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The Relationship Between Intellectual Capital and Financial Performance of Banks in Tanzania

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Abstract: This study examines intellectual capital (IC) performance of banks operating in Tanzania, and investigates the relationship of IC on financial performance. It identifies the IC components that may be the drivers of the traditional indicators of bank success. The study uses the Value Added of Intellectual Coefficient VAIC™ methodology, to measure the Intellectual Capital efficiency of the Banks using a four years period data set from 2010 to 2013. The results of a survey, show that intellectual capital performance of Tanzania is low and it is positively associated with bank financial performance indicators. However, when VAIC is split into its components, the relationships between these components and bank financial performance indicators vary. Three value efficiency indicators, Human Capital Efficiency (HCE), Capital Employed Efficiency (CEE) and Structural Capital Efficiency (SCE) which are the components of VAIC™ ratio, were used in the analysis.

Key words: Intellectual Capital (IC); VAIC™; ROE; ROA; Banks; Tanzania

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INTRODUCTION

In this 21St century which is widely recognized as the era of knowledge economy with the advent of knowledge based economy, the traditional bases sources of competitive advantage that depend on tangible assets such as labor and capital in creating firm value and sustaining competitive advantage begun to fade(Pablos, 2002). Intellectual capital (IC) is a relatively recent line of research that has received increasing scholarly interest with the continuing growth and development of the global knowledge economy, the study of Intellectual capital has attracted many researchers from all over the world and accordingly some studies have been conducted on different aspects of intellectual capital.

In emerging economy such as Tanzania the banking system is the most active sector and plays a significant role for growth of economy. Banks play significant role to facilitate the financial transactions. Tanzania has more than 50 years history of banking sector. By the end of 2012 the banking sector continues to expand and remain profitable, highly liquid and adequately capitalized. The volume of deposits increased by 17.9 percent to TZS 14,175.57 billion during the year ending March 2013 from the level recorded in the corresponding period in 2012. The number of banking institutions increased from 49 in March 2012 to 51 in March 2013(Financial Stability Report, 2013)

At the end of 2013, the licensed banking system in Tanzania consists of 53 banking institutions consisting of 34 commercial banks, 12 community banks, 5 financial institutions and 2 deposit taking Microfinance Company. The ownership structure of the banking institutions for the period ending 2013 comprised of five(5) state-owned and forty eight(48) privately owned banking institutions. On the other hand, twenty seven(27) banking institutions were majority locally owned while twenty six (26) were majority foreign owned.(Directorate of Bank Supervision,2013)

A study conducted by (Pedrini, 2007;Green, 2007) shows that Intellectual capital can be used for multiple needs simultaneously; intellectual capital eliminates the scarcity that typically limits the use of physical resources. Since intellectual capital can improve the financial performance of organizations, create value, and provide sustainable environment for competitive advantage globally, the use of intellectual capital should become one of the priorities of all organizations (Cohen and Kaimenakis, 2007). Ahuja and Ahuja (2012),recognizes that an efficient utilization of IC is essential for success for bank to have competitive advantages than other industries, in order to deliver high quality services by a bank depends on its investment in items related to IC such as its human resources, brand building, systems and processes

This study adopts the value added intellectual coefficient (VAIC) developed by Pulic (1998) to measure intellectual capital performance of banks in Tanzania. This study further investigates whether intellectual capital (IC) and its components influence banks` financial performance measures, namely return on assets (ROA) and return on equity (ROE). The famous model which is very popular in many countries and has been used to measure intellectual capital is Value Added Intellectual Coefficient (VAIC™) developed by Pulic (1998). VAIC™ does not measure IC itself, but it measures the impact of IC management (Ulum, 2009b; Ulum, et.al 2008). The assumption is, if a company has a good intellectual capital, and also managed well, there will be a good impact for the company.

Therefore, the main objective of this study is to examine the intellectual capital and bank financial performance of Tanzania banking sector. It will also determine the components of the intellectual capital (Human capital efficiency, Structure capital efficiency and Capital efficiency) and their influence on bank performance.

This study contributes significantly in that it provides Tanzania's banks with a simple method in understanding and evaluating performance, as well as enhancing the management of intellectual capital The intellectual literature will also help in deciding the potential role of IC efficiency in the financial performance of banks in Tanzania, an emerging country which lacks such research. This paper is organized as follows. The second section presents the literature related to the study and hypotheses development. Next, in the third section, we discuss the research methodology and data employed in the study.

The fourth section presents the results of the study. Finally, we conclude the paper in the fifth section.

LITERATURE REVIEW

1. Definition of intellectual capital

Intellectual Capital is being evolved rapidly over the last decade. There are many and varied definitions of intellectual capital .Many author(s) has defined intellectual capital in context of knowledge base economy and how intellectual capital works in generating value creation.

Yang et.al (2009) argued that traditional financial reporting cannot be used to calculate the real value of the firm because it measures only short-term financial and tangible assets. But in the recent years companies are interested in measurement of intellectual capital for reporting to stakeholders and they seek to find a method for evaluating internal intangible assets. According to Edvinson & Malon (1997) intellectual capital can be defined as the gap between book value and market value. Increasing gap between market value and book value of companies has attracted the attention of many researches to find the missing value of the financial statements.

Sharma et al. (2007) definition refers to the knowledge, skills and technologies applied to create a competitive edge for an organization. Stewart (1997 contended it encompasses intellectual resources such as knowledge, information and experience, that could be used as tools of wealth creation and defines intellectual capital as the new wealth of organizations. In addition, Stewart (1997) went further in trying to give a more accurate definition as "packaged useful knowledge." He explains that this includes an organization's processes, technologies, patents, employee skills, and information about customers, suppliers, and stakeholders.

Table 1 Definition of Intellectual Capital

Author	Definition of IC
Roos et al., 1997	The sum of knowledge of company's members and practical translation of this knowledge like trademark, patents and brands
Brooking and Motta,1996	IC is the term given to combined intangible assets which enable the company to function
Sullivan, 2000	Defines IC as knowledge that can be converted into profit
Union Fenosa ,1999	IC represents a set of intangible values that can enhance corporate capability for future value creation
Skaikh, 2004	IC as knowledge that can be converted into value, or intellectual material (knowledge, information, intellectual property and experience) that can be used to create wealth.
Bontis, 2001	The collection of intangible resources and their flows
Bradely,1997	IC as ability to transform knowledge and intangible assets into wealth creating resources.
Caroll and Tansey, 2000	Knowledge and creativity available to the firm to implement a business strategy that maximize stakeholder value

Source: Author compilation

2. Intellectual capital and performance

Ahangar (2011) conducted the study by using the VAIC™ to measure the intellectual capital performance and its impact on financial returns of Iranians companies. The results showed that Human Capital Efficiency (HCE) has significant and positive impact on financial returns of companies whereas the relationship of structural and physical capital was not significant with financial performance of companies. Furthermore, Joshi et.al (2010) conducted the study to measure the IC performance through VAIC™ model. In the study it was found Human Capital Efficiency (HCE) has positive and significant relation to increase the efficiency of Australian Owned banks rather than Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CEE) which means more investment on human capital will increase the more efficiency of banks.

In a study Mohiuddin et al., (2006) showed the performance of these banks during 2002-2004 through Value Added Intellectual Coefficient (VAIC) method based on the data drawn from 17 banks operating in Bangladesh. In other study Chu et al. (2011) examine the impact of intellectual capital on business performance in Hong Kong. They find that there was no relationship between intellectual capital (Value added intellectual capital) and the components of business performance (Market to book value, Return on asset and Asset turnover). Hussain et al. (2010) in Bangladesh found marginal evidence regarding the significance of intellectual capital in influencing market value and financial performance of firms . Zéghal and Maaloul (2010) reported the positive association between VAICs and stock prices. Clarke et al. (2011) sustained that there is a positive relationship between performances and the components of VAIC. Chan (2009a) conducted a similar study using the VAIC model in Hong Kong, while Rahman (2012) finds no strong evidence supporting the association between VAICs and firms' market values. Deol (2009) conducted a case study on Indian banks to validate and support another study by Kamath (2007) who used the VAIC method as the measurement method.

Abdullah and Coskun (2007) conducted a research on quoted banks on Istanbul stock exchange market to measure their intellectual capital performance, and also the effect of intellectual capital efficiency on financial performance. Data were taken for the period 1995-2004, and VAIC TM is used for measurement of intellectual capital and data envelopment analysis is used for testing the impact of intellectual capital on profitability.Tan, Plowman, and Hancock (2007) investigated the influence of intellectual capital in Singaporean companies and the financial achievements. The researchers used data from the financial reports of 150 companies in Singapore between the years 2000 and 2002. The findings indicated that intellectual capital had a positive influence on company performance.

As the banking sector is a sector that utilizes intensive IC components, it was foreseeable that studying the role of IC on banks' performance would advance (Goh, 2005; Najibullah,2005; Belkaoui, 2002; Saengchan, 2008).To measure performance by way of IC, it will allow a details understanding how capital coefficient, human capital as well as structural capital contribute to the banking's' financial performance.

DATA AND METHODOLOGY

1. Research questions and hypothesis

MThe foremost purpose of this study is to address the intellectual capital performance of banking sector of Tanzania and its relation with financial performance indicators of banks. The most important objective of this is: Does intellectual capital performance has significant impact on financial performance indicators of banks? For that purpose we extract the following proposed hypothesis with the help of extensive literature review.

H1a: There is a positive relationship between components of VAIC™ (HCE, SCE and CEE) and financial performance indicator of banks (ROE).

H1b: There is a positive relationship between components of VAIC™ (HCE, SCE and CEE) and financial performance indicator of banks (ROA).

H2a: There is a positive relationship between VAIC™ and financial performance indicator of banks (ROE).

H2b: There is a positive relationship between VAIC™ and financial performance indicator of banks (ROA).

2. Methodology

Ante Pulic (1998) developed VAIC to help managers enhance their firms' performance. The greater the value of VAIC, the more efficiently a company manages its resources. Unique measurements provided by VAIC can be used for comparative analyses across various companies, time periods, and industries, both internationally and locally, to develop business strategies (Appuhami,2007). Over the years, VAIC has been used in many academic research publications (e.g. Firer and Williams, 2003) and business sectors (e.g. Public, 1998, 2000a, b). Williams (2001) discovered that companies with higher levels of VAIC try to reduce their disclosure in respect to intellectual capital, since it might reduce competitive advantages.

The Value Added Intellectual Coefficient (VAIC™) is very important and latest methodology for measuring the IC performance of banking sector. This approach is developed by Ante Pulic

(1997, 1998, 2001 and 2002) in Austrian IC Research Centre. It is also known as Austrian Approach. Pulic has applied this approach into many studies like (2000, 2001, 2004 and 2005). Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CEE) are the components of VAIC™.

The purpose of using this approach is to evaluate the IC performance and its impact on financial performance of banking sector of Tanzania whereas the financial performance is measured by ROE, ROA. The data is collected from audited annual reports six banks for the year of 2010 to 2013. Many authors have considered VAIC™ approach for IC performance like (Mavridis 2005; Kujansivu and Lonnqvist 2005; Tan, Plowman and Hancock 2007; Ahangar 2011; Zeghal and Maaloul 2010; Joshi, Cahill and Sidhu 2010; Basuki and Kusumawardhani 2012; Pew et al. 2007; Mohiuddin,Najibullah and Shahid 2006; Maditinos et al. 2011; Widarjo 2011; Yalama and Coskun 2007; Makki,Lodhi and Rahman 2008; Kamath 2007and 2008; Clarke et al.,2010; Kamukama, et al., 2010; Kamukama, et al.,2011; Goo and Tseng 2005; Laing, Dunn and Lucas 2010; Tovstiga and Tulugurova 2007; Ulum 2009a; Firer and Williams 2003; Iswati and Anshoria 2007; Ji-jian, et al. 2006, Santoso 2011 etc) formula is as follow;

. Output = Gross income.

. Input = Operating expenses (excluding personal costs).

. Value added = Output-Input.

. HC = personal cost, which is considered as an investment.

. CE = Capital employed (both physical and financial capital).

. SC = VA – HC (an appropriate proxy for structural capital), a result of human capital's past performance.

. HCE =VA/HC (shows of human capital efficiency).

. SCE =SC/VA (shows structural capital efficiency).

. CEE =VA/CA (shows capital employed efficiency).

. VAIC = HCE + CEE + SCE (Value added intellectual coefficient).

We propose the following model in order to rest the relationship of IC and financial performance of banks operating in Tanzania.

The sample for the above study is taken from banks operating in Tanzania, DSE (Dares Salaam Stock Exchange) on the basis of net sales. Based on the availability of data 6 banks have been selected for the above study. The time period for the study is four years i.e. 2010-2013. The span of more than four years would be helpful to establish the consistency and predictability for research conclusions.

ANALYSIS AND RESULTS

AThe following table 2, shows the performance of the banks in terms of VAIC^{TM} values. The following table shows that 'Bank 6' has the highest VAIC^{TM} values. This bank has been up and showing a down trend in recent years in terms of VAIC^{TM} in the value but averagely this bank has the highest VAIC^{TM} value. Averagely the 'Bank 2' is second and 'Bank 3',is in the third place while 'Bank 2', 'Bank 4' and 'Bank 5' stands 4 th place while 'Bank 2', 'Bank 4' are on the 5th and 6 th place respectively.

Table 2 VAIC=HCE+SCE + CEE

Bank	2010	2011	2012	2013	AVERAGE
Bank 1	2.967336	2.368738	3.054421	2.957415	2.386989
Bank 2	3.37678	3.309268	3.67515	3.621327	3.488447
Bank 3	4.101786	2.763893	2.397641	2.350826	2.903537
Bank 4	0.532124	1.167801	0.579599	1.214594	0.873529
Bank 5	2.467661	3.083894	2.780639	2.96075	2.823817
Bank 6	5.040497	4.038505	3.158768	2.990382	3.807037

The correlation coefficient related to the whole data between 2010 and 2013 of the six banks Operating in Tanzania is described in the following table.

The above table 3, shows that VAIC and ROA have strong positive relation .So the ROA and VAIC have correlation of 0.842 and are significant to each other. Human Capital Efficiency and Return on Assets also keep competitive correlation of 0.797 and are significant for both of them. The correlation between Structural Capital Efficiency and ROA is 0.88 which is strong and positive. These two variables are also significant in relation to them which is 0.886. The correlation between Capital Employed Efficiency and ROA is also positive 0.65.This is lower compared to Human capital efficiency and Structural capital efficiency. Capital Employed Efficiency and Return on Assets also has positive correlation of 0.695 but it has less correlation of SCE and VAIC with Return on Assets. Capital Employed Efficiency (CEE) and VAIC also bear correlation of 0.392. The correlation between CEE and VAIC is less than SCE,HCE and VAIC, thus SCE,HCE and VAIC are significant to one and other. The correlation between the Capital Employed Efficiency and Human capital efficiency and Structural capital efficiency is 0.362 and 0.402 respectively.

Table 3 Correlations between ROA,HCE,CEE,SCE and VAIC

		ROA	HCE	CEE	SCE	VAIC
ROA	Pearson Correlation	1	.797**	.695**	.880**	.842**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	24	24	24	24	24
HCE	Pearson Correlation	.797**	1	.362	.886**	.992**
	Sig. (2-tailed)	.000		.082	.000	.000
	N	24	24	24	24	24
CEE	Pearson Correlation	.695**	.362	1	.402	.392
	Sig. (2-tailed)	.000	.082		.051	.058
	N	24	24	24	24	24
SCE	Pearson Correlation	.880**	.886**	.402	1	.936**
	Sig. (2-tailed)	.000	.000	.051		.000
	N	24	24	24	24	24
VAIC	Pearson Correlation	.842**	.992**	.392	.936**	1
	Sig. (2-tailed)	.000	.000	.058	.000	
	N	24	24	24	24	24

**. Correlation is significant at the 0.01 level (2-tailed).

The result describes that the SCE and HCE values are more significant to VAIC™ and ROA than Capital Employed Efficiency (CEE) value of Banks in operating in Tanzania.

Table 4 Correlations Between ROE,HCE,CEE,SCE and VAIC

		ROA	HCE	CEE	SCE	VAIC
ROA	Pearson Correlation	1	.758**	.652**	.894**	.816**
	Sig. (2-tailed)		.000	.001	.000	.000
	N	24	24	24	24	24
HCE	Pearson Correlation	.758**	1	.362	.886**	.992**
	Sig. (2-tailed)	.000		.082	.000	.000
	N	24	24	24	24	24
CEE	Pearson Correlation	.652**	* .362	1	.402	.392
	Sig. (2-tailed)	.001	.082		.051	.058
	N	24	24	24	24	24
SCE	Pearson Correlation	.894**	.886**	.402	1	.936**
	Sig. (2-tailed)	.000	.000	.051		.000
	N	24	24	24	24	24
VAIC	Pearson Correlation	.816**	.992**	.392	.936**	1
	Sig. (2-tailed)	.000	.000	.058	.000	
	N	24	24	24	24	24

**. Correlation is significant at the 0.01 level (2-tailed).

The above table 4, shows that VAIC and ROE have strong positive relation .So the ROE and VAIC have correlation of 0.816 and are significant to each other. Human Capital Efficiency and Return on Equity also keep competitive correlation of 0.758 and are significant for both of them. The correlation between Structural Capital Efficiency and Return on Equity is 0.894 which is also strong. These two variables are also significant in relation to them. Capital Employed Efficiency and Return on Equity also has positive correlation of 0.652 but it has less correlation of Human Capital Efficiency, Structural Capital efficiency and VAIC with Return on equity. Capital Employed Efficiency (CEE) and VAIC also bear correlation of 0.392. The correlation between CEE and VAIC is less than that of Human Capital Efficiency, Structural Capital efficiency and VAIC, thus are significant to one and other. The correlation between the Capital Employed Efficiency and Human capital efficiency and Structural capital efficiency is 0.362 and 0.402 respectively. The result describes that the SCE and HCE values are more significant to VAIC TM and ROE than Capital Employed Efficiency (CEE) value of Banks in operating in Tanzania.

CONCLUSION

TThe paper empirically examines the extent to which intellectual capital contributes to the performance of banks operating in Tanzania. Data on components of intellectual capital and business performance variables were obtained from the financial statements of selected banks in Tanzania. The components and variables include Human Capital, Structural Capital, Capital Employed, Return on Assets and Return on Equity. Using six banks and their audited financial

statements for four years, this paper examines the impact of intellectual capital on business performance measured with Return on Assets (ROA) and Return on Equity (ROE). The results show that intellectual capital has a positive and significant relationship with the performance of banks in Tanzania. These results reinforce the accumulating body of empirical support for the positive impact of Intellectual capital on firm performance. Based on the findings, the study recommends that corporate entities in Tanzania.

To conclude this study is very helpful to the researchers and the managers of the Banks because in Tanzania research conducted on this topic is still scarce in term of developing the strategy relating to Intellectual Capital. Intellectual Capital is very important factor in the organizational performance in knowledge economy. From the above literature review and result, it is obvious that the efficiency of the Intellectual Capital increases the financial performance of the banks. The banks should focus and pay more attention to the Intellectual Capital.

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