Intellectual capital and financial performance of Sri Lankan Listed manufacturing companies

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Abstract

Intellectual capital is recognized as a strategic asset which gives competitive advantages by driving organizations for superior performance in the modern-day knowledge-based economies. This study analyzes the impact of Intellectual Capital on the financial performance of Sri Lankan listed manufacturing companies. This study was based on twenty-four listed manufacturing firms at the Colombo Stock Exchange, and the data is sourced from the annual report over the period 2015 to 2019. The collected data was analyzed using Value Added of Intellectual Capital Coefficients proposed by Pulic (2004) to measure intellectual capital efficiency. The impact of intellectual capital is measured by Human Capital, Structural Capital and Relational Capital whereas; Return measures financial performance on Assets and Return on Equity. Multiple regression, correlation analysis was employed to arrive at the finding of the study using STATA. Intellectual capital components have a significant and positive impact on financial performance indexes, as characterized by the finding reveal ROA and ROE. However, Relational Capital does not significantly impact on the ROA. This paper suggests that investing in human, structural and relational capital as at most importance to increase manufacturing firms' performance.

Keywords: financial performance, intellectual capital, manufacturing firms and value-added

Introduction

Intellectual Capital (IC) is the value of an organization's employee knowledge, skills, business training, or proprietary information that may provide competitive advantages. Moreover, the IC, knowledge-related intangible assets in its existence, has become more important than physical assets during the last two decades within the growing knowledge-based economy. Measurements of financial performance are crucial for an organization because it identifies how well a company generates revenue and manages its assets, liabilities, and stakeholders' financial interests**.** In the Sri Lankan context, intellectual capital is increasingly becoming popular in today's knowledge economy and plays a key role in innovation, productivity, growth, and organizations' performance. The increasing importance of

intellectual capital that generates more value is beneficial to both managers and investors.

Moreover, it provides an insight into local companies about the level of disclosure of IC among Sri Lanka's leading firms and therefore, may act as a benchmark to others. The study will also help companies realize the importance of IC to enable them to adopt the best intellectual capital management and measurement methods that will help them meet their strategic goals. In developed countries like the UK, the US and Australian, companies are encouraged to adopt IC. So, the number of research conducted by the scholars concerning IC scattered throughout the developed nations. However, in emerging countries like Sri Lanka and India, the number of studies about IC is Scant. Therefore, researcher tried to reveal the importance of the IC and its impact on firms' financial performance. This is the gap the present study seeks to bridge.

The porter's five forces model assists the organization's decision makers in gaining the competitive advantage by identifying resources that are uniquely available for them. The physical resources have become diminished and the nature of non-distinctive. In this regard, the intangible assets in its existence have increasingly been recognized as strategically important. Furthermore, it is identifying intangible resources as the main drive behind modern-day business organizations' success. But in the Asian context of the organizational settings it can be seen an absence in the sense of identification of important of IC. Therefore, this study examines the importance of having the recognized Intellectual capital within the organization. The objective**s** of this study were to examine the impact of intellectual capital on the financial performance of manufacturing companies listed in the Colombo stock exchange in Sri Lanka and to identify the relationship between intellectual capital and financial performance in manufacturing companies listed in CSE in Sri Lanka. The following research questions were formulated:

Q1:   What is the impact of intellectual capital on the financial performance of manufacturing companies in Sri Lanka?

Q2:   What is the relationship between intellectual capital and financial performance in manufacturing companies in Sri Lanka

Literature Review

According to the resource-based view, IC resources are recognized as strategic assets and also it can be considered a subset of the broad set of organizational resources. The consultation of extant IC literature shows that the availability of several definitions for IC and its components. Tatiana (2017) examined structural and human capital affecting Manufacturing
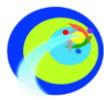
companies' performance. It was found that Relational Capital does not have a noteworthy effect on performance. Structural capital turns out to be more significant than human capital. Anuonye (2016) analyzed the effect of intellectual capital on return on insurance firms' assets in Nigeria. The results show that structural capital had a statistically insignificant impact on return on assets. Human capital and relational capital had a statistically significant impact on the companies' return on assets.

Aruppala, Wickramasinghe and Mahakalanda (2015) used Value Added Intellectual Capital (VAIC) approach to determine the level and the performance intellectual capital of the Sri Lankan Bank. Return on Equity (ROE) was used to measure financial performance. The impact of intellectual capital on financial performance is measured using multiple regression techniques. Correlation analysis is used to identify relationships with intellectual capital components and financial performance. SPSS is used to analyze data and found a significant positive relationship between intellectual capital and firm performance. Findings depict a strong positive relationship between Hunan capital and firm performance; and structural capital efficiency with firm performance level and the performance intellectual capital of the Sri Lankan Bank. Return on Equity (ROE) was used to measure financial performance. The impact of intellectual capital on financial performance is measured using multiple regression techniques. Correlation analysis is used to identify relationships with intellectual capital components and financial performance. SPSS is used to analyze data. Isanzu (2015) investigated the relationship between intellectual capital and the financial performance of the banks operating in Tanzania. It was discovered that financial performance (ROA) is positively related to human capital efficiency and capital employed efficiency but is negatively related to structural capital efficiency. Janosevic and Dzenopoljac (2015) investigated the interdependence between IC and its components (human, structural, and physical capital) about the financial performance of Serbian companies. The findings show that IC has a positive impact on return on equity (ROE) and a substantial impact on employee productivity (EP), but not on return on assets (ROA). The results indicate that there is a need to boost investments in human capital. Firer and Williams (2003) and Chen (2005) also concluded that firms and investors place greater importance on physical and financial capital than IC (human and structural capital) in South Africa and Hong Kong respectively. Kehelwalatenna and Gunaratne (2012) mentioned in the study conducted using data drawn from 2002 to 2006 from listed financial services and manufacturing sector firms in Sri Lanka. The Public's VAIC been employed to measure the IC and the measurements of value creation efficiencies of capital employed, human capital, and structural capital of

selected firms. The researchers use Pearson's correlation analysis and construct regression models to investigate the said relationships. The main primary analysis results show that IC is positively associated with firm performance and investor response. Also, it is found that investors' level of importance on three components of value creation efficiencies (physical capital, human capital, and structural capital) has not been uniform.

Methodology

The present study sample consists of 24 manufacturing firms and is based on secondary data collected from annual reports of the sampled firms listed under the CSE from 2015 to 2019. The random sampling method was used for selecting the sample and this technique provides an equal chance to select the sample from the target population.

Hypotheses of the study

H_1:   Intellectual capital components significantly impact on the financial performance of listed manufacturing companies in Sri Lanka.

H_2:   There is a significant relationship between intellectual capital and firms' financial performance of listed manufacturing sector companies in Sri Lanka.

Results and Discussion
Multiple Regression Analysis

Table 1. Results of pooled OLS using ROA as the outcome variable

ROA	Coef.	St.Err	t-value	p-value	Sig.
VARC	3.726	2.794	1.33	0.185	
VAHU	0.715	0.160	4.46	0.000	***
STVA	9.274	4.761	1.95	0.054	*
_cons	-1.650	3.154	-0.52	0.602	
Mean dependent var	10.606	SD dependent var			9.731
R-squared	0.347	Number of obs			120.000
F-test	20.523	Prob > F			0.000
Akaike crit. (AIC)	842.516	Bayesian crit. (BIC)			853.666

*** p<0.01, ** p<0.05, * p<0.1

As it is apparent from Table 1 that the coefficient values are revealed to be statistically significant for the association between VAHU and ROA; and STVA and ROA. Further, the association between VARC and ROA is insignificant since the p values are recognized to be immaterial at all the level. Moreover, the R- squared value for the impact of IC dimension on ROA is 0.347 which indicates that only 34.7% of the variation in ROA is defined by explanatory variables. The rest of 65.3% in ROA is simply because of the factors that have not been depicted in the model.
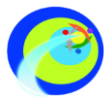
Table 2. Results of pooled OLS using ROA as the outcome variable

ROE	Coef.	St.Err	t-value	p-value	Sig.
VARC	9.054	4.308	2.10	0.038	**
VAHU	0.872	0.247	3.53	0.001	***
STVA	13.048	7.342	1.78	0.078	*
_cons	-1.976	4.864	-0.41	0.685	
Mean dependent var	16.235	SD dependent var			14.336
R-squared	0.284	Number of obs			120.000
F-test	15.356	Prob > F			0.000
Akaike crit. (AIC)	946.471	Bayesian crit. (BIC)			957.621

*** p<0.01, ** p<0.05, * p<0.1   (Non-transforming data.)

By referring to Table 2, R- squared value of 0.284, which is significant (f-test=15.356, p<0.01) at the 0.01 level. It indicates that IC components impact on ROE. Furthermore, the model's coefficient explains the value of f-statistics (0.000) and it significant level indicates the correlation between the dimensions of IC and ROA at the confidential level of 99%.

Conclusions

This research investigated the impact of intellectual capital on the financial performance of 24 manufacturing firms listed on the Colombo stock exchange during the period from 2015 to 2019. In this research, capital employed, human capital and structural capital are used as components of IC and ROA and ROE indexes are used as criteria of financial performance. Despite the fact that intellectual capital is increasingly recognized as an important strategic asset for sustainable competitive advantage, the present study's results also support this statement. Based on regression analysis, structural capital and human capital have a positive and significant association with financial Performance (ROA and ROE). In addition, HU and SC have greater explanatory power in all financial performance models. At the same time, RC has an insignificant and positive association with ROA. Finally, the result reveals that manufacturing firms listed in CSE can benefit more from disclosures on IC, more financial performance. The human capital had a major impact on financial performance and structural capital is found to be the most important variable as it shows that physical and financial assets must be effective and efficient. According to the results, it is revealed that the contribution of various components of intellectual capital is crucial to business growth. The Sri Lanka manufacturing firm should put more significant efforts in increasing the contribution in elements of structural capital and relational capital.

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