

# IMPACT OF CORPORATE GOVERNANCE ON INTELLECTUAL CAPITAL EFFICIENCY: EVIDENCE FROM KSE LISTED COMMERCIAL BANKS

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**ABSTRACT:** *This study is undertaken with the aim to identify the corporate governance practices which have significant meaningful impact on intellectual capital efficiency. Because the efficient use of intellectual can provide innovative and competitive ideas for new product development, improve production process and reduce delivery time and cost by eliminating non-productive activities. This study use 6 year data of 21 commercial banks listed in Karachi stock exchange. Independent Variable are CEO Duality, Board Size, Board Composition, Number of Board Meetings and Director's Ownership. Intellectual capital efficiency is the dependent variable. The empirical findings show that CEO duality and board meetings have significant negative impact while board size and director's ownership have significant positive impact on intellectual capital efficiency. Impact of board composition is found non-significant.*

**Keywords:** Corporate Governance, Human Capital, Structural Capital, Intellectual Capital Efficiency, Value Added Intellectual Coefficient Model

## 1. INTRODUCTION

History proves that business, like everything else, evolves with time. From prehistoric times to modern age, business change, scope and tactics. Barter system was replaced by currency, sole-proprietorships turn into huge corporations and markets for business turn from local to global. Till eighteenth century, business was limited to agriculture and hand made products but things started changing at fast pace after the industrial revolutions in 1800's.

Nineteenth century was the era of entrepreneurship, industrial revolution inspired rapid growth in production and profits, and makes production efficiency the main focus of the era. Twentieth century was considered the era of management, continuously increasing competition in local and international markets required organizations to effectively manage their physical and financial resources to gain competitive edge. With the emergence of the corporate governance era in 21st century, physical and financial resources no longer remain the source of sustainable competitive advantage instead knowledge and intellectual capital becomes the new realities of the business world [1].

Corporate governance is a proven mechanism for achieving and sustaining maximum efficiency, as it plays a vital role in the productivity and profitability of the firm [2] and value creation for shareholders [3]. As we entered into the knowledge economy, things changed rapidly in business world and so does the priorities of corporations. Intense business competition has pressurized the corporations to improve their production process, decrease prices and fulfill production requirements with limited resources. This

The term "Intellectual Capital" was first introduced in 1969 by John Kenneth Galbraith [9]. He argued that intellectual capital is not only about the pure intellect of human beings which is known as human capital but also include actions required to utilize that human capital. It means that only acquiring intellectual capital is not enough, for value addition purpose, organization also needs to utilize it effectively. Intellectual capital got importance in the practice and literature with the emergence of knowledge based economy. The concept of knowledge based economy was introduced by Peter Drucker as the Post Capitalist Society. He states that

situation has forced corporate leaders to turn their attention towards non-physical or intangible resources, like knowledge and intellectual capital, which can provide innovative and competitive ideas for product development, can decrease production and delivery time and can drastically reduce cost by eliminating non-productive activities [4]. Since this realization a decade ago, intellectual capital has been a hot topic in business literature and practice [5].

The concept of intellectual capital is still unrecognized in Pakistan. There are 21 commercial bank listed in KSE but not a single one of them issues its intellectual efficiency report which support our argument. By ineffectively using their intellectual capital, banks not only wasting the precious resources but also reducing the expected future value of their profits. No study has been conducted to examine the influence of corporate governance on intellectual capital efficiency in banking sector of Pakistan. Previous studies in banking sector around the world show that intellectual capital efficiency positively effect banking performance [6; 7 & 8]. Considering it true for banking sector of Pakistan, we have tried to identify the practices of corporate governance which have meaningful impact on intellectual capital efficiency. To our knowledge, it is the first study to examine the influence of corporate governance on intellectual capital efficiency in the banking sector, not only in Pakistan but in the world. We are using CEO Duality, Board Size, Board Composition, Number of Board Meetings and Directors' Ownership as independent variables and intellectual capital efficiency is dependent variable in this study.

## 2. LITERATURE REVIEW

knowledge is no longer a resource like land, labor or capital, now it is the essence that makes our society. The ability of an organization to gain competitive edge depends upon how early it can exploit and apply knowledge and information as compare to its competitors [10].

Different authors view intellectual capital from different perspectives. Some authors consider intellectual capital as a synonym for human capital. Intellectual capital exists in employees who are experienced, skilled and committed to the organizational goals. Intellectual capital is equal to human capital of the organization multiplied by their level of

commitment towards organizational goals [11]. It is called individualistic view. Opposite view is called collective view. Authors follow collective view stated that intellectual capital is a combination of knowledge, process and structure of the firm, relationship with employees, suppliers and customers and any other asset that will participate in value addition process [12]. Authors' perspective also differs about intellectual capital on temporal basis. Some authors believe that intellectual capital is something that will be beneficial for the organization in the future or have the potential to be beneficial in the future if utilized efficiently [13]. Others consider that intellectual capital is a valuable, non-substitutable and rare resource that is essential for the organization performance because of its importance and value addition ability in the present [14].

Swart [14] created a 2 by 2 matrix by using temporal perspective on X-axis and level of analysis on Y-axis. This matrix is useful to determine whether an author perceives intellectual capital as an input in value addition process, as value addition process itself or as an output of value addition process. Researchers that follow individualistic view of intellectual capital and believe that it is something that will be beneficial in the future, consider intellectual capital is an input in Value addition process. Under this approach, intellectual capital consists of individuals' knowledge, abilities, skills and experience that will create value in the future or can be converted into valuable output.

Second approach includes authors that follow collective view of intellectual capital and believe organization will receive benefits from this asset in the future. In this view, intellectual capital is considered the value addition process and consists of human capital, structure capital, relationship capital, organizational capital and all other assets of the organization even routines and culture. Final approach considers intellectual capital as an output comprises of product or services created by using knowledge, information and process available to an organization. These products or services have a current market value; can be sold to earn profit and necessary for organizational success [14]. We are using the 2nd approach of intellectual capital that measures intellectual capital on the basis of value addition ability of firm's human, structural and organizational capital.

### 2.1 Human Capital

Economists have started to realize the importance of human capital in early seventeenth century. William Petty was the earliest economist who has stated that labor differs on the basis of their quality of work and their importance for the firm [15]. Also researchers gave a huge importance to this topic in his book *Wealth of Nations*. They state that knowledge and skills of the employees affect the production process and ultimately the quality of final output. He clearly states that money spent on the education, learning and training of the employees should be considered as investment rather than expense. From his analysis, he found that productivity of educated and skilled workers is far better than their illiterate counterparts. That's why he argued that skilled workers should be paid more wages [15].

Though economists start pushing the importance of human capital in 1700s, concept could not get much attention in the business world up until 1960s. Before that businesses were reluctant to spend money on the training of employees and considered it an extra expense rather than investment. Things started changing after the development of Human capital theory in 1960s. Human capital theory states that investment made to increase a person's knowledge or to learn a skill increases his productivity for the firm and his own earning capability. Potential to increase productivity and income encourage individuals to invest in their formal education and firm to invest in employees on job training [16]. In the start, theory was focused on assessing the return for the organization by investing in human capital. Theory also helps to explain the difference in the productivity of different employees and justify their earning differences. Studies found that success of an organization depends upon the quality and quantity of human capital they possess [15].

Human capital is most important asset of the firm. The value of human capital depends upon its ability to fulfill organization goals and contributes to competitive advantage of the firm. Human capital can be recognized as core asset or peripheral asset depending upon its value for the firm. It is common practice that firms normally select core employees, they invest in training programs for them, provide them good pay and extra benefits, and make sure that they do not leave the firm and remain loyal. Employers take care of core employees because they are considered valuable assets and vital for the success. At the same time, same firms keep peripheral employees. Firm do not make commitment with these employees because their skills are easily replaceable without harming the firm's goals [17]. Human capital also differs because of its uniqueness for the firm. Uniqueness depend upon the degree to which possessed knowledge is rare, specialized or firm specific. Unique human capital is not easily available to all the firms and it is costly for the firm to develop them. It makes unique human capital a source of competitive advantage [17].

By value and uniqueness of the human capital as dimensions on X and Y axis of a 2 by 2 matrix, we developed a model adopted from Lepak & Snell. This model helps us to understand the relationship between different characteristics of human capital (Value and Uniqueness) and different Employment modes. Human capital that fall in Quadrant 1 is considered the core asset for the firm and essential for strategic development. Because of their value and uniqueness, these employees provide knowledge base upon which firm mostly built their strategies. These employees act as the brain of the firm. Employees that are valuable for the firm but do not possess any unique skill which is not easily transferable lie in Quadrant 2. These employees make significant contribution towards the success of the organization by performing predetermined task.

#### Insert Figure No. 02 Here

Quadrant 3 consists of human capital that is neither very valuable for the firm nor possess any unique skills. These employees are easily replaceable and mostly appointed on contract basis for a specific time duration or job. Quadrant 4

consists of human capital that is highly unique in nature but do not provide enough value for the firm to be employed internally. These people are from professional institutes and firm only needs them in specific conditions like consulting firm, law firm, banks and financial institution etc. [18]. In context of intellectual capital, all kind of employees are important but core and job-based employees provide the major value addition for the firm. The intellectual capital of an employee is measured by combining his or her working hours with his or her abilities and skills to create value for the firm and his or her commitment with organizational goals [15].

## **2.2 Structural Capital**

Structural capital consists of knowledge that stays in the firm after all the employees go home. It means the knowledge owned by the firm, not by its employees. Structural capital consists of knowledge supported by the structure of organization like process, patents, rights, routines and culture, database, handbooks and much more [19]. Human capital works as a primary factor in the development of structural capital. The performance of structural capital depends upon the efficiency of human capital but exists independently from human capital [20]. For example, employees in R&D of a pharmaceutical company use their own knowledge and intellect to create medicines formulas but their patent are owned by the company. At the same time, structure capital provides opportunities to fully utilize the human capital. It means that human and structural capitals are essential for each other and for the firm performance.

Competitive advantage gained through the resources that are strategically relevant. Unfortunately not all the knowledge owned by the company is of strategic nature. For utilizing the structural capital for achieving competitive advantage, we first need to understand the type of structural capital owned by the firm [19]. Structural capital differs on the basis of its value for the firm objectives and its uniqueness in the market. The value of structural capital is determined by its ability to reduce cost or improve the quality of products or services of the firm [19] or have the potential to provide competitive advantage in the market [21]. Uniqueness of structural capital depends upon the ability of competitors to replicate it. Normally highly unique structural capital is either legally protected from replicating, like Patent Rights, or kept highly secret, like Coke formula.

Snell [22] built a framework by using value and uniqueness as dimension to differentiate the types of structural capital in a company. This framework helps us for better managing the different type of structural capital and maximizing their contribution in the success of the organization.

### **Insert Figure No. 03 Here**

Idiosyncratic is the first type of structural capital which is unique in nature but do not provide much value for the firm. It consists of company specific knowledge but this knowledge is not helpful for current organizational goals. Due to its uniqueness, this type of structural capital can provide tremendous results when combined with other type of structural capital. Ancillary is the least important type of structural capital which does not have any uniqueness nor it

provide extraordinary value. Companies do not put any specific effort to gain this knowledge and usually it is the by-product of company's daily activity. Core structural capital is the third type of structural capital. As clearly mentioned from its name, it is the most important type of structural capital for the firm. This core knowledge is related with the employees of the firm but firms should institutionalize this knowledge either legally owing it or making it the part of company routines and culture. Process of institutionalization helps the firm to keep utilizing this knowledge even after certain core employees leave the firm. Finally, Compulsory is the last type of structural capital. This type of knowledge is available to all the firms in the competition but highly valuable for firm's success. It means that existence of this knowledge is necessary for the firm but it does not provide any type of competitive edge in the market, at least not in short run, on the other hand, if this knowledge is missing, results would be devastating [22].

Structural capital provides base for intellectual capital to develop, improve and measure in an organization. In the absence of structural capital, intellectual capital would be equal to human capital only and this human capital cannot improve or provide value addition for the firm without the support of structural capital [9].

## **2.3 Organizational Capital**

Value addition is created through intellectual potential and physical capital. This physical capital is also called as organizational capital and consists of all the assets owned by the firm. Physical capital is not an intellectual capital itself but, [23] has considered it an important component of value addition process. Organizational capital provides the necessary resources and infrastructure for structural and human capital to achieve their best performance which will increase the business overall performance. Related knowledge provides competitive advantage in the industry [10], but only owing knowledge without the physical capital is worthless. Success of an organization depends upon its ability to convert its knowledge into products or services that have value for the customers [9], but these products or services cannot come into existence without the help of organizational capital. For example, a cargo company may have experienced employees and follows best practices to ensure timely delivery but they cannot provide their services without the help of transport facilities which is physical capital.

## **2.4 Previous Studies in the field**

Good corporate governance practices are normally considered the reason for good corporate performance. It is the duty of corporate governance to set the rules for creating and sharing the value by proper allocation of resources and good management practices [3]. Though financial and physical resources are still considered the blood for any organization, knowledge and intellectual capital are also becoming the necessary ingredient for the success of any organization in this knowledge-based economy. The effectiveness of intellectual capital depends upon the practices of corporate governance. Following, we will review the existing literature

related to corporate governance and its importance for value added activities of intellectual capital.

There are not many studies available that try to examine the relationship between corporate governance and intellectual capital. Keenan and Aggestam [24] were the pioneers in the field. They studied the relationship between corporate governance and intellectual capital conceptually and provide base for further empirical researches. They argued that in knowledge based economy, the main focus of the firms and competition has shifted from physical and financial resources to intellectual capital. They state that intellectual capital already exists in every organization regardless of corporate governance practices. But, they also make it the important responsibility of corporate governance to develop this existing intellectual capital and use it to its maximum capacity. While further explaining their argument, they specifically make executive directors responsible for achieving this objective and using it as a competitive advantage to fulfill organization goals. Ho and Williams [25] have done the first comprehensive empirical study in the field by using the data of public listed companies in 3 different countries (U.K, Sweden and South Africa). CEO Duality, Ownership concentration, Board Size and Composition are used as corporate governance variables and the main focus was to find their association with intellectual capital performance. While individual variables of corporate governance show significant association with individual performance measure of intellectual performance in one country or another, study failed to provide a solid link between corporate governance variables and intellectual capital performance consistent across all 3 countries.

Ownership structure is considered an important variable of corporate governance. Saleh et al., (2009) make assumption that any change in ownership structure will lead to either increase or decrease in agency cost, which will ultimately effect intellectual performance of the firm. They used data of public listed companies in Malaysia and found that family and management ownership have negative, while significant foreign ownership have positive relationship with intellectual performance.

Next reliable contribution came from a study conducted in academic institution. Safieddine et al., have tried to examine the relationship between intellectual capital and corporate governance in American University of Beirut (AUB). It was the first and up till now the only study in the field to use questionnaire and collect data from an educational institution. Findings show interrelation between intellectual capital and corporate governance but it is not considered as strong relationship because data show ambiguity on whether respondent considers AUB a properly governed institution or not.

Two most recent studies in the field were conducted by Alizadeh [28] in Iran and by [2] in Pakistan. Alizadeh tries to find the effect of board size, composition and audit committee on intellectual performance of pharmaceutical companies listed in Tehran stock exchange. Results suggest that board size have negative impact on intellectual performance while other variables have no significant

relationship with intellectual performance. Study conducted by [2] was focused on the relationship between corporate governance and intellectual capital and its ultimate effect on firm performance. Results show that corporate governance variables do not have significant effect on firm performance but the corporate practices have positive relationship with intellectual capital and intellectual capital have positive relationship with firm performance. So, corporate governance can exploit the intellectual capital to improve firms' performance.

Different authors use different corporate governance variables and try to find their relationship with intellectual performance but they all have one thing in common. Except for [3] study in institutional settings, all authors have used data from manufacturing sector. So, we can say that their findings are limited to manufacturing sector only. Our study is significant and different from previous studies because we are using data from banking sector which is never researched in this context before. Banks belongs to service sector and their performance is mainly based upon the knowledge and experience of their employees and practices imbedded in their culture. That's why intellectual capital have special importance in banking sector.

## **2.5 Hypothesis**

### **2.5.1 CEO Duality and Intellectual Capital**

Board chairman is the most prestigious position in an organization. Chairman of the board is considered the chairman of the company. CEO is the managing director of the company. It is highest management position in an organization. Every manager is answerable to him and he is answerable to the board. CEO Duality occurs when both of these positions are held by the same person [35]. Both of these positions have considerable power. In case of role duality, the person held both the positions gain an utmost power over the board and the management. Management interest got more importance than shareholders interest [25] and the board's ability to perform their oversight function declined. Empirical studies also support these theoretical arguments and show negative relationship between role duality and intellectual capital [25].

**H1:** CEO Duality has significant impact on Intellectual capital efficiency.

### **2.5.2 Board Size and Intellectual Capital**

Board size means the number of directors on board. In previous studies, effects of board size on company performance are not clear. There are two alternative perspectives exist. Believers of first perspective argued that small board size can increase performance by improving control and monitoring process. In small boards, directors are more involved in the organization functions and decision making process which lead to efficient organization [26]. Larger board size not only decreases involvement but also provide opportunity to management for manipulation of the records [25]. Empirical researches found negative relationship between board size and corporate performance [27] and also board size and intellectual capital [25; 28].

Other perspective is in complete favor of large board size and argued that larger boards provide greater balance, improve

information processing and decision making capability of the board [29]. Empirical studies found positive relationship of board size with financial performance [30], Capital and structure performance [31] and Intellectual capital [32]. It is evident that there is a significant relationship exists between board size and performance measures of the firms but its direction is not clear. We will try to determine the direction of this relationship in banking sector.

**H2:** Board Size has significant impact on Intellectual capital efficiency.

### 2.5.3 Board Composition and Intellectual Capital

Boards of directors are the representative of the shareholders and appointed to make decision on their behalf and protect their interests (Li et al., 2011). Management scientists and corporate governance experts relate the efficiency and effectiveness of the board with the number of non-executive directors on board. The presence of these directors ensures improvement in decision making quality of the board due to their professional knowledge and expertise. Non-executive directors contribute to corporate governance process by reviewing the management performance and ensuring management action do not conflict with any stakeholder interest. They also provide help to solving conflict between management and owners interest [26]. There are few studies that find the negative impact of non-executive directors on corporate performance [27]; while others find this relationship positive [31]. Studies also found positive relationship between board composition and intellectual capital disclosure [33; 34]. But in case of intellectual capital performance, researchers cannot find any significant relationship [2; 25 & 28]. We will try to find whether these findings match with the results from banking sector or not.

**H3:** Board Composition significantly effect Intellectual capital efficiency.

### 2.5.4 Board Meetings and Intellectual Capital

Directors conduct their affairs through the board meetings [35]. Board meetings are considered the intellectual exercise by the directors. Day to day operation of the business are the responsibility of CEO and other executive directors. They inform the non-executive directors about business operations in board meetings who are responsible to ensure that business operations and policies are in accordance with organization vision, mission and shareholders interest [2]. It means that board meetings are essential for the good performance of the

board. Frequent board meetings are considered an inexpensive way to increase firms value [36]. Companies Ordinance 1984 requires that board meetings should held once in each quarter of the year [35]. The frequency of board meeting can be used as a measurement of directors' sense of responsibility towards business. Researchers found that board meetings have negative relationship with capital structure [30] and positive relationship with firm performance [36] and overall value [37] .

**H4:** Number of Board Meetings has significant impact on Intellectual capital efficiency.

### 2.5.5 Director's Shareholding & Intellectual Capital

We are talking about the portion of outstanding shares held by the directors of the company or by their spouse and children. Literature provides two opposite views about director's shareholding and performance. First view emerge from agency theory which states that separation of ownership arise conflict of interest between shareholders and management of the firm. Agency problem arise when managers start following their own interest rather than shareholders interest. Researchers of agency theory found that as ownership gap decline, interests starts to become collective [38] . The opposite view states that when directors own major portion of ownership, their policies and decisions exploit the interest of minority shareholders. Directors can use policies that are in their own interest like increasing company available cash resources by declining the dividend to shareholders [39]. Empirical findings not provide much support to any of the following view. Relationship of director's shareholding or inside ownership with firm performance [27; 39] and intellectual capital [25; 34] were found insignificant. We try to examine this relationship in banking sector of Pakistan and try to find if any significant relationship between these two variables.

**H5:** Directors Ownership has significant impact on Intellectual capital efficiency.

## 3. METHODOLOGY

This study focuses on the banking sector of Pakistan. There are 21 commercial banks listed in Karachi Stock Exchange which we use as our sample. We use 5 year data from 2010 to 2014. Required data was collected from annual reports.

CEO Duality, Board Size, Board Composition, Board Meetings and Director's Ownership are the independent variables in this study and Intellectual capital efficiency is the dependent variable.

Variables	Brief Explanation & Method of Estimation
CEO Duality	CEO Duality exist when the position of CEO and Board Chairman are held by the same person. 0 or 1, Where 0 shows Board Chairman is also the CEO of the Company, and 1 show that Board Chairman and CEO of the company are 2 different persons.
Board Size	Total number of directors on Board.
Board Composition	Board Composition means the portion of board composed of non-executive and independent directors. Number of Non-Executive Directors on Board / Board Size
Board Meetings	Number of board meetings held during a financial year.
Directors' Ownership	Directors' Ownership means the portion of outstanding common shares owned by the directors or by their spouse and children's. Number of Outstanding Shares owned by the Directors, their Spouse and Children / Total Number of Outstanding Shares.
Intellectual Capital Efficiency	Intellectual capital as the collection of information, knowledge, skills and expertise that can be utilized in the process of creating wealth. Intellectual Capital Efficiency is measured by using VAIC Model.

### 3.1 Value Added Intellectual Coefficient (VAIC)

Ante Pulic presented Value Added Intellectual Coefficient Index in 1998. VAIC measures the efficiency of firms value added activities. Pulic argue that value added came from intellectual potential and physical assets [22;40]. Intellectual potential consists of human and structural capital while physical capital consists of total value of assets employed by the firm [22]. There are two alternative formulas for calculating value added for the organization.

Value Added (VA) = Output – Input

Value Added = Operating Profit + Employee Cost + Deprecation + Amortization

$$VA = OP + EC + D + A$$

Only the amount of value added is not a measure of performance unless we examine it with resources utilized to create it. The relationship between value added and organizational capital employed is called Capital Employed Efficiency (CEE) [40]. It shows how effectively physical capital was utilized to create value added.

CEE = Value Added / Physical Capital Employed

$$CEE = VA / CA$$

Intellectual potential consists of human and structural capital. Relationship between human capital employed and value added is called Human Capital Efficiency (HCE) [40]. It examines the efficiency of human capital employed which is equal to total labor cost for the year.

HCE = Value Added / Human Capital Employed

$$HCE = VA / HC$$

The second component of intellectual potential is structural capital which is difference between value added and human capital employed.

$$SC = VA - HC$$

Relationship between structural capital and value added is called Structural Capital Efficiency (SCE).

SCE = Value Added / Structural Capital

$$SCE = VA / SC$$

By combining the value of all three efficiency indicators, we will find the value of Value Added Intellectual Coefficient (VAIC).

VAIC = Capital Employed Efficiency + Human Capital Efficiency + Structural Capital Efficiency

$$VAIC = CEE + HCE + SCE$$

VAIC shows the overall efficiency of the firm's intellectual capital and the new value created during the year by utilizing the intellectual potential and physical capital [40]. Following regression model is used to measure the impact of corporate governance variable on intellectual capital efficiency.

$$VAIC_{it} = \beta_0 + \beta_1 CEO Duality_{it} + \beta_2 Board Size_{it} + \beta_3 Board Composition_{it} + \beta_4 Board Meetings_{it} + \beta_5 Directors' Ownership_{it} + \epsilon_{it}$$

## 4. RESULTS

Descriptive statistics is used to provide an overall picture of the data analyzed for the study and Panel Least Square (PLS) regression is used to examine the impact of corporate governance on intellectual capital efficiency. Table 1 provides the descriptive statistics of the data. It shows the minimum and maximum value of the variable, mean value of the data, variance, standard deviation and skewness of the variable

**Table 01 Descriptive Statistics**

	Minimum	Maximum	Mean	Std. Dev.	Variance	Skewness
VAIC	-2.2680	6.441	2.938	1.596	2.548	-0.529
Board Size	4.000	13.000	8.460	1.617	2.616	0.447
CEO Duality	0.000	1.000	0.970	.167	0.028	-5.742
Board Composition	0.4285	0.9231	0.8235	0.10194	0.010	-2.486
Board Meetings	4	17	6.61	2.392	5.721	1.781
Directors' Ownership	0.000	67.4100	6.1906	1.2668	160.476	3.263

To examine the relationship between corporate governance variables and intellectual capital efficiency, panel least square multiple regression model is used. Table 2 shows the results of PLS regression model. Coefficient value shows the mean

change in dependent variable due to one unit change in independent variable while the P-value shows the significance of the results. This value is also used to reject or accept the hypothesis

**Table 02 : Panel Least Square multiple Regression**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.230055	1.453396	0.158288	0.8746
CEO DUALITY	-2.0840	1.006832	-2.069844	0.0411
BOARD SIZE	0.2437	0.099249	2.455101	0.0158
BOARD COMPOSITION	1.5117	1.456708	1.037745	0.3019
BOARD MEETINGS	-0.1299	0.065492	-1.984698	0.0499
DIRECTORS' OWNERSHIP	0.0326	0.011633	2.804302	0.0061
R-squared	0.1689			
Adjusted R-squared	0.1269			
Prob. (F-statistic)	0.0023			
Durbin-Watson stat	0.8806			

### Discussion and Conclusion

The main purpose of this study was to measure the impacts of corporate governance variables on the intellectual capital efficiency in the KSE listed commercial banks. We used board size, CEO duality, board composition, board meetings and director's ownership as independent corporate governance variables and intellectual capital efficiency was dependent variable in this study.

Overall results show significant impact of corporate governance variables on intellectual capital efficiency. CEO duality has significant negative impact on intellectual capital efficiency. This result matches with previous theoretical and empirical studies [25; Muttakin et al., 2015). A revision to the code of corporate governance by SEC Pakistan in 2012 banned CEO duality in Pakistan [35]. Our results have confirmed that CEO duality have strong negative impact on intellectual capital efficiency, it means that banning CEO duality was a good initiative to improve efficiency of intellectual capital.

Board size shows significant positive impact on intellectual capital efficiency which is verified with the results from previous studies [29 & 32]. Brown and Caylor (2006) found that board size of 6 to 15 is optimal for yielding higher returns. Further research is needed to calculate this optimal level for intellectual capital efficiency. Board composition does not have any significant impact on intellectual capital efficiency. This result also matches with all previous empirical studies in the field [2; 25; 28]. Board meeting have negative impact on intellectual capital efficiency. This variable was not discussed in this context before. Further, results show very minor positive impact of Directors' ownership on intellectual capital efficiency. Previous studies found this relationship non-significant.

On a side note, data shows that major private banks are more efficiently utilizing their intellectual capital as compare to public owned banks under VAIC model.

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Calculation of VAIC shows that human capital efficiency have the major contribution in the VAIC value. We believe that private banks have low but talented staff and they relied on technology more than human capital, which decrease their cost of human capital and increase human capital efficiency. While public limited banks have the problem of overstaffing and high administration costs which affects their human capital efficiency and ultimately their VAIC value.

Overall results show significant impact of corporate governance variables on intellectual capital efficiency except board composition. While validating results of many previous studies, results of this study can help the corporate leaders to mold their practices in order to improve efficiency of their intellectual capital.

### Recommendation

It is recommended that banks should improve their understanding of intellectual capital and start measuring it on quarterly basis for improving and efficiently utilizing it in order to achieve and enhance the better performance and sustainable competitive advantage. It is also highly recommended that board should be free from the influence of the managing directors and CEO to improve the efficiency of intellectual capital. Corporation need to ensure that functions of board of directors are not influenced by a single person or management.

Intellectual capital, as a concept, is still under recognition process in developing countries, like Pakistan. That's why there are many research gaps available in this field. Further studies can examine the relationship between intellectual capital and firm performance, capital structure, and corporate value etc. in financial and manufacturing sector. Our study is limited to commercial banks listed in Karachi Stock Exchange only, but same study can be conducted in other financial institutions like investment banks, insurance companies, mutual funds and leasing companies.

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