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Intellectual Capital and Financial Performance: An Evaluation of Islamic Banks in Pakistan

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Abstract

This study seeks to investigate the relationship between intellectual capital and bank's performance in Pakistan. A sample of five major Islamic Banks of Pakistan had taken for the period 2009-2014. Multiple regression analysis is used to show the relationship of intellectual capital and the bank's performance. The results suggest that the bank's performance (ROA and ROE) is positively and significantly related to the intellectual capital (Structural capital, Human capital and Capital employed efficiency) of Pakistani Islamic Banks. Human capital efficiency and capital employed efficiency show direct association with the bank's performance whereas structural capital efficiency shows no relationship with the bank's performance in Pakistan. Human capital efficiency is significantly and positively related to ROA, ROE, asset turnover and EPS. Physical capital employed efficiency of Islamic banks is significantly and inversely related to ROA and asset turnover; however it is positively and significantly related to ROE and EPS. Structural efficiency is significantly but inversely related to ROA and earnings per share and shows no association with ROE and EPS.

Keywords: Intellectual Capital, Structural Capital, Human Capital, Capital Employed Efficiency, Islamic Banks



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1. Introduction

This century is a century of knowledge economy, as there is a move from production era to knowledge era and from production labor to knowledge worker, which consequently enhanced the overall productivity in the economy. Due to this conversion, many companies and even countries are planning and repositioning their strategies. The banking industry is one of the knowledge-intensive industries. Intellectual Capital (IC) generally represents the critical resources in the value creation process. IC is considered crucial for the competitiveness of companies regardless of the industry. Johnson and Kaplan (1987) have suggested that IC might be the most important consideration regarding the performance of a company. Bornemann (1999) suggested correlation between intellectual potential and organizational performance. Banking sector is one of the sector that is utilizing intensive Intellectual Capital. With regards to bank performance and intellectual capital, there are some researches that study the role of Intellectual Capital on bank's performance. Brennan and Connell (2000) emphasized that intellectual capital administration is exceptional key for continuing business performance. Better competitive advantage can be accomplished if an organization oversees better intellectual capital (Bornemann, Knapp, Schneider, & Sixl, 1999). Bontis (1998) additionally specified the significance of intellectual capital in worldwide rivalry and new economy. Despite the significance of intellectual capital, money related explanations are not able to portray its esteem in the firms' performance. Firm accounting principles show hesitance in exhibiting intellectual capital part in monetary reporting (Eccles, Herz, Keegan, & Phillips, 2002).

1.1 Intellectual Capital

The meaning of intellectual capital (IC) regularly makes perplexity with intangibles. Mouritsen, Larsen, and Bukh (2001) characterized intellectual capital as a normal for impalpable assets that makes esteem. Because of reason, it is unreasonable or to the least extent liable to present IC in existing budgetary reporting framework, despite the fact that the part of IC in performance of a firm is find out. On the other hand, one of the pioneer of IC, T. A. Stewart (1997, p. xi) characterizes intellectual capital as 'intellectual materials – learning, data, experience, intellectual property – that can be put



to use to make riches. It is aggregate intellectual prowess. It's difficult to distinguish harder still to send successfully. In any case, once you discover it and adventure it, you win'. Pulic (2000) contended that esteem creation efficiency of the firms can be measured by both tangibles and intangibles. Sullivan (2000, p. 17) likewise termed Intellectual capital as 'learning that can be traded into benefits'. Specialists order three primary parts of IC in particular: social capital, structural capital and human capital (Mavridis & Kyrmizoglou, 2005; Tayles, Pike, & Sofian, 2007; Holton & Yamkovenko, 2008; Yang & Lin, 2009).

1.1.1 Human Capital

Bornemann et al. (1999) perceived human capital as ability, innovativeness and creativity of representatives. Worker's information, mastery and experience assume an impetus part in boosting the efficiency and adequacy of the association and henceforth esteem expansion. These information and aptitudes are particular qualities of individual representatives like learning limit, experience, instruction and innovation, nature of association, collaboration, dedication, reliability, adaptability and preparing.

1.1.2 Structural Capital

Structural capital comprises of every single other resources that are not human assets. Bornemann et al. (1999) characterized structural capital as the information base and authoritative structure. It incorporates all firm's arrangements, strategies, rules, regulations, data technology, frameworks, duplicate rights and licenses as depicted by Bontis, Keow, and Richardson (2000). They further demonstrated the importance of these variables in choice making.

1.1.3 Relational Capital

Bornemann et al. (1999) characterized social capital as client and supplier relation. It is fundamentally the relationship of managing an account with its outer partners. A conventional business relationship can be substituted by confidence, trust, comprehension, understanding and mindfulness. Despite the fact that Pakistan has a horticultural based economy, producing division additionally assumes an imperative part in financial improvement of



Pakistan. Fabricating area comprises of 21.3% of aggregate Pakistan's GDP in year 2013-2014. Terziovski (2010) contended that assembling area is one of the massive donors in Pakistan economy. Intellectual capital is one of the essential determinants of competitive advantage (Chen et al., 2006). Accordingly, a need emerge to accentuate on information effective industry in Pakistan. Kalim, Lodhi, and Haroon (2002) additionally highlight the significance of learning based economy for the competitive advantage generally Pakistan's available offer of fare in world economy may be lost.

2. Literature Review

2.1 Intellectual capital and the bank's performance - around the world

Joshi et al. (2013) analyzed the relationship between intellectual capital and the money related performance of the budgetary area of the Australia for the time of 2006-2008. Different segment of IC like human capital efficiency, capital utilized efficiency and structural efficiency were utilized to explore. They found that intellectual capital is critical in connection with human efficiency and worth for expansion of Australian banks. Human capital efficiency is higher than capital utilized efficiency and structural efficiency on Australian claimed banks.

Khalique et al. (2013) inspected the relationship of intellectual capital and the authoritative performance of the Islamic managing an account part in Malaysia. Pearson relationship and numerous relapse examinations were connected and found that intellectual capital has positive and noteworthy association with performance of the Islamic keeping money arrangement of Malaysia. Jafari (2013) explored the relationship of intellectual capital and firm's performance of the Iranian organizations. He applied time arrangement information, unit root test and Smooth Transition Regression (STR) model, and found a positive and noteworthy relationship between intellectual capital and the monetary performance of the firm as utilized by Pulic (2000).

Djamil, Razafindrambinina, and Tandean (2013) led study to demonstrate the relationship between the intellectual capital and the firm's stock profit for the Indonesian firms and found that intellectual capital does not have an



impact on present stock return. Be that as it may, intellectual capital includes development in stock return. Darvish et al. (2013) explored Iranian associations to demonstrate the relationship of intellectual capital, learning capacities and the firm's performance. Morgan measurable table and Cronbach's alpha was computed. They found that human capital, social capital and inclining capacities are decidedly huge to hierarchical performance.

Sharabati, Naji Jawad, and Bontis (2010) examined the relationship of intellectual capital and firm's performance of pharmaceutical division in Jordan. They found that intellectual capital and sub parts of intellectual capital have noteworthy effect on the firm's performance. Ahangar (2011) utilized quality added intellectual capital system to demonstrate the relationship between intellectual capital and hierarchical performance of Iranian organizations. The outcomes recommended that the performance of an association's intellectual capital can clarify benefit and efficiency.

2.2 Intellectual capital and the bank's performance - Pakistan

F. A. Khan, Khan, and Khan (2012) considered the relationship of intellectual capital and performance of the banks of Pakistan. They found that intellectual capital has a huge association with the monetary performance. Pearson Correlation system was run to check the relationship of the variables. They found that intellectual capital has a positive and noteworthy impact on the money related performance of the banks. They also argued that the firm's budgetary performance will increment with the increment of the efficiency of the intellectual capital.

Muhammad Khalique, Shaari, Abdul, Isa, and Ageel (2011) explored the relationship of intellectual capital and performance in the electrical and gadgets division of Pakistan. They utilized Pearson relationship and numerous relapses and found that structural capital and client capital have noteworthy and positive association with the performance. On the other hand, human capital has no effect on firm's performance in electrical and hardware area of Pakistan. Latif et al. (2012) studied the relationship between intellectual capital and the firm's performance in view of gainfulness, efficiency and business valuation of Islamic and routine banks of



Pakistan. Connection and different relapse examination were connected and found a positive direct relationship exists between human capital efficiency and all segments of performance i.e. productivity, profitability and business sector valuation. If there should be an occurrence of Islamic managing an account though, a critical relationship exists between capital utilized efficiency and all parts of performance.

M. W. J. Khan and Khalique (2014a) researched the relationship of key arranging, intellectual capital and firm's performance of SMEs in Pakistan. They investigated the components of vital arranging like mission of the organization, vision of the organization, market introduction, and contender's introduction and client introductions ought to be investigated with the performance of the little scale organizations. Further, intellectual capital and its six segments have an effect on firm's performance and have an association with the firm's key performance.

Khalique et al. (2015) directed a study to survey the relationship between intellectual capital and authoritative performance of SMEs in electrical and electronic assembling division of Pakistan. They examined six parts of intellectual capital and found that client capital, structural capital, social capital, innovative capital and profound capital decidedly noteworthy with the performance of SMEs in Pakistan, although human capital demonstrated no association with the firm's performance. Human capital is a standout amongst the most essential parts of intellectual capital, and it is inconsequential for Pakistani SMEs. Then again, Pakistan confronts lack of talented and equipped workers and this is on account of absence of relationship in the middle of SMEs and governments organizations.

3. Theoretical Framework and Research Hypothesis

In this information based economy, intellectual capital generates value that is directly related to its performance (Marr, Gray, & Neely, 2003). Prior studies have found that there is a positive association between intellectual capital efficiency and corporate performance (Ahangar, 2011; Bharathi, 2010; Bontis et al., 2000; M Khalique, 2012; F. A. Khan et al., 2012). Therefore in line with the prior studies, it can be hypothesized that there is a positive



relationship between intellectual capital efficiency and the bank's performance.

Hypothesis 1: There is a significant relationship between VAIC and banks's performance

Prior studies also suggested that components of intellectual capital also have association with the bank's performance. Three important components are structural capital efficiency (SCE), human capital efficiency (HCE) and capital employed efficiency (CEE). Researchers found that structural capital efficiency is an important component of intellectual capital and has a positive impact on the firm's performance (Y.-S. Chen et al., 2006; Muhammad Khalique et al., 2015; Muhammad Khalique et al., 2013; Rehman, Rehman, Rehman, & Zahid, 2011). Based on these previous studies, it can be hypothesized that there is a positive relationship between structural capital efficiency and the firm's performance.

Hypothesis 2: There is a significant relationship between SCE and bank's performance

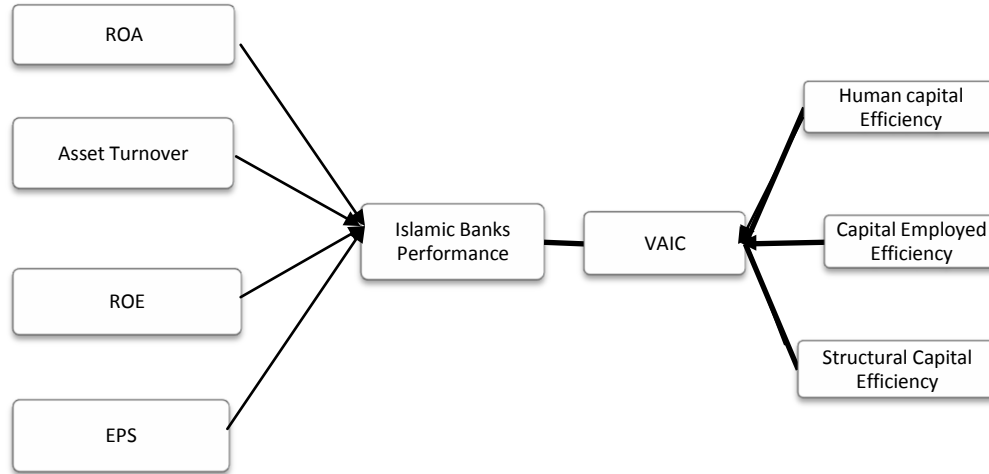
Human capital efficiency is one of the most important components of intellectual capital. Previous studies found a positive and significant relationship of HCE and firms performance (Y.-S. Chen et al., 2006; Darvish et al., 2013; Muhammad Khalique et al., 2013), therefore based on these past studies it can be hypothesized that there is a positive association between human capital efficiency and the banks performance.

Hypothesis 3: There is a significant relationship between HCE and bank's performance

Further, CEE also showed a positive impact on financial performance of the banks(Y.-S. Chen et al., 2006). Hence, the forth hypothesis can be developed that there is a positive relationship between capital employed efficiency and the banks performance.

Hypothesis 4: There is a significant relationship between CEE and bank's performance

Figure 01: Relation between Bank's Performance and Intellectual Capital



4. Research Methodology

4.1 Sampling

The data is collected from annual reports of the banks available on bank's websites for the period of 2007 to 2014. There are five banks namely Meezan Bank, Burj Bank, Dubai Islamic Banks, Albarakah Bank and Bank Islami.

4.2 Research Methodology

Multiple regression analysis used to show the relationship between intellectual capital and bank's performance. Different descriptive statistics tools were also used in this study. Based on the above hypothesis, the following regression model can be developed:

$$\text{Model 1: } ROA_{it} = \beta_0 + \beta_1 VAIC_{it}$$

$$\text{Model 2: } ROA_{it} = \beta_0 + \beta_1 SCE_{it} + \beta_2 HCE_{it} + \beta_3 CEE_{it}$$

$$\text{Model 3: } ROE_{it} = \beta_0 + \beta_1 VAIC_{it}$$

$$\text{Model 4: } ROE_{it} = \beta_0 + \beta_1 SCE_{it} + \beta_2 HCE_{it} + \beta_3 CEE_{it}$$

$$\text{Model 5: } EPS_{it} = \beta_0 + \beta_1 VAIC_{it}$$



$$\text{Model 6: } \text{EPS}_{it} = \beta_0 + \beta_1 \text{SCE}_{it} + \beta_2 \text{HCE}_{it} + \beta_3 \text{CEE}_{it}$$

$$\text{Model 7: } \text{ATO}_{it} = \beta_0 + \beta_1 \text{VAIC}_{it}$$

$$\text{Model 8: } \text{ATO}_{it} = \beta_0 + \beta_1 \text{SCE}_{it} + \beta_2 \text{HCE}_{it} + \beta_3 \text{CEE}_{it}$$

Where,

ROA = Return on Assets

ATO = Asset Turnover

ROE = Return on Equity

EPS = Earnings per Share

VAIC = Value added Intellectual Coefficient

SCE = Structural capital efficiency

HCE = Human Capital efficiency

CEE = Capital employed efficiency

4.3 Variables Definition

Value Added Intellectual Coefficients (VAIC) is a very crucial experience in this knowledge based economy. VAIC have three main components namely, Structural Capital Efficiency (SCE), Human Capital Efficiency (HCE) and Capital Employed Efficiency (CEE) which is used by Pulic (2000). This approach is used by numerous economies like Australia, China, Japan, Iran, Jordan, Malaysia, America, U.K, India and Pakistan by various investigators like (Ahangar, 2011; Banimahd, Mohammad Rezaei, & Mohammadrezaei, 2012; Bharathi, 2010; Bontis, 1998; Bontis et al., 2000; Bornemann et al., 1999; Brennan & Connell, 2000; Bukh, Larsen, & Mouritsen, 2001; F.-C. Chen, Liu, & Kweh, 2014; Y.-S. Chen et al., 2006; Darvish et al., 2013; Djamil et al., 2013; Holton & Yamkovenko, 2008; Jafari, 2013; Joshi et al., 2013; Kalim et al., 2002; Kamukama, Ahiauzu, & Ntayi, 2010, 2011; M Khalique, 2012; Muhammad Khalique et al., 2015; Muhammad Khalique et al., 2013; F. A. Khan et al., 2012; M. W. J. Khan & Khalique, 2014b; Latif et al., 2012; Liao, Chan, & Seng, 2013; Lu, Wang, & Kweh, 2014; Mavridis & Kyrmizoglou, 2005; Mehralian, Rajabzadeh, Sadeh, & Rasekh, 2012; Pulic, 2000; Rehman et al., 2011; T. Stewart & Ruckdeschel, 1998; Tayles et al., 2007; Rehman, Ilyas, & ur Rehman, 2013; Yang & Lin, 2009; Zéghal & Maaloul, 2010). They all used VAIC as a measure to evaluate the efficiency of corporations.



4.3.1 Dependent Variables

- Return on Asset (ROA) = Net Profit before tax / Total Assets
- Asset turnover (ATR) = Total Sales / Total Assets
- Return on Equity (ROE) = Profit before tax / Shareholder’s Equity
- Earnings per shares (EPS) = Net Profit / Average outstanding Share

4.3.2 Independent Variables

- Output = Net Premium
- Input = Operating expenses (excluding personal costs)
- Value added = Output-Input
- HC = Personal Cost (i.e. Salaries and Wages)
- CA= Capital Employed (both physical and financial capital)
- SC= VA–HC
- HCE =VA/HC (Human Capital Efficiency)
- CEE= VA/CA (Capital Employed Efficiency)
- SCE=SC/VA (Structured Employed Efficiency)
- VAIC = HCE + CEE + SCE

5. Empirical Results

Table 1 shows the descriptive statistics of the variables. The mean return on assets of the banks is 0.0001 whereas mean asset turnover is .1169. Earnings per share show an average 0.4705 where as mean return on equity is 0.526. Mean human capital efficiency is the highest efficiency in Islamic banks in Pakistan having mean 0.9064, whereas the mean of structural capital efficiency is 0.7057 and physical capital efficiency is 0.1617.

	ROA	ROE	EPS	ATO	VAIC	CEE	HCE	SCE
N	40	40	40	40	40	40	40	40
Mean	.00	.05	.47	.12	1.77	.16	.90	.71
Std. Dev.	.01	.14	1.47	.18	4.08	.22	1.10	4.08
Minimum	-.03	-.14	-2.19	.04	-13.98	-.17	-2.01	-14.05
Maximum	.08	.45	4.56	1.01	15.94	.78	2.61	16.02

Hypothesis 1: There is a significant relationship between VAIC and bank’s performance

Table 2 shows the relationship between Intellectual capital and the bank's performance that is ROA, ATR, ROE and EPS respectively and shows that the models 1, 3 and 5 are significant models with F-Stats 13.236, 38.925 and 18.562 respectively. The coefficient in the table 2 shows that bank's performance i.e. ROA (p-value = 0.002), EPS (p-value = 0.000) and ROE (p-value = 0.000) is positively and significantly related to the VAIC. However, Asset turnover ratio (ATR) is not significant to VAIC of Islamic banks in Pakistan.

Table 02: Coefficients - Independent Variable VAIC

Dependent Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	F-Stats	R ²	Durbin Watson
	B	Std. Error	Beta					
ROA	.917	.252	.622	3.638	0.002**	13.236	.387	1.751
EPS	2.019	.469	.668	4.308	0.00*	18.562	.447	1.59
ROE	1.515	.243	.806	6.239	0.00*	38.925	.650	2.183
ATR	-.164	.158	-.183	-0.104	.308	1.075	.034	1.409

At significance level *1%, **5% and ***10%

Hypothesis 2: There is a significant relationship between SCE and bank's performance

Tables 3, 4, 5 and 6 show the relationship between structural capital efficiency and ROA, ATR, ROE and EPS respectively and show that the models 2 and 6 are significant models with F-Stats 50.698 and 40.730. The coefficient tables 3 and 5 show that bank's performance i.e. ROA (p-value = 0.000) and EPS (p-value = 0.000) is significantly related to SCE. However, EPS is inversely related to SCE. Whereas, ROE and ATR has insignificant relationship with SCE.

Table 03: Coefficients - Dependent Variable ROA

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
CEE	-.001	.001	-.126	-1.076	.292	.406	2.461
HCE	.013	.002	1.480	7.966	0.000*	.163	6.150
SCE	-.002	.000	-.594	-3.983	0.000*	.252	3.962

F-Stats = 50.698, R-Square = .854, Durbin Watson = 0.758

Table 04: Coefficients - Dependent Variable ROE

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-4.110	.572		-7.179	.003*		
CEE	.347	.080	.527	4.312	.000*	.462	2.164
HCE	.055	.017	.403	3.264	.002*	.454	2.201
SCE	3.538	.003	.001	.011	.991	.971	1.030

F-Stats = 18.699, R-Square = .718, Durbin Watson = 0.935

Table 05: Coefficients - Dependent Variable EPS

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)							
CEE	3.209	.885	.477	3.627	0.001*	.740	1.351
HCE	1.813	.414	.731	4.380	0.000*	.460	2.173
SCE	-.931	.265	-.532	-3.506	0.002*	.557	1.796

F-Stats = 40.730, R-Square = .772, Durbin Watson = 0.925

Table 06: Coefficients - Dependent Variable ATO

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.111	.039		2.861	.007		
CEE	-.437	.190	-.525	-2.306	.027**	.462	2.164
HCE	.084	.039	.492	2.143	.039**	.454	2.201
SCE	.000	.007	-.005	-.035	.973	.971	1.030

F-Stats = 1.939, R-Square = .139, Durbin Watson = 1.317

At significance level *1%, **5% and ***10%

Hypothesis 3: There is a significant relationship between HCE and bank's performance

Tables 3, 4, 5 and 6 show the relationship between human capital efficiency and ROA, ATR, ROE and EPS respectively and show that the models 2, 4, 6 and 8 are significant models with F-Stats 50.698, 1.939, 18.699 and 40.730 respectively. The coefficient tables 3, 4, 5 and 6 show that bank's



performance i.e. ROA (p-value = 0.000), ATR (p-value = 0.039), ROE (p-value = 0.002) and EPS (p-value = 0.000) is significantly and positively related to HCE.

Hypothesis 4: There is a significant relationship between CEE and bank's performance

Tables 3, 4, 5 and 6 show the relationship between physical capital employed efficiency and ROA, ATR, ROE and EPS respectively and show that the models 4, 6 and 8 are significant models with F-Stats 1.939, 18.699 and 40.730 respectively. The coefficient tables 4, 5 and 6 show that bank's performance i.e. ROE (p-value = 0.003) and EPS (p-value = 0.000) is significantly and positively associated and ATR (p-value = 0.027) is significantly and inversely related. For an effective regression analysis, normality of variables is very much needed. In this regard two variables are normalized by taken log namely structural capital efficiency and market to book value. Rest of the variables shows the normal distribution and liner relationship. Durbin Watson value is used to check auto correlation among variables. Tables 3, 4, 5 and 6 shows that there is no auto correlation among variables or very less auto correlation ROA (0.758), ATR (1.317), ROE (0.935) and EPS (0.925). There is no multicollinearity among variables as the variable inflation factors (VIF) values are below 10 in all cases.

6. Conclusion

The findings of this study support the hypothesis constructed and showed a positive and significant relationship of the bank's performance and intellectual capital in Islamic banks of Pakistan. Human capital efficiency is significantly and positively related to return of assets, return on equity, asset turn over and earnings per share. Physical capital employed efficiency of Islamic banks is significantly and inversely related to return of assets and asset turnover ratio, however, it is positively and significantly related to return on equity and earnings per share. Structural capital efficiency is significantly but inversely related to return to assets and earnings per share and shows no association with return on equity and earnings per share for Pakistani Islamic Banks. These findings supported with earlier studies and this study has made a significant contribution toward the theory support regarding the intellectual capital and bank's performance.



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