance with Code of Corporate Governance are more efficient.	+	Not Supported	Not Supported
H_{2a}: Board size is positively related with firms' financial performance.	+	Supported	Not Supported
H_{2b}: Board size is positively related with firms' efficiency (Technical, Pure Technical and Scale Efficiency)	+	Supported	Not Supported
H_{3a}: CEO-Chairman Duality decreases firms' financial performance.	-	Supported	Not Supported
H_{3b}: CEO-Chairman Duality decreases firms' efficiency.	-	Not Supported	Not Supported
H_{4a}: Board shareholding has a positive impact on firm's financial performance.	+	Not Supported	Partially Supported
H_{4b}: Board shareholding has a positive impact on firm's efficiency.	+	Not Supported	Supported
H_{5a}: Ownership concentration decreases firm's financial performance.	-	Not Supported	Not Supported
H_{5b}: Ownership concentration decreases firm's efficiency.	-	Not Supported	Not Supported
H_{6a}: Institutional shareholding is positively related with firm's financial performance.	+	Not Supported	N/A
H_{6b}: Institutional shareholding is positively related with firm's efficiency.	+	Not Supported	N/A
H_{7a}: Foreign shareholding has a positive impact on firm's financial performance.	+	Not Supported	N/A
H_{7b}: Foreign shareholding has a positive impact on firm's efficiency.	+	Supported	N/A
H_{8a}: Dividend Payout is positively related with firm's financial performance.	+	Supported	Supported
H_{8b}: Dividend Payout is positively related with firm's efficiency.	+	Supported	Supported
H_{9a}: Firm's growth is positively related with firm's financial performance.	+	Supported	Supported
H_{9b}: Firm's growth is positively related with firm's efficiency.	+	Not Supported	Supported
H_{10a}: Firm's age is significantly related with firm's financial performance.	±	Supported	Partially Supported
H_{10b}: Firm's age is significantly related with firm's efficiency.	±	Not Supported	Not Supported
H_{11a}: Firm's leverage is negatively related with firm's financial performance.	-	Supported	Supported
H_{11b}: Firm's leverage is negatively related with firm's efficiency	-	Partially Supported	Supported
H_{12a}: Firm's size is positively related with firm's financial performance.	+	Supported	Supported
H_{12b}: Firm's size is negatively related with firm's efficiency.	+	Supported	Supported

The descriptive analysis of disclosure and compliance practices indicated the lack of spirit in following or complying with the code of corporate governance. For example, during the study period board of directors met on average five times a year with a standard deviation of three meetings. On the other hand average numbers of audit committee's meetings (based on reported figures) were much less. This highlights the difference between what's reported on paper and what is actually happening. In a hypothetical firm, which takes corporate governance seriously, the number of audit committee meetings would be at least equal to the number of board meetings. Another example is of reported affiliation of directors. In Pakistani sample of 119 firms, only 27% firms in 2003 to 34% in 2010 reported the affiliation of the directors serving on the board, i.e. whether he/she is an executive, non-executive or an independent director. This was another indication of lack of interest of firms in corporate governance related reporting.

Price et al., (2011) noted that concentrated ownership in addition to weak legal systems has limited the desired impact of code of corporate governance. This is the case for Pakistan & Malaysia where because of business features like concentrated ownership, interlocked directorships, family/group firms can resist to let go of their control (by appointing independent directors and extensive disclosure) thus hindered the true implementation of code of corporate governance.

5.1 Recommendations and Policy Implications

The analysis of the extent of compliance with code of corporate governance indicated that with the exception of a few areas, overall compliance with the code of corporate governance had increased (at least on papers). However, when one looked deeply, as explained in the previous section, found that the spirit is missing. This is a call for policy makers to investigate the reasons for lack of spirit. Further, the negative relationship between high complaint firms and performance is an indication that mandatory compliance may be interfering with the firm-specific governance settings; as a result it affects performance negatively after a certain threshold.

This study would like to note here that in Pakistan no study like 'Cadbury Report' or 'Kings Report' was conducted which would have formed the basis for a meaningful corporate governance reform. This study does not suspect SECP work on the code, but still a regulator always has a typical mindset. Therefore, it is recommended that there is a need for a through independent study to form the basis for improvement in current corporate governance reforms.

The negative relationship of institutional shareholding with financial performance is pointing towards the less than desired role of institutional shareholders. Theoretically, it is established that institutional shareholder has the ability and capacity to improve the governance situation in a firm. In this case, it meant that they can ensure the timely and meaningful compliance with the requirements of the code. Therefore, there is a need for an explicit strategy to increase the role of institutional investors in firm specific corporate governance. Also the negative relationship of the dual role of CEO with financial performance calls for change in policy. This issue should also be explicitly addressed in future policy making.

The lack of support for compliance-performance sub hypothesis suggests that capital market regulators need to revise their implementation strategy. Pakistan presents an interesting and unique case. Being a former British colony, much of the general and business legal framework is derived from them. On the other hand, the business culture developed over the years is very similar to most of the Asian and European countries, which is in contrast to what is promulgated by UK/US driven corporate governance system.

Further, this study's results (compliance dummy model) do not completely support the convergence theory, which indicates that the corporate governance framework is not completely compatible with the de-facto realities of capital markets. Unless the recommendations and requirements of the code are actually accepted and embraced, the mere box-ticking and compliance on paper will not produce any significant positive effects. This is an indication for national policy makers to review their approach towards corporate governance and ask questions about the efficacy of existing codes of corporate governance. Either the requirements of the code need to be tailored according to the national corporate environment or within this Anglo-American driven corporate governance framework, a more flexible principal approach may be considered for Pakistan.

5.2 Future Research Directions

There are a number of potential avenues for future research and improvements. I suggest the following ways in which the current study can be improved or extended.

The compliance-performance relationship can be examined in a more detailed setting. This could be done by studying a smaller set of firms, using the primary data, including examining of original compliance documents and employee interviews.

Cost of compliance is an important factor, the knowledge of which could lead to a more meaningful analysis. Future studies could focus on how to find cost of compliance and how to incorporate it in traditional compliance-performance analysis.

The suspected non-linear relationship between compliance and performance can be further investigated by utilizing non-linear estimation models.

This study can be replicated using a binary index instead of weighted index. The loss of information in the binary index can be compensated by the use of primary data on compliance.

After refining the research framework introduced in this study, there is need to simulate the outcomes of an alternative governance framework, i.e. from legally enforced to comply-or-explain approach, or a more societal approach like Germans or Japanese.

What factors or variable determine or influence compliance decisions and quality is another neglected area within this compliance-performance research.

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APPENDIX-I

SUMMARY CLAUSES OF THE SECP CODE OF CORPORATE GOVERNANCE AND THEIR COMPLIANCE REQUIREMENTS

Main Category	Requirements/ Guidelines	Compliance Requirement
Board of Directors	• Code encourages effective representations of independent non-executive directors	• Voluntary
	• Minority shareholders as a class should be facilitated to contest election of directors by proxy solicitation by providing necessary information and means.	• Voluntary
	• BoD of each listed company should include at least one independent director representing institutional equity interest.	• Voluntary
	• Executive directors including CEO are not more than 75% of the elected directors.	• Voluntary
	• The directors are required to file a declaration to show that they are aware of their duties & powers under the relevant law(s).	• Mandatory
Qualification & Eligibility	• No director should be serving as a director of 10 other listed companies.	• Mandatory
	• Directors should be a tax payer except if he is a non-resident & has not been convicted by the court as defaulter of all relevant institution.	• Mandatory
	• Elected or nominated director's spouse should not be engaged in the brokerage business unless exempted by the SECP	• Voluntary
	• Tenure of the director's office is 3 years and any vacancy shall be filled within 30 days.	• Mandatory
Responsibilities, Powers & Function of	• The directors of listed companies shall exercise their powers and carry out their fiduciary duties with a sense of objective judgment and independence.	• Mandatory
	• A "Statement of Ethics & Business Practices" should	• Mandatory

BoDs	be prepared and circulated among director & employees and should be acknowledge in written.	
	• The directors adopt a vision/mission statement and overall strategy for the listed company & also formulate significant policies.	• Mandatory
	• The complete record of significant policies and date of their approvals or amendments should be maintained.	• Mandatory
	• The BoDs establish a system of sound internal control, which is effectively implemented at all levels within the listed company.	• Mandatory
	• The decisions related to investment & disinvestment of funds (greater than 6-months maturity), loans and advances by the company, write-off of bad debts, receivables, advances, inventories, assets and lawsuits should be exercised by the BoDs on the behalf of the company.	• Mandatory
	• The appointment, remuneration and terms & condition of employment of the CEO and other executive directors should be determined and approved by the BoDs.	• Mandatory
Meetings of the Board	• The chairman of the board shall preferably be a non-executive director.	• Voluntary
	• The respective roles & responsibilities of the chairman & CEO should be clearly defined (even if the both positions are held by the same person)	• Mandatory
	• Chairman of the board, if present should chair the meetings.	• Mandatory
	• Minimum one meeting per quarter	• Mandatory
	• Written notices shall be circulated not less than 7 days before the meetings except emergency meetings.	• Mandatory
	• Minutes of the meetings should be recorded appropriately and circulated among the participants not later than 30 days (or less if shorter period is provided in the company's article of association.	• Mandatory
Significant	• Significant issues like annual business plans, budgets,	

Issues to be Placed for Decision by the BoDs **Orientation Courses**	quarterly operating results, internal audit reports, management letter by external auditors, compliance and implementation of rules & regulations should be placed for the information, consideration and decision of the BoDs of listed company. • Companies should make appropriate arrangements to carry out orientation course for the education of their directors.	• Mandatory • Mandatory
<u>Chief Financial Officer (CFO) & Company Secretary</u>	• The appointment, remuneration and terms and conditions of employment of the CFO, the Company Secretary and the head of internal audit of listed companies shall be determined by the CEO with the approval of the Board of Directors. • Only CEO can remove CFO & company secretary with the approval of BoDs. • The CFO should be member of recognized body of professional accountants or graduated from a recognized university with 5 years related experience. • The company secretary should be a member of recognized by of professional accountant or corporate/chartered secretaries or holding master's in business administration/commerce or a law graduate with 5 years related experience. • The CFO & company secretary should attend the meetings of the BoDs except when agenda of the meeting involves items relating to CFO, CS, CEO or any director.	• Mandatory • Mandatory • Mandatory • Mandatory
<u>Corporate & Financial Reporting Framework</u> **The Directors' Report to the Shareholders**	• The assurance from the directors in the directors' report about the o Integrity of financial statements, books of accounts and the application of appropriate accounting policies. o International accounting standards as applicable in Pakistan have been followed. o The effectiveness & soundness of internal control system o Assurance for the firm as a going concern (or	• Mandatory • • • •

	reasons for otherwise) o No material departure from the required governance regulations. • The Director's report should also include the following, where necessary o Reasons & explanation for a significant deviations (if any) from last year operating results. o Provision of key operating and financial data (summarized) for the last 6 year. o Reasons for not announcing dividends. o Brief description & reasons for outstanding payment on account of taxes, duties, levies & charges. o Significant plan and decisions such as corporate restructuring, business expansion or discontinuance of operations, along with future prospects, risks & uncertainties surrounding the listed company. o A statement as to the value of investments of provident, gratuity & pension funds based on their respective audited accounts. o The number of board meetings & attendance by each director o The pattern of shareholding to disclose the aggregate number of shares held by associated companies, undertakings and related parties, NIT & ICP, directors, CEO & their spouse and minor children, executives, public sector companies and corporations; banks, development finance institutions, non-banking finance institutions, insurance companies, modarbas & mutual funds; shareholders holding ten percent or more voting interest	• • Mandatory • • • • • • • •
Frequency of Financial Reporting	• The quarterly unaudited financial statements of listed companies shall be published and circulated along with directors' review on the affairs of the listed	• Mandatory

	company for the quarter.	
	• Half yearly financial statements should be limited scope reviewed by statuary auditors.	• Mandatory
	• Annual financial statements should be circulated not later than four months from the close of financial year.	• Mandatory
	• All material information which can affect the price of company's share should be immediately disseminated to the SECP & stock exchange(s).	• Mandatory
Responsibility of Financial Reporting and Corporate Compliance	• CEO & CFO are responsible for duly endorsing financial statements, getting approval from BoD and circulation.	• Mandatory
	• The company secretary should submit a secretarial compliance certificate as a part of the annual return filed with the Registrar of Companies to certify that the secretarial and corporate requirements of the Companies Ordinance, 1984 have been duly complied with.	• Mandatory
Disclosure Of Interest by a Director Holding Company's Shares	• If directors, CEO or any executive directors or their spouses sell/buy or take any position notify in writing to company secretary about his (her) intentions and provide the written record of all the relevant transaction information within the four days of transaction. And Company Secretary should present this information in the next meeting of BoD.	• Mandatory
	• No director, CEO or executive shall, directly or indirectly, deal in the shares of the listed company in any manner during the closed period.	• Mandatory
Auditors not to Hold Shares	• Companies should ensure that external auditors or any partner in the audit firm and his spouse and minor children do not at any time hold, purchase, sell or take any position in shares of the listed company or any of its associated companies or undertakings:	• Mandatory
	• If the auditor (firm/partner/his spouse or minor children) owns shares the company prior to the	• Mandatory

	appointment as auditors, such company should take measures to ensure that the auditors disclose the interest within 14 days of appointment and divest themselves of such interest not later than 90 days thereof.	
Corporate Ownership Structure	• Every company which is proposed to be listed shall, at the time of public offering, comply with the requirements of offer of shares to the general public as contained in the related Listing Regulations, unless the limit is relaxed by the stock exchange with the approval of SECP.	• Mandatory
Divestiture of Shares by Sponsors/ Controlling Interest	• Directors are required to ensure that in case of divestiture of not less than 75% (other than by non-resident SHs in favor of non-resident SHs or through privatization) at a price higher than the market value that an offer in writing has been made to the minority shareholders for acquisition of their shares at the same price. Where the offer price to minority shareholders is lower than the price offered for acquisition of controlling interest, such offer price shall be subject to the approval of the SECP.	• Mandatory
<u>Audit Committee</u>	• The audit committee should be comprised of not less than 3 members including chairman.	• Mandatory
	• Majority of members should be Non-executive directors	• Mandatory
	• Chairman shall preferably be a non-executive director.	• Voluntary
	• The names of members of the audit committee should be disclosed in each annual report.	• Mandatory
Frequency of Meetings	• The Audit should meet once every quarter.	• Mandatory
	• These meetings should be help prior to the approval of interim results by the BoD and before and after the completion of external audit.	• Mandatory
Attendance at Meetings	• CFO, head of internal audit and representative of external auditors shall attend the audit committee	• Mandatory

	meeting at which issues relating to accounts & audits are discussed.	
	• At least once a year audit committee should meet the external auditors without CFO or head of internal audit present.	• Mandatory
	• At least once a year audit committee should meet with internal audit team without CFO & external auditor being present.	• Mandatory
Terms of Reference	• The BoDs should determine the terms of reference of the audit committee.	• Mandatory
	• In the absence of strong ground to proceeds otherwise the BoDs should act in accordance with the recommendations of the audit committee.	• Mandatory
	• The audit committee shall appoint a secretary of the committee. The secretary shall circulate minutes of meetings of the audit committee to all members, directors and the CFO within a fortnight.	• Mandatory
Internal Audit	• There should be an internal audit function. The head of internal committee should have access to the chair of the audit committee.	• Mandatory
	• Internal audit reports should be provided for the review of external auditors. The auditors shall discuss any major findings in relation to the reports with the audit committee, which shall report matters of significance to the Board of Directors.	Mandatory
External Auditors	• The appointed external should have satisfactory rating under the Quality Control Review programme of the Institute of Chartered Accountants of Pakistan.	• Mandatory
	• External auditor should be compliant with the IFAC guidelines on Code of Ethics, as adopted by the Institute of Chartered Accountants of Pakistan.	• Mandatory
	• The BoDs shall recommend appointment of external auditors for a year, as suggested by the Audit Committee.	• Mandatory
	• The recommendations of the Audit Committee for	• Mandatory

	appointment of retiring auditors or otherwise shall be included in the Directors' Report. In case of a recommendation for change of external auditors before the elapse of three consecutive financial years, the reasons for the same shall be included in the Directors' Report.	
	• Auditors should not provide services other than audit except in accordance with the IFAC guidelines.	• Mandatory
	• [Previous Clause] Companies should change their external auditors every five year or at least rotate the partner after obtaining consent from SECP.	• Mandatory (2003-2005)
	• [New] All financial listed companies should change their external auditors every five year.	• Mandatory
	• [New] All non-financial listed companies should at a minimum rotate the engagement partner every five year.	• Mandatory
	• Ex-partner or ex-employees of external auditors or their close relatives cannot be appointed as CEO, CFO, internal auditor or director (at any time during 2 year preceding such appointment).	• Mandatory
	• Companies should require external auditor to furnish a management letter to its BoDs not later than 30 days from the date of audit report.	• Mandatory
	• Companies should require a partner of external auditors to attend AGM at which audited accounts are discussed and approved.	• Mandatory
Compliance with the Code of Corporate Governance	• Companies should publish and circulate a statement of compliance with best practices of corporate governance along with their annual report.	• Mandatory
	• Statement of compliance should be reviewed and certified by statutory auditors.	• Mandatory
	• Only SECP can relax a condition in any particular case where such condition cannot be met.	• Mandatory

CORPORATE GOVERNANCE COMPLIANCE INDEX FOR PAKISTAN

Item No	Code's Requirement or Recommendation	Compliance Requirement	Measured By	Relative Weight	Absolute Weight	Scoring Criteria	
						Compliance	No Compliance
	Board of Directors						
1	Code encourages **effective representations of iNEDs**, including those representing minority interests	**V**	% of NEDs on the BoD	0.55	3.59	Up to 30% = 1 30 - 60% =3 over 60% =5	0
1.1	By asking for effective representations of iNEDs, Code actually demand to provide the **affiliation of directors**	**V**	Whether Affiliation of Directors are given i.e. whether a director is iNED, NED or ED	0.30	1.96	5 = if affiliations are given	0 = if affiliations are not given
2	**Minority shareholders** as a class should be facilitated to contest election of directors by proxy solicitation by providing necessary information and means.	**V**	Presence of a director representing minority shareholders	0.30	1.96	5 = if presence of a director representing minority SHs is reported	0 = if not reported
3	BoD of each listed company should include at least one independent director representing **institutional equity interest.**	**V**	Presence of a director representing institutional equity interest other than NIT	0.15	0.98	5 = if reported	0 = if not reported
4	**Executive directors** including CEO are not **more than 75%** of the elected directors.	**V**	% of executive directors	0.10	0.65	**5** = If % of ED is less than 75%	**0** = If % of ED is more than 75%
5	The directors are required to file a declaration to show that they are aware of their duties & powers under the relevant law(s).	**M**	It's a legal requirement and it's unlikely if companies are reporting this in their annual report.	0.05	0.33	5 = Legal Requirement: Assume all companies are complying, at least in	

						letter	
	Qualification & Eligibility						
6	No director should be **serving as a director of 10 other** listed companies.	**M**	Is the fact that directors are not serving on 10 others boards reported in the annual report?	0.05	0.33	5 = if reported	0 = if not reported
7	Directors should be a tax payer except if he is a non-resident & has not been convicted by the court as defaulter of all relevant institution.	**M**	A legal requirement	0.05	0.33	5 = if reported	0 = if not reported
9	**Tenure of the director's office** is 3 years and any vacancy shall be filled within 30 days.	**M**	No. of Days to next appointment after there is vacant position	0.10	0.65	5 = if vacancy filed in 30 days or no vacancy	0 = if vacancy not filled in 30 days
9.1	As the clause require **vacancy to be filled within 30 days**		Whether Date of Resignation or Tenure ending & Date of New Appointment is given	0.10	0.65	3 = if not applicable 5 = if applicable & dates are given	0 = if applicable & dates are not given
	Responsibilities, Powers and Functions of BoDs						
10	A "**Statement of Ethics & Business** Practices" should be prepared and circulated among director & employees and should be acknowledged in written.	**M**	Whether it's reported in the annual report or not.	0.05	0.33	5 = if reported	0 = if not reported
11	The directors adopt a **vision/mission statement** and overall strategy for the listed company & also formulate significant policies.	**M**	Presence of a vision & Mission statement in the annual report	0.05	0.33	5 = if reported	0 = if not reported
13	The BoDs establish a **system of sound internal control**, which is effectively implemented at all levels within the listed company.	**M**	Whether it's reported in the annual report or not.	0.05	0.33	5 = if reported	0 = if not reported

16	**The chairman** of the board shall preferably be a **non-executive director.**	**V**	If the Chairman is a NED	0.95	6.21	5 = if chairman is NED	0 = if Chairman & CEO are same or Chairman is also ED or Chairman is NED but holding 10% or more voting interest
18	**Chairman of the board**, if present should **chair the meetings.**	**M**	compare the total No. of meetings held and No. of meetings attended by the chairman,	0.05	0.33	5 = as it is obvious if chairman is present, he will chair the meeting	
18.1	As the above clause is mandatory, then companies should provide this information that **who chaired the meeting(s).**		If name(s) of the official given, who chaired the meeting(s).	0.40	2.61	5 = if names are given	0 = if names are not given
19	Minimum one meeting per quarter	**M**	No. of meetings in a year	0.50	3.27	5 = if 4 or more meetings in the year	0 = if less than 4 meetings in the year
20	Written notices shall be circulated not less than 7 days before the meetings except emergency meetings.	**M**	Whether reported in the annual report	0.10	0.65	5 = if reported	0 = if not reported
23	Companies should make appropriate arrangements to carry out **orientation course** for the education of their directors.	**M**	Whether it's reported in the annual report or not.	0.25	1.63	5 = if reported	0 = if not reported
	Chief Financial Officer (CFO) & Company Secretary						
26	The **CFO** should be member of recognized body of professional accountants or graduated from a recognized university with 5 years related experience.	**M**	Check the Qualification, if not given in the annual report	0.05	0.33	5 = if qualification of the CFO is reported	0 = if not reported
27	The **company secretary** should be a member of recognized by of professional accountant or corporate/chartered secretaries or holding master's in business administration/commerce or a law graduate with 5 years related experience.	**M**	Check the Qualification, if not given in the annual report	0.05	0.33	5 = if qualification of the CFO is reported	0 = if not reported

	Corporate & Financial Reporting Framework						
29	The assurance from the directors in the directors' report about the						
30	Integrity of financial statements, books of accounts and the application of appropriate accounting policies.	**M**	Whether it's reported in the annual report or not.	0.20	1.31	5 = if reported	0 = if not reported
31	International accounting standards as applicable in Pakistan have been followed.	**M**	Whether it's reported in the annual report or not.	0.20	1.31	5 = if reported	0 = if not reported
32	The effectiveness & soundness of internal control system	**M**	Whether it's reported in the annual report or not.	0.35	2.29	5 = if reported	0 = if not reported
33	Assurance for the firm as a going concern (or reasons for otherwise)	**M**	Whether it's reported in the annual report or not.	0.20	1.31	5 = if reported	0 = if not reported
34	No material departure from the required governance regulations.	**M**	Whether it's reported in the annual report or not.	0.20	1.31	5 = if reported	0 = if not reported
35	The Director's report should also include the following, where necessary	**M**					
36	Reasons & **explanation for a significant deviations** (if any) from last year operating results.	**M**	if profits are less than the last year, it requires an explanation to be given. And if other than normal increase in profits, an increase of greater than 40% is observed then last year then an explanation should be given	0.75	4.90	3 = if not applicable 5 or less according to the breadth & depth of justification provided	0= if applicable & no justification provided
37	Provision of **key operating and financial data** (summarized) for the last 6 year.	**M**	Whether it's reported in the annual report or not.	0.35	2.29	5 or less according to the quality of data	0 = if not reported
38	**Reasons for not announcing dividends.**	**M**	If a dividend is not announced, whether any explanation was offered.	0.75	4.90	3 = if not applicable 5 or less according to the breadth & depth of justification provided	0= if applicable & no justification provided

39	Brief description & reasons for outstanding payment on account of taxes, duties, levies & charges.	**M**	If there is an **abnormal** outstanding payment, then what explanation was offered.	0.40	2.61	3 = if not applicable 5 or less according to the breadth & depth of justification provided	0= if applicable & no justification provided
40	**Significant plan and decisions** such as corporate restructuring, business expansion or discontinuance of operations, along with future prospects, risks & uncertainties surrounding the listed company.	**M**	if company faces such circumstances, then any detail was offered or not.	0.15	0.98	3 = if not applicable 5 or less according to the breadth & depth of justification provided	0= if applicable & no justification provided
41	**A statement as to the value of investments of** provident, gratuity & pension funds based on their respective audited accounts.	**M**	Whether it's reported in the annual report or not.	0.25	1.63	3 = if not applicable 5 or less according to the breadth & depth of justification provided	0= if applicable & no justification provided
42	The number of board meetings & attendance by each director	**M**	Whether it's reported in the annual report or not.	0.20	1.31	5 = if reported	0 = if not reported
43	**The pattern of shareholding** to disclose the aggregate number of shares held by associated companies, undertakings and related parties, NIT & ICP, directors, CEO & their spouse and minor children, executives, public sector companies and corporations; banks, development finance institutions, non-banking finance institutions, insurance companies, modarbas & mutual funds; shareholders holding ten percent or more voting interest	**M**	Whether it's reported in the annual report or not.	0.70	4.58	5 or less according to the breadth & depth of justification provided	0 = if not reported
	Frequency of Financial Reporting						
44	The quarterly unaudited financial statements of listed companies shall be published and circulated along with directors' review on the affairs of the listed company for the quarter.	**M**	Assumed they have circulated the quarterly unaudited financial statements	0.05	0.33	5 assuming they have published and circulated quarterly financial statements	0 = if any indication, that they have not published & circulated their

							Quarterly Reports
45	Half yearly financial statements should be limited scope reviewed by statuary auditors.	**M**	Assumed they have circulated the quarterly unaudited financial statements	0.05	0.33	5 assuming they have published and circulated quarterly financial statements	0 = if any indication, that they have not published & circulated their Qtrly Reports
46	Annual financial statements should be **circulated not later than four months** from the close of financial year.	**M**	No. of Days from end of year to Date of AGM and it should be less than 120	0.35	2.29	5 = If the No. of days b/w year end & AGM are less than 115	0 = If the difference b/w the two dates are greater than 115
47	**All material information** which can affect the price of company's share should be immediately disseminated to the SECP & stock exchange(s).	**M**	Whether reported in the annual report	0.15	0.98	5 = if reported	0 = if not reported
	Responsibility of Financial Reporting and Corporate Compliance						
48	CEO & CFO are responsible for **duly endorsing** financial statements, getting approval from BoD and circulation.	**M**	Whether this fact is reported in the annual reports	0.10	0.65	5 = if reported	0 = if not reported
48.1	After the endorsement who has finally approved or signed the financial statements		Whether the names are given under the financial statements	0.05	0.33	5 = if the names of signatories are given at the bottom of financial statements	0 = if not reported
49	The company secretary should submit a **secretarial compliance certificate** as a part of the annual return filed with the Registrar of Companies to certify that the secretarial and corporate requirements of the Companies Ordinance, 1984 have been duly complied with.	**M**	Check with Registrar of Companies to see if the company has submitted the required document	0.05	0.33	5 = Legal Requirement: Assume all companies are complying	

	Audit Committee: Frequency of Meetings: Attendance at Meetings						
54	The **audit committee** should be comprised of not less than 3 members including chairman.	**M**	Total No. of Audit Committee members	0.50	3.27	5 = if no. of members of AC are 3 or more.	0 = if less than 3
55	Majority of members should be Non-executive directors	**M**	% of NEDs in the Audit Committee	0.95	6.21	5 = if all members are NEDS 4 = if NEDs are more than 75% 3 = if NEDs are more than 50%	0 = if NEDs are 50% or less
56	Chairman of the audit committee shall preferably be a non-executive director.	**V**	if Chairman is an NED and reported	0.80	5.23	5 = if applicable	0 = if not applicable
57	The **names of members of the audit committee** should be disclosed in each annual report.	**M**	Whether the names of members of audit committee are disclosed in the AR	0.30	1.96	5 = if reported	0 = if not reported
58	The Audit Committee should meet once every quarter.	**M**	No. of meetings in a year	0.50	3.27	5 = if more than 4 meetings were held 3 = if only 4 meetings were held	0 = if less than 4 meetings were held 0 = if info on no. of AC's meeting is not given
	Terms of Reference						
63	The BoDs should determine the terms of reference of the audit committee.	**M**	Whether reported in the annual report	0.20	1.31	5 = if reported	0 = if not reported
65	The audit committee shall appoint a **secretary of the committee**. The secretary shall circulate minutes of meetings of the audit committee to all members, directors and the CFO within a fortnight.		Whether the name of secretary of audit committee is given in the AR & Did the fact that minutes are circulated within 15 days is mentioned in the AR	0.20	1.31	5 = if reported	0 = if not reported
	External Auditors: Auditors Not to Hold Shares						

68	The appointed external Auditor should have **satisfactory rating** under the Quality Control Review programme of the Institute of Chartered Accountants of Pakistan.	**M**	Check if the firm is included in the list of Audit firms having satisfactory QCR rating by ICAP	0.75	4.90	5 = if applicable	0 = if not applicable
69	External auditor should be **compliant with the IFAC** guidelines on Code of Ethics, as adopted by the Institute of Chartered Accountants of Pakistan.	**M**	Whether reported in the annual report	0.10	0.65	5 = if reported	0 = if not reported
71	The **recommendations of the Audit Committee for appointment of retiring auditors** or otherwise shall be included in the Directors' Report. In case of a recommendation for change of external auditors before the elapse of three consecutive financial years, the reasons for the same shall be included in the Directors' Report.	**M**	Whether the details about it is included in the Director's report or not.	0.50	3.27	5 or less according to the breadth & depth of justification provided	0 = if not reported
72	Auditors should not provide services other than audit except in accordance with the IFAC guidelines.	**M**	Whether reported in the annual report	0.15	0.98	5 = if reported	0 = if not reported
73	***[Previous Clause Applicable up to 2006]*** Companies should change their external auditors every five year or at least rotate the partner after obtaining consent from SECP. ***[New Clause Effective from 2007]***All listed non-financial companies shall at a minimum rotate the engagement partner every five year.	**M**	Check from the consecutive annual reports (audit committee recommendations & Company Info) if this clause is followed.	0.40	2.61	2 = if not applicable 5 = if the requirement is followed	0 = if not followed
	Compliance with the Code of CG						

79	Companies should publish and circulate a statement of compliance with best practices of corporate governance along with their annual report.	**M**	Whether it's reported in the annual report or not.	0.10	0.65	5 = if reported	0 = if not reported
80	Statement of compliance should be reviewed and certified by statutory auditors.	**M**	Check if the statement of compliance had been reviewed & certified by Auditors	0.10	0.65	5 = if Requirement was followed	0 = if requirement was not followed
			Total Weight	**15.30**	**100.00**		

APPENDIX-III

SUMMARY CLAUSES OF THE MALAYSIAN CODE OF CORPORATE GOVERNANCE AND THEIR COMPLIANCE REQUIREMENTS

Main Category	Requirements/ Guidelines	Compliance Requirement
Part 1: Principles of Corporate Governance **Directors**	• Companies should be headed by an effective board which should lead and control the company. • There should be balance on the board in terms of executive, non-executive and independent directors so that no individual or small group of individual can dominate the board's decision making. • BoDs should be given quality information in a timely manner to discharge its duties. • There should be a formal and transparent procedure for the appointments of new directors to the boards. • All directors should be required to submit themselves for re-election at regular intervals and at least every three years.	Compulsory disclosure of how they have applied these principles .
Director's Remuneration	• Levels of remuneration should be sufficient to attract and retain the directors needed to run the company successfully. • The compensation structure should link rewards to corporate and individual performance, in the case of executive directors. • In the case of non-executive directors, the level of remuneration should reflect the experience and level of responsibilities undertaken by the particular non-executive concerned. • There should be a formal and transparent procedure for developing policy on executive remuneration and for fixing the remuneration packages of individual directors. • The company's annual report should contain details of	

	the remuneration of each director	
Shareholders	• There should be dialog between company and its institutional shareholders on mutual understanding of objectives. • Companies should use the AGM to communicate with private investors and encourage their participation.	
Accountability and Audit	• The board should present a balanced and understandable assessment on the company's position and prospects. • The board should maintain a sound system of internal control to safeguard shareholders' investment and the company's assets. • The board should establish formal and transparent arrangements for maintaining an appropriate relationship with the company's auditors	
<u>Part 2: Best Practices in Corporate Governance</u> **Principal Responsibilities of the Board**	• Board should explicitly assumes the following six responsibilities: Reviewing & adopting strategic plans, overseeing management, identification and management of risks, succession planning for senior management, developing & implementing an investors relations programme or shareholders communication policy, reviewing the adequacy and integrity of the company's internal control systems and management information systems.	Comply or Explain
Constituting an Effective Board	• In case of CEO & Chairman are different, there should be a clearly accepted division of responsibilities to ensure balance of power and authority. • In case of combined role, there should be a strong independent element on the board. • The decision to combine the roles of chairman and CEO should be publicly explained. • Independent non-executive directors should makeup at	Comply or Explain

	least one third of the board membership. • Non-executive directors should be persons of caliber, credibility and have the necessary skill and experience to bring an independent judgment in board decision making. • The board should include a number of directors which fairly reflects the investment in company by shareholders other than significant shareholders. • In circumstances where a shareholder holds less than the majority but is still the largest shareholder, the board will have to exercise judgment in determining the appropriate number of directors which will fairly reflect the interest of the remaining shareholders. • The board should disclose on annual basis whether one-third of the board is independent. • Board should disclose in cases where company has a significant shareholder, whether it satisfies the requirement of fair representation of minority shareholders. • Whether or not the role of chairman & CEO are combined, the board should identify a senior independent non-executive director in the annual report, to whom concerns may be conveyed. • The board nomination committee should be composed exclusively of non-executive directors and majority of whom are independent. • The board should disclose in the annual report the review of its required mix of skills, experience & core competencies which NEDs should bring to the board. • The nomination committee should assess & properly document effectiveness of the board, its committees, and contribution of each individual director including iNED and CEO. • The company secretary should facilitate the board and ensure that all appointments are properly made. • Every board should examine its size, with a view to determining the impact of the number upon its	

	effectiveness. • Companies provide an orientation and education programme for new recruits to the board. • The board should meet regularly, with due notice of issues to be discussed • The board should record its deliberations, in terms of the issues discussed, and the conclusions in discharging its duties and responsibilities. • The board should disclose the number of board meetings held a year and the details of attendance of each individual director in respect of meetings held. • The board should have a formal schedule of matters specifically reserved to it for decision to ensure that the direction and control of the company is firmly in its hands. • The board, together with the CEO, should develop position descriptions for the board and for the CEO, involving definition of the limits to management's responsibilities. • The board should approve or develop, with the CEO, the corporate objectives for which the CEO is responsible to meet. • The board should be provided information, other than standard financial information, that goes beyond assessing the quantitative performance of the enterprise, and looks at other performance factors, such as customer satisfaction, product and service quality, market share, market reaction, environmental performance and so on, when dealing with any item on the agenda. • Chairman of the board is responsible for organizing information necessary for the board to deal with the agenda and for providing this information to directors on a timely basis. • Directors should have access to all information within a company whether as a full board or in their individual capacity.	

	• There should be an agreed procedure for directors, whether as a full board or in their individual capacity, to take independent professional advice at the company's expense, if necessary. • All directors should have access to the advice and services of the company secretary. • Directors should appoint as secretary, someone who is capable of carrying out the duties to which the post entails, and his removal should be a matter for the board as a whole. • The chairman is entitled to the strong and positive support of the company secretary in ensuring the effective functioning of the board. • Where the board appoints a committee, it should spell out the authority of the committee and, in particular, whether the committee has the authority to act on behalf of the board or just the authority to examine a particular issue and report back to the board with a recommendation. • There should be remuneration committee consisting wholly or mainly of NEDs. • The membership of remuneration committee should appear in director's report.	
Accountability & Audit	• Audit Committee should comprise of at least 3 members and majority of whom are independent. All members of should be NEDs. • All members of the audit committee should be financially literate and at least one should be a member of an accounting association or body. • The board should provide the audit committee with written terms of reference which deal clearly with its authority and duties. • The finance director, the head of internal audit and a representative of the external auditors should normally attend audit committee meetings.	Comply or Explain

Shareholders	• Audit committee should meet with the external auditors without executive board members present at least twice a year. • The audit committee should have explicit authority to investigate any matter within its terms of reference, the resources to do so, and full access to information. • If necessary, the audit committee should be able to obtain external professional advice and to invite outsiders with relevant experience to attend. • The audit committee should meet regularly, with due notice of issues to be discussed, and should record its conclusions in discharging its duties and responsibilities. • The chairman of the audit committee should engage on a continuous basis with senior management and external auditors in order to be kept informed of matters affecting the company. • The details of the activities of audit committees, the number of audit meetings held in a year, details of attendance of each director in respect of meetings, and the details of relevant training attended by each director should be disclosed. • The board should establish an internal audit function and identify a head of internal audit who reports directly to the audit committee. • The board or the audit committee should determine the remit of the internal audit function. • The boards should maintain an effective communications policy that enables both the board and management to communicate effectively with its shareholders, stakeholders and the public.	
<u>Part 3: Principles & Best Practices for other Corporate Participants</u>	• Institutional shareholders have a responsibility to make considered use of their votes. • Institutional investors should encourage direct contact with companies, including constructive communication with both senior management and board members about performance, corporate governance, and other matters affecting shareholders'	Voluntary Voluntary

	interest. • When evaluating companies' governance arrangements, particularly those relating to board structure and composition, institutional investors and their advisers should give due weight to all relevant factors drawn to their attention. • The external auditors should independently report to shareholders in accordance with statutory and professional requirements and independently assure the board on the discharge of its responsibilities.	Voluntary Voluntary
Compliance	• Companies are required to state in their annual reports o How they have applied the principles set out in part 1. o The extent to which they have complied with the best practices set out in part 2. o Identity and give reasons for areas of non-compliance. o Where applicable state the alternative practice(s) adopted. • Where company fails to disclose the matters in its annual report as per requirement give above, Bursa Malaysia can take action against the company or its directors according to its listing requirements.	

APPENDIX-IV

CORPORATE GOVERNANCE COMPLIANCE INDEX FOR MALAYISA

Item No	Code Requirement or Recommendation	Measured By	Absolute Weight	Relative Weight	Scoring Criteria	
					Compliance	No Compliance
1	***A-I: The Board:*** *Companies should be headed by* ***an effective board*** *which should* ***lead and control*** *the company*.	*statement in the AR that how company has applied this principle*	0.10	0.528	5 = If the AR contains the discussion regarding this principle	0 = If no statement is provided
2	• In case of combined role, there should be a strong independent element on the board. • Whether or not the role of chairman & CEO are combined, the board should **identify a senior independent non-executive director** in the annual report to whom concerns may be conveyed	Presence & identification of Senior Independent Director	0.75	3.958	5 = If a director is nominated as SiD & his details are provided in the AR	2.5 = if explanation for non-compliance offered 0 = otherwise
3	The decision to **combine the roles of chairman and CEO** should be publicly explained	CEO Duality	0.5	2.639	5= if separate CEO & Chairman 2.5 = if same but properly explained	0= no justification offered for non-compliance
4	• To be effective, **independent non-executive directors** should make up **at least one-third** of the board membership. • „„„The board should disclose on annual basis whether one-third of the board is independent	% of iNEDs	0.9	4.749	5 = if iNEDs are 2/3rd are more 4 = if iNEDs are 1/3rd or more 2.5 = if iNEDs are less than 1/3 & justification for non-	0 = if total No. of iNEDs are less than 1/3rd of BoD and no explanation offered

					compliance offered	
5	**Non-executive directors** should be persons of caliber, credibility and have the **necessary skill and experience** to bring an independent judgment in board decision making.	Whether Qualification & Profile of NEDs are given	0.5	2.639	5 or less = according the details of NEDs' profiles 2.5 = if justification has been offered for non-compliance	0 = Neither compliance nor justification
6	The board should include a **number of directors which fairly reflects** the investment in company by shareholders other than significant shareholders	Presence of directors representing minority shareholder	0.5	2.639	5 = if one or more minority director on BoD 2.5 = if not then explanation provided	0 = No representation of minority shareholders
7	***A-IV:*** *There should be a f****ormal and transparent procedure for the appointment of new directors*** *to the board.*	*statement in the AR that how company has applied this principle*	0.10	0.528	5 = If the AR contains the discussion regarding this principle	0 = If no statement is provided
8	***A-V:*** *All directors should be required to* ***submit themselves for re-election at regular intervals*** *and at least every three years.*	*statement in the AR that how company has applied this principle*	0.10	0.528	5 = If the AR contains the discussion regarding this principle	0 = If no statement is provided
9	The board **nomination committee** should be composed exclusively of non-executive directors and majority of whom are independent.	Presence of Nomination Committee & Composition of Nomination Committee	0.7	3.694	5 = if majority of directors are iNEDs 2.5 = if justification offered for non-compliance	0 = if no such information is provided
10	The **nomination committee should assess & properly document** effectiveness of the board, its committees, and contribution of each individual director including iNED and CEO.	If evaluation report about board and its committees is given	0.25	1.319	5 = if such practice is followed 3 = if not followed then reasons offered	0 = if no such information is provided

11	The board through the nominating committee **should disclose in the annual report the review** of its required mix of skills, experience & core competencies which NEDs should bring to the board.	Does Evaluation Report of Nomination Committee contains details about NEDs qualification & Skills	0.3	1.583	5 = if NC ER contains info about NED qualification & skills 2.5 = if justification offered for non-compliance	0 = if no such information is provided
12	Companies provide an orientation and education programme for new recruits to the board.	Orientation/education programme, if new director is elected	0.5	2.639	5 = if applicable and implemented 3 = if not applicable	0 = if applicable and no such training conducted
13	Boards should be **entitled to the services of a company secretary** who must ensure that all appointments are properly made, that all necessary information is obtained from directors for the company records and for meeting statuary obligations.	Presence of Company Secretary Information about Company Secretary	0.75	3.958	5 = if info about CS is provided 3 = No CS, but justification offered	0 = there is no CS and no justification offered
14	The board should **meet regularly**, with due notice of issues to be discussed The board should **record its deliberations**, in terms of the issues discussed, and the conclusions in discharging its duties and responsibilities **(wef 2008)**	Whether it is practiced to issue notice of board meetings with agenda.	0.8	4.222	5 = if notices with agenda for board meetings are issued 3 = Justification to act otherwise	0 = if no such information is provided
15	The board should **disclose the number of board meetings** held a year and the **details of attendance** of each individual director in respect of meetings held.	No. board meetings and attendance detail of directors	0.5	2.639	5 = if board meetings & attendance detail are provided 3 = justification to act otherwise	0 = if no such information is provided
16	The board should have a **formal schedule of matters specifically reserved to it for decision** to ensure that the direction and control of the company is firmly in its hands.	If such detail list/schedule exist & reported	0.5	2.639	5 = if relevant details are given 3 = Justification for not having such formal schedule	0 = if no such information is provided

17	There should be an **agreed procedure** for directors, whether as a full board or in their individual capacity, to take **independent professional advice** at the company's expense, if necessary	Whether such procedure exist and has this fact reported in the annual report	0.35	1.847	5 = if such procedure existed and reported	0 = if no such information is provided
18	The board, together with the CEO, should develop **position descriptions for the board and for the CEO**, involving definition of the limits to management's responsibilities	Whether company has developed job description for board and management	0.5	2.639	5 = if such information existed and reported	0 = if no such information is provided
19	Directors should have a**ccess to all information** within a company whether as a full board or in their individual capacity.	Whether this fact is reported in the AR	0.5	2.639	5 = if such information existed and reported	0 = if no such information is provided
20	The board should approve or develop, with the CEO, the **corporate objectives** for which the CEO is responsible to meet.	Presence & reporting of corporate objectives	0.75	3.958	5= if objective are reported	0 = if no such information is provided
21	***B-I:*** *The Level & Makeup of Remuneration*	*statement in the AR that how company has applied this principle*	0.10	0.528	5 = If the AR contains the discussion regarding this principle	0 = If no statement is provided
22	***B-II:*** *….. a f**ormal and transparent procedure for developing policy on executive remuneration**……*	*statement in the AR that how company has applied this principle*	0.10	0.528	5 = If the AR contains the discussion regarding this principle	0 = If no statement is provided
23	***B-III:*** *The company's annual report should contain **details of the remuneration of each director***	*statement in the AR that how company has applied this principle*	0.10	0.528	5 = If details of Director's Remuneration given 2.5 = if justification given	0 = If no statement is provided
24	There should be **Remuneration Committee (RC)** consisting wholly or mainly of NEDs.	Presence of Remuneration Committee & Composition of remuneration Committee	0.65	3.43	5 = if all members are NEDs 4= if 2/3rd are NEDs 3 = if 1/2 are NEDs	2.5 = if no RC & explanation offered 0 = no RC & no explanation

25	The **membership of Remuneration Committee (RC)** should appear in director's report.	Whether names are given in D.Report	0.35	1.847	5 = if names of RC members are given separately 2.5 = if mentioned in profiles	2.5 = if explanation for non-compliance is given 0 = no info provided
26	***D-1:****Financial Reporting: The board should present a balanced and understandable assessment on the company's position and prospects.*	*statement in the AR that how company has applied this principle*	0.10	0.528	5 = If the AR contains the discussion regarding this principle	0 = If no statement is provided
27	***D-II:*** *Internal Control: The board should maintain a sound system of internal control to safeguard shareholders' investment and the company's assets.*	*statement in the AR that how company has applied this principle*	0.10	0.528	5 = If the AR contains the discussion regarding this principle	0 = If no statement is provided
28	***D-III:*** *Relationship with Auditors: The board should establish formal and transparent arrangements for maintaining an appropriate relationship with the company's auditors.*	*statement in the AR that how company has applied this principle*	0.10	0.528	5 = If the AR contains the discussion regarding this principle	0 = If no statement is provided
29	**Audit Committee (AC)** should comprise of at least 3 members and majority of whom are independent. [The chairman should be an iNED. *Valid up to 2007*] [All members of should be NEDs. *W.e.f 2008*]	Presence of AC & Composition of AC	0.9	4.749	5 = if all members are iNEDs 4= if 2/3rd are iNEDs 3 = if 1/2 are iNEDs	2.5 = if explanation for non-compliance is provided 0 = no info provided
30	The board should provide the **Audit Committee (AC)** with **written terms of reference** which deal clearly with its authority and duties.	Where ToR for audit committee are defined and this fact is reported or not	0.75	3.958	5 = if AR ToRs defined & reported	2.5 = if explanation for non-compliance is provided 0 = no info provided
30.1	All members of the audit committee should be **financially literate** and **at least one should be a member** of an accounting association or body. *(Applicable from 2008)*	Whether qualification of audit committee members are given	0.9	4.749	5 = if all members are financially literate & at least one member is a professional body member	2.5 = if explanation for non-compliance is provided 0 = no info provided

31	The finance director, the head of internal audit and a representative of the external auditors should normally attend audit committee meetings	Whether this information is reported	0.5	2.639	5 = if they had attended meetings 3 = Justification for not attending meetings	0 = if no such information is provided
32	The **Audit Committee (AC)** should meet regularly,	Did AC meet at least once in a quarter	0.8	4.222	5= if AC meets at least 4 times a year	2.5 = if explanation for less than 4 meetings is offered, '0' otherwise
33	with **due notice of issues** to be discussed, and should **record its conclusions** in discharging its duties and responsibilities.	The fact that minutes of AC meetings are recorded & due notices of meeting agenda were issued is reported in AR	0.75	3.958	5 = if minutes of the audit committee meetings has been recorded 3 = justification for non-compliance	0 = if no such information provided
34	The details of the activities of Audit Committee (AC), the **number of audit meetings** held in a year, **details of attendance** of each director in respect of meetings	No of meetings held and attendance details	0.4	2.111	5 = if no of total meetings held and details of attendance is given	0 = if no such information is provided
35	The **details of relevant training** attended by each member of AC should be disclose *(w.e.f 2008)*	Qualification of Audit Committee members	0.25	1.319		
36	The board should establish an internal audit function and identify a head of internal audit who reports directly to the audit committee.	***Applicable up to 2007:*** (if internal audit function is not established then reasons) ***Applicable from 2008:*** Report about internal audit function and details of head of internal audit.	0.9	4.749	5 = if internal audit function is established and head is identified and reported	2.5 = if explanation for non-compliance is offered 0 = otherwise

37	The board or the audit committee should determine the remit of the internal audit function.	Whether the ToR for internal audit function are defined & reported	0.65	3.43	5 = if the fact that ToR for internal audit has been defined is reported	3 = if explanation for non-compliance is offered 0 = otherwise
38	***C-I:*** *Companies & ISHs should each be ready, where practicable, to enter into a dialogue based on the mutual understanding of objectives.*	*statement in the AR that how company has applied this principle*	0.10	0.528	5 = If the AR contains the discussion regarding this principle	0 = If no statement is provided
39	***C-II:*** *Companies should use the AGM to communicate with private investors and encourage their participation.*	*statement in the AR that how company has applied this principle*	0.10	0.528	5 = If the AR contains the discussion regarding this principle	0 = If no statement is provided
40	The boards should maintain an **effective communications policy** that enables both the board and management to communicate effectively with its shareholders, stakeholders and the public.	Do company have an ECP & this fact is reported	0.5	2.639	5 = if board has defined a communication policy and reported this fact in the AR	3 = if explanation for non-compliance is offered 0 = otherwise
			19.0	**100**		

APPENDIX-V

SUMMARY OF EMPIRICAL FINDINGS REPORTED IN SECTION 2.5

(Corporate governance codes, extent of compliance with codes, their impact on corporate behavior and firm performance)

Author (Year)	Sample & Study Period	Key Results
Stile and Taylor (1993)	The Times top 100 UK firms Compliance Analysis	• 73% of the companies are showing compliance with four out of six Cadbury committee recommendations.
Conyon (1994)	*Times* top 1000 companies during 1988-1993	• There is a 19 % increase in accepting Cadbury recommendation on separating the two roles.
Peasnell, Pope and Young (2000)	360 UK listed firms from 1990 to 1992 and 1994 to 1995	• Reported that after adding more outside directors as per Cadbury recommendations, less instances of earnings management are recorded.
Dedman (2000)	333 non-financial firms listed at FT All Share index in 1990 and 1993.	• Managerial entrenchment is reduced in the post Cadbury period and they observed a positive association between degree of compliance and size.
Weir and Laing (2000)	320 UK listed firms; 1992 & 1995	• The percentage of firms conforming with Cadbury recommendations has increased. • Full compliance with recommendations is not associated with financial performance
Dahya, McConnell and Travolas (2002)	460 UK listed firms	• Empirically analyzed the relationship between CEO Turnover and Corporate Performance for • The CEO turnover rate has significantly increased in the post-Cadbury scenario
Dedman (2003)	Review of the previous empirical studies	• Found no evidence on the relationship between post-Cadbury code board structure and firm performance • Compliance with Cadbury committee recommendations improves board oversight

		capabilities
Alves and Mendes (2004)	60 firms (1998), 44 firms (2000) and 50 firms (2001) listed on the Lisbon Stock Exchange responded to the questionnaires sent.	• Used a multifactor model and tested the relationship between abnormal stock returns and level of compliance with recommendations of the Portuguese Securities Market Commission • Concluded that there is a positive relationship between compliance with some of these recommendations and abnormal stock returns
Bushman, Piotroski and Smith (2004)	Annual report disclosure data of sample firms in 46 countries	• Legal origin of the country is the main determinant of corporate governance disclosure and firms in common law countries provides more governance related information
Bauer, Guenster and Otten (2004)	249 (year 2000) and 269 (year 2001) firms included in FTSE Eurotop 300	• Reported that though firm value is positively related with governance ratings, firm performance as measured by ROE and Net Profit Margin is negatively related with governance standards. • Further, they reported a substantial difference between UK markets and Eurozone markets
Fernández-Rodríguez, Gómez-Ansón, and Cuervo-García (2004)	76 firms listed on Madrid stock exchange 1998 to 2000.	• For an overall sample of announcements, the market reaction was positive • No significant wealth effects are observed for those sample firms that have adopted specific recommendations of the code. • Announcements about significant restructuring of the board of directors are positively valued by investors
Li, Pincus and Rego (2004)	Stock returns of 850 firms in S&P 1500; 2002	• Positive association between stock returns and extent of earnings management and negative association between non-independent members of audit committee and stock returns. • Overall, there is a positive reaction from investors
Jong et al., (2005)	102 Dutch firms during 1992-1996	• The Peter Committee recommendations had no effect on corporate governance characteristics or on firm value.
Werder, Talaulicar and Kolat (2005)	408 firms listed on Frankfurt stock exchange during the year 2003	• Concluded that the high level of conformity with code is observed and this will further increase in future.

Arcot and Bruno (2006)	245 non-financial listed firms Study Period: 1998-2004	• Analyzed the degree of compliance and explanation for non-compliance • Increasing trend of compliance with the provisions of the best practices code, but explanations offered by firms are generic in nature and un-informative, therefore, the authors suggest that firms are conforming to code in letter not in spirit.
Goncharov, Werner, and Zimmermann (2006)T	Sample: 61 largest German listed firms; 2002 & 2003	• Firms with higher degree of compliance are priced at premium in contrast to the firms with low degree of compliance • The author's findings also support the hypothesis that due to capital market pressure, boards adopt codes' recommended changes.
Akkerman et al., (2007)	Sample: 150 largest Dutch firms Study period: 2004	• Concluded that there is a high degree of compliance shown by the firms and also the size is positively related to the compliance level. Areas where compliance is weak includes director's remuneration, internal control requirements, independence of members of the supervisory board. Similar explanations were offered for deviations from recommended practices.
Black and Khanna (2007)	746 firms listed on Bombay Stock Exchange during 1998 and 1998	• They cited a 4 percent increase in the price of big firms after the initial announcement for Clause 49. • These results were in contrast with mixed results shown by many studies that have examined the effects of SOX in US
Dahya and McConnel (2007)	1124 firms listed on the London Stock Exchange Study period: 1989-1986	• Those firms that have complied with Cadbury Code recommendations over the period of 1986 to 1996, have outperformed their non-complying peers. • However, firms which have split the roles of Chairman and CEO do not exhibit improved financial performance
Litvak (2007)	1016 foreign firms cross listed in the US between 2001 and 2005	• Reported a negative reaction by investors for companies which are cross-listed and subjected to SOX compliance
Zhang (2007)	1409 US firms and for the period of 2001 & 2002	• Reported a negative reaction of investors towards adoption of the recommendations of Sarbanes-Oxley Act • The restriction of non-audit services and emphasis to improve corporate governance is considered costly by shareholders.

Cleyn (2008)	78 Belgian listed SMEs and compliance with code is analyzed.	• After one year of introduction of the code, on average companies comply with 70% of the code requirements. The provisions where compliance is deficient includes executive individual remuneration and the contents of shareholders' meetings
Liu and Yang (2008)	Sample: All listed Taiwanese firm Study period: 2002 & 2005	• All newly listed firms have complied with the requirements of placing independent directors. Also observed changes in the ownership structure of newly listed firms following adoption of listing rules 2002. In addition, the numbers for average board size, proportional representation of outside directors and institutional investors has seen a significant shift.
Talaulicar and Werder (2008)	Use factor analysis on the compliance statements of 671 firms listed on Frankfurt stock exchange	• Using compliance data from Codex report 2006, they found eight patterns of compliances and overall results indicate a high degree of compliance with code of corporate governance.
Vander Bauwhede and Willekens (2008)	130 listed firms from Eurotop 300 in 14 countries Used corporate governance disclosure ratings used by an independent rating agency	• They reported a positive relationship between disclosure of corporate governance and the degree of separation of ownership and control and the amount of uncertainty in accruals. Agency cost of debt has no influence over the level of corporate governance disclosure and the level of disclosure in common-law countries is significantly higher than in non-common law countries.
Zattoni and Cuomo (2008)	Analyzed codes of 44 countries issued between 1992 and 2005	• Common-law countries adopted corporate governance codes earlier than civil law countries. The codes issued by civil law countries are more lenient than common-law countries.
Arcot and Bruno (2009)	Analyzed annual reports non-financial firms on FTSE 350 for the period of 1998 to 2004.	• Explanations offered are often obscure and uninformative. Firms with better operational performance tend to offer better and informative explanations.
Bauwhede (2009)	118 listed firms from 14 European countries during 2000 and 2001	• In contrast to Bauer et al. (2004), Bauwhede (2009) reported a positive relationship between operating performance and extent of compliance with international best practices.

Reddy et al., (2010)	Top 50 companies listed on New Zealand stock exchange and covering the period of 1999 to 2007	• Due to the flexible nature of principal-based approach, overall large companies have adopted the recommendations of the code • There is evidence that the recommendation of code has a positive influence on firm performance • The presence of remuneration committee as recommended by the code is also positively related to the firm performance. • Non conclusive relationship between board size and firm performance
Chen, Elder and Hsieh (2011)	104 Taiwanese firms during 2001 to 2004	• Firms with higher number of independent directors (as recommended by the code) have fewer instances of earnings restatements. • Overall, the compliance with code's recommendations regarding independent directors and financial expertise resulted in fewer restatements
Hooghiemstra and van Ees (2011)	126 Dutch firms listed on Euronext Amsterdam during 2005.	• Firms showed conformity to codes requirements in fear of damage to their reputations and offer standard explanations for non-compliance and follow a specific set of code recommendations. • Firm size is positively related with compliance and firm performance and larger boards are positively correlated with no. of explanations offered for deviation from recommended practices.
Price, Roman and Tountree (2011)	107 non-financial listed firms on Mexican stock exchange over the period of 2000 to 2004	• Compliance has increased significantly over time. However, it is not related with improved performance or financial reporting transparency. Further high compliance with associated with increased dividend payouts.
Cuomo, Zattoni and Valentini (2012)	Utilized ownership data of all Italian non-financial listed firms and in four different time periods i.e. 1985, 1995, 2000, 2005	• Contends that adherence to new governance reforms in the forms of codes can change the ownership structure over time.
Kouwenberg and Phunnarungsi (2012)	238 Thai listed firms during 2003 to 2010	• Found no significant difference in market reaction between high and low compliance firms • However, when firms with passive past records violated the requirements of the code, the market reaction is negative

Seidl, Sanderson and Robersts (2012)	Analyzed compliance statements of 257 listed firms in UK & Germany for year 2006	• Found 715 instances of deviation from recommended practices. 56% companies in Germany and 41% in UK has offered just the information that they have not comply with a given clause or requirement. • Only 6% firms in UK and 20% in Germany has offered a detailed and meaningful justification
Hooghiesmstra (2012)	Content analysis of corporate governance statements of 85 non-financial listed Dutch firms for the period of 2005 to 2009	• Positive association of number of analysts following the firm and ownership concentration with informativeness. Leverage has a negative relationship with Informativeness whereas board strength has positive relationship with informativeness. Author concluded that firms with weak board of directors, widely dispersed ownership, followed by fewer analysts, and relying on debt financing, usually offer generic but un-informative explanations for the deviations from best practices

APPENDIX-VI

SUMMARY OF EMPIRICAL FINDINGS REPORTED IN SECTION 2.6

(Corporate Governance mechanisms, firms' efficiency and financial performance)

Author (Year)	Sample and Study Period	Key Findings
McConnel and Servaes (1990)	1173 firms listed at the New York stock exchange; 1976 and 1986	• Reported an inverted U shaped relationship between insider ownership and firm value
Lichtenberg and Pushner (1994)	1241 Japanese manufacturing firms;1976 to 1989	• Positive association between director's shareholding and corporate performance
Baliga, Moyer and Rao (1996)	Fortune 500 firms; 1981 to 1990	• CEO duality has no conclusive relationship with performance.
Yermack (1996)	452 large US industrial firms: 1984 to 1991	• Found negative association between board size and firm value
Eisenberg, Sundgren and Wells (1998)	785 healthy and 95 bankrupt Finnish firms; 1992 to 1994	• Reported a negative relationship between board size and profitability
Dalton, Daily, Johnson and Ellstrand (1999)	A meta-analysis of 27 studies aggregating 131 samples and 20,260 firms	• Reported a positive link between board size and performance
Morck et al., (2000)	373 Japanese listed manufacturing firms; 1986	• Negative relationship between institutional investors and financial performance • The firm value rises monotonically with an increase in managerial ownership
Renneboog (2000)	All Belgian listed companies (186 firms in 1989 and 165 firms in 1995); 1989 to 1995	• No conclusive relationship between board size and financial performance
Demsetz and Villalonga (2001)	223 randomly selected firms; 1976 to 1980	• No conclusive relationship between ownership structure and firm performance

Carline, Linn and Yadav (2002)	81 UK merged firms; 1985 to 1994	• The size of the board and firms' performance is inversely related
Gompers, Ishii and Metrick (2003)	About 1500 listed US firms; During 1990, 1993, 1995 and 1998	• They found a significant positive relationship between G-Index score and stock returns and negative relationship with Tobin's Q during 1990s • The firms with poorest corporate governance records were consistently underperformers • They concluded that during the study period firms with strong shareholders' rights had higher firm value, higher sales growth, higher profits, less corporate acquisitions and lower capital expenditures.
Lemmon and Lins (2003)	800 firms in eight east Asian countries	• Shows that differences in ownership structure can explain differences in firm performance
Bøhren and Ødegaard (2004)	217 firms listed on Oslo Stock Exchange (Norway) 1989-1997	• Performance decreases with increase in size of the board • Leverage, dividend payout is also negatively related to performance
Bebchuk, Cohen and Ferrell (2004, 2009)	1500 listed firms; During 1990 to 2002	• After controlling for the rest of 18 IRRC provisions, all of the six provisions of E-Index are significantly and negatively correlated with Tobin's Q- both individually and in aggregate. • No evidence was found that the remaining 18 provisions are correlated with Tobin's Q. • In terms of financial performance, they also verified the findings of Gompers et al., (2003). • They concluded that evidence is suggestive that the provisions in their E-index can affect performance.
Klapper and Love (2004)	374 listed Firms in 14 emerging economies including Pakistan and Malaysia; 1999	• Find that ROA and market valuation are positively correlated with good corporate governance. However, they suggested that these results should be considered after taking endogeneity into account.
Lehmann, Warning and Weigand (2004)	361 German Companies from mining and manufacturing sector; 1996 to 1996	• Ownership concentration is positively linked with technical efficiency

Mir and Nishat (2004)	248 non-financial Pakistani listed firm; 2003	• No conclusive relationship between board size and firm performance • CEO duality is negatively related with firm performance, whereas ownership concentration is positively correlated with performance • Block holdings by individual, family members & institutional investors are positively associated with firm performance
Earle, Kucsera and Telegdy (2005)	All listed firms on Budapest stock exchange; 1996 -2001	• Reported that size of the largest block of shares is positively associated with profitability and efficiency.
Ho (2005)	Primary data were collected from 104 international firms in Business Week Global 1000; 2000	• Stronger the governance, stronger will be the firm's competitiveness • Inconclusive relationship between the individual dimension of corporate governance and corporate competitiveness are reported and the author suggested to use holistic measures of corporate governance rather than individual
Kang and Zardkhooni (2005)	Review of 30 studies	• Find that eight studies find positive association, seven reveals a negative association and ten reported inconclusive relationship
Mak and Yuanto (2005)	271 firms listed on Singapore stock exchange & 279 firms listed on the Kuala Lumpur Stock Exchange; 1999 & 2000	• A negative relationship between board size and firm value is found
Seifert, Gonenc and Wright (2005)	Firms from four countries i.e. US, UK, Japan and Germany; 1997 to 1999	• Suggested inconclusive relationship of insider ownership and institutional ownership with performance. The relationship depends on the local laws.
Sheu and Yang (2005)	416 Taiwanese listed electronic firms; 1996 to 2001	• Ownership concentration is monotonically negatively related with technical efficiency
Zheka (2005)	5000 open Joint stock companies in Ukraine; 2000 to 2002	• Contends that domestic ownership of a firm can enhance efficiency, whereas managerial ownership has a negative effect on efficiency • Corporate governance has a positive impact on performance in a transition economy. • Also reported negative association between independent board chairman and performance
Brown and Caylor	1868 listed US firms; 2003	• They reported a significant and positive relationship between Gov-Score and

(2006)		Tobin's Q. • In contrast to G and E-index, higher Gov-Score indicates higher quality of corporate governance. • Executive and director compensation category is the highly associated with firm performance and whereas charters/bylaws are highly associated with bad performance
Javed and Iqbal (2006, 2007)	50 non-financial firms listed on Karachi stock exchange	• Documented a significant and positive relationship between quality of corporate governance and firm's valuation • Also reported positive link between director's shareholding and firm performance
Zelenyuk and Zheka (2006)	158 firms listed on Ukrainian stock exchange; 20001-2002	• Quality of corporate governance is positively correlated with firms' efficiency • State ownership is negatively related with firm's efficiency • Foreign firms are not more efficient than local firms
Aggarwal, Erel, Stulz and Williamson (2007)	5296 US firms and 2234 firms from 22 other countries	• Positive relationship between independent board, audit committee and firm value is reported whereas Duality is not positively associated with firm value
Ariff, Ibrahim and Othman (2007)	95 listed non-financial Malaysian firms; 2003	• Only firm size is significantly related to corporate governance rankings and there is no relationship found between corporate governance and profitability, growth, market valuation, and ownership structure.
Bozec and Dia (2007)	14 Canadian SOEs; 1976 to 2001	• Results suggest a positive link between independent board, board size and technical efficiency
Chiang and Lin (2007)	232 firms listed on Taiwan stock exchange; 1999 to 2003	• Firms with smaller boards are more efficient • CEO duality can improve firm efficiency and there exists a U shaped or curvilinear relationship between productivity and ownership structure • Institutional shareholding can neutralize the negative effects of ownership concentration on total factor productivity.
Destefanis and Sena	Italian listed firms from nine manufacturing	• Ownership concentration and its affiliation with a group is positively linked

(2007)	industries; 1992 to 1997	with technical efficiency
Farroque, Van Zijl, Dunstan and Karim (2007)	All non-financial listed firms on Dhaka Stock Exchange; 1995 to 2002	• Reported that there is linear and non-linear relationship between director's ownership and firm performance but this relationship fades away when 2SLS is employed.
Kapopoulous and Lazereto (2007)	175 Greek listed firms; 2000	• Ownership concentration and firm performance are positively linked.
Nanka-Bruce (2007)	28 publicly listed firms and 295 private firms in real estate sector (Spain) ;1998 to 2003	• The concentration of ownership and firm efficiency are positively related.
Shaheen and Nishat (2007)	226 listed Pakistani firms; 2004	• Except for Tobin's Q they reported a positive correlation between financial performance and corporate governance. • They also identified seven factors that are mostly associated with bad performance
Wang, Jeng and Peng (2007)	35 Taiwanese listed insurance companies; 2000 to 20002	• Evidence suggests concentration of ownership and control • They reported an overall positive relationship between corporate governance and firm's efficiency.
Abdelsalam, El-masry, and Elsegini (2008)	Top 50 listed Egyptian firms; 2003 to 2005	• Reported a positive relationship between institutional ownership and firm performance, dividend decision and payout ratio • Firms with higher level of institutional ownership and high profitability pay more dividends.
Abdullah, Shah and Hassan(2008)	50 non-financial listed Pakistani firm; 2002 to 2005	• Board size is positively correlated with financial performance whereas CEO duality in negatively associated with ROA and ROE.
Dahya et al., (2008)	799 firms in 22 countries	• Found positive relationship between board independence and performance
Coles, Daniel and Naveen (2008)	8165 firm-year observations; 1992 to 2001	• Complex firms have bigger boards with more independent directors than simple firms. • The relationship between board size and firm value is U shaped indicating either very large or very small boards are better.

Lam and Lee (2008)	128 listed firms in Hong Kong; 2003	• The CEO duality and financial performance is contingent on other factors like family control and CEO duality appears favorable in non-family firms and vice versa.
Li, Wang and Deng (2008)	404 distressed Chinese listed firms & 404 non-distressed firms; 1998 to 2005	• Reported that large shareholders' ownership and the state ownership have negative effects on the probability of distress in an emerging economy • Further independent directors and audit opinion are negatively related with probability of financial distress
Ponnu and Ramthandin (2008)	100 listed Malaysian firms; 2006	• Reported a significant and positive correlation between ROE and corporate governance structures, whereas there is a negative but insignificant correlation with stock prices
Tariq and Butt (2008)	50 listed non-financial Pakistan firms; 2003 to 2005	• Reported positive association between quality of corporate governance and firm's accounting performance.
Wahab, How and Verhoeven (2008)	434 Malaysian listed firms; 1999 to 2002	• Suggested that institutional ownership is positively related to corporate governance.
Lin, Ma and Su (2009)	461 listed manufacturing Chinese firms; 1999 to 2002	• A U-shape relationship between ownership concentration and firm efficiency is found • Reported a positive relationship between number of board meetings and independent directors and efficiency
Nanka-Bruce (2009)	Firms from 17 countries; 2000 to 2005	• Negative link between duality and financial performance • Inconclusive link between ownership concentration and firm performance • Ownership concentration is positively associated with TE.
Ntim (2009)	100 South African listed firms; 2002 to 2006	• Board size is positively associated with Tobin's Q whereas it is negatively related with ROA. • CEO Duality is positively associated with ROA • Board Shareholding is positively associated with ROA but negatively related with Tobin's Q.
Shah (2009)	120 Pakistani listed firms and 1035 US listed	• Reported a positive relationship between managerial ownership, CEO duality

	firms; 2002 to 2007	and governance scores with dividend payout. • He also reported a positive association between corporate governance and financial performance.
Bozec, Dia and Bozec (2010)	91 Canadian listed firms included in Report on Business Index (ROB) published by Globe and Mail Canada ; 2001 to 2005	• They reported an overall positive association between governance score and firm's efficiency. • Also noted the positive association between board composition, disclosure, and compensation sub-indices and firm's efficiency
Reddy et al., (2010)	Top 50 firms listed on New Zealand stock exchange; 1999 to 2007	• Inconclusive relationship between ownership concentration and firm performance
Chen, Chen and Wu (2011)	87 Chinese listed electronic firms; 1999 to 2002	• Positive relationship between board size and overall efficiency • Independent directors has no impact on technical efficiency • Ownership structure is negatively related with over all technical efficiency and pure technical efficiency
Nanka-Bruce (2011)	Listed manufacturing firms from 16 countries; 2003 to 2005	• Board size and technical efficiency are negatively correlated. • Concluded that the presence of active large shareholders can enhance firm's technical efficiency provided that they have small balanced boards with unified leadership structure
Su and He (2011)	744 listed manufacturing firms in China; 1999 to 2006	• Firm efficiency is positively associated with employee shareholding where as it is negatively related with state shareholding. • The relationship between firm efficiency and ownership concentration is U-Shape, suggesting the presence of tunneling activities by larger shareholders.
Wang, Lu and Lin (2012)	68 US bank holding companies; 2007	• Corporate Governance is important for performance of BHCs • Outside directors, board size and CEO duality are negatively associated with BHC's performance, whereas no. Of committees and big-4 auditor are positively related.

APPENDIX-VII

Instrumental Variable (2SLS) Regression (Pakistan)

There are a number of growing studies (e.g. Demsetz & Villalonga, 2001; Farooque et al., 2007; Hermalin & Weisbach, 2003) that suggest the potential presence of reverse causality (endogeneity) in governance mechanisms and firm performance models. This problem is further exaggerated if the model is suffering from omitted variable bias.

The econometric solution for endogeneity, unobservable heterogeneity and simultaneity is the use of instrumental variable regression or two stage least square regression. The usefulness of two-stage least square regression depends on the selection of appropriate instruments which can fulfill the required conditions, i.e. (1) they are correlated with the independent variable of interest and (2) uncorrelated with the error term. If these two conditions are not met, then the results of 2SLS estimation could be more misleading than OLS approach. Finding suitable instrumetns in governance and accounting research is a challenge (Larcker et al., 2007; Larcker & Rusticus, 2010). Bai et al. (2004) suggests that fixed-effects estimation of panel data (1) sets mitigates the enogeneity problem. This study do benefits from the advantages of panel dataset and a comprehensive list of control variables was also employed (both governance and firm-specific) to address unobservable heterogeneity and omitted variable bias.

To ensure the robustness of findings, this study also estimated two-stage least regression (as suggested by Bewley (1979) and Andres (2008) by instrumenting the lagged values of corporate governance variables. This study used *ivregress* command in Stata 12, as it does offer one crucial advantage i.e. it estimate instrumental variable regression without specifying the functional form of remaining equations(StataCorp, 2011). The lagged corporate governance variables were used as instruments for 2SLS estimation. Further, there are certain advantages of using 2 SLS over structural equation modelling using a maximum likelihood approach. Among these advantages are

- No requirement of distributional assumptions for right hand side variables

- Computionally simple and in contrast to multi-Equation SEM, it is less prone to specification errors because of single equation specification (Oczkowski, 2003)
- It allows for non-linear and interaction effects

Theoretically, the instrumental variable regression model is represented by

$$y_{it} = Y_{it}\beta_1 + X_{1it}\beta_2 + u_{it} \quad (1)$$

$$Y_{it} = X_{1it}\Pi_1 + X_{2it}\Pi_2 + v_{it} \quad (2)$$

Where y_i is the dependent variable for the ith observation and t period and Y_{it} represents the endogenous regressor, X_{1i} is included exongenous regressor and X_{2i} is excluded exogenous regressor. In other words, X_{1i} and X_{2i} are collectively termed as instruments. u_{it} and v_{it} are error terms with zero mean and assumes non-zero correlation between u_{it} and v_{it}.

This study has used six corporate governance variables, namely; board size (Bsz), ownerhsip structure (BSH), ownership concentration (Bhldrs), institutional shareholding (ISH), foreign shareholding (FSH) and CEO-Chairman duality (Duality) as control variables along with five firms-specific control variables. For instrumental variable regression, the lagged values of corporate governance control variables were used as instruments. The table A9-1 to A9-4 reports the results of 2SLS estimation. For comparison purpose results of pooled OLS regression with robust standard errors, fixed-effect regression and PCSE Prais-Winsten AR (1) regression were also reported.

The 2SLS results are not significantly different from the OLS specification. Ownership concentration is significant and negatively related with ROA and ROCE and positively related with EPS. The passive role of institutional shareholders is evident from the significant and negative relationship of institutional shareholding and financial performance. Further, in all financial performance models, p value of Wooldridge score indicates that the exogeneity of corporate governance and ownership variables cannot be rejected.

Table A7-1 Instrumental Variable (2SLS) Regression (Pakistan)

	1[a,c]	5[b,c]	9	10	11	12	13	14
	Return on Assets (ROA)							
	2SLS		Pooled OLS		Fixed-Effects		PCSE- PW AR(1)	
Variables	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)
CGCI	0.024		0.00025***		0.00013		0.00021***	
	(0.015)		(0.000)		(0.000)		(0.000)	
AG	-0.000	0.024	0.028**		0.026**		-0.012	
	(0.000)	(0.016)	(0.014)		(0.012)		(0.013)	
Age	-0.010***	-0.000	-0.000*		-0.002		-0.000	
	(0.002)	(0.000)	(0.000)		(0.007)		(0.000)	
DE	0.003	-0.010***	-0.011***		-0.005		-0.012***	
	(0.002)	(0.003)	(0.002)		(0.004)		(0.003)	
Fsz	0.007***	0.004	0.012***		-0.048***		0.009*	
	(0.000)	(0.003)	(0.003)		(0.012)		(0.005)	
BSH	0.038*	0.033	0.013		0.043		-0.003	
	(0.022)	(0.022)	(0.019)		(0.035)		(0.018)	
Bhldrs	-0.007***	-0.008***	-0.005**		0.001		-0.002	
	(0.002)	(0.002)	(0.002)		(0.003)		(0.003)	
ISH	-0.127***	-0.119***	-0.088***		-0.032		-0.052	
	(0.034)	(0.034)	(0.027)		(0.045)		(0.037)	
FSH	0.000	0.003	0.003		-0.015		0.007	
	(0.015)	(0.016)	(0.016)		(0.100)		(0.019)	
Bsz	0.043	0.048*	0.012		0.003		0.012	
	(0.027)	(0.028)	(0.026)		(0.063)		(0.032)	
Duality	-0.022**	-0.027***	-0.022***		0.013		-0.014	
	(0.008)	(0.009)	(0.008)		(0.016)		(0.009)	
DPS	0.000***	0.007***	0.008***		0.008***		0.008***	
	(0.000)	(0.001)	(0.001)		(0.002)		(0.001)	
HCG		0.016*						
		(0.009)						
LCG		-0.026***						
		(0.008)						
Constant	-0.159***	-0.005	-0.126**		0.446*		-0.095	
	(0.058)	(0.058)	(0.054)		(0.243)		(0.067)	
Obs	831	831	950	950	950	950	950	950
Adj R-sq	0.373	0.369						
χ^2	543.6	543.2						

Table A7-2 Instrumental Variable (2SLS) Regression (Pakistan)

	2[a,c]	6[b,c]	15	16	17	18	19	20
	Return on Equity (ROE)							
	2SLS		Pooled OLS		Fixed-Effects		PCSE- PW AR(1)	
Variables	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)
CGCI	0.132***		0.00032*		0.00012		0.00039**	
	(0.026)		(0.000)		(0.000)		(0.000)	
AG	-0.000**	0.134***	0.139***		0.128***		0.082***	
	(0.000)	(0.026)	(0.024)		(0.023)		(0.023)	
Age	-0.047***	-0.001**	-0.002***		-0.004		-0.002***	
	(0.005)	(0.000)	(0.000)		(0.009)		(0.000)	
DE	0.012***	-0.047***	-0.053***		-0.065***		-0.060***	
	(0.004)	(0.006)	(0.005)		(0.012)		(0.008)	
Fsz	0.011***	0.013***	0.030***		-0.010		0.032***	
	(0.001)	(0.004)	(0.006)		(0.021)		(0.006)	
BSH	0.001	-0.006	0.014		0.003		0.018	
	(0.042)	(0.042)	(0.034)		(0.105)		(0.041)	
Bhldrs	-0.001	-0.002	-0.005		-0.001		-0.004	
	(0.004)	(0.004)	(0.003)		(0.005)		(0.004)	
ISH	-0.190***	-0.187***	-0.039		0.121		0.042	
	(0.068)	(0.068)	(0.054)		(0.106)		(0.084)	
FSH	-0.015	-0.013	-0.036		-0.071		-0.037	
	(0.026)	(0.026)	(0.028)		(0.128)		(0.034)	
Bsz	0.207***	0.205***	0.114***		0.003		0.075	
	(0.045)	(0.046)	(0.041)		(0.131)		(0.049)	
Duality	-0.000	-0.005	0.018		-0.012		0.018	
	(0.016)	(0.016)	(0.014)		(0.026)		(0.017)	
DPS	0.000**	0.011***	0.009***		0.012***		0.010***	
	(0.000)	(0.001)	(0.001)		(0.003)		(0.001)	
HCG		0.034**						
		(0.016)						
LCG		-0.009						
		(0.014)						
Constant	-0.492***	-0.347***			0.306		-0.257**	
	(0.102)	(0.098)			(0.405)		(0.114)	
Obs	831	831	950		950		950	
Adj R-sq	0.376	0.375						
χ^2	495.4	502.6						

Table A7-3 Instrumental Variable (2SLS) Regression (Pakistan)

	3[a,c]	7[b,c]	21	22	23	24	25	26
	Return on Capital Employed (ROCE)							
	2SLS		Pooled OLS		Fixed-Effects		PCSE- PW AR(1)	
Variables	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)
CGCI	0.054**		0.001***		0.000		0.00047***	
	(0.027)		(0.000)		(0.000)		(0.000)	
AG	-0.001**	0.057**	0.074***		0.040*		0.032	
	(0.000)	(0.028)	(0.026)		(0.022)		(0.023)	
Age	-0.013***	-0.001***	-0.002***		-0.006		-0.001**	
	(0.005)	(0.000)	(0.000)		(0.011)		(0.001)	
DE	0.001	-0.014**	-0.015***		-0.007		-0.012**	
	(0.004)	(0.005)	(0.005)		(0.011)		(0.006)	
Fsz	0.014***	0.002	0.014**		-0.018		0.014	
	(0.001)	(0.005)	(0.006)		(0.026)		(0.010)	
BSH	0.029	0.021	0.051		0.128		0.037	
	(0.040)	(0.040)	(0.035)		(0.103)		(0.036)	
Bhldrs	-0.007*	-0.008*	-0.006*		0.005		-0.003	
	(0.004)	(0.005)	(0.003)		(0.006)		(0.005)	
ISH	-0.221***	-0.218***	-0.092*		0.039		-0.036	
	(0.062)	(0.061)	(0.050)		(0.105)		(0.063)	
FSH	0.009	0.013	0.012		-0.093		0.011	
	(0.027)	(0.028)	(0.029)		(0.189)		(0.044)	
Bsz	0.153***	0.147***	0.094**		-0.104		0.067	
	(0.045)	(0.046)	(0.043)		(0.142)		(0.065)	
Duality	-0.025	-0.031**	-0.001		0.052		0.003	
	(0.015)	(0.015)	(0.015)		(0.032)		(0.018)	
DPS	0.000***	0.014***	0.014***		0.014***		0.013***	
	(0.000)	(0.001)	(0.001)		(0.003)		(0.001)	
HCG		0.050***						
		(0.016)						
LCG		-0.011						
		(0.014)						
Constant	-0.323***	-0.125	-0.225**		0.500		-0.145	
	(0.106)	(0.104)	(0.103)		(0.425)		(0.101)	
Obs	831	831	950	950	950	950	950	950
Adj R-sq	0.366	0.366						
χ^2	489.6	494.7						

Table A7-4 Instrumental Variable (2SLS) Regression (Pakistan)

	4[a,c]	8[b,c]	27	28	29	30	31	32
	Earnings Per Share (EPS)							
	2SLS		Pooled OLS		Fixed-Effects		PCSE- PW AR(1)	
Variables	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)
CGCI	8.837***		-0.009		0.051**		0.0014	
	(1.598)		(0.010)		(0.021)		(0.011)	
AG	0.041*	8.821***	8.646***		6.621***		4.791***	
	(0.021)	(1.590)	(1.483)		(1.276)		(1.310)	
Age	-0.527**	0.037*	0.011		0.226		-0.004	
	(0.261)	(0.021)	(0.021)		(0.430)		(0.033)	
DE	1.367***	-0.533**	-0.822***		-0.876**		-1.055***	
	(0.275)	(0.259)	(0.260)		(0.347)		(0.243)	
Fsz	1.240***	1.345***	1.922***		-0.017		1.910***	
	(0.075)	(0.276)	(0.347)		(1.037)		(0.532)	
BSH	-0.575	-0.284	0.243		-0.794		0.091	
	(2.196)	(2.169)	(1.833)		(3.713)		(1.615)	
Bhldrs	0.478*	0.502*	0.405*		0.075		0.451*	
	(0.273)	(0.274)	(0.217)		(0.391)		(0.242)	
ISH	-8.204**	-8.385***	-5.854**		0.817		-3.098	
	(3.246)	(3.249)	(2.771)		(4.109)		(4.590)	
FSH	-1.198	-1.292	-0.726		-0.929		-0.558	
	(1.516)	(1.519)	(1.517)		(4.538)		(1.687)	
Bsz	0.904	0.290	-0.780		-9.532		-2.374	
	(2.675)	(2.659)	(2.418)		(6.860)		(3.791)	
Duality	-2.216***	-1.903**	-2.331***		-0.573		-1.490*	
	(0.841)	(0.846)	(0.763)		(1.640)		(0.869)	
DPS	-0.002	1.234***	1.175***		1.047***		1.136***	
	(0.009)	(0.077)	(0.081)		(0.212)		(0.107)	
HCG		0.668						
		(0.947)						
LCG		-0.166						
		(0.771)						
Constant	-10.605*	-10.165*	-5.548		-0.953		-5.587	
	(5.500)	(5.650)	(4.994)		(19.130)		(6.315)	
Obs	831	831	950		950		950	
Adj R-sq	0.502	0.501						
χ^2	964.2	1076						

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

[a] Two-stage least square (2SLS) IV regression with robust standard errors (Regression No. 1, 2, 3 & 4) | [b] Two-stage least square (2SLS) IV regression with robust standard errors and compliance group dummies (Regression No.5, 6, 7, 8) | [c] Instrumented variables: BSH Bhldrs ISH FSH Bsz Duality | Results for year and

industry type dummies are not reported above. The dummy for industry type i.e. whether a firm is a manufacturing firm or a service firm, is negative & significant for ROCE and EPS. Year dummies for 2004, 2005 and 2006 are significant in first three models i.e. ROA, ROE and ROCE.

APPENDIX-VIII

Instrumental Variable (2SLS) Regression (Malaysia)

This section contains the results of 2SLS regression. The 2SLS results are not significantly different from the OLS specification. Ownership concentration is still insignificant. Only DPS is positively and significantly related to firm performance under all regression specifications including 2SLS.

Table A8-1 Instrumental Variable (2SLS) Regression (Malaysia)

	1[a,b]	5	6	7
	ROA	ROE	ROCE	EPS
Variables	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)	Coefficient (robust standard error)
CGCI	0.000	0.000	0.000	0.045
	(0.000)	(0.000)	(0.000)	(0.042)
AG	0.164**	0.267***	0.245***	26.277***
	(0.071)	(0.068)	(0.059)	(8.272)
Age	-0.001	-0.001**	-0.001**	-0.110*
	(0.000)	(0.000)	(0.000)	(0.059)
DE	-0.023	-0.025	-0.014	-4.221*
	(0.018)	(0.018)	(0.016)	(2.215)
Fsz	-0.003	0.007	0.006	3.711**
	(0.010)	(0.010)	(0.009)	(1.444)
BSH	0.038	0.029	0.013	-6.165
	(0.028)	(0.029)	(0.026)	(3.927)
LSH10	-0.042	-0.038	-0.031	-4.474
	(0.055)	(0.051)	(0.042)	(6.845)
Bsz	0.004	0.003	0.003	0.062
	(0.003)	(0.003)	(0.003)	(0.504)
Duality	-0.001	-0.003	0.002	-1.451
	(0.019)	(0.018)	(0.015)	(2.358)
DPS	0.004***	0.005***	0.004***	1.479***
	(0.001)	(0.001)	(0.001)	(0.111)
Constant	0.017	-0.014	0.032	-22.253***
	(0.047)	(0.061)	(0.061)	(7.801)
Obs	700	700	700	700
χ^2	367.3	349.4	327.4	988.5

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

[a] *Two-stage least square (2SLS) IV regression with robust standard errors and compliance group dummies*

[b] *Instrumented variables: BSH LSH10 Bsz Duality | Results for year and industry dummies are not reported above. All industry and year dummies are insignificant.*

APPENDIX-IX

Random-Effects GLS Regression- Results & Discussion (Pakistan)

To make this study's result comparable with previous studies, here results of random-effects regression specification are reported.

Breusch and Pagan Lagrangian Multiplier Test (Pakistan)

There are numbers of tests available that can be used to decide which model can be best suited for the given data. Among these tests, the first test employed is a Breusch and Pagan Lagrangian multiplier test. This test helps in deciding whether a GLS model is necessary or simple OLS is sufficient. For this purpose, first GLS regression with random effects was run and then run the Breusch & Pagan Lagrangina multiplier test.

DV[Fno,t] = Xb + u[Fno] + e[Fno,t]
Test: Var(u) = 0

Table IX-1Breusch and Pagan Lagrangian Multiplier Test (Pakistan)

	ROA	ROE	ROCE	EPS
Chibar 2(01)	494.46	135.60	243.62	370.96
Prob > Chibar2	0.0000	0.0000	0.0000	0.000

Since the calculated value of Chi-Square statistics exceeds the tabulated value (or P-value is zero), therefore it is concluded from this test that random effect models are more appropriate than pooled OLS.

A general random-effect model equation will be specified as follows.

$$Y_{it} = \beta_0 + \beta_1 x_{1it} + \beta_2 x_{2it} + \beta_k x_{kit} + \varepsilon_{it} + v_i$$

In random-effect regression model, it is assumed that $v_i$is a group specific random element and random error ε_{it} is specific for particular observations. In other words, the variation across firms is assumed random and uncorrelated with the explanatory variables included in

the model. The random-effect model is the right choice if it is expected that difference across firms have some influence on the dependent variable. Radom-effect models also offer the advantage of including time-invariant variables (e.g. Industry type, or province) in the analysis. As mentioned previously that in random-effect models it is assumed a cross-section specific error term is not correlated with the independent variables, therefore allowing time-invariant variables to play their role as explanatory variables. Finally, random-effect models helps in dealing with omitted variable bias by allowing generalizing the inference beyond the sample used in the model.

Following the econometric literature, this study employed random-effect model to examine the relationship between 'compliance with code of corporate governance' and financial performance while controlling for firm-specific effects, and industry differences.

The following table reports the results of random-effect GLS model when ROA, ROE, ROCE and EPS (dependent variables) are used as measures of financial performance.

Table IX-2 CGCI & Firm Performance: Random Effect GLS Regression (Pakistan)

	1[a]	2[b]	3[a]	4[b]
	ROA	ROA	ROE	ROE
Variables	Coefficient (robust SE)	Coefficient (robust SE)	Coefficient (robust SE)	Coefficient (robust SE)
CGCI	0.00024**		0.00025	
	(0.000)		(0.000)	
AG	0.013	0.012	0.121***	0.120***
	(0.011)	(0.011)	(0.022)	(0.022)
Age	0.000	0.000	-0.002**	-0.002**
	(0.000)	(0.000)	(0.001)	(0.001)
DE	-0.007***	-0.007***	-0.061***	-0.061***
	(0.002)	(0.002)	(0.004)	(0.004)
Fsz	-0.009*	-0.008	0.023***	0.026***
	(0.005)	(0.005)	(0.008)	(0.008)
BSH	0.009	0.010	0.004	0.001
	(0.028)	(0.028)	(0.047)	(0.047)
Bhldrs	-0.001	-0.002	-0.003	-0.004
	(0.002)	(0.002)	(0.004)	(0.004)
ISH	-0.037	-0.030	0.050	0.054
	(0.035)	(0.035)	(0.062)	(0.062)
FSH	0.028	0.034	-0.032	-0.025
	(0.026)	(0.026)	(0.041)	(0.040)

Bsz	0.031	0.039	0.083	0.096*
	(0.034)	(0.034)	(0.057)	(0.057)
Duality	-0.007	-0.010	0.005	-0.003
	(0.011)	(0.010)	(0.019)	(0.018)
DPS	0.008***	0.008***	0.010***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)
HCG		-0.012		-0.014
		(0.009)		(0.018)
LCG		-0.022***		-0.011
		(0.008)		(0.015)
Constant	-0.039	0.028	-0.180	-0.128
	(0.082)	(0.077)	(0.135)	(0.125)
N	950	950	950	950
R^2 (overall)	0.39	0.39	0.44	0.44
R^2 (between)	0.50	0.50	0.60	0.59
R^2 (within)	0.20	0.21	0.30	0.16
χ^2	313.5***	319.2***	502.5***	505.4***

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

a *Random-Effect GLS Regression |**b** Random-Effect GLS Regression with Compliance Group Dummies | HCG = High Compliance Group | LCG = Low Compliance Group| Results for year, industry and industry type dummies are not reported here.*

Table IX-2 (cont.) CGCI & Firm Performance: Random Effect GLS Regression (Pakistan)

	5[a]	6[b]	7[a]	8[b]
	ROCE	ROCE	EPS	EPS
Variables	Coefficient (robust SE)	Coefficient (robust SE)	Coefficient (robust SE)	Coefficient (robust SE)
CGCI	0.00055**		0.028**	
	(0.000)		(0.012)	
AG	0.037*	0.036*	6.649***	6.543***
	(0.021)	(0.022)	(1.148)	(1.150)
Age	-0.001*	-0.001*	0.015	0.022
	(0.001)	(0.001)	(0.047)	(0.047)
DE	-0.009**	-0.010**	-0.901***	-0.910***
	(0.004)	(0.004)	(0.219)	(0.220)
Fsz	0.010	0.012	1.228**	1.373***
	(0.009)	(0.009)	(0.499)	(0.500)
BSH	0.058	0.052	0.397	0.157
	(0.050)	(0.049)	(2.829)	(2.836)
Bhldrs	-0.001	-0.002	0.222	0.176
	(0.004)	(0.004)	(0.236)	(0.236)
ISH	-0.008	-0.002	-1.178	-0.613
	(0.064)	(0.064)	(3.565)	(3.581)
FSH	0.023	0.031	-0.863	-0.288
	(0.044)	(0.043)	(2.600)	(2.612)
Bsz	0.034	0.046	-5.268	-4.499
	(0.060)	(0.060)	(3.424)	(3.442)
Duality	0.016	0.005	-1.235	-1.863*

	(0.020)	(0.019)	(1.112)	(1.067)
DPS	0.014***	0.014***	1.099***	1.093***
	(0.001)	(0.001)	(0.073)	(0.073)
HCG		0.004		-0.534
		(0.018)		(0.979)
LCG		-0.026*		-1.529*
		(0.015)		(0.813)
Constant	-0.110	0.053	-3.691	4.187
	(0.142)	(0.132)	(8.196)	(7.749)
N	950	950	950	950
R^2 (overall)	0.40	0.40	0.52	0.53
R^2 (between)	0.58	0.57	0.67	0.68
R^2 (within)	0.16	0.16	0.23	0.22
χ^2	301.8***	302.0***	456.4***	451.1***

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

a *Random-Effect GLS Regression |**b** Random-Effect GLS Regression with Compliance Group Dummies | HCG = High Compliance Group | LCG = Low Compliance Group| Results for the year, industry and industry type dummies are not reported here.*

Chi-test and corresponding significant p-values indicates that all four models are acceptable and fine. R-square values indicate the overall, between and within variation caused by the explanatory variables. The value of rho indicates the fraction of variance attributable to firm-specific errors.

The interpretations of coefficients can be tricky as they include both within-firm and between-firm effects. For panel data, they represent the average effect of predictors (X) over predicted variable (Y) when X changes across time and between firms by one unit.

The CGCI is positively related with ROA, ROCE and EPS at 5% level of significance. This indicates a positive impact of forced discipline, i.e. mandatory compliance on firm's performance. However, when further investigated by using compliance group dummies, high compliant firms did not appear to be better performing than low compliant firms. Though insignificant, dummy for high compliant firms is negative in three models. This is an indication that firms that appears to in the high compliance group are not performance wise superior to firms belonging to a low compliance group.

Asset Growth is positively associated and significant except for ROA where it is insignificant. Firm age showed mixed results. It is negatively associated with ROE (at 5% level of significance) and ROCE (at 10% level of significance), whereas it is positively

associated with ROA and EPS but insignificant. Similar to previous results, leverage is significantly negatively associated with financial performance. Firm size is positively and significantly associated with ROE and EPS, whereas, negatively associated and significant with ROA. Directors' shareholding has positive coefficient and ownership concentration has a negative coefficient, but both are insignificant in all cases except with EPS where ownership concentration is positively related but insignificant. Institutional shareholding, foreign shareholding, board size and CEO-Chairman duality showed mixed and insignificant results. DPS is consistently significantly and positively correlated with financial performance.

Random-Effects GLS Regression- Results & Discussion (Malaysia)

Breusch and Pagan Lagrangian Multiplier Test

This study employed Breusch and Pagan Lagrangian multiplier test to help us in deciding whether a GLS model is necessary or simple OLS is sufficient. For this purpose first the GLS regression with random effects was run and then run the Breusch & Pagan Lagrangina multiplier test.

Table IX-3 Breusch and Pagan Lagrangian Multiplier Test (Malaysia)

	ROA	ROE	ROCE	EPS
Chibar 2(01)	320.31	271.64	295.23	111.35
Prob > Chibar2	0.0000	0.0000	0.0000	0.000

The zero P-values indicate that the Malaysian data set favors random-effect model more than an OLS model.

Random-Effect GLS Regression Model (Malaysia)

For the financial performance models, where financial ratios, i.e. ROA, ROE, ROCE and EPS are used as dependent variables, here the results of random-effect GLS model are reported.

The general form of random-effects regression model is as follows.

$$Y_{it} = \beta_0 + \beta_1 x_{1it} + \beta_2 x_{2it} + \beta_k x_{kit} + \varepsilon_{it} + v_i$$

Table IX-4 Random-Effect GLS Regression Model- CGCI & FP (Malaysia)

	13[1]	14[2]	15[3]	16[4]
	ROA	ROE	ROCE	EPS
Variables	Coefficients (Robust standard error)	Coefficients (Robust standard error)	Coefficients (Robust standard error)	Coefficients (Robust standard error)
CGCI	-0.000	-0.000	-0.000	-0.012
	(0.000)	(0.000)	(0.000)	(0.042)
AG	0.110***	0.196***	0.175***	20.555***
	(0.019)	(0.029)	(0.029)	(3.642)
AGE	-0.000	-0.001	-0.001	-0.064
	(0.000)	(0.001)	(0.001)	(0.065)
DE	-0.023***	-0.037***	-0.026**	-2.900*
	(0.007)	(0.014)	(0.013)	(1.506)
FSZ	0.004	0.013**	0.009	4.523***
	(0.004)	(0.007)	(0.007)	(0.790)
BSH	0.051**	0.044	0.046	-2.627
	(0.022)	(0.036)	(0.036)	(4.788)
LSH10	-0.000***	-0.000	-0.001***	-0.036
	(0.000)	(0.000)	(0.000)	(0.051)
BSZ	0.000	-0.001	0.001	-0.139
	(0.002)	(0.002)	(0.003)	(0.322)
DUALITY	0.013**	0.006	0.008	1.157
	(0.006)	(0.008)	(0.010)	(1.476)
DPS	0.005***	0.006***	0.006***	1.473***
	(0.001)	(0.001)	(0.001)	(0.139)
HCG	0.003	0.004	0.001	1.789
	(0.007)	(0.009)	(0.010)	(1.471)
LCG	-0.006	0.000	-0.005	-0.172
	(0.007)	(0.009)	(0.010)	(1.408)
Constant	0.047	0.036	0.085	-14.387
	(0.065)	(0.097)	(0.108)	(16.470)
N	800	800	800	800
R^2 (within)	0.26	0.26	0.21	0.23
R^2 (between)	0.50	0.45	0.41	0.78
R^2 (overall)	0.39	0.36	0.32	0.57
Rho	0.353	0.327	0.344	0.229
Wald Chi^2	360.6	373.4	298.5	516.8
p	0.000	0.000	0.000	0.000

*Random-Effect GLS with Robust Standard Errors Standard errors in parentheses | *** p<0.01, ** p<0.05, * p<0.1| Industry and year dummies results are not reported above.*

***1**: All year and industry dummies are insignificant **2**: All year and industry dummies are insignificant except year dummy for 2009 & 2010 **3**:All year and industry dummies are insignificant except dummy for year*

2007, 2009 and 2010 and for Technology industry. ***4****: All year and industry dummies are insignificant except for Plantation industry.*

CGCI showed no significant relationship with measures of financial performance under random-effect model. Dummies for high and low compliance firms are also insignificant, thus indicating neither overall nor among groups, compliance with code of corporate governance showed any significant relation with financial performance.

Asset growth (AG) showed a high positive association with all four financial performance measures. Leverage (DE) is negatively related and significant in all four financial performance models. Firm size (Fsz) is positively associated with firm financial performance, significant only with ROE and EPS. Ownership structure showed mixed results. It showed a positive relation with ROA, ROE and ROCE but significant only with ROA, whereas, it is negatively related with EPS. Ownership concentration is negatively related in all four models. However, it is significant only in ROA and ROCE. Firm's age and Board size showed mixed and inconclusive results. Chairman-CEO duality is positively related with all measures of financial performance, but significant only with ROA. DPS is significant and positive in all four cases.