

THE ROLE OF INTELLECTUAL CAPITAL IN MEDIATING THE
RELATIONSHIP BETWEEN CORPORATE GOVERNANCE AND CORPORATE
PERFORMANCE

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To my beloved parents, wife and lovely daughters

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ABSTRACT

Corporate performance can be enhanced if corporate governance contributes to the intellectual capabilities (IC) of the firms. Hence, this study examines four empirical analyses to develop a relationship between corporate governance and corporate performance through the mediation of intellectual capital. Firstly, the relationship between corporate governance measures and corporate performance is determined. Secondly, the relationship between corporate governance and intellectual capital (VAICTM) is examined. Thirdly, this study investigates the link between intellectual capital and corporate performance. Finally, the mediation effect of intellectual capital is tested in corporate governance and corporate performance relationship. Based on the data of Karachi stock exchange KSE-100 for eight years from 2005 to 2012 and use of the second-generation multivariate technique, i.e. PLS-SEM by using SmartPLS and SPSS, findings of the first analysis show a significant inverse relationship between corporate governance and the corporate performance. A possible reason is the over emphasis of the advising role of the board of directors, which results in lower corporate performance. Second and third analyses show a positive significant relationship between corporate governance and intellectual capital, and intellectual capital and corporate performance. The fourth analysis provides evidence that intellectual capital fully mediates the relationship between corporate governance and corporate performance. It can be interpreted as corporate governance influences the intellectual capital that in turn influences corporate performance. Overall, the results of this study are well aligned with the resource dependence-stewardship theories that focus on the value created in the firms through advising and coordination between directors and management. The study offers empirical evidence that an organization can use its corporate governance mechanism to enrich the intellectual capital that eventually creates more returns and productivity. The study would be valuable for corporate governors to capitalize intellectual capital resources in order to attain competitiveness, higher productivity and performance.

ABSTRAK

Prestasi korporat boleh dipertingkatkan sekiranya tadbir urus korporat menyumbang kepada keupayaan intelek (IC) firma. Oleh itu, kajian ini mengkaji empat analisis empirikal untuk membangunkan hubungan antara tadbir urus korporat dan prestasi korporat melalui pengantaraan modal intelektual. Pertama, hubungan antara langkah tadbir urus korporat dan prestasi korporat diselidiki. Kedua, hubungan antara tadbir urus korporat dan modal intelek (VAICTM) dikaji. Ketiga, kajian ini melihat hubungan antara modal intelektual dan prestasi korporat. Akhir sekali, kesan pengantaraan modal intelek dalam tadbir urus korporat dan hubungan prestasi korporat diuji. Berdasarkan data bursa saham Karachi KSE-100 untuk tempoh lapan tahun dari 2005 hingga 2012 dan penggunaan teknik multivariat generasi kedua, iaitu PLS-SEM dengan menggunakan SmartPLS dan SPSS, hasil analisis pertama menunjukkan hubungan signifikan yang negatif antara tadbir urus korporat dan prestasi korporat. Penekanan ke atas peranan penasihat lembaga pengarah merupakan sebab yang mungkin mengakibatkan prestasi korporat yang lebih rendah. Analisis kedua dan ketiga menunjukkan hubungan positif yang signifikan antara tadbir urus korporat dan modal intelek, dan modal intelektual dan prestasi korporat. Analisis keempat memberikan bukti bahawa modal intelek merupakan pengantara sepenuhnya antara hubungan tadbir urus korporat dan prestasi korporat. Ini menunjukkan bahawa tadbir urus korporat memberi kesan kepada modal intelektual yang seterusnya memberi kesan kepada prestasi korporat. Secara keseluruhan, hasil kajian ini juga selaras dengan teori *resource dependence-stewardship* yang memberi tumpuan kepada nilai yang diwujudkan di firma melalui penasihat dan penyelarasan antara pengarah dan pengurusan. Kajian ini menawarkan bukti empirikal bahawa sesebuah organisasi boleh menggunakan mekanisme tadbir urus korporat untuk memperkayakan modal intelek untuk mewujudkan lebih banyak pulangan dan akhirnya produktiviti. Kajian ini bermakna kepada gabenor korporat yang berusaha untuk memanfaatkan sumber modal intelektual bagi mencapai daya saing, produktiviti yang lebih tinggi dan prestasi.

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LIST OF ABBREVIATIONS

ATO	-	Assets Turnover
BOD	-	Board of Directors
BSC	-	Balanced Score Card
B-DUL	-	Role Duality of Board
B-EDU	-	Board of Directors' Education
B-EXP	-	Board of Directors' Experience
B-FEM	-	Female Directors on Board
B-IDOD	-	Executive Directors' Outside Directorships
B-NED	-	Independent Non-Executive Directors
B-SIZ	-	Board Size
CG	-	Corporate Governance
CE	-	Capital Employed
CEE	-	Capital Employed Efficiency
CP	-	Corporate Performance
DV	-	Dependent Variable
EU	-	European Union
EVA	-	Economic Value Added
HC	-	Human Capital
HCE	-	Human Capital Efficiency
HRA	-	Human Resource Accounting
IC	-	Intellectual Capital
IV	-	Independent Variable
KSE	-	Karachi Stock Exchange
OLS	-	Ordinary Least Squares
PLS-SEM	-	Partial Least Squares Based Structural Equation Modelling
P VALUE	-	P Value-Statistic

RC	-	Relational Capital
R&D	-	Research and Development
ROA	-	Return on Assets
ROE	-	Return on Equity
SC	-	Structural Capital
SCE	-	Structural Capital Efficiency
SEC	-	Securities Exchange Commission
SECP	-	Securities and Exchange Commission of Pakistan
S&P	-	Standard and Poor
SPSS	-	Statistical Package for the Social Sciences
T-VALUE	-	T-Statistic
VA	-	Value Added
VAIC TM	-	Value Added Intellectual Coefficient

LIST OF SYMBOLS

%	-	Percentage
α	-	Level of significance
β	-	Path co-efficient between two latent variables
γ	-	Path co-efficient between indicator and latent variable
ζ	-	Random disturbance term
η	-	Latent endogenous variable
ξ	-	Latent exogenous variable
R^2	-	Coefficient of determination
f^2	-	Effect size
a	-	Path coefficient between independent variable and mediator
b	-	Path coefficient between dependent variable and mediator
c	-	Path coefficient between independent variable and dependent variable
c'	-	Path coefficient between independent variable and dependent variable after including mediator

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

Nowadays, businesses around the globe are facing new challenges due to the stiff competitive and rapidly changing environment. This century is the knowledge century and knowledge is deemed the most sustainable source of competitive advantage in the business. This shifting of paradigms from manufacturing to a knowledge economy demands organizations to maximize value from IC resources to succeed in the new world (Roos et al., 2005). The greatest challenge faced by the organizations is the recognition and cultivation of intellectual assets in the new 21st century. Nevertheless, now the significance of intellectual capital of firms to its performance and future viability is broadly recognized and ascertained (Khalique et al., 2012; Wang et al., 2011). In the words of Luthy (1998), intellectual capital is the outstanding source for generating economic wealth. Johnson and Kaplan (1987) argued that IC might be the most significant consideration regarding the performance of a company in the future. Intellectual capital measurement and management have become extremely important in a situation when service sectors are playing a vital role in the growth of economies around the globe and their share in overall GDP is rising rapidly than that of production sector (World Bank, 2006).

Therefore, in order to remain viable in the knowledge century, corporate governance (CG) is a mechanism which is needed to ensure value-added productivity, profitability, corporate success, economic growth, and investors' confidence (OECD, 2004). Corporate governance is a mechanism of rules and regulations, processes and procedures, and practices to direct and control the organizations (The Cadbury Report, 1992). As such, corporate governance is responsible for designing a framework to achieve organizational objectives so it

covers almost every sphere of organizational activities, from planning and controlling to performance measurement and corporate disclosure.

The recent discussion and research on corporate governance are based upon the principles and guidelines given in The Cadbury report 1992, UK; the Principles of Corporate Governance (OECD, 2004) and the Sarbanes-Oxley Act (Sarbanes-Oxley Act, 2002) of USA. The Cadbury and OECD reports provide general principles of corporate governance around which the firms can assure to develop good governance structures to achieve their goals. Sarbanes-Oxley Act gives the US federal government, the authority to legislate some principles of corporate governance in the wake of corporate scandals (Enron and WorldCom) in 2001 and 2002, respectively. The financial crisis in 2008 also increased the interest of stakeholders in the corporate governance practices in the modern organizations. The key players involved in corporate governance are a board of directors, management and shareholders; though the external players like customers, creditors, government agencies and community as a whole also influence corporate governance mechanism (Solomon, 2007). There is a common notion that good corporate governance practices enhance the corporate performance in the organizations (Low *et al.*, 2015; Yang and Zhao, 2014; Liu *et al.*, 2015).

Similarly, higher corporate performance is treated as the function of good corporate governance. However, the exact definition of corporate performance demonstrates to be greatly abstract in spite of recurrent usage by many groups and researchers. It is because corporate performance is linked with a variety of aspects of the overall well-being of the organization, covering through revenue to financial returns to a market value of the firm. In the last century, the relationship between corporate governance and firm performance has been examined through conventional evaluation (accounting) systems when the world economy was transformed from the agriculture era to manufacturing and factors of production were mostly physical and financial like land and labour (Firer and Williams, 2003). Donaldson and Preston (1995) claimed that since Adam Smith, the central view of the firm conceives corporate performance to be the financial returns from the utilization of tangible assets. That is why financial measures, i.e. return on total assets, return on equity

and productivity are commonly used in empirical studies of CG and firm performance.

However, the recent theoretical views, particularly resource-based theory (Pfeffer and Salancik, 2003) considers a firm as a collection of both tangible and intangible resources from the environment and provide another aspect of corporate performance. The proponents of this theory propose that corporate performance is a function of the efficient use of both physical and intangibles assets of the firm (Zahn *et al.*, 2004). Moreover, value addition (VA), described as the wealth created or added by the organization through the use of indispensable productive resources, is assumed as the suitable measure of theorizing corporate performance in the new knowledge economy (Sveiby, 1997). It is important to recall that the economic value of intangible assets of a company is called Intellectual Capital (OECD, 1999). It means that VA is the result of both, physical and financial resources, and intellectual capital resources. IC resources involve human, structural and relational capital, which are important to create value and competitive advantage for the organization and increase corporate performance that is measured through traditional accounting measures of financial returns and productivity.

This study is motivated on the future recommendations of several studies. Ho and Williams (2003) suggested that role of gender towards IC should be investigated in other developing country's environment. Yang and Lin (2009) and Wang *et al.* (2014) supported the idea to use objective measures of firm performance to test the mediating role of intellectual capital and examine firms in different industries and contexts. Ze'ghal and Maaloul (2010) and Wang *et al.* (2014) recommended that longitudinal study is required to prove the results to be consistent over time. Finally, Kiantu *et al.* (2014) theoretically supported the idea of using IC as a mediator and wanted it to be applied empirically. Moreover, the study of these variables in the context of Pakistan is more important to help the decision making authorities to understand the role of value addition in the products and services of Pakistani firms.

Pakistan is an emerging economy and the sixth largest populated country in the world. The role of CG and IC is important for Pakistan because labour is abundant and corporate culture is weak. Production is more labour intensive,

although labour force is unskilled and illiterate and it is no more the competitive advantage of the country. Despite having a population of two hundred million people, Pakistan exports reached at only 23.9 billion dollars in 2015 as stated by Pakistan Bureau of Statistics (PBS, 2015). Furthermore, Human Development Index report (HDI, 2015) of the United Nations Development Programme ranked Pakistan at 147th position, which is poor, and alarming sign of human development in Pakistan. In this desperate scenario, the optimal solution is to develop human resource with required knowledge, technical expertise and skill so they can meet the challenges of the knowledge economy. Pakistan can utilize its untapped potential in human resource and other physical resources if it adopts ways to shift its agro-based economy to more knowledge-driven economy. In this regard, Pakistan can learn from the experience of Malaysia where the Knowledge Economy Master Plan (KEMP) of Malaysia transformed Malaysia from an input driven economy to a knowledge-driven economy (Goh, 2005). Therefore, this study can help the government authorities, regulators and the corporate governors to understand the importance of IC resources in enhancing corporate performance after adopting good CG practices.

1.2 Problem Statement

It is usually argued that good corporate governance practices are crucial to enhancing the corporate performance of the organizations. Researches have been conducted in the past to show the relationship between CG practices and corporate performance, however, despite numerous studies, the result is still not conclusive. Some studies found significant relationship between CG and firm performance (for example, Low *et al.*, 2015; Yang and Zhao, 2014; Liu *et al.*, 2015; Coles *et al.*, 2012; Francis *et al.*, 2012; Khan and Awan 2012; Adams *et al.*, 2010; Reddy *et al.*, 2010; Renders *et al.*, 2010). On the other hand, some studies did not find any relationship between them (Terjesen *et al.*, 2015; Aebi *et al.*, 2012; Wang *et al.*, 2012; Shukeri *et al.*, 2012; Ahmed *et al.*, 2012; Topak, 2011; Lampion *et al.*, 2011; Yasser *et al.*, 2011; Bauer *et al.*, 2010; Aboagye and Otieku, 2010; Abdullah and Page, 2009). Such a dilemmatic situation, with many studies on each side, forces this study to

reconsider this link between CG and corporate performance again with longitudinal data for several years.

The change in the economy and nature of corporate sector from production to knowledge-intensive activities has triggered the importance of CG and IC. In the knowledge economy, the value added is not only derived from traditional factors of production, i.e. land, labor and capital but also from IC resources. There are a number of studies in recent years, which have theoretically and empirically shown an association between intellectual capital and corporate performance (see, for example, Berzkalne and Zelgalve 2014; Morariu 2014; Wang and Chen 2013; Rahman 2012; Ze'ghal and Maaloul 2010; Chan, 2009 and many more). All these studies show that IC resources are instrumental in increasing corporate performance. It also supports the idea that good CG practices and IC resources mutually may enhance the corporate performance. Ho and Williams (2003) argued that the influence of CG features on corporate performance might depend on the firm's mix of physical and intellectual capital. Directors cannot run the business alone rather their job is to get things done through management and employees. If human capital, structural capital and relational capital is not efficient and helpful in operations, it is impossible to succeed in the knowledge-intensive world market. Proficient CG also attracts human capital along with financial capital, in order to maximize value addition. Therefore, the effect of CG on corporate performance needs to be measured through IC.

It is suggested that corporate governors should focus their attention on the acquisition of IC resources along with physical and financial resources so that the proper mix of these resources may produce quality products and services. Corporate governance is responsible for developing a competitive advantage for the company in today's free market economy. This is achievable if the board of directors cultivates value creation efficiency from human brain's creativity (HC), organizational structure (SC) and customer relations. The most important element of CG, i.e. board of directors can establish effective strategies and policies on the acquisition and best utilization of human and structural resources, which then result in better production processes, operational procedures and development of patent and trademarks through research and development activities (Keenan and Aggestam, 2001). Relations with big corporate customers and quality raw material suppliers are also an important part

of directors' relational capital (Nicholson *et al.*, 2004). The empirical evidence of a link between corporate governance and IC can be seen in several research studies like Appuhami and Bhuyan (2015); Zamani *et al.* (2012); Abidin *et al.* (2009); Swartz and Firer (2005); Ho and Williams (2003) and Williams (2000).

Finally, this study has found a significant gap in the research field, i.e. the responsibility of the board of directors to contribute and acquire IC resources and then maximizing the value addition to improving corporate performance. It also depicts the mediation effect because CG affects IC, which in turn affects corporate performance, eventually. For this purpose, the impact of CG on corporate performance by considering IC as mediator is studied by using a sample of 100-index firms listed in Karachi stock exchange Pakistan. IC is measured through widely used IC efficiency model, namely Value Added Intellectual Coefficient VAICTM, i.e. human, structural and capital employed efficiencies. CG measures involve board size, independent non-executive directors, board meetings, multiple directorships, female directors, directors' education, directors' experience and role duality. Financial measures of profitability, i.e. return on assets and return on equity, and an operational measure of productivity, i.e. total asset turnover are measures of corporate performance. The role of IC as a mediator in CG and corporate performance relationship is also addressed.

This study argues that there is a possibility that corporate governance affects corporate performance directly or it may influence the corporate performance indirectly, through intellectual capital i.e. the value creating efficiency of IC resources. This study fills the void in literature in a way that no previous study has taken IC as a mediator in CG and corporate performance relationship. This is the pioneer study, which takes into consideration the IC as mediator. Therefore, on the basis of the above discussion, the problem statement of this study is to develop a relationship between corporate governance and corporate performance through intellectual capital. It can be further explained that this study would try to substantiate the possible relationship of CG, IC, and corporate performance so that organizations may improve its corporate performance through better use of IC resources after implementing good CG practices.

1.3 Research Questions

Corporate boards make important decisions, including those on investment policy, financial policy, and board governance. It is generally accepted that specific governance structures are allied with better corporate performance and greater firm value (Abdullah *et al.*, 2012; Liu *et al.*, 2015; Low *et al.*, 2015). For example, it is argued that if a number of independent non-executive directors on board increases, then, this would increase the firm performance (Liu *et al.*, 2015). Some studies claimed that presence of female directors on board increases the corporate performance (Abdullah *et al.*, 2012; Liu *et al.*, 2014; Low *et al.*, 2015).

Similarly, in prior research, other CG measures like board size, role duality, and expertise have shown positive relationships with corporate performance. Shukeri *et al.* (2012) found a positive link of the size of boards with firm performance after having analyzed 300 publicly listed firms in Malaysia. Yang and Zhao, (2014) reported that role duality is important due to speedy decisions and reducing cost and have a positive link with corporate performance. Knowledge, skills and expertise of individual director also contribute towards firm performance as shown in the studies of Dhaliwal *et al.* (2010) and Kim *et al.* (2011).

However, there are many studies, which could not find any relationship or found a negative relationship between CG measures and corporate performance. For example, Shukeri *et al.* (2012) found an insignificant relationship between female role, managerial ownership and role duality with firm performance. However, they were able to find a negative link of independent non-executive directors with firm performance. Aebi *et al.* (2012) examined the impact of corporate governance on 362 financial institutions during the financial crisis and reported that CG measures remained insignificant during the crisis. Wang *et al.* (2012) shared the same result when investigated the impact of CG variables on the performance of bank holding firms in the USA. They claimed that age of directors, outside directors, board size and role duality had a negative impact on firm performance. Abdullah and Page (2009) did not find any relationship between CG measures and corporate performance of the UK firms. While Sueyoshi *et al.* (2010) also could not establish a link between board composition and firm performance when they studied the impact

of CG reforms on Japanese firms. Yue *et al.* (2008) stated that there is no relationship between CG measures and firm performance. In the same way, Aboagye and Otieku (2010), did not find any link between CG and corporate performance.

In addition, in some indexed studies of CG and corporate performance, mixed results can be found. For example, Leal *et al.* (2015) studied the quality of corporate governance practices by using the corporate governance index (CGI) in Brazil and declared that overall CGI scores of firms are low. Braga-Alves and Morey (2012) studied the corporate governance system of 24 countries and concluded that firm growth predicts better governance. However, Black *et al.* (2006), used CG index in Korea, did not find that better governance resulted in the firm growth. Varshney *et al.* (2013) found a positive link of CG index to economic value added in Indian firms. Balasubramanian *et al.* (2010) found a positive relationship between CG index and firm market value in India. However, Bauer *et al.* (2010) came up with the opposite result that CG index is not linked to firm value. Gompers *et al.* (2003) revealed that well-governed firms showed better operating performance compared to poorly governed firms. However, Bebchuk *et al.* (2009) found a significant negative relationship of CG index and firm performance.

In the context of Pakistan, Ahmed *et al.* (2012) concluded no relationship between concentrated ownership and firm performance of 600 firms for the years 2005-2010 of Karachi Stock exchange. Gul *et al.* (2011) found a positive relationship between independent non-executive directors and negative relationship between role duality and size of the board with the performance of textile sector of KSE. Yasser *et al.* (2011) concluded with the same result with a distinction of no relationship of role duality to firm performance. Therefore, these mixed and inconclusive results stress the need to revisit this relationship and lead towards the first research question of this study.

RQ1 What is the relationship between corporate governance and corporate performance?

Nevertheless, it is important to understand that abilities, skills, experience, and knowledge of the board of directors also represent the part of the human capital of the firm, which is an integral part of intellectual capital (IC). Intellectual capital is not only the intellect or knowledge of individuals but it includes human, structural and relational capital of organization (Mention, 2012). Human capital involves knowledge, expertise, competencies, skills, talents and capabilities of employees in order to build and apply knowledge to perform their organizational tasks (OECD, 2008). It means that board directors with high formal education and experience prove to be a better human capital resource for the organization (Jermias and Gani, 2014). In the same way, it is also the duty of skilled directors to acquire knowledgeable, competent and skillful human capital from the labour market and utilize them to produce quality products and develop a competitive advantage.

On the other side, structural capital involves codified knowledge, innovations, organizational processes, culture, intellectual property, patents and information systems to enable human capital to function properly (Dzinkowski, 2000; Roos *et al.*, 2005). Acquiring good qualified, knowledgeable employees is not difficult and enough but to transform their skills and competencies to produce value, there is a need to develop effective structures to utilize and retain those employees (Safieddine *et al.*, 2009). Organizational culture is also an important part of structural capital and involves shared vision, values, traditions and symbols. Employees' performance is influenced by the culture through motivation and as a result, structural capital may increase or decrease human capital performance. The board meeting is considered as the intellectual exercise of directors (executive, non-executive, female) where they can share their visions, values, new ideas and propose policies and procedures to adopt them within the organization. Female directors on board also represent the value structure of female empowerment in the organization along with innovative, unique and strategic decision-making ability (Dezs and Ross, 2012).

Relational capital involves licenses, franchises, interactions and contracts with suppliers, creditors, investors, government and society, in order to enable the organization to produce and sell its products smoothly. It reflects the organizational capacity to develop and maintain communication links with all the stakeholders in

their business (Skyrme, 1998). It helps the organizations to develop databases with all the information about their customers, suppliers and competitors, to use that information to anticipate change and develop strategies for the future. Independent non-executive directors, female directors and directors with multiple directorships also show relational capital of board because their presence on other boards gives them the opportunity to bring valuable resources in the organization by combining their relational networks (Dalziel *et al.*, 2011). They also tend to perform better as they are prone to more experience, diversified working environment and broad exposure. Directors can earn external reputation, financial benefits and improvement in managerial skills by accepting outside directorships in other boards (Carcello *et al.*, 2002).

Similarly, in the prior literature, some studies have attempted to develop a positive relationship between corporate governance and IC. Zamani *et al.* (2012) examined the relationship between board characteristics of size, role duality, independent non-executive directors, and IC in Tehran Security Exchange for a 5-year time period (2005-2010) and found a positive relationship between some of them. Abidin *et al.* (2009) studied the relationship between different characteristics of the board of directors and intellectual capital performance through VAICTM model by taking a sample of 75 firms from Bursa Malaysia. They found that the large size of the board has a positive impact on the value added efficiency. They also concluded that by increasing independent non-executive directors on the board, the overall efficiency of the firms (VAICTM) increased. Williams (2000) also found a positive relationship of ethnicity and gender with IC performance when he examined 84 publicly listed firms in South Africa.

However, some studies could not find any relationship between different CG measures and IC performance. Swartz and Firer (2005) concluded that female directors did not have any impact on IC performance. Ho and Williams (2003) failed to identify any significant link between four board features, i.e. independent non-executive directors, board size, role duality, directors' ownership and IC performance across three countries. Williams (2000) also did not find any relationship between three board features (i.e. independent non-executive directors, stock ownership and

independent non-executive directors in committees) and IC performance. He did find a negative relationship between role duality and IC performance.

Therefore, this lack of consensus in the literature and shortage of studies in this area (no study in Pakistan, so far) triggers this study to focus on the assumption that CG measures also contribute significantly towards the IC efficiency of the firm. For this purpose, four new CG measures (multiple directorships, experience, education and board meetings) are added which have not been discussed in this relationship in prior studies. Thus, the second research question of this study becomes as follows.

RQ2 What is the relationship between corporate governance and intellectual capital?

However, intellectual capital also affects the corporate performance of the firms. This relationship is also a major turf for the current scholars and researchers as the importance and significance of intellectual capital is increasing in current literature and among different stakeholders in the corporate sector (Dumay *et al.*, 2015). Every organization is working hard to utilize its physical and financial resources with the help of its intellectual capital to produce goods and services that may create or add up value to the organization (Chiucchi and Dumay, 2015).

Similarly, there are a number of studies in recent years, which have empirically shown a positive association between intellectual capital and corporate performance. For example, using the sample of 4254 firm-year observations of Taiwanese stock exchange for the period 1992-2002, Chen *et al.* (2005) concluded that intellectual capital has a positive relationship with market-to-book value and financial performance in terms of return on assets and return on equity. Ze'ghal and Maaloul (2010) found a significant positive relationship between IC and corporate performance in terms of corporate measures when he examined 300 UK listed firms. Chan (2009) conducted a research on the relationship between IC efficiency and corporate performance measures of the sample from the Hong Kong stock exchange for the period 2001-2005 and revealed that structural capital had strong and positive relationship with financial measures of performance. The most recent research on IC

and corporate performance relationship is done by Berzkalne and Zelgalve (2014); Rahman (2012); Wang and Chen (2013), and these studies have found a positive relationship between IC and profitability.

However, there are studies, which could not find and/or found a negative link between IC and corporate performance. Morariu (2014) demonstrated a significant negative association between the IC and Market to book value and the insignificant link between IC and corporate performance. Firer and Williams (2003) and Shiu (2006) showed that IC is negatively associated with traditional measures of corporate performance. Kujansivu and Lonnqvist (2005) reported no connection between return on equity and IC performance of 60,304 Finnish firms in 2001 to 2003. Maditinos *et al.* (2011) researched in the association between IC and firm performance by using data from Greece and found no association between them.

In Pakistan, only some studies are conducted in the field of intellectual capital and firm performance, for example, Khaliq *et al.* (2012); Rehman *et al.* (2011); Kamath (2010) and Makki and Lodhi (2009) conducted researches on this relationship and all of them found a positive relationship of IC to firm performance. Therefore, these contrasting empirical findings at international level and limited work done in Pakistan encourages this study to focus on IC and corporate performance link again and on a longitudinal basis covering several years. Hence, the third research question of this study becomes:

RQ3 What is the relationship between intellectual capital and corporate performance?

However, as the empirical IC research has advanced, the models of IC and corporate performance relationship are also developed and the most popular is the mediation model (Kiantu *et al.*, 2014; Inkinen, 2015). Due to the organizational complexity and the assumed ambidexterity of the relationship between IC and corporate performance, the mediating variables are integrated into measurement models. Secondly, the higher corporate performance is likely to be a result of combining IC and other organizational variables, i.e. governance and managerial activities, hence, the phenomenon cannot be fully understood by just focusing on the

direct relationship between IC and corporate performance (Kiantu *et al.*, 2014; Yang and Lin, 2009).

Similarly, there are two sets of studies, which use IC in their mediation models. In the first set of studies, different organizational processes are used as mediator to influence IC and corporate performance relationship. For example, dynamic capabilities of firm mediate the relationship between IC and innovativeness (Hsu and Sabherwal, 2012) and also mediate the relational capital and innovative performance relationship (Wu *et al.*, 2007). Another process, innovation capability mediates the link between IC and competitive advantage of firms (Mathuramaytha, 2012). Firm learning capability mediates the relationship of human and relational capital to product innovation performance (Hsu and Fang, 2009). Competitive advantage also mediates the relationship between the IC components and corporate performance (Kamukama *et al.*, 2011). There is also a mediating effect of cross-functional integration and co-production on IC and new product sale performance (Chien and Chao, 2011). Additionally, entrepreneurial orientation mediates IC and corporate performance (Mehdivand *et al.*, 2012)

In the second set of studies, the IC is used as a mediator in different firm activities and corporate performance. For example, Wang *et al.*(2014) reported after studying 228 high technology firms in China that knowledge sharing is significantly contributing towards the human, structural and relational capital of IC which in turn enhance both operating and financial performance of the firms. Moreover, IC mediates the relationship between entrepreneurial orientation and innovation (Wu *et al.*, 2008). Yang and Lin (2009) found that IC fully mediates the relationship between human resource practices and performance when they studied the healthcare industry in Taiwan. Wang and Chen (2013) also contributed by adding that human resource practices helped the organizational capital to increase performance. It is argued that human resource practices are helpful to generate IC, and investment in those HR practices increases the IC, which in turn improves the performance of firms (Youndt *et al.*, 2004). Overall, the growing knowledge of IC suggests that corporate performance accrues through the mediation of IC with other factors, and firm abilities, activities and processes help to understand how IC affect corporate performance (Inkinen, 2015).

Similarly, this study suggests, on the foundations of resource dependence theory that different characteristics of board of directors contribute to the intellectual capital of the organization through their expertise, knowledge, experience, broad exposure, relational capital and gender diversity and then intellectual capital leads to higher corporate performance, eventually (Kiantu *et al.*, 2014). Resource dependence theory of corporate governance states that it is the responsibility of the board of directors to acquire, retain and utilize competent and skilled human resources from the labour market. The board can also acquire the structural resources in terms of new and latest technology, production processes to produce quality and patent products and services. It can develop relations with the stakeholders of business like customers, suppliers, creditors and government agencies to get favour and develop a competitive advantage. It is argued that the board of directors is the part of human resources in the organization and independent non-executive directors contribute in terms of knowledge, vast experience and broad exposures due to working in different boards and represent the relational capital of the board (Coles *et al.*, 2012). Financial qualification and tenure of directors also bring a valuable understanding of business affairs due to their education and experience. Executive directors working on other boards, also represent the relational capital of the board, bring important information, and resolve diversified issues on their board as they handle in other boards (Masulis and Mobbs, 2011). The relational capital of directors helps them to maintain quality relations with the customers, raw material suppliers, investors, creditors and government agencies (Nicholson *et al.*, 2004). Moreover, female directors also contribute to their innovative, unique and strategic decision-making role to increase IC performance (Williams, 2000). Therefore, based on the discussion above, this study proposes IC as a mediator between the CG and corporate performance relationship and leads to the fourth and final research question.

RQ4 What is the impact of IC (mediator) on CG and corporate performance relationship?

In order to answer these questions, this study uses the data of 100-index firms from Karachi stock exchange Pakistan to determine the effect of CG measures on IC

and corporate performance, IC on corporate performance and the relationship between all three areas.

1.4 Objectives of the Study

Corporate governance is a broad area that covers corporate law, financial reporting, auditing and code of corporate governance, and intellectual capital deals with human resource management, financial management, strategic management and corporate reporting. The main objectives of the study are to find out and investigate the relationships among CG, IC and corporate performance and the role of IC as mediator between the relationship of CG and corporate performance and this is done through constructing, elaborating and understanding structural models of CG, IC and corporate performance of Karachi Stock Exchange (KSE-100 index) firms. IC is viewed as IC efficiency that consists of three types of efficiencies like human capital efficiency, structural capital efficiency and capital employed efficiency. CG is viewed as characteristics of the board of directors, which can bring higher returns to the firm after achieving higher IC efficiency. More precisely, the study would attempt,

- i) To determine the relationship between CG and corporate performance
- ii) To examine the effect of CG on intellectual capital
- iii) To investigate the impact of IC on corporate performance
- iv) To determine the role of IC as a mediator between CG and corporate performance relationship

1.5 Scope of the Study

In this study, corporate governance is supported by resource dependency and stewardship theories because they are more concerned with value creation processes in the organizations. Moreover, board of directors' characteristics has been selected as CG measures and, in this study; BOD is more concerned with the advice and cooperation role rather than monitoring role towards management. The entire board

members act as valued resources, e.g. the independent non-executive directors with diversifiable skills, broad practical knowledge and work experience to act as resources for the company to add value in the firm. Well-working boards can participate in value creation by collaborating with the managers (Finkelstein *et al.*, 2009).

Similarly, in this study, IC comprises of human capital, structural capital and relational capital, which combines with the physical or financial capital to result in value creation efficiency of the organization and Value Added Intellectual Coefficient (VAICTM) model, is used to measure IC. Likewise, in this study, corporate performance is measured through operational and financial measures to represent productivity and profitability, respectively.

Karachi Stock Exchange (KSE) is the largest stock exchange among three stock exchanges of Pakistan. There are more than 720 firms listed on the KSE (in year 2012). It was established in September 1947 and integrated as a company limited by guarantee in March 1949 with only five firms. It has three indexes namely KSE-all shares index, KSE-100 index and KSE-30 index. For this study, KSE-100 index has been selected because almost 95% daily trading of KSE takes place in the 100 firms of this index. Nowadays, this index has crossed 33000 index points and total market capitalization of this index is more than 55 billion US\$ (1-4-2016). Therefore, the data of these 100-index firms, for 8 years' period starting from 2005 to 2012, is used for the research.

The reasons for selecting public limited firms are that these firms follow the code of CG issued by the Securities and Exchange Commission of Pakistan (SECP) and have IC resources. Corporate governance and IC performance data are generally published in the annual reports of these firms. The period of 8 years, ranging from 2005 to 2012, has been selected to study the impact of CG on corporate performance through IC because after the proclamation of the code of corporate governance by SECP in 2002, sufficient time has lapsed until 2005 to rationalize the CG code implementation by the firms. The year 2012 was the last year for this study because, in 2012, SECP introduced new CG codes, which were again amended in 2013 and

2014. Consequently, in order to use consistent data values for this study, it has been decided to use a period of 8 years i.e. 2005-2012.

1.6 Significance of the Study

Theoretically, this study is deviating from the leading agency theory of corporate governance, the main purpose of which is to monitor the activities of executive directors and safeguard the interests of shareholders. This study focuses on the advising role of directors, which deems important in this era of rapid change and technological advancement. In today's business environment, it is argued, that board of directors in either role of independent non-executive directors, executive directors, female directors, or experienced and highly qualified directors, must act as a leadership role, provide input for strategic decision making, support and guide the management to accomplish their goals (Finkelstein *et al.*, 2009). All CG measures have been identified due to the contribution of their advising role in the businesses. Moreover, this study theorizes it's first-ever relationship of CG and corporate performance through IC. The assumption of this study is that CG should contribute to the IC resources to be acquired and utilized which in turn generate or enhance corporate performance.

Additionally, this study has introduced some new variables, which are not discussed before in the literature of CG and IC. For example, the expertise of directors is split into the experience and educational qualification of directors. Experience is measured through a number of years; a director holds the seat on the board, while educational qualification is the degree or diploma in any field of management, accounting, finance or economics. Multiple directorships by inside directors (executive directors) are introduced to show abilities, skills and demand of inside directors by the other boards (Masulis and Mobbs, 2011). In the same way, the previous literature of the IC did not cover the link of experience, education, outside directorship of directors and board meeting to the intellectual capital efficiency.

Methodologically, this is the pioneer study to use second-generation multivariate analysis technique, i.e. Partial Least Square based Structural Equation Modeling (PLS-SEM) for secondary data analysis. Previously, this PLS approach was used only for primary data analysis; however, Hair *et al.* (2014) recommended its use for secondary data analysis. For this study, the CG is treated as a latent construct (hidden or invisible variable) which is measured by its eight indicators (measurable variables) of board size, independent non-executive directors, board meeting frequency, multiple directorships, female directors, board experience, board education and role duality. These all indicators, then collectively formulate the CG construct as the PLS performs iterative regressions dependent upon the specific model until weights are acquired to gauge the score of the latent construct (Hair *et al.*, 2014). Moreover, the impact of individual measures of CG construct on individual measures of other constructs has also been tested, for the first time, in this study. This method of measuring CG is different from the previously indexed studies of CG in which CG is calculated through scales of ten, twenty or more items, which are called index of CG. In previous studies, the weights of CG measures were assigned by the researchers manually and then the collective whole, i.e. CG and its relationship with firm performance is tested through first generation multiple regression approach (see, e.g. Balasubramanian *et al.*, 2010; Drobetz *et al.*, 2004; Ertugrul and Hegde 2009; Varshney, 2013). On the contrary, the PLS path modeling gives an opportunity to test the relationship among numerous variables simultaneously and it carries out a weighted PLS algorithm to calculate weights of standardized values of indicators to their respective constructs based upon their importance in the model.

Additionally, this study stresses upon the mediation of IC in the relationship of CG and corporate performance. For the purpose, eight years data sets and one pooled data set are used for this study. The main reason to use each year data set is to control for any impact on variables due to the international financial crisis in 2008 and makes sure the consistency of mediation over the number of years.

Contextually, most empirical studies observing the relationship between CG measures and corporate performance have used data from developed countries (see, for example, Adams *et al.*, 2010; Coles *et al.*, 2012; Coles *et al.*, 2008; Francis *et al.*,

2012; Guest 2009; Jermias and Gani, 2014; Reddy *et al.*, 2010; Renders *et al.*, 2010; and Yang and Zhao, 2014). It is questionable whether these results can be extended and applied to other regions of the world, particularly to emerging markets such as Pakistan, where the capital flow is limited, markets are less sophisticated, production is more labour intensive, and educational and professional resources are limited. The role of CG and IC is important for Pakistan because labour is abundant and corporate culture is weak. It is imperative for Pakistan's corporate sector to gain a competitive advantage by implementing good CG measures, which lead to higher IC efficiency and improve corporate performance. According to Knowledge Economy Index (KEI, 2012) of the World Bank, Pakistan is ranked at 117 out of total 145 countries, which shows its incompetence to use knowledge for economic development. No innovative system of firms, research centers, universities and think tanks is developed to tap into the sources of worldwide knowledge, acclimate it to local demands and create new solutions. It is important to understand that only an educated and properly trained population can create, share and use knowledge in the right direction (KEI, 2012). This study will help Pakistan to identify its core competencies in terms of knowledge, intellectual capital, and good governance practices and, at the end, better corporate performance.

Additionally, no considerable work, in these areas, has been done in Pakistan. Only some studies have contributed in this field, but the longitudinal gap is still to be filled. Therefore, this study will encourage the ongoing research in the areas of corporate governance, intellectual capital and corporate performance in Pakistan. Moreover, it tries to help the regulators (SECP) and other stakeholders to not only identify the intellectual capital in the firms but stresses upon its importance for the firms. Unfortunately, the SECP has not yet acknowledged the importance of the intellectual capital in its governance guidelines for corporate sectors in Pakistan. At the end of this section, it is worth mentioning to report the research gaps, research questions, findings, conclusion, contributions and implications of this study in table 1.1.

Table 0.1: Summary of the study

Research Gaps	RQ	Findings	Conclusions	Contribution	Implications
<p>Past studies found mixed results i.e. positive, negative or no link, in separate studies of indexed or individual measures of CG and CP relationship. This is the pioneer study to look into the impact of whole CG construct and separate measures of CG on whole CP construct and individual measures of CP, in the same study.</p> <p>Two new measures of CG are introduced. Those are outside directorship of executive directors (IDOD) and experience of directors based on their tenure on the board.</p>	<p>What is the relationship between CG and corporate performance?</p>	<p>There is a significant negative relationship between overall CG construct and CP construct.</p> <p>On the individual measures' basis, board size, board education and role duality have a positive impact on productivity but have a negative impact on profitability.</p> <p>Similarly, independent non-executive directors, board meetings, board IDODs and board female directors have a positive link to profitability, however, negative link to productivity.</p> <p>Board experience does not have any impact on productivity and profitability of the firms.</p>	<p>Overall, more corporate governance based on resource-stewardship theory results in lower corporate performance.</p> <p>Large board size with more formal business educated directors and the same role of CEO and chairperson of the board results in higher productivity, however, unable to control the operating expenses to result in higher profitability.</p> <p>In the same way, NEDs, board meetings, IDODs and female directors contributed positively towards profitability however negatively to productivity.</p>	<p>Theoretical Deviation from agency theory. Examining new variables like IDOD and board experience.</p> <p>Methodological Using PLS-SEM for secondary data analysis for the very first time. Construction of structural path models for analyzing data.</p> <p>Empirical Verifying and validating the link between CG and CP on individual measures as well as on overall construct level basis.</p> <p>Contextual No study of CG and CP as whole constructs has yet been done in Pakistan.</p>	<p>At an organizational level; to develop CG practices in a way to get the optimal level of performance both in terms of productivity and profitability.</p> <p>At regulatory and policy level; must understand that same CG measures may not result in higher performance both in terms of productivity and profitability.</p> <p>At research level; add more CG and CP measures and study them in a different context.</p>

Research Gaps	RQ	Findings	Conclusions	Contribution	Implications
<p>The limited past research found mixed results, i.e. positive, negative or no link, of individual measures of CG and IC relationship. This is the pioneer study to look into the impact of whole CG construct and individual measures of CG on whole IC construct and individual parts of IC like HCE, SCE and CEE, in the same study</p> <p>Four new measures of CG, ignored by the prior studies, are added to find a link between CG and IC. Those are board meetings, IDODs, board education and experience.</p>	<p>What is the relationship between CG and intellectual capital?</p>	<p>Overall, the corporate governance has a direct positive relationship with IC.</p> <p>On the individual measures' basis, board meetings, IDODs, board experience and independent non-executive directors have a positive contribution towards IC while board female directors and the board size are negatively related to the IC.</p> <p>In the yearly analysis, non-executive directors contributed positively to HCE and SCE while board experience contributed positively to only SCE and negatively to HCE. Moreover, the large board size is inversely related to SCE. Board education does not impact IC, Similarly, the dual role of CEO and chairperson of the board does not have any impact on IC.</p>	<p>Overall, the corporate governance based on resource-stewardship theory contributes positively towards the IC efficiency of the firms.</p> <p>Small board size with a number of independent non-executive directors and more experience of directors contributed positively to SCE of IC</p> <p>While large board size with more board meetings and having more IDODs contributed positively to the HCE of IC.</p> <p>IC efficiency in terms of HCE and SCE is not affected by the dual role of the same person as CEO and chairperson of the board and formal business education of the directors.</p>	<p>Theoretical Linking whole CG construct and IC construct.</p> <p>Developing and extending the relationship between new CG measures like board meetings, IDODs, board education, experience and IC</p> <p>Methodological Using PLS-SEM for secondary data analysis. Construction of structural path models for analyzing data.</p> <p>Empirical Verifying and validating results of CG and IC constructs, their individual measures and their relationship.</p> <p>Contextual No study has yet been conducted in Pakistan in this relationship.</p>	<p>For organizations. To establish CG practices that may cultivate human brain creativity (HCE) with the help of innovative techniques and processes (SCE) to result in better products and services.</p> <p>For regulators and policy makers. To introduce IC guidelines and measures, adaptation in the organizations and give training to the corporate governors and managers to use them properly.</p> <p>For researchers. To extend and generalize the findings of this study, they need to use other or more measures of CG and IC in other contexts.</p>

Research Gaps	RQ	Findings	Conclusions	Contribution	Implications
This study uses IC and CP constructs as a whole along with individual measures of them, which was ignored in the previous studies.	What is the relationship between IC and corporate performance?	<p>Overall, intellectual capital has a positive relationship to the corporate performance of the firms.</p> <p>At the individual level, the HCE, SCE and CEE have positive link to productivity and profitability of the firms</p> <p>At yearly level, CEE is the most important efficiency followed by structural capital efficiency and human capital efficiency, respectively, which affects the corporate performance.</p>	<p>It is ascertained that higher IC leads towards the higher corporate performance of the firms.</p> <p>A capital employed efficiency, which is the contribution of physical and financial assets contributes the most towards the CP.</p> <p>Structural capital efficiency is the second most important efficiency, which is contributing towards CP which is a good sign for the firms and shows their commitment to enhancing the structural capital capabilities.</p> <p>HCE is the least contributory efficiency towards CP which shows that human capital is not fully trained or skilled to contribute towards value addition of the firms.</p>	<p>Theoretical Linking IC and CP constructs, as a whole, for the first time.</p> <p>Methodological Using PLS-SEM for secondary data analysis. Construction of structural path models for analyzing data.</p> <p>Empirical Verifying and validating results of IC and CP constructs, their individual measures and their relationship.</p> <p>Contextual No study Linking IC and CP constructs, as a whole, has yet been done in Pakistan.</p>	<p>For organizations. More focus on the IC efficiency through proper acquisition and utilization of IC resources from the environment.</p> <p>For regulators and policy makers. To help organizations in gathering and utilizing IC resources through proper guidelines and rules and regulations so that every organization may have access to those resources without any conflict.</p> <p>For researchers. To extend and generalize the findings of this study, they need to use other measures of IC and CP in other contexts.</p>

Research Gaps	RQ	Findings	Conclusions	Contribution	Implications
<p>No prior study, which takes into account the IC as a mediator between corporate governance and corporate performance relationship.</p>	<p>What is the impact of IC (mediator) on CG and corporate performance relationship?</p>	<p>Overall, IC fully mediates the relationship between CG and CP.</p> <p>Overall, board duality and board education have positive and board female directors have a negative impact on IC and CP.</p> <p>At yearly analysis, IC also fully mediates the link between CG and CP.</p>	<p>Overall, it shows that corporate governance based on resources-stewardship theory positively contributes towards IC efficiency, which in turn leads towards the higher corporate performance of the firms.</p>	<p>Theoretical Confirms that resource-stewardship theory is more suitable and appropriate for value creation rather than for value protection.</p> <p>Methodological Using PLS-SEM for secondary data analysis. Construction of structural path models for analyzing data.</p> <p>Empirical Verifying and validating a mediation model of CG, IC and CP constructs, their individual measures and their relationship.</p> <p>Contextual No study has yet been conducted in Pakistan so far.</p>	<p>For organizations. Concentrate on value creation or addition processes in the organization which in turn generate financial returns eventually.</p> <p>For regulators and policy makers. To give proper attention to the IC resources that result in the higher corporate performance of the organizations.</p> <p>For researchers. To extend the mediation model of this study, they need to use other measures of CG, IC and CP in other contexts. Also, they can use IC as a moderator between CG and CP.</p>

1.7 Definitions

In this section, definitions of key terms used in the study are given. As this study concern with corporate governance, intellectual capital, corporate performance and their measurements, so the respective terms are defined with particular reference to this study.

Corporate Governance (CG): This study follows the definition of corporate governance as supported by resource dependency theory because it is more concerned with value creation processes. Well-working boards can participate in value creation by collaborating with managers (Finkelstein *et al.*, 2009). In this theory, the perception shifts from a conflictual relationship between the board and management to more cooperative work between the two parties so the firm can add more value (Adam and Ferreira, 2007).

Board of Directors (BOD): Board of directors is viewed as the apex of decision control systems (Fama and Jensen, 1983). However, according to this study, BOD is more concerned with the advice and cooperation role rather than monitoring and conflicting role towards management. All the board members act as valued resources, e.g. the independent non-executive directors with diversifiable skills, broad practical knowledge and work experience to act as resources for the company to add value to the firm (Mueller *et al.*, 2008). Boards with women are energetic in boosting non-monetary performance measures such as customer and employee satisfaction (Williams, 2000).

Intellectual Capital (IC): The Organization for Economic Co-operation and Development (OECD, 1999) describes intellectual capital as the economic value of two categories of intangible assets of a company: organizational (structural) capital and human capital. This study uses the definition of OECD (1999) and Shih *et al.*, (2010) according to which, IC comprises of human capital, structural capital and relational capital, which combines with the physical or financial capital to result in value creation efficiency of the organization.

Human Capital (HC): Human capital means individual competence which refers to the skills, knowledge and expertise of employees that adds value to the organization (OECD, 2008).

Structural Capital (SC): It includes procedures, system, culture, databases and software systems and processes (OECD, 2008).

Relational Capital (RC): It is the set of all relations that a firm establishes with other firms, institutions and research centers, suppliers and customers (OECD, 2008).

The Value Added Intellectual Coefficient (VAICTM): It is a commonly used model for measuring intellectual capital. It is an index to measure the efficiency of human, physical and financial resources in value creation for the business (Pulic, 2004). VAICTM model can measure all components of IC namely human capital, structural capital (including relational capital) to create the value added by the company (Rahman, 2012; Ze'ghal and Maaloul, 2010).

Corporate Performance: It means the overall well-being of the firm and its traditional measures are sale, assets, profits, book value and market value (Goh, 2005). In this study, corporate performance is measured through productivity and profitability measures namely, total assets turnover, return on total assets and return on equity.

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