MANAGEMENT TODAY
-for a better tomorrow
An International Journal of Management Studies
home page: www.mgmt2day.griet.ac.in
Vol.8, No.4, October-December 2018

Intellectual Capital and Business Performance in the Banking Sector of Ethiopia

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ARTICLE INFO

Article history:

Received 16.09.2018
Accepted 25.12.2018

Keywords:

Intellectual capital; human capital; relational capital; structural capital; business performance; commercial banks; Ethiopia.

ABSTRACT

The purpose of this study is to empirically examine the relationship between intellectual capitals (i.e. human capital, relational capital, and structural capital) and business performance. A self-administered questionnaire survey was utilized to conduct the survey of 408 bank employees from nine sampled banks to assess their perception bout intellectual capital. Pearson correlation and multiple regression analysis were used for data analysis. The results of the study indicated that intellectual capital has a positive effect on the performance of commercial banks in Ethiopia.

1. Introduction

With the rise of the innovative era and intense globalized competition intellectual capital not only has become the driving force and an important source of value creation and sustainable development of enterprises, but also innovation and the key proxy for profit growth (Libo, Xin & Su, n.d.). Intellectual capital is essentially defined as knowledge assets that can be converted into value (Edvinsson & Sullivan, 1996). Stewart (1997) defines intellectual capital as "the intellectual material-knowledge, information, intellectual property, experience that can be put to use to create wealth."

Responsibility of Contents of this paper rests upon the authors and not upon GRIET publications
ISSN: 2348-3989 (Online)
ISSN: 2230-9764 (Print)
Doi: http://dx.doi.org/10.11127/gmt.2018.12.02
pp. 295-302

Enhancing the intellectual capital (IC) basis of organizations has got an increasing interest among the academia. Recent empirical studies have shown the fact that investment in intellectual capital positively affect firm performance in different countries (Cabrita & Bontis, 2008; Musharaf (2011), Bhatia & Aggrawal, 2015). Nevertheless, the contribution of intellectual capital is not well understood by mangers (Sharabati et al, 2010). Hence, intellectual capital received meager attention as compared to physical and financial capital. The academic interest on intellectual capital has been growing albeit evidences indicated that the findings from developing countries remained scant, besides their potential for growth (Silvia and Alesandro, 2018). In light of literature available on intellectual capital, it can be said that despite intellectual capital having broader scope it receives less corporate focus than it deserves, especially in developing countries like Ethiopia. Therefore, the current study aimed at examining the intellectual capital and its effect on the performance of commercial banks in Ethiopia in order to fill the gap in literature, on one hand, and to provide feedback on the

effect of IC on business performance measured in terms of productivity and profitability for mangers and policy makers of commercial banks in Ethiopia.

Hence, the current study offers baseline information about the level of IC practices and the effect on business performance in the banking sector in Addis Ababa, Ethiopia.

2. Empirical Litrature Review

Seleim, Ashour and Bontis (2007) empirically examined the impact of human capital on organizational performance in the context of Egyptian software companies. For the purpose a survey instrument was administered to 38 companies which are a representative of 107 members of the software industry. In the analysis of data correlation and stepwise regression were conducted to ascertain the validity of the hypotheses. The result of the findings revealed that certain types of human capital indicators showed a positive and statistically significant relationship with firm performance.

Sharabati, Jawad and Bontis (2010) empirically examined the relationship between intellectual capital and business performance of pharmaceutical sector in the context of Jordan. For the purpose a survey instrument was administered to 132 top and middle-level managers from all 15 organizations. Primary information was collected from expert interviews. For statistical analysis purpose Pearson's bivariate correlation coefficient was used to test the relationship between independent and dependent variables. The result revealed that the intellectual capital variables and sub-variables had a substantive and significant relationship with business performance. More importantly the result of multiple regression model showed there is strong and positive evidence that intellectual capital positively and effectively influence business performance.

Kamukam, Ahianzu, & Ntayi (2010) conducted a study on intellectual capital and financial performance of Microfinance institutions in Uganda. The study was aiming to explore the extent of which intellectual capital elements can possibly explain financial performance in Uganda, Microfinance industry. For the purpose, the sample size 65 firms were covered and for statistical test a person bi-variate correlation and hierarchical regression were used. In this study, results have indicated that there is a positive and significant relationship between human capital, structural capital, relational capital and financial performance of in the Microfinance industry. The overall research outcome indicated that all the three intellectual capital components significantly affect the financial performance of the industry.

Ahma & Musharaf (2011) explored the relationship between intellectual capital and business performance aiming to investigate whether the intellectual capital has a direct effect on business performance. For this study a random sample of 230 managers of Iraqi companies were considered. For statistical analysis Pearson correlation and multiple regression were used. The results of the study showed that there is positive relationship between intellectual capital and business performance.

Khaligue et al. (2011) assessed the role of intellectual capital on organizational performance of Electrical and Electronics SMEs in Pakistan. For the purpose the research model was developed with three independent variables namely, human capital, customer capital, structural capital and one dependent variable namely organizational performance. A structured questionnaire based survey was conducted to collect the data from 50 electrical and electronics SMEs operating in manufacturing sector in Gujarat and Gujranwala. For data analysis Pearson correlation and multiple regression analysis techniques were used to test the relationship between components of intellectual capital and organization performance. The result showed that human capital, customer capital, and structural capital have positive relationship with organizational performance. But, customer capital has stronger relationship followed by structural capital.

Fadaei et al. (2013) explored the effect of intellectual capital on organization's financial performance of Guilan Melli Bank branches, Iranian organizations. To conduct the study, a descriptive survey of a statistical population of 1,504 staff, including manager, assistants and official employees working in 126 branches of Guilan Melli Bank were used. Data analysis has been done with descriptive inferential method. Findings of the study revealed that there is a positive relation between intellectual capital and financial performance. Moreover, amongst intellectual capital components, in light of degree of importance, human capital and then relational capital and at last structural capital have the most effect on financial performance respectively.

Saeed et al. (2013) conducted an empirical study on intellectual capital and organization performance in the context of Pakistan Telecom Sector. For the purpose a survey method was used through a questionnaire to be distributed to a sample of 200 employees of telecom sector of Pakistan and multiple regression functions were applied to get the idea regarding relationship. At last, the study was concluded that, there is positive relation between intellectual capital and telecom sector of Pakistan.

Yeganeh et al. (2013) studied the relationship between intellectual capital and performance of private insurance companies in the context of Iran. For the purpose, a descriptive Survey of 342 sample respondents were randomly selected and for the statistical analysis reason simple, multiple and step-wise regressions were used. The study showed out that when an independent study is conducted on the three variables i.e. human capital, structural capital and customer (relational) capital, they are positively associated with performance but when the simultaneous effects of these three variables are studied only human and structural capitals have significant relationship with firm performance.

Ahmadi, Ahmadi, & Shakeri (2013) empirically investigated the relationship between intellectual capital (IC)

and organizational performance (OP) in the context of national Iranian South Oil Company. For the purpose a sample of 249 of 3800 mangers, experts and supervisors of the company were considered. The statistical analyses were conducted using Pearson correlation coefficient, one factor ANOVA, and t-test with the help of SPSS version 18. Further the study employed a structural equation model (SEM) using AMOS graphic 18. Based on the finings the study concluded that there is a positive relationship between intellectual capital and organizational performance.

Khalique, Shaari, Isa, & Samad (2013) conducted a research entitled as the impact of intellectual capital on the organizational performance of Islamic banking sector in Malaysia. The researcher underlined the intellectual capital is a life blood of the high-tech and knowledge intensive organizations. For the purpose a total of 120 individuals were considered for primary data collection and a Pearson correlation and multiple regression analysis were used for data analysis. The results revealed that intellectual capital has a significant influence on the performance of Islamic banking sector.

Mohammadi, Rohalla, Sherafati & Ismail (2014) examined factors affecting intellectual capital and its role in financial performance in the context of Iranian company. To undertake this study models with 14 latent variables are presented and for the purpose, structured questionnaire was provided and distributed among 79 respondents. To evaluate the relationship between the latent variable partial least square (PLC) was used. The result indicated that there is a significant relationship between intellectual capital and organization's financial performance.

Basri (2015) assessed the role of intellectual capital in enhancing the performance of employees in the context of Saudi Arabia. The purpose of the policy of the banks through intellectual capital having three components: the human capital, structural capital, and relational capital. For the purpose, the researcher used a sample of employees in the commercial banking sector. The results of the statistical analysis revealed that there is moderate positive relationship between the bank policy and performance.

Linda, Rasyld & Megawati (2017) examined the relationship between intellectual capital and firm performance in the context of Islamic banking sector of Indonesia. In this study data were collected from a sample of 120 directors of Islamic banks. A structural equation modeling (SEM) with the Amos program was used to test the hypothesis. The findings revealed that the intellectual capital components have a statistically significant and positive effect on the performance of Islamic banking in Indonesia. Specifically, a relationship exists between the two elements of the intellectual capital components i.e. human capital and relational capital to the performance of Islamic banking; whereas structural capital (SC) has no significant influence.

Orugum & Aduku (2017) assessed organizational performance through a review of empirical studies to confirm the effect of intellectual capital on organizational performance. For the purpose information gathered through journals, conference papers, books, theses and working papers were analyzed. The results of empirical studies showed that intellectual capital has significant influence on organizational performance. Finally, the study concluded that intellectual capital plays a key role in the enhancement of organizational performance.

1.1. Hypothesis

Based on the literature review and its empirical explanation the following hypotheses were tested in the study:

P_1. There is a positive relationship between intellectual capital and organizational performance

P_2. There is a positive relationship between human capital and organizational performance.

P_3.There is a positive relationship between structural capital and organizational performance.

P_4. There is a positive relationship between relational capital and organizational performance.

2. Research Methodology

The study used primary data collected through a cross sectional self-administered questionnaire survey conducted with a randomly selected 408 employees from the head office and the nearby branches of 9 commercial banks in Addis Ababa, Ethiopia. The data analysis was conducted in three distinct steps. Firstly, descriptive statistics were calculated for the demographic information for all participants. Secondly, an inter-correlation matrix including all key variables of interest was computed. Thirdly, in order to assess the influence of the demographic factors of interest, a two-step hierarchical multiple regression analysis was conducted.

3. Result and Discussions

3.1. Overview

Each participant completed a short demographics information items assessing his/her institution, age, gender, qualification, current position, and work experience. Also, each participant rated his/her perceptions about intellectual capital and the business performance of his/her respective institution in terms of productivity and profitability. Table 1 presents the demographic information for the participants sampled.

Table-1: Descriptive Statistics of the Study Participants Demographic Information

Characteristic **Organization (N=405)**	Frequency	Percent (%)
Awash International Bank	47	11.6
Bank of Abyssinia	61	15.1
Commercial Bank of Ethiopia	46	11.4
Cooperative Bank of Oromia	48	11.9

Dashen Bank	23	5.7
Lion International Bank	25	6.2
Nib International Bank	48	11.9
United Bank	47	11.6
Wogagen Bank	60	14.8
Gender (N=393)	**Frequency**	**Percent (%)**
Women	124	32
Men	269	68
Qualification (N=393)	**Frequency**	**Percent (%)**
Diploma	8	2
Bachelor	273	69
Master's	112	29
Current Position(N=356)	**Frequency**	**Percent (%)**
Managerial Employee	58	84
Non-managerial Employee	298	16
Characteristic	**Mean**	**Standard Dev.**
Age (N=363)	31.04	6.17
Work Experience (N=354)	7.14	4.95

Source: based on questionnaire survey, 2017

Four hundred and eight sampled employees participated in the study, of whom, 23 (5.7%) were in the Dashen Bank and 61 (15.1%) were from Bank of Abyssinia. The sample participants' gender composition reflects that the proportion of males is far greater, accounting for 68% of the samples across banks. Also, in terms of qualification, a large majority of the participant samples were Bachelor Degree (69%) and Master's Degree (29%) holders. The mean age of the participant samples was 31.04 with a standard deviation of 6.17. Similarly, the mean work experience of the participant samples was 7.14 with a standard deviation of 4.95.

3.2. Descriptive Analyses

In this study, descriptive analysis was conducted to measure the employees' perceptions on the intellectual capital and the business performance. Table 2 presents the means, standard deviations, minimum, maximum, and reliability scores for the three factors of the intellectual capital scales and a business performance scale (n = 408) for the total sample.

Table-2: Descriptive Statistics for the Intellectual Capital, and Business Performance Measures

Variable	Code	Mean	Std. Dev.	Min	Max	Cronbach Alpha (α)
Human Capital	AVEHC	3.35	0.56	1	4.65	.89
Structural Capital	AVESC	3.21	0.69	1	4.86	.91
Relational Capital	AVERC	3.56	0.61	1	5	.91
Business Performance	AVEBPERF	3.99	0.85	1	5	.96

Source: based on questionnaire survey, 2017

As shown in Table 2, the employees' perception on business performance (M = 3.99 and SD = 0.85) was much higher than their perception of the three intellectual capital scales ($3.21 \leq M \geq 3.56$ and $.56 \leq SD \geq 0.69$). Compared with the other scales, the score of the structural capital scale was the least in magnitude while the SD a bit higher (M=3.21 and SD=0.69). Contrary to this, the score of the business performance scale was the highest in magnitude (M=3.99 and SD=0.85). With the intent to measure the perceived values of the intellectual capital subscales and business performance subscales, other descriptive statistical analysis was conducted. Table 3 presents summary of the descriptive analyses for the total sample (N=408).

Table-3: Descriptive Statistics for Intellectual Capital and Business Performance Measures

Intellectual Capital Subscale	Mean	Std. Dev.	Min	Max	Cronbach Alpha (α)
Learning &Education	3.48	0.60	1.00	4.86	.71
Experience& Expertise	3.38	0.58	1.00	4.86	.76
Innovation & Creation	3.14	0.78	1.00	5.00	.88
Systems& Programs	3.23	0.74	1.00	4.86	.83
Research & Development	3.18	0.77	1.00	5.00	.90
Customer& Supplier relations	3.59	0.67	1.00	5.00	.87
Customer knowledge	3.54	0.64	1.00	5.00	.83
Business Performance subscale	**Mean**	**Std. Dev.**	**Min**	**Max**	**Cronbach Alpha (α)**
Productivity	3.98	0.85	1.00	5.00	.92
Profitability	3.99	0.85	1.00	5.00	.92

Source: based on questionnaire survey, 2017

As shown in Table 3, the employees perception on the two business performance subscales (3.98 and 3.99 and a SD of 0.85) was much higher than their perception of the three intellectual capital scales ($3.14 \leq M \geq 3.59$ and $.58 \leq SD \geq 0.78$). Compared with the other scales, the score of the innovation and creation subscale was relatively the least in magnitude while the SD was the highest (M=3.14 and SD=0.78). Contrary to this,

the score of the profitability scale was the highest in magnitude (M = 3.99 and SD = 0.85).

3.3. Correlational Analyses

Pearson correlation matrices were conducted for the total sample group. The variables were gender, age, the three intellectual capital (7 intellectual subscales), and a business performance scale (the two business performance subscales). Total group inter-correlations are presented in Table 4 and Table 5.

Table-4: Inter-correlations between Variables of Interest for the Total Sample

Variable	Code	AVEHC	AVESC	AVERC	AVEBPERF
Human Capital	AVEHC	1			
Structural Capital	AVESC	.80	1		
Relational Capital	AVERC	.76	.76	1	
Business Performance	AVEBPERF	.32	.25	.33	1

Source: based on questionnaire survey, 2017

As shown in Table 4, there was a significant relationship between the score of human capital and the score of structural capital, r = .80, p (one-tailed) < .01.Other significant correlations were also revealed among key variables of the study. The human capital scale was correlated with the relational capital scale (r = .76, p < .01), and the relational capital scale was correlated with the structural capital scale (r = .76, p < .01). In general, it was clear from the findings presented in Table 4, that the inter-correlations between the intellectual capital scales ($r \geq .76$) were much higher than the correlations between the intellectual capital scales and business performance scale ($r \geq .25$). The three intellectual capital scales revealed significant high inter-correlations (r ranging from .76 to .80 and $p < .001$) for the total group. With the intent to measure the association between the different intellectual capital subscales and the business performance subscales further correlation analyses were made. Table 5 presents the correlation matrix among the subscales.

Table-5: Inter-correlations between Variables of Interest for the Total Sample

Variable	Le	Ee	Ic	Sp	Rd	csr	ck	Prod	Prof
Learning and Education	1								
Experience and Expertise	.64	1							
Innovation and Creation	.58	.65	1						
Systems and Programs	.61	.63	.74	1					
Research and Development	.52	.56	.69	.64	1				
Customer and Supplier relations	.60	.68	.61	.66	.63	1			
Customer Knowledge	.60	.65	.59	.67	.64	.76	1		
productivity[8]	.34	.33	.17	.25	.20	.29	.33	1	
profitability[9]	.34	.32	.19	.26	.20	.30	.32	.98	1
*p< .05. **p < .01, *** p < .001.									

Source: based on questionnaire survey, 2017

As shown in Table 5, the seven intellectual capital subscales revealed significant inter-correlations between them (r ranging from .52 to .76 and $p < .001$) for the total group. Furthermore, as expected high inter-correlation was revealed between the two business performance subscales (r = .98 and $p < .001$). The learning and education subscale moderately significantly correlated with the other intellectual capital subscales (r *ranging from .52 to .64,* $p < .01$). Other significant correlations were also revealed among key variables of the study. There was a moderate correlation between the research and development subscale (rd) and the customer and supplier relations (csr) subscale (r = .76, $p < .01$). In addition, the systems and programs subscale (sp) significantly correlated with innovation and creation subscale (ic) (r = .74, $p < .01$).

3.3.1 Partial Correlation Analyses

The partial correlation findings of this study, although modest, offered partial support for the hypothesized relations between two controlling variables of interest (Organization & Qualification) and the three outcome variables (Business Performance, Productivity, & Profitability). Findings of the current study showed that aspects of controlling variables such as organization and qualification were significant correlates of the three outcome measures for the total group. Neither gender nor age reached significance as a correlate of outcome variables for the total sample group. Table 6 presents summary of the partial correlation results.

Table-6: Partial Correlation between the Controlling Variables and the Outcome Variables (N= 408)

Controlling Variable	Outcome Measure		
	Business Performance	Productivity	Profitability
	Partial Correlation (r_p)	Partial Correlation (r_p)	Partial Correlation (r_p)
Organization	0.15*	0.12	0.17**
Sex	-0.07	-0.07	-0.06
Age	-0.06	-0.04	-0.09
Qualification	0.16*	0.15*	0.15*
Current Position	-0.03	-0.03	-0.03
Work Experience	0.11	0.08	0.14

Note: r (Pearson Correlation) correlation between either of the business performance scale or sub-scale, rp (Partial correlation): Correlation between each variable and the business performance scale or sub-scale controlling for all other variables.

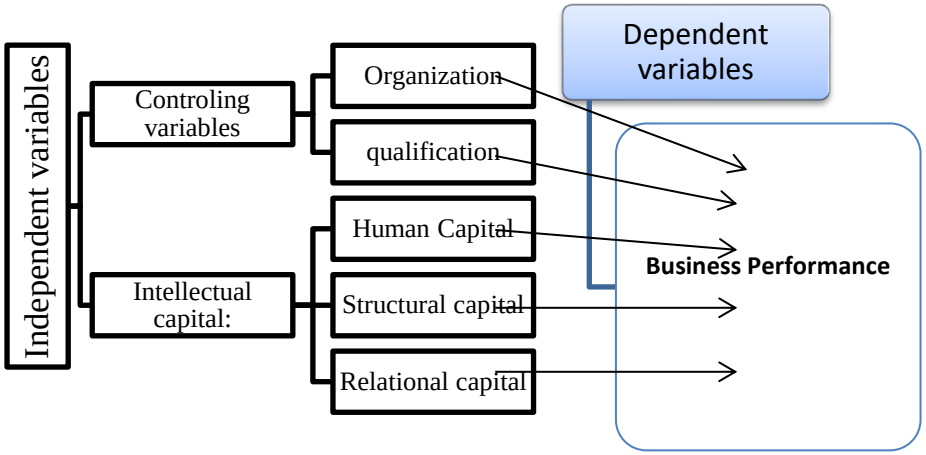
Significance levels. * p < .05, ** p < .01, *** p < .001
Source: based on questionnaire survey, 2017

As presented in Table 6, there is a significant positive correlation between each outcome measures and the two controlling variables: organization and qualification. However, for the other controlling variables like sex, age, current position, and work experience the correlation coefficients were found not significant.

3.4. Regression Analyses

Two-step hierarchical regressions were used to evaluate the effects of controlling variables and intellectual capital variables in predicting employees' self-reported business performance of their own institution (bank).Two controlling variables that were found to be significant correlates of the intellectual capital scales, those are organization and qualification were included as controlling variables based on the partial correlation analysis reported in Table 6. Three separate multiple regression models were used, including two controlling variables, involving organization and the participant's qualification; and the 3 intellectual capital scales, as predictors. Figure 1 illustrates the regression models predicting business performance.

Figure-1: Regression Model Predicting Employees' Perceptions of Business Performance in Ethiopian Banks (N=408)



In each regression model, as indicated in Figure 1, the researchers used the controlling variables: organization and qualification, and the three-factor intellectual capital variables to predict employees' self-reported business performance outcome. The self-reported business performance outcome was measured by the self-reported measure of business performance. This helped to reveal the proportion of variations in business performance outcomes, explained by intellectual capital, over and above that explained by controlling variables.

In each model, first, the researcher runs a regression analysis to determine which of the demographic variables have significant influences on the measured outcome. Table 7 present the summary of the regression findings.

Table-7: Two-Steps Hierarchical Multiple Regression Models Predicting Business Performance Outcome in Ethiopian Banks (n = 408)

Prediction		Step 1				Step 2			
Model 1	Predictor	*B*	*SE*[1]	*T*	*β*	*B*	*SE*	*T*	*β*
Business Performance	Organization	0.03	0.02	2.15	0.11*	0.05	0.02	2.77	0.16**
	Qualification	0.21	0.09	2.45	0.12*	0.19	0.10	2.05	0.12*
	Human Capital					0.25	0.15	1.6	0.16
	Structural Capital					-0.11	0.13	-0.88	-0.09

	Relational Capital					0.36	0.13	2.72	0.26**
	R^2	.03				.13			
	F for change in R^2	5.05***				7.87***			

Note: [1]Standard Error,
*Significance levels. * p < .05, ** p < .01, *** p < .001*
Source: based on questionnaire survey, 2017

As shown in Table 7, in the first step, the control variables statistically predicted business performance for the total sample bank employees, when entered first into the regression models (Step 1: Model 1 $R^2 = .03$, $F[2, 390] = 5.05$, $p < .001$). However, the outcome has been significantly changed when the three intellectual capital scales were added into the regression model (Step 2: Model 1 $R^2 = .13$, $F [2, 390] = 7.87$, $p < .001$).

It is clear from Table 7 that in step 2, the intellectual capital variables, rather than, the control variables contributed to the predictions of the measured business performance outcomes. In model 1, the relational capital domain ($\beta = .26$, t [390] = 3.93, $p < .001$), the organization type ($\beta = .16$, t [390] = 5.80, $p < .001$), and the qualification ($\beta = .12$, t [390] = 2.47, $p < .014$) contributed to the model. In the second step, relational capital contributed for predictions of business performance. The results of this multiple regression analyses show that the variation in banks business performance can be attributed to the relational capital variable, over and above the controlling variables.

4. Conclusion

The study has been conducted to examine the relationship between intellectual capital and business performance in Ethiopian commercial banks. The primary data collected from a sample of 408 bank employees were analysed using descriptive statistics, correlation and two-step hierarchical multiple regression. Based on the results, it has been concluded that intellectual capital has influence on bank performance. Regarding the effect of each intellectual capital components, it is conclude that relational capital exerts a positive effect on bank performance. Yet, human capital and structural capital don't show statistically significant effect on business performance.

The present study contributes to the enhancement of intellectual capital practices in the banking sector by showing the need for IC policy formulation and implementation.

Finally, the researcher suggests that further studies can be made on other service sector like insurance in order to improve intellectual capital and business performance literatures in the context of developing countries.

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