INTELLECTUAL CAPITAL AND FINANCIAL PERFORMANCE IN SRI LANKAN BANKS

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Abstract

The purpose of this paper is to examine the impact of Intellectual Capital (IC) on financial performance of Sri Lankan banks. This analysis is about the level of intellectual capital, level of financial performance and the impact of IC on financial performance of Sri Lankan banks. The Value Added Intellectual Capital coefficient (VAIC) approach developed by Pulic (2000) is used to determine the IC performance. Accordingly human capital, structural capital and capital employed efficiency are used as intellectual capital constituents of this research. Return on Equity (RoE) is used to measure the financial performance of selected banks. The data obtained from corporate annual reports are regressed to measure the impact of intellectual capital constituents on financial performance. Findings of this research indicates that, Sri Lankan banks, in general, have relatively lower human capital and structural capital efficiency compared to capital employed efficiency. So the results depict a greater impact of capital employed efficiency on financial performance compared to other intellectual capital constituents. Further these findings would be both conceptually and practically appealing for bankers to apply knowledge management practice in their institutions. Also this study would provide some information to the stakeholders and potential investors to assess the value creating capabilities of selected banks. Findings of this study help decision makers be aware of the importance of intellectual capital as a key factor that can enhance a firm's ability to maintain their competitive position.

Keywords: Intellectual Capital, Financial Performance, Value Creating Competency, Sri Lankan Banks

1   INTRODUCTION

The increasing gap between firms' market and book value has drawn wide research attention to exploring the invisible value omitted from financial statements. The limitations on financial statements in explaining firm value underline the fact that the source of economic value is no longer the production of material goods, but the creation of intellectual capital. Intellectual capital includes human capital and structural capital wrapped up in customers, processes, databases, brands, and systems (Edvinsson and Malone, 1997), and has been playing an increasingly important role in creating corporate sustainable competitive advantages (Kaplan and Norton, 2004, p. 4).

The business and activities in the financial sector require a higher level of knowledge mainly in terms of competence and skills, a high degree of technological innovation and a high degree of interaction between personnel and clients to generate competitive differentiation strategies based on the level of service and assistance provided to the clients (Veltri and

Silvestri, 2011). Therefore it is necessary for the financial sector companies to invest in their development of human capital, organizational processes and corporate knowledge base in order to make competitive advantage sustainable and durable.

Bank, Finance and Insurance sector of Sri Lanka is an emerging sector of the economy with the development of information technology and the other supporting services. Also the utilization of the human capital and other main intellectual capital components are very high in the Sri Lankan Banks, Finance and Insurance sector companies compared to the other sectors. With the development of the economy the contribution of said sector to the Gross Domestic Production of the country is also comparatively increasing.

Considering the importance and need for valuation of IC for the services industry, specially in Banks this study contributes to banking industry practices through the valuation and comparison of the value-added intellectual coefficient (VAIC) of leading banks with the objective of providing them with knowledge for understanding and evaluating their performance, self-benchmarking and enhancing their IC performance.

Research Question

What is the impact of Intellectual Capital on Financial Performance of Sri Lankan Banks?

Objectives of the study

To determine the impact of intellectual capital on financial performance of Sri Lankan Banks

Scope of the study

The theoretical scope of the study includes two main dimensions such as Intellectual Capital and financial performance of banks. The empirical scope of the study has been narrowed down to banks listed in Colombo Stock Exchange under Bank, Finance and Insurance sector and government banks.

Significance of the study

The findings of this research may serve as a useful input for banking institutions to apply knowledge management in their institutions and in addressing the factors affecting Intellectual Capital performance in order to maximize their value creation and financial performance. It will also help the management of companies in other sectors, especially those in knowledge based industries, in understanding the contribution of various components in intellectual capital in their growth.

2. REVIEW OF LITERATURE

While intellectual capital is generally intangible in nature, it is becoming widely accepted as a major corporate strategic asset capable of generating sustainable competitive advantage and superior financial performance (Barney, 1991). Edvinsson and Malone (1997) defined the difference between a firm's market value and book value as the value of intellectual capital. A firm's intellectual capital, in a broad sense, is comprised of human capital and structural capital (Bontis, 1996). Human capital is employee-dependent, such as employees'

competence, commitment, motivation and loyalty, etc… Although human capital is recognized as being the heart of creating intellectual capital, a distinctive feature of human capital is that it may disappear as employees exit (Bontis, 2001). In contrast, structural capital belongs to firms, including innovative capital, relational capital, and organizational infrastructure.

Given the growing gap between the market and book values of firms, investigation into how to measure firms' intellectual capital and whether capital market is efficient with intellectual capital has been drawing broad research interest. By modeling sales as a function of a firm's organizational capital, net fixed assets, number of employees, and R&D capital, Lev and Radhakrishnan (2003) developed a firm-specific measure of organization capital. Using a sample of approximately 250 companies, they showed that organizational capital estimate contributes significantly to the explanation of the market values of firms, beyond assets in place and growth potential.

Pulic and Bornemann (1997) was the first to study the impact of Intellectual Capital (IC) on the banking industry. He measured Austrian banks' IC performance (1993-1995) and Croatian banks' capital performance (1996-2000) with the VAIC model. VAIC method for the measurement has been applied in different parts of the world to measure the IC performance. Academic researchers have also tried to establish the relationship of the IC performance with the financial performance of the companies on varied samples from different industries.

The term IC has been defined by different researchers differently. There is no precise agreement on definition of IC. Generally, the term IC is used to refer to intangible assets or intangible business factors of the company, which have a significant impact on its performance and overall business success, although they are not explicitly listed in the balance sheet (if so, then under the term goodwill).

While many have debated the definitive description of IC (Mayo, 2001; Ahonen and Hussi, 2002), most would accept Lev's (2001) broad definition of IC as being those sources of value to a business that have been generated by or developed from innovation, unique organizational designs or human resource practices. The commonly accepted components of IC are human capital, relational capital and structural capital (Petty and Guthrie, 2000; Kujansivu, 2005). Recognizing the value of intellectual capital is consistent with the theory of stakeholder view, which maintains that stakeholder relationships include all forms of relationship of the company with its stakeholders, e.g. employees, customers, suppliers, and residents of the community (Donaldson and Preston, 1995).

Researchers also have categorized all non-physical assets and resources of an organization into several components. Popular components include human capital (HC), structural capital (SC) and relation or customer capital (CC). HC includes the knowledge and efficiency that employees take with them when they leave the firm. It encompasses knowledge, skills, experience and ability of people. From the organizational perspective SC includes all non-human resources of knowledge like, databases, organizational charts, executive instructions of the processes, strategies, administrative programs, so in other words, the content of such issues is much more higher than its material value (Roos et al., 1997). SC is that part of intangible assets that stays within the firm at the end of the working day. Therefore, development and use of such structural components such as information and information technology it is possible to reduce costs and enhance profitability. Relation capital includes all resources that linked to the external relationships of the firm with customers, suppliers or

other stakeholders. Therefore, relational capital is the knowledge that is embedded in the relationships with any stakeholder that affects the firm's life.

IC is more than simply sum of the human, structural and relation resources of a firm, and value is created through making right connectivity among those resources with appropriate intangible activities.

Chen et al. (2005) concluded that firms' intellectual capital has a positive impact on market value and financial performance. They also argued that investors place different value on sub components of intellectual capital such as physical capital, human capital and structural capital. Pulic's VAIC was used to measure efficiency of capital employed and intellectual capital and multiple regressions was used to examine the relationship between value creation and financial performance of their study. They further emphasized that understanding the role of intellectual capital in creating corporate value and building sustainable advantage of companies in emerging economies.

To investigate the impact of intellectual capital elements on business performance Wang and Chang (2005) proposed an integrated cause effect model using data of listed firms of IT industry in Taiwan. As per their findings intellectual capital elements directly affect business performance with the exception of human capital and human capital indirectly affects performance through the other three elements; innovation capital, process capital and customer capital.

Further Bontis et al. (2000) tried to investigate the interrelationship within three elements of intellectual capital human capital, structural capital and customer capital and their impact on business performance of two industry sectors in Malaysia such as service (financial services, entertainment, software) and Non service (construction, production, mechanical engineering). According to their findings human capital is important regardless of industry type; further human capital has a greater influence on how a business should be structured in non-service industries, customer capital has a significance influence over structural capital irrespective of industry and further development of structural capital has a positive relationship with business performance irrespective of industry.

Tan et al. (2007) studied 150 companies listed on the Singapore Stock Exchange between 2000 and 2002, and found that a company's performance had a positive relationship with the extent of IC with the growth rate of company's IC. The contribution of IC to a company's performance was also varied by industry type.

Kamath (2008) found human capital had a major impact on the profitability and financial performance of pharmaceutical companies in India. Pal and Soriya (2012) studied companies from the pharmaceutical and textile industries in India, and concluded that IC and company profitability had a positive relationship. Makki et al. (2009) examined six years of company data from the Lahore Stock Exchange (Pakistan) and found that companies in the oil and gas, chemical and cement sectors had the best IC performance, while the banking sector's performance was average, and public sector companies had the worst IC performance.

In a Malaysian study, Gan and Saleh (2008) found that human capital efficiency (HCE) had great importance in improving the financial performance of companies. Barros et al. (2010) conducted a study of the textile manufacturing sector in Brazil and showed that there was a positive relationship between value creation and IC. In Iran, Ahangar (2010) found a significant relationship between IC and company performance. In Australia, Clarke et al.

(2011) found a direct relationship between IC and the performance of publicly listed companies. In Taiwan, Wang (2011) established a positive relationship between IC and return on assets (ROA) and market capitalization. Further, Chu et al. (2011) studied companies listed on the Hong Kong Stock Exchange for the years 2001-2009 and found that IC and company profitability had a positive relationship.

However, some VAIC projects have not been so positive about the link between IC and company value. In a study from Finland, Kujansivu and Lonnqvist (2007) studied 11 industry sectors and were not able to clarify the relationship between value and efficiency of IC. Chan (2009a,b), investigating companies listed on the Hong Kong Stock Exchange between 2001 and 2005, concluded that there was no definitive correlation between IC and financial performance. Ghosh and Mondal (2009) concluded that the IC performance significantly varied among studied companies but felt that IC does not fully explain profitability and market valuation of companies in India. Chang and Hsieh (2011a) examined the role of innovation capital in the value creation for companies and found that IC had a negative impact on the financial and market performance of companies.

While the VAIC method provides a convenient measure for firms' intellectual capital, its measure for structural capital may be incomplete. For example, R&D expenditure and advertising expenses, according to conservative accounting standards, are expensed as incurred, and thus are subtracted from the calculation of value added, which is the measure for firms' total output in the VAIC calculation. However, both R&D and advertising expenditures play an increasingly important role in business nowadays. R&D expenditure is generally considered the drive for technological advancements and firms' growth, and advertising expenditure is usually aimed at promoting the brand value of products and firms. Therefore, both expenditures, though expensed in financial reporting, should be viewed as asset-like investments. Empirical research has also documented evidence on the value relevance of both R&D and advertising expenditures (Chen et al., 2005).

Through the study of literature, it is clear that VAIC is a popular method of measurement of the IC of companies. The wide spread use of the VAIC model across countries and various industrial sectors proves this argument. The VAIC model has been used in Australia in various economic sectors: for example, the banking sector (Pulic, 2002; Joshi et al., 2010), hospitality industry (Laing et al., 2010), wholesale and retail industry (Laing et al., 2010) and a consolidated group of listed companies (Clarke et al., 2011).

Most of the researchers have used Return on Equity (RoE) to measure the financial performance and value creating competency of firms. Following literature, in the present study researchers use the same financial performance measure to identify the level of financial performance of Sri Lankan banks.

This study seeks to measure VAIC performance of banks registered under the Banks, Finance and Insurance sector of Sri Lanka and all government banks with their value creation capabilities. Furthermore, this study also establishes relationship of IC efficiency with financial performance of selected banks. Therefore, this study makes an original contribution to the existing literature by conducting a comparative analysis of VAIC performance and financial performance in Sri Lankan banks.

3. METHODOLOGY

Sample of the study

All the banks listed in Colombo Stock Exchange (CSE) and all government banks by April 2015 were selected for the sample.

Collection of Data

Corporate annual reports of all selected banks and other publications for the period of 2008 to 2014 were used to collect data for the research. Following past researchers, number of sub variables were used to collect data for three different components of intellectual capital.

Techniques of Data Analysis

Pulic's (2000) Value Added Intellectual Capital (VAIC) approach is used to determine the level and the performance intellectual capital of the Sri Lankan Bank. Return on Equity (ROE) was used to measure the financial performance. The impact of intellectual capital on financial performance is measured using multiple regression technique. Correlation analysis is used to identify relationships with intellectual capital components and financial performance. SPSS is used to analyze data.
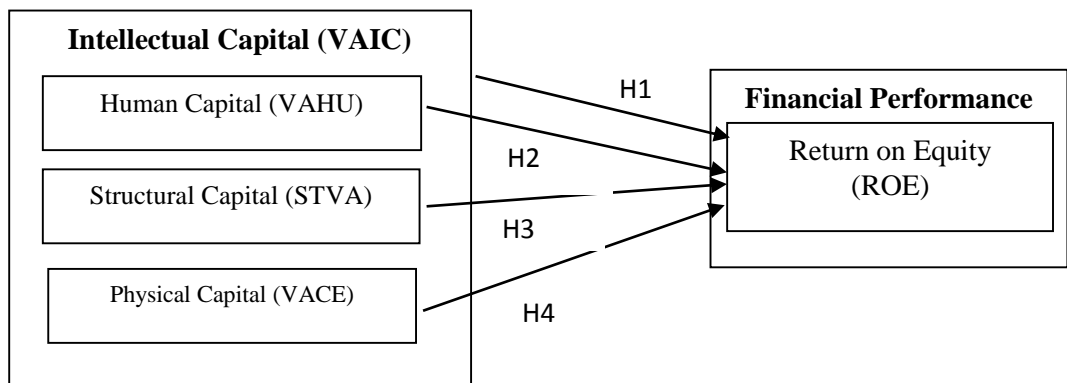
3.1. Conceptual Framework

Figure 01: Conceptual Framework

Hypotheses of the study

The present research explores the relationship between three components of intellectual capital and commonly used measures of a company's financial performance. Based on the conceptual framework following hypotheses are developed.

H1: Intellectual capital has a significant impact on Return on Equity (ROE) of Sri Lankan banks

H2: Human capital efficiency has a positive and significant impact on Return on Equity (ROE) of Sri Lankan Banks

H3: Structural capital efficiency has a positive and significant impact on Return on Equity (ROE) of Sri Lankan Banks

H4: Capital employed efficiency has a positive and significant impact on Return on Equity (ROE) of Sri Lankan Banks

Regression Model

A multiple regression model was developed to measure the impact of intellectual capital on financial performance of selected banks. Intellectual capital is recognized in three different components such as human capital efficiency, structural capital efficiency and capital employed efficiency. The combination of all these three generates the Value Added Intellectual Capital (VAIC). Thus the basic research model is;

$$FP\ (ROE) = b_0 + b_1 VAIC + e$$

However researchers used the following model in present study to identify the impact of different intellectual capital components to financial performance of banks.

Research Model

$$FP\ (ROE) = b_0 + b_1 HCE + b_2 SCE + b_3 CEE + e$$
FP = Firm Performance
ROE = Return on Equity
b_0 = Intercept term
b_1 = Coefficient of Human Capital Efficiency
HCE = Human Capital Efficiency
b_2 = Coefficient of Structural Capital Efficiency
SCE = Structural Capital Efficiency
b_3 = Coefficient of Capital Employed Efficiency
CEE = Capital Employed Efficiency
e = error term

4. FINDINGS AND DISCUSSION

Table 01 presents the Pearson Correlation between intellectual capital (VAIC) and Return on Equity (ROE) of selected banks. As per results researchers found that there is a significant positive relationship between intellectual capital and firm performance.

Table 01: Correlations

		Return on Equity	Intellectual Capital
Return on Equity	Pearson Correlation	1	.556[*]
	Sig. (2-tailed)		.031
	N	15	15
Intellectual Capital	Pearson Correlation	.556[*]	1
	Sig. (2-tailed)	.031	
	N	15	15

*. Correlation is significant at the 0.05 level (2-tailed).

Table 02 presents the Pearson Correlation between firm performance and different intellectual capital components such as human capital efficiency, structural capital efficiency and capital employed efficiency. Findings depicts that there is a strong positive relationship between firm performance and capital employed efficiency. However, even though there is a positive relationship between human capital efficiency and structural capital efficiency with firm performance, the relationship can't be considered as strong as capital employed efficacy.

Table 02: Pearson Correlation

	Capital Employed Efficiency	Human Capital Efficiency	Structural Capital Efficiency
Return on Equity	0.690*	0.243*	0.412*

*. Correlations are significant at the 0.05 level (2-tailed).

Table 03, 04 and 05 shows the results of multiple regression analysis. R value presents the correlation coefficient of the model where there is a strong positive relationship between firm performance and intellectual capital variables. R square value presents the coefficient of determination or the goodness of fit of the model. Accordingly model variables determine 51% of financial performance. This inform researchers that there are some other important variables than intellectual capital which determines the financial performance of banks. ANOVA table presents the significance of the overall model tested by f-test. Accordingly the developed model is statistically significant at 5% significant level.

Table 03: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.715[a]	.512	.378	1.25047

a. Predictors: (Constant), Capital Employed Efficiency, Structural Capital Efficiency, Human Capital Efficiency

Table 04: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.013	3	6.004	3.840	.042[b]
	Residual	17.200	11	1.564		
	Total	35.213	14			

a. Dependent Variable: Return on Equity
b. Predictors: (Constant), Capital Employed Efficiency, Structural Capital Efficiency, Human Capital Efficiency

Table 05: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-18.965	8.032		-2.361	.038
	Human Capital Efficiency	-.187	.312	-.151	-.597	.562
	Structural Capital Efficiency	.573	1.036	.130	.553	.591
	Capital Employed Efficiency	.977	.377	.717	2.596	.025

Notes: Dependent Variable: Return on Equity

Above Table 05 presents the coefficient values of the regression model and the significance of each individual variable tested by t-test. As per the findings capital employed efficiency is statistically significant at 5% of significant level where other two variables are not. However model explains that increase in each intellectual capital component increase the financial performance of banks except the human capital. The regression model can be presented as follows.

FP = -18.965 - 0.187HCE + 0.573SCE + 0.977CEE + e

FP = Firm Performance
b_0 = Intercept term
b_1 = Coefficient of Human Capital Efficiency
HCE = Human Capital Efficiency
b_2 = Coefficient of Structural Capital Efficiency
SCE = Structural Capital Efficiency
b_3 = Coefficient of Capital Employed Efficiency
CEE = Capital Employed Efficiency
e = error term

5. CONCLUSION AND IMPLICATIONS

Globalization and deregulation has changed banking business scenario and unveils new business opportunities and at the same time there is stiff competition in the industry. In this competitive environment improving assets growth or increasing profitability are not sufficient for survival. Moreover, introduction of Basle norms give emphasis on assets productivity, capital efficiency and revenue growth. Intellectual assets like information technology, and knowledge management employed in the banking industry in a variety of ways to reduce costs and to increase efficiency and innovative activities (Ghosh, 2012).

The principle purpose of the present study is to investigate the impact of Intellectual Capital on Financial Performance of Sri Lankan Banks. Researchers used value added intellectual capital coefficient (VAIC) to calculate and measure the intellectual capital while using RoE and M/B ration to calculate and analyze financial performance of banks. All the banks listed in Colombo stock exchange and all government banks were considered for the study.

According to the findings researchers were able to accept following hypotheses;

H1: Intellectual capital has a significant impact on Return on Equity (ROE) of Sri Lankan banks

H4: Capital employed efficiency has a positive and significant impact on Return on Equity (ROE) of Sri Lankan Banks

Accordingly researchers can conclude that Human Capital; different contributions of people working for banking sector, Structural Capital; the contribution of organizational hierarchy to all other innovation and research and developments, and Capital Employed; how efficiently bank manage their funds, all these factors together cause to increase the financial performance of Sri Lankan banks.

Further, findings reveals that efficiency of invested capital has a considerable contribution towards financial performance. This indicates that, Sri Lankan banks highly consider on managing funds efficiently and effectively.

However researchers were unable to accept the hypothesis 02 and hypothesis 03 as there is no strong positive relationship between human capital efficiency, structural capital efficiency with financial performance.

Even though many of past research findings presents that there is a significant positive relationship between human capital efficiency and financial performance of companies, through the findings researchers were unable to support their findings with reference to Sri Lankan banking sector. Findings reveals that the capital employed efficiency has greater influence to financial performance of Sri Lankan banks than the human capital efficacy and structural capital efficiency.

High levels of human and structural capital efficiencies do not necessarily lead to higher level of financial performance. As per results of this study physical capital determines the financial performance of Sri Lnakan banks. This results matches earlier research findings (Shiu, 2006; Saengchan, 2008; Ting and Lean, 2009; Clarke et al., 2011; Zou and Huan, 2011; Joshi et al., 2013).

The primary limitation in this study is that the data collection focused on only one sector in one country and there is a relatively narrow five-year period for the data collection. Further sub variables selected to represent each intellectual capital component could be improved if researchers used a primary data collection method for this research. However this study provides future opportunities for extending similar research of different business sectors and different countries with similar financial and banking sectors.

The findings of this study have implications for banking sector organizations as it provides them with an opportunity to critically analyze the contribution of human capital, structural capital and physical capital to their organization and will aid the design of strategies for enhanced corporate performance. It will also help management of companies in other economic sectors, especially those in fiancé and leasing businesses, knowledge-based industries to understand the contributions of various components of intellectual capital to their business growth. This study will help decision makers be aware of the importance of intellectual capital as a key factor that can enhance a firm's ability to maintain their competitive position.

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