The Mediating Role of Executive compensation on the relationship between Board Governance Characteristics and Intellectual Capital Performance

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A B S T R A C T

The article is an exhibition of mediating effect of executive compensation on the linkage between board characteristics and intellectual capital performance of commercial banking firms in Pakistan. Panel data techniques are applied to estimate various relationships using fixed and random effect models. Data was gathered from annual reports of private domestic commercial banks operating in Pakistan. Result shows that board size and board composition have significant positive impact on intellectual capital performance. Board composition has significant negative impact on executive compensation while board size has insignificant positive impact on executive compensation. Executive compensation has significant positive impact on intellectual capital performance and executive compensation mediates the relationship between board composition and intellectual capital performance for commercial banks in Pakistan. This research study suggests regulatory bodies and management to understand significance of governance characteristics, executive compensation and intellectual capital performance.

INTRODUCTION

The importance of intellectual capital to enhance the economic value of a firm is increasing from last few years. It is due to changing nature of a firm and it has changed remarkably in the last two decades. The importance and uniqueness of tangible assets are decreasing in order to maintain competitive advantage of a firm while the importance of knowledge-based investment is getting importance in this respect. As pointed by Goldfinger (1997) the source of wealth and economic value is not to produce material goods but to create intangible assets. Based on this argument investment will be shifted towards human resource, research and development (R&D), information technology and advertising. Shifting towards a technology intensive and a knowledge-based economy bring changes in the investment behavior and also the valuation mechanism of a firm.

Mahmood et al. (2013) further asserted that intellectual capital in today's industrial environment has

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become an important determining factor of competitive advantage. But as this important resource i.e. intellectual capital performance is not reported in the financial information of a firm therefore it shows a difference in market value and book value of firms (Kavida & Savikoumar, 2009).

Ever since financial embezzlement, scandals and inefficiencies have emerged in today's corporate environment, the phenomenon of corporate governance became a core issue in recent past. Corporate governance is applied to avoid various falsities and to bring effectiveness in the management affairs of a firm to make them efficient. Intellectual capital performance is a valuable asset for a firm in today's knowledge based competitive economy and is getting more importance than other tangible assets. Intellectual capital if incorporated and made part of the strategic plane of a firm can create economic profit (Kavida & Sivakoumar, 2009).

The governance mechanism of board is considered essential and important source to manage, capitalize and develop intellectual capital by the formation of appropriate policies and strategies in this respect. The board governance mechanism is considered important to develop, enhance and improve intellectual capital of a firm (Makki & Lodhi, 2014). Compensation paid to company executives is an important issue in corporate governance. It is a controversy surrounding corporate governance since long (Cosh & Hughes, 1997). Shareholders usually get offensive and show their discontentment over large amount of benefits paid to executives. On the other hand Jensen (1994) is of the opinion that executive reward further establishes an effective corporate governance mechanism which ultimately improves the performance of a firm as with this strategy the mutual interest of management and shareholders are aligned. While the theoretical perspective of corporate governance postulates that shareholders interest is protected by self-seeking management using various governance structures of board of directors and board committees. Contribution of governance structure for improving firm performance remains debatable till date (Brammer et. al., 2013).

Executives of a firm are provided various financial incentives like salary and other fringe benefits in order to compensate them for the service they provide. They are highly paid for their extraordinary skills and contribution to substantial firm performance including intellectual capital as well. Extraordinary benefits to executives are also justified on the premise to align the interest of shareholders and executives. This argument is also in line with agency theory for a better performance. Combs et al (2007) also emphasize the contribution of board monitoring to create maximum value for shareholders. Agency theory postulates that providing incentives to shareholders and keeping efficient monitoring system in place in organizations minimizes agency costs and on the other hand improves performance of firm. Aligned with this proposition and theoretical base executives are well

compensated for variety of reasons. First, executive compensations are means to align management objectives with objectives of shareholders. Second, executives are compensated for their knowledge and expert skills as they contribute to a greater extent in enhancing financial performance of firm. Therefore they must be retained by offering them higher compensation. Agency theory also suggest that offering financial rewards discourages managers to pursue any other interest except that of company objectives, it also ensures effective board monitoring to achieve better performance results. It is therefore argued that compensation of executives affects the quality of governance and performance relationship in a firm. This study is in search of exploring interactional role of executive compensation on the mutual link of board governance characteristics and intellectual capital performance.

LITERATURE REVIEW

The resource dependence theory postulates that large board size enhances the abilities of board to process information. Abeysekera (2010) is of the opinion that board members are a source of risk mitigation for overcoming the skill deficiencies of individual directors while making collective decision making, this also keeps a firm in the right strategic direction. Studies regarding intellectual capital and board size have given mixed results. Zamani et al (2012) asserted a positive association between board size and intellectual capital performance. Abidin et al (2009) found a positive relationship between intellectual capital efficiency and large board size. The study of Attarit et al (2017), exhibit a positive effect of board size along with various other board characteristics on intellectual capital performance efficiency.

According to Appuhami and Bhuyan (2015) outside directors in company boards help to increase effectiveness of control and monitoring over company management. These directors have variety of resources and diverse roles for strategy execution and to evaluate decisions of management. Mahmudi and Nurhayati (2015) found a strong association between board composition, board size, director's qualification, audit committee and intellectual capital performance for banks listed in Indonesian Stock Exchange. Shavulimo (2014) contended that outside directors counterbalance the authority of inside directors and CEO and ensure better monitoring. Outside directors have more professional ability and in this way contribute more to intellectual capital performance of firms. Kamath (2019) studied the impact of board characteristics on intellectual capital performance of service and manufacturing firms in India. Result of the study shows that the impact of board characteristics on intellectual capital is prominent in service firms relative to manufacturing firms in India.

Executive Compensation (EC) and Intellectual Capital Performance (ICP)

Supporters of agency theory argue that managers always use their privileged position to maximize their personal goals. But they do it at the cost of shareholders. To solve this dilemma Jensen and Meckling (1976) came up with the opinion that these agency costs can be minimized if a competitive reward system is in place in organization. Competitive reward system makes interest of equity holder, executives and shareholders parallel. In this respect the study of Duc and Thuy (2013) argued that various elements of corporate governance like executive compensation improve firm performance. Tseng and Lin (2013) contended that there is a positive relationship between intellectual capital performance and executive reward system in an organization. Brown and Caeylor (2004) argued that the governance factors of directors and executive compensation are related with firm value. Makki (2010) also found a positive relationship between intellectual capital performance and executive remuneration for firms listed in Pakistan. Shahwan et al. (2020) had taken intellectual capital as mediator whereas the current study is pursuing additional version of taking executive compensation as mediator looking for more objective form closer to real enhancer.


Board Governance Mechanism and Executive Compensation

According to Kohli (2018) the quality of board monitoring is determined by the size of board members and agency costs can also be minimized accordingly. Yermack (1995) is of the opinion that higher compensations are received by firms with smaller boards. Loderer and Peyer (2002) argued that it is easy for CEO to control large size boards and also leads to ineffective monitoring and excessive compensations for executives. The literature so far enumerated regarding executive compensation and board size shows a positive relationship (Banghoj et. al. 2010).

Conyon and Peck (1998) are of the opinion that non-executive directors show lower reconciliation towards top management at the instance of pay benefits. The pay of management is linked with performance by outside board members (Basuet al. 2007). The study of Cheng and Firth (2006) carried out for firms listed in Hong Kong concluded that nonexecutive directors usually link pay of top management with accounting based performance. The study of Slomaka – Golebioska and Urbanek (2016) also contended that nonexecutive directors increase monitoring ability of board and usually supports lower pay levels for top management. However the study of Cavaco et al. (2020) suggested working on other dimensions of corporate governance therefore the study is on board governance characteristics.

Theoretical Framework and Hypothesis

Theoretical framework and hypothesis of the study are given below.
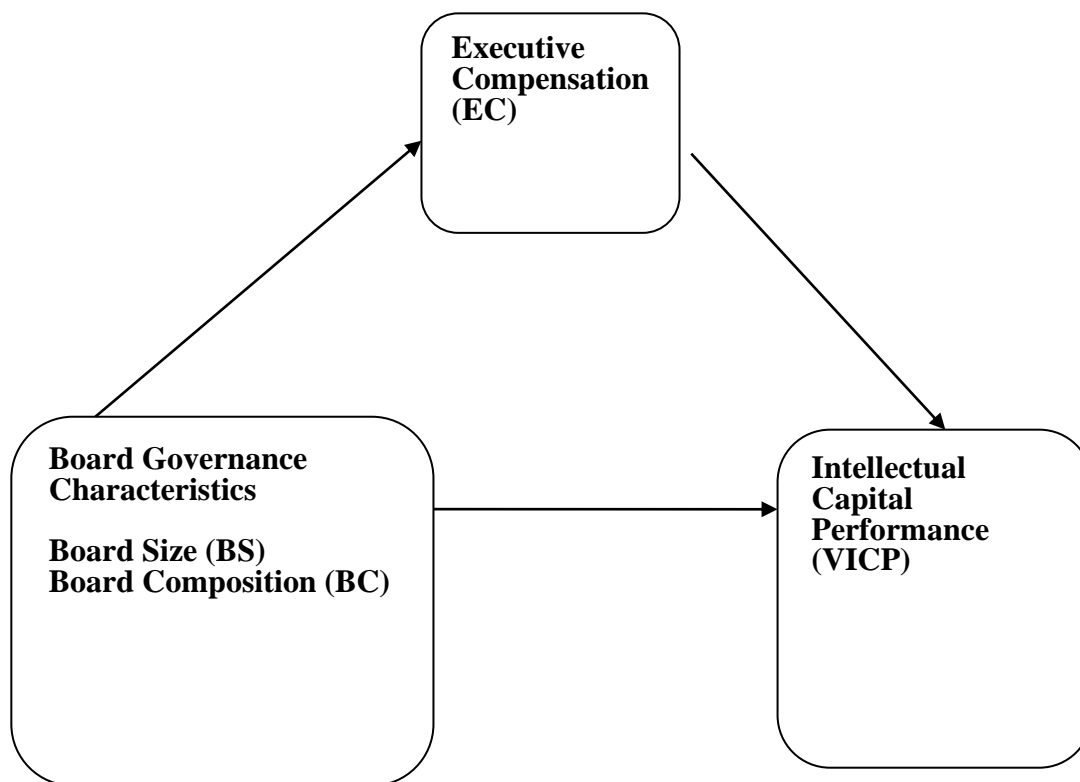
Hypothesis

H$_1$: Board size and intellectual capital has positive relationship

H$_2$: Board composition and intellectual capital performance has positive relationship

H$_3$: Board size and executive compensation has positive relationship

H$_4$: Board composition and executive compensation has negative relationship

H$_5$: Executive compensation and intellectual capital performance has positive relationship

H$_6$: Executive compensation mediates the relationship between intellectual capital performance and board size

H$_7$: Executive compensation mediates the relationship between intellectual capital performance and board composition

RESEARCH METHODOLOGY

This is a quantitative study in nature therefore panel data methodology is applied for empirical analysis. Population of this study is banking sector of Pakistan. Sample of this research is all domestic private commercial banks due to ease and well developed data incorporated in Pakistan. There are twenty domestic private commercial banks operating in Pakistan. Data for this research are taken from published annual reports of these domestic private commercial banks from 2011 to 2018.

Variables Definition

Independent Variable

Board Governance Characteristics

Board governance characteristics used in this study are:

Board Size (BS)

Board size is taken as total number of directors serving in board of directors on the date of annual general meeting of the concerned bank. This measure is also adopted by Yermack (1996) and argued that board size is important determinant and factor of executive compensation.

Board Composition (BC)

The ratio of non-executive directors to total directors is taken as proxy for board composition. This measure is also used by Combs et al (2007) in their study.

Mediating Variable

Executive Compensation (EC)

Executive compensation in this study is used as moderating variable. According to agency theory executive compensations are incentives for performance of directors. Executive compensation according to Larcker et al (2011) is sum total of salary, bonus fees and is taken as logarithm of executive compensation of directors.

Dependent Variable

Intellectual Capital Performance (ICP)

 Stewart (1997) stated that intellectual capital performance is the information, intellectual ability, experience and intellectual property that can be used to enhance and create wealth in an organization. Bontis (1998) considered intellectual capital performance as the effective and appropriate use of knowledge instead of information. According to his definition intellectual capital includes three types of capital; structural capital, human capital and customer capital. Intellectual capital is referred to as human capital, the value that the employees of a business provide through the application of expertise,

know-how and skills. Human capital is related with a firm total human capability and capacity for solving problems and providing business solutions. Structural capital enhances the supportive non-physical infrastructure processes and databases of the organization that enable human capital to function. Relational capital consists of customer relationships, trademarks, supplier relationships and trade names licenses and franchises. Intellectual capital performance and its composition can be measured as:

$$ICP = CEE + HCE + SCE$$

$$CEE = VA/CE$$

$$HCE = VA/HC$$

$$SCE = SC/VA$$

Where

VICP = Value added intellectual capital performance

CEE = Value added efficiency of capital employed

HCE = Value added efficiency of human capital

SCE = Value added efficiency of structural capital

HC = Total salaries and wages

SC = VA-HC

VA = OP + EC + D + A

OP = Operating profit

EC = Total employees expense

D = Depreciation

A = Amortization

Control Variables

Control variables used in this study are:

Variable	Abbreviation	Measurement
Firm Size	FS	Log (assets)
Growth	GT	$(Sales_t - Sales_{t-1}) / Sales_{t-1}$
Leverage	LV	Debt / Equity

Quantitative Specifications

This study uses mediation mechanism as recommended by Baron and Kenny (1986) to test the mediating effect of executive compensation on the relationship between board composition and intellectual capital performance. Baron and Kenny (1986) recommended the following steps and

requirements for mediation analysis:

a) The direct effect of board governance characteristics on intellectual capital performance as given in Model1 and it must be significant.

b) The effect of board governance characteristics on executive compensation (mediator) as given in Model 2 and it must be significant.

c) The effect of executive compensation (mediator) on intellectual capital performance as given in Model 3 and it must be significant.

d) The effect of board governance characteristics and executive compensation (mediator) on intellectual capital performance as given in Model 4. It is suggested that there will be full mediation if the relationship between board governance characteristics and intellectual capital performance has become insignificant. There will be partial mediation if this direct link is reduced significantly. There will be no mediation if this direct link is still significant.

Model 1

$$VICP = \beta_0 + \beta_1 BS + \beta_2 BC + \beta_3 FS + \beta_4 GT + \beta_5 LV + e$$

Model 2

$$EC = \beta_0 + \beta_1 BS + \beta_2 BC + \beta_3 FS + \beta_4 GT + \beta_5 LV + e$$

Model 3

$$VICP = \beta_0 + \beta_1 EC + \beta_2 FS + \beta_3 GT + \beta_4 LV + e$$

Model 4

$$VICP = \beta_0 + \beta_1 BS + \beta_2 BC + \beta_3 EC + \beta_4 FS + \beta_5 GT + \beta_2 LV + e$$

The above mentioned models will be estimated using panel data regression techniques. As panel data analysis provides multiple solutions to cross sectional problems like collinearity among independent variables, degrees of freedom and unobserved specifications (Baltagi, 2005). According to Hsiao (2014) panel data analysis controls the unobserved heterogeneity by incorporating various effects like random or fixed.

Breuch-Pagan *Lagrange multiplier* Test

The Lagrange multiplier test is applied to decide between pooled OLS and alternatives for panel data estimation including fixed effect or random effect modelling. Table 1 exhibits test output of Breuch Pagan *Lagrange multiplier* test. It decides among pooled OLS, RE or FE model. Null hypothesis of this test is that slopes and intercepts are similar for all firms. The significance of probability value of chi-square shows that null hypothesis of similar slopes and intercepts are rejected. It is therefore concluded that RE or FE model are appropriate estimates relative to pooled OLS model.

Table 1: Breuch-Pagan Lagrange multiplier

Dependent variable	x^2- Value	Probability value
VAIC	27.86	0.003

Diagnostic Statistics

Autocorrelation and Heteroscedasticity

Wooldridge test identifies the problem of autocorrelation in various models used in study. The results of all four models show that probability value for each model is more than 5 %. It is therefore concluded that there is no problem of autocorrelation in either of four models. The Breuch Pagan test is to estimate the problem of heteroscedasticity in each of four models applied in study. Results as given in table 2 show that probability value for each model is greater than 5%. Hence it shows no problem of heteroscedasticity.

Table 2: Autocorrelation and Heteroscedasticity

Model	Autocorrelation		Heteroscedasticity	
	p-value	Chi^2	p-value	f-value
Model 1	0.70	0.81	0.31	0.29
Model 2	0.22	0.23	0.42	1.28
Model 3	0.14	1.24	0.25	1.09
Model 4	0.34	1.34	0.29	0.37

Multicollinearity

It is one of the assumptions deemed necessary to be adopted before going to operationalize regression mode therefore a good measure is variance inflation factor (VIF). This statistic is applied to test Multicollinearity among independent variables (IVs) used in four regression models of study. Result given in table 3 shows that VIF for all variables is less than5. It shows that there is no Multicollinearity among IVs in either of regression model used in study. Hair et al (2009) also suggests a less than 5 VIF for no Multicollinearity among IVs in OLS.

Table 3: Multicollinearity Statistics -VIF

Variables	Model(M) 1-VIF	M 2-VIF	M 3-VIF	M 4-VIF
BS	1.11	1.11	-	1.02
BC	0.20	0.20	-	0.17
FS	1.46	1.46	1.13	1.05
GT	1.03	1.03	1.08	1.12
LV	1.43	1.43	1.24	0.19
EC	-	-	1.09	0.27

Results and Discussion

Descriptive Statistics

Table 4 shows descriptive statistics for the study. It shows that mean value of VICP is 3.71 and its S.E is 1.86. The mean value of board size is 7.51 and its standard deviation is 1.48. The mean value of board composition is 0.87 and its standard deviation is 0.12. The mean value of executive compensation is 1.99 and its SE is 0.61. The mean value of firm size is 9.71 and its S.E standard deviation is 0.72. The mean value of firm growth is 0.13 and its S.E standard deviation is 0.42. The mean value of firm leverage is 0.19 and its standard deviation is 0.17.

Table 4: Descriptive Statistics

Variables	Min	Max	Mean	Std. Dev
VICP	2.84	7.03	3.71	1.86
BS	4.00	13.00	7.51	1.48
BC	0.45	0.93	0.87	0.12
EC	0.58	3.99	1.99	0.61
FS	8.01	12.72	9.71	0.72
GT	-0.91	4.61	0.13	0.42
LV	0.03	1.21	0.19	0.17

Correlation Analysis

Table 5 shows correlation analysis among board size, board composition, executive compensation and intellectual capital performance. It shows a positive correlation between board size, board composition and intellectual capital performance. The correlation between executive compensation and value added intellectual capital performance is also positive. The correlation between board size and executive compensation is positive while there is a negative correlation between board composition and executive compensation.

Table 5: Correlation Analysis

	VICP	BS	BC	EC	FS	GT	LV
VICP	1						
BS	0.12	1					
BC	0.07	0.31	1				
EC	0.29	0.29	- 0.27	1			
FS	0.09	0.09	0.07	0.05	1		
GT	0.31	0.25	0.39	0.31	0.03	1	
LV	0.09	0.02	0.18	0.31	0.24	0.17	1

Regression Analysis

Table 6: Test Result for Hausman Test

Model	Dependent Variable	Independent Variables	chi2 = (b-B)'[(V_b-V_B)^(-1)](b-B)	Prob>chi^2	FEM/REM (Modelling Technique)
M 1	VICP	BS, BC, FS, GT, LV	12.71	0.01	FEM
M 2	EC	BS, BC, FS, GT, LV	15.31	0.02	FEM
M 3	VICP	EC, FS, GT, LV	2.34	0.37	REM
M 4	VICP	BS, BC, EC, FS, GT, LV	0.63	0.84	REM

Regression Analysis (Fixed Effect Model) Using VICP and EC as Dependent Variables

Table 7: Regression Results

	Dependent Variable(DV)					
	M 1			M 2		
	VICP			EC		
	B	SE	T-Val	B	SE	T-Val
BS	0.051	0.020	2.534	0.011	0.006	1.662
BC	0.078	0.019	3.978	- 0.109	0.022	4.792
FS	0.129	0.061	2.111	0.038	0.031	1.211
GT	0.091	0.018	4.875	0.087	0.035	2.438
LV	0203	0.051	3.947	0.039	.018	2.099
R-Square	34.1%			37.1%		
F-Statistic	6.71			7.22		

Model 1 shows the impact of various board governance characteristics including board size and board composition on intellectual capital performance. Result shows that board size and board composition have significant positive impact on intellectual capital performance of commercial banks in Pakistan. The large size of bank board's brings opportunity to get benefit from diverse skills of all board members which improves intellectual capital performance in banks. The large proportion of independent directors in board also prioritizes company interest over personal interest of directors. It also increases the check on firms therefore improving the intellectual capital performance of a firm. The studies of Abidin et al. (2015), Attarit et al. (2017) and Kamath (2019) suggested similar result regarding various board characteristics and intellectual capital performance.

M2 shows the impact of board characteristics on executive compensation in commercial banks of Pakistan. Result shows that there is an insignificant positive impact of board size on executive compensation. This result is consistent with Sheikh et al. (2018) that board size in Pakistan has ineffective role in minimizing agency conflicts. Reason given for this tendency is that directors in firms are usually selected from families who are controlling shareholders. Result also shows that board composition has a significant negative impact on executive compensation. Board of directors are an important tool and mechanism to control and monitor activities of management. Board also ensures public scrutiny of management behaviour. Such an extensive controlling and monitoring mechanism reduces agency conflicts, brings discipline to managerial behaviour, ensures accountability of management activities and also relate pay with performance of executives.

Table 8: Regression Analysis (Random Effect Model) Using VICP as DV

	D V					
	M 3			**M 4**		
	VICP			**VICP**		
	B	**SE**	**T-Val**	**B**	**SE**	**T-Val**
EC	0.108	0.034	3.109	0.053	0.025	2.117
BS	-	-	-	0.031	0.021	1.401
BC	-	-	-	0.027	0.024	1.109
FS	0.062	0.020	2.998	0.129	0.061	2.111
GT	0.033	0.027	1.201	0.091	0.018	4.875
LV	0.142	0.130	1.089	0203	0.051	3.947
R-Square	33.7%			37.1%		
Wald Chi	40.13			43.21		

Model 3 shows the impact of executive compensation on intellectual capital performance of commercial banks in Pakistan. Result shows a positive significant impact of executive compensation on intellectual capital performance. Managerial compensation is a source of motivation to achieve corporate solutions with economic efficiency. Also from the perspective of agency theory, managerial compensation is a driving force for better company performance. The executive compensation in overall reward strategy of a firm is also a tool to retain competent employees having extraordinary skills. This approach plays important role in maintaining profitability and development of a firm. As the level of human capital possessed by an employee is a determinant of his productivity and worth in organization. This worth of employees and human capital as possessed by a worker adds to firm profitability. Therefore employees with higher human and intellectual capital are worth more and should be paid more as well. The studies of Tseng and Lin (2013) and Makki (2010) also suggested same results.

Model 4 shows the mediating effect of executive compensation on the relationship between board composition and intellectual capital performance. Result shows that board size and board composition has become insignificant after incorporating executive compensation. On the other hand Model 1 shows the impact of board size and board composition as board characteristics on intellectual capital performance of banks, both board size and board composition shows a significant positive impact on intellectual capital performance. It shows that executive compensation has full mediation effect on the relationship between board characteristics and intellectual capital performance for commercial banks in Pakistan. Financial rewards including executive compensation are incentives to inculcate and nurture strong and effective governance culture and mechanism for enhancing better corporate performance. The growth of technology along with information development shifted importance from industrial economy towards a knowledge-based economy. Intellectual capital along with other intangible assets is nowadays considered competitive advantage in today's knowledge based corporate systems. The importance of intellectual capital performance prevailing in an organization is an important resource for every firm in today's dynamic and complex world of business. It is equally important for commercial banks in order to capitalize and leverage on intellectual capital performance to attain competitive advantage as banking is a knowledge intensive profession. Executive compensation system based on justice and rationality is imperative to attract and retain employees of high intellect, skill and experience along with efficient governance structures improve corporate performance and efficiency.

DISCUSSION AND CONCLUSION

Duc and Thuy (2013) argued that various elements of corporate governance like executive compensation improve firm performance. Tseng and Lin (2013) contended that there is a positive relationship between intellectual capital performance and executive reward system in an organization. Shahwan et al. (2020) had taken intellectual capital as mediator whereas the current study is pursuing additional version of taking executive compensation as mediator looking for more objective form of investigation. Digesting the outcomes our outcomes at large are in line with these studies. This study is about the association between board characteristics and intellectual capital performance with mediating effect of executive compensation for commercial banks in Pakistan. Four econometric models were used to assess this relationship. First econometric model shows the impact of various board governance characteristics including board size and board composition on intellectual capital performance. Result shows that board size and board composition have significant positive impact on intellectual capital performance of commercial banks in Pakistan confirming with the studies of Zamani et al (2012), Attarit et al (2017) Mahmudi and Nurhayati (2015). Second model shows the impact of board characteristics on executive compensation in commercial banks of Pakistan. Result shows that there is an insignificant positive impact of board size on executive compensation while boar composition has significant negative impact on intellectual capital performance as opposed to Tseng and Lin (2013). Third model shows the impact of executive compensation on value added intellectual capital performance of commercial banks in Pakistan. Result shows a positive significant impact of executive compensation on intellectual capital performance. Fourth model shows the mediating effect of executive compensation on the relationship between board composition and intellectual capital performance. Result shows as per the included variables by (Duc & Thuy 2013) that board size and board composition has become insignificant after incorporating executive compensation. So, it is concluded that executive compensation has mediating effect on the relationship between board characteristics and intellectual capital performance of banks in Pakistan.

This research study suggests regulatory bodies and management to understand significance of governance characteristics, executive compensation and intellectual capital performance. As understanding of this relationship will enable managers to exploit and attract more intellectual capital alongside of other tangible assets. It also provides opportunity to management for assessment of structural capital, human capital and capital employed to further create value for organization.

Based on findings of study it is suggested to regulatory bodies in Pakistan like Institute of Corporate Governance Pakistan and Securities and Exchange Commission of Pakistan (SECP) to organize intellectual capital awareness programs for directors of public limited companies. This study is limited to board size and board composition as board characteristics. Other proxies of corporate governance like board meetings, gender, ownership structure and disclosure patterns should be used to examine various relationships of the study in future. Similar studies should be carried to make comparison with other developing countries.

REFERENCES

Abeysekera, I. (2010). The influence of board size on intellectual capital disclosure by Kenyan listed firms. *Journal of Intellectual Capital*. *11*(4), 504-518.

Abidin, Z. Z., Kamal, N. M., &Jusoff, K. (2009). Board structure and corporate performance in Malaysia. *International Journal of Economics and Finance*, *1*(1), 150-164.

Cavaco, S., Crifo, P., &Guidoux, A. (2020). Corporate Social Responsibility and Governance: The Role of Executive Compensation. *Industrial Relations: A Journal of Economy and Society*, *59*(2), 240- 274.

Cosh, A., & Hughes, A. (1997). Executive remuneration, executive dismissal and institutional shareholdings. *International Journal of Industrial Organization*, *15*(4), 469-492.

Appuhami, R., &Bhuyan, M. (2015). Examining the influence of corporate governance on intellectual capital efficiency. *Managerial Auditing Journal*, *30*(4/5), 347-372.

Attarit, T., Dampitakse, K., &Panmanee, P. (2017). An analysis of mediating effect of intellectual capital linking board of directors and firm performance: Empirical evidence from Thai listed companies. *International Business Management*, *11*(11), 1871-1881.

Baltagi, B. H. (2005). Econometric Analysis of Panel Data, John Wiley & Sons Ltd. *West Sussex, England*.

Banghøj, J., Gabrielsen, G., Petersen, C., &Plenborg, T. (2010). Determinants of executive compensation in privately held firms. *Accounting & Finance*, *50*(3), 481-510.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173-1182.

Basu, S., Hwang, L. S., Mitsudome, T., &Weintrop, J. (2007). Corporate governance, top executive compensation and firm performance in Japan. *Pacific-Basin Finance Journal*, *15*(1), 56-79.

Bontis, N. (1998). Intellectual capital: an exploratory study that develops measures and models. *Management Decision*, *36*(2), 63-76.

Brammer, S., Millington, A., &Pavelin, S. (2007). Gender and ethnic diversity among UK corporate boards. *Corporate Governance: An International Review*, *15*(2), 393-403.

Brown, L. D., & Caylor, M. L. (2004). Corporate governance and firm performance. *The Accounting Review, 80*(2), 423-440.

Cheng, S., & Firth, M. (2006). Family ownership, corporate governance, and top executive compensation. *Managerial and Decision Economics*, *27*(7), 549-561.

Combs, J. G., Ketchen Jr, D. J., Perryman, A. A., & Donahue, M. S. (2007). The moderating effect of CEO power on the board composition–firm performance relationship. *Journal of Management Studies*, *44*(8), 1299-1323.

Conyon, M. J., & Peck, S. I. (1998). Board control, remuneration committees, and top management compensation. *Academy of Management Journal*, *41*(2), 146-157.

Duc, V., & Thuy, P. (2013). Corporate governance and firm performance: Empirical evidence from Vietnam. *International Journal of Economics and Finance*, *6*(6) 1-13.

Goldfinger, C. (1997). Intangible economy and its implications for statistics and statisticians. *International Statistical Review*, *65*(2), 191-220.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). Multivariate data analysis. Upper Saddle River, NJ [etc.]. *Pearson Prentice Hall, New York, NY: Macmillan*, *24*, 899.

Hsiao, C. (2014). *Analysis of panel data* (No. 54). Cambridge university press.

Jensen, M., &Meckling, W. (1976). Theory of the firm: Managerial behavior, Agency costs, and ownership structure. *Journal of Financial Economics*, *3*(1), 305-360.

Jensen, M. C. (1994). The modern industrial revolution, exit, and the failure of internal control systems. *Journal of Applied Corporate Finance*, *6*(4), 4-23.

Kamath, G.B. (2019). Board characteristics and intellectual capital performance: A comparison of service vs. manufacturing firms in India. *Scholedge International Journal of Business Policy & Governance*, *6*(1), 1-11.

Kavida, V., &Sivakoumar, N. (2009). Intellectual capital: A strategic management perspective. *The IUP Journal of Knowledge Management*, *7*(5), 55-69.

Kohli, M. (2018). Impact of ownership type and board characteristics on the pay–performance relationship: Evidence from India. *Indian Journal of Corporate Governance*, *11*(1), 1–34.

Larcker, D. F., Ormazabal, G., & Taylor, D. J. (2011). The market reaction to corporate governance regulation. *Journal of Financial Economics*, *101*(2), 431-448.

Loderer, C., & Peyer, U. (2002). Board overlap, seat accumulation and share prices. *European Financial Management*, *8*(2), 165-192.

Mahmood, R. R., Ali, F. Y., & Shahin, D. H. (2013). Investigate the relationship between intellectual capital of board and financial performance of accepted companies in Tehran Stock Exchange. *Journal of Basic and Applied Scientific Research*, *3*(4), 920-927.

Mahmudi, B., &Nurhayati, E. (2015). The influence of board governance characteristics on intellectual capital performance (empirical study on listed banks in BEI 2008-2012). *Review of Integrative Business and Economics Research*, *4*(1), 417.

MAKKI, M. A. (2010). *Impact of corporate governance on intellectual capital efficiency and financial performance* (Doctoral dissertation, National College of Business Administration & Economics Lahore).

Makki, M. A. M., & Lodhi, S. A. (2014). Impact of corporate governance on intellectual capital efficiency and financial performance. *Pakistan Journal of Commerce and Social Sciences*, *8*(2), 305-330.

Shahwan, T. M., &Fathalla, M. M. (2020).The mediating role of intellectual capital in corporate governance and the corporate performance relationship. *International Journal of Ethics and Systems.*

Shavulimo, P. M. (2014). Effect of corporate governance on performance of sugar manufacturing firms in Kenya: A case of sugar manufacturing firms in Western Kenya. *Journal of Business and Management*, *16*(11), 214-239.

Sheikh, M. F., Shah, S. Z. A., & Akbar, S. (2018). Firm performance, corporate governance and executive compensation in Pakistan. *Applied Economics*, *50*(18), 2012-2027.

Słomka-Gołębiowska, A., &Urbanek, P. (2016). Corporate boards, large blockholders and executive compensation in banks: Evidence from Poland. *Emerging Markets Review*, *28*, 203-220.

Stewart, T. A. (1997). Intellectual Capital: The New Wealth of Organizations. New York, Nicholas Brealey Publishing.

Tseng, C. Y., & Lin, C. Y. (2013). The relationship between corporate governance and intellectual capital: Empirical study of Taiwanese electronics manufactures. *International Business Research, 6*(7), 255-284.

Yermack, D. (1995). Do corporations award CEO stock options effectively? *Journal of Financial Economics*, *39*(2), 237–269.

Zamani, F. G., Nahandi, Y. B., Lalepour, M., & Re-zagholibeyghi, A. (2012). The relation between corporate governance and intellectual capital stressing human capital characteristics. *International Journal of Business and Management Tomorrow*, *2*(7), 1-7.

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