THE IMPACT OF INTELLECTUAL CAPITAL ON THE FIRM PERFORMANCE AND INVESTOR RESPONSE: AN EMPIRICAL STUDY OF SELECTED SECTORS IN COLOMBO STOCK EXCHANGE

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ABSTRACT

Intellectual capital (IC) is recognized as a strategic asset which gives competitive advantages by driving organizations for superior performance in the modern day knowledge-based economies. The purpose of this study is to investigate, empirically, the relation between IC, and firm performance and the response of investors. In this respect, the study has been conducted using data drawn for 2002 to 2006 from listed financial services and manufacturing sector firms in Sri Lanka. The Pulic's Value Added Intellectual Coefficient (VAIC) has been employed to measure the IC together with the measurements of value creation efficiencies of capital employed, human capital, and structural capital of selected firms. The researchers use the Pearson's correlation analysis and construct regression models to investigate the said relationships. Results of the main analysis show that IC is positively associated with firm performance, and investor response. In addition, it is found that the level of importance placed by investors on three components of value creation efficiencies (physical capital, human capital, and structural capital) has not been uniform. Moreover, the results of the extended analyses further confirm some of the above associations with few exceptions. The study is novel and original in its approach to determine the value addition in the VAIC model. In this regard, current study brings the assumptions of the stewardship theory in alternative to both economic value addition and value addition according to the stakeholder theory. Moreover, the results may extend in understanding the role of IC in creating corporate value and building sustainable advantages for companies in developing countries as the findings in developed economies and emerging economies cannot be generalized to developing nations, since country-specific factors and technological advancements influence significantly in determining the level of IC.

Key Words: Intellectual capital, Performance, Investor Response, Sri Lanka

INTRODUCTION

A firm may utilize both tangible and intangible assets in creating value for its stakeholders. This argument is supported by the resource-based view (RBV) of the firm since RBV identifies resources as the main drive behind competitiveness and performance of the firm. Traditionally, tangible assets have been considered as significant in the process of value creation, whilst, intangible assets have not been recognized as such important in creating value for stakeholders. In parallel to the above view, physical assets such as land, labour, and capital were given the priority in the production economy. The importance given to the intangible assets is, however,

growing in the last few decades. 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 (Yalama & Coskun, 2007). Similarly, much of the wealth of firms which exist in so-called knowledge-based economy is created by IC as the real competitive edge is located in the quality of relationships, structures and people (Segelod, 1998 as cited in Tayles, Pike & Sofian, 2007: 523). In addition, Kaufmann and Schneider (2004) have recognized that the growing importance of intangibles among other resources has been able to attract the interest of the business community, and the scientific community too. In addition to the scientific community, shareholders, institutional investors, scholars, policymakers and managers, broadly, the stakeholders are also among the interest groups on IC (Tan, Plowman & Hancock, 2007). Moreover, the above-discussed transformation can be notified as a result of the emergence of using intangibles as strategic assets to survive in a highly competitive business environment in which business firms and other groups are competing for exceptionally limited resources, and the growing importance of knowledge as a commodity.

Subsequent to the emergence of IC as a strategic asset, few reflections such as, firms are intentionally attempting to invest more resources on intangibles, taking initiatives to find out avenues to measure and disclose value creation through intangible assets and more importantly, according to Riahi-Belkaoui (2003), changing the asset base of the organizations can be observed after 1980s'. In consequence to the utilization of intangible assets as strategic assets, the process of valuation of intangibles, practices of measuring, and reporting of value created by intangible assets lead to develop the 'intellectual capital' as a distinct discipline in business.

LITERATURE REVIEW

Initially, there had been debates amongst interest parties on IC in respect to what had to be recognized as IC. According to Stewart (1998) as cited in Kaufmann and Schneider (2004: 373) "IC is intellectual material – knowledge, information, intellectual property, experience – that can be put to use to create wealth = collective brain power", Sullivan (2000) as cited in Kaufmann and Schneider (2004: 373) "IC is knowledge that can be converted into profit", Bukh et al. (2001) as cited in Kaufmann and Schneider (2004: 372) " IC is not one thing, it is a fragile construct, which has to be continuously supported and held together by a whole array of interrelated elements", and IC is meant as specific and valuable knowledge that belongs to the organization (Riahi-Belkaoui, 2003). However, in contemporary studies on IC, it seems to have a wider consensus among interested parties to recognize the difference between the market value and the book value of the firm as IC. Further, this identification can be seen as the operational definition which had been used in number of studies on IC e.g. Chen, Cheng and Hwang (2005); Lev and Zarowin (1999); and Lev and Radhakrishnan (2003) as cited in Chen et al. (2005: 161). Also, it has been recognized that human capital, structural capital and relationship capital as the main components of the IC e.g. Segelod (1998) as cited in Tayles, Pike and Sofain (2007: 523); Bontis (1996) as cited in Chen et al. (2005: 161); Bontis (1998); Moon and Kym (2006).

IC is still surpassing important evolutionary junctures, since it is still being identified as an emerging discipline. Therefore, consensus on a singular definition, a precise identification of main components and elements of IC, managing IC in order to ensure competitive advantage and superior performance, development of accurate and efficient method(s) to measure IC of a firm, and investigations to identify the relationship between performance and IC are yet considered as significant probable research areas in the IC discipline**.** Under relationship analysis, Nazari and Herremans (2007) have mentioned that, there are only few studies which have analyzed the relationships among the components of IC and organizational success. Moreover, Bukh et al. (2001) as cited in Tayles et al. (2007: 523); Guthrie (2000) as cited in Tayles et al. (2007: 523) and Mouritsen et al. (2001) as cited in Tayles et al. (2007: 523) have identified that the IC literature in accounting mainly addresses external reporting. Perhaps, this can be acceptable, because, capital market requires more reliable information regarding corporate knowledge resources and, arguably the IC disclosures reduces the transaction cost and uncertainty among relevant parties (Tayles et al., 2007). Moreover, Bukh (2003) as cited in Tayles et al. (2007: 525) has mentioned that firm's disclosure on IC to be a part of the framework of value creation process within the firm in order to be seen as relevant by the capital market. Further, it can be argued that disclosure of IC is secondary to the development of IC discipline in a meaningful manner. Based on the discussion continued up to here, it is reasonable to argue that the disclosure of the IC should be secondary to the development of IC discipline as it would contribute more to be better organizational practices. Therefore, it is very important for researchers in the area to take up studies which lead to resolve above identified existing issues.

It is clear that IC was first used as a strategic asset in developed economies and gradually proliferated in to emerging economies and then the developing countries too. This can be understood by observing the parallel patterns in the distribution of IC related studies among the above three different settings. Although a disparity exists in distributing the research among diverse settings, as Bontis et al. (2000) viewed, most of developing countries require a new model and a nomenclature that encompass intangible asset in the knowledge-based business environment. On the other hand, according to the Annual Report (2000) of Board of Investment (BOI) in Sri Lanka, the country is directing towards a knowledge-based economy and the recent amendment to the Intellectual Property Act 1979 can be identified as an incentive to accelerate the country's progress towards a knowledge-based economy (Code of Intellectual Property Act No. 40, 2000). Furthermore the above-stated evidence shows the intensity of identifying knowledge as a key factor in the progress of the country. Moreover the World Bank (2004) has highlighted that the Sri Lankan government's investments to maintain a skilled labour force and high literacy rate. This again justifies the importance given to the human capital by the country whereas human capital is also a major component of IC. Notwithstanding the afore-said macro level preparedness, the recent initiatives of some firms to include IC related information in annual reports and growing consensus on IC accounting in regulatory bodies i.e. Institute of Chartered Accountants of Sri Lanka (ICASL) are also indications for the significance of IC for the firms as well as for the society in general.

In reviewing the extant literature on IC, it can be identified that the findings of relatively similar studies report comparatively dissimilar results. Perhaps, this may be due to country specific reasons or due to methodological differences that the various

researchers have adopted in their studies. In line with that argument Marr, Schiuma and Neely (2004) have reported that IC resources are contextual specific, and IC disclosures are different from one context to another due to social, political, and economic factors (Abeysekara, 2007). Further, this argument can be supported by number of studies such as Riahi-Belkaoui (2003) who has found a positive contribution of IC to the total firm performance based on net value added over total assets in the United States (US) based multinational firms; Chen et al. (2005) have reported a positive impact from IC on market value and financial performance of Taiwanese Listed Companies; Tan et al. (2007) have found IC and company performance are positively related in the listed companies on the Singapore Exchange; and Dumay and Tull (2007) informed that disclosure of IC elements in price sensitive company announcements can have an effect on the cumulative abnormal return of a firm's share price and it is found that market is most responsive to disclosures of internal capital elements. Similarly, Yalama and Coskun (2007) found that there is a significant contribution from IC performance on profitability of quoted banks on the Istanbul Stock Exchange in Turkey. However, in contrast to positive impact shown in the above mentioned studies, Firer and Williams (2003) failed to find any strong association between IC and profitability of South African publicly traded companies. Therefore, these contrasting findings make avenues for further investigations of the role of IC in different emerging economies since technological advancements in different economies may bring different implications on IC (Chen et al., 2005).

Other than the contextual differences, the identification of different perspectives used by different interested parties of the firm to perceive IC can also be considered as an important contemplation. Looking at the ownership perspective, it is understood that their interest is gaining the ownership of all resources including human capital and IC. Nevertheless, the owners have to realize that though they are able to claim the ownership of intangible assets, ethically it can not be claimed the ownership of the human capital. However, they can claim the ownership of the innovation and relationships produced through human capital (Abeysekera & Guthrie, 2004 as cited in Tayles et al., 2007: 524). Therefore, IC and its contribution to the firm are in interest of the owners of the firm. According to Wernerfelt (1984) as cited in Riahi-Belkaoui (2003: 215) tangible and intangible assets act as strategic assets, and as per the RBV of the firm, strategic assets provide competitive advantage and superior performance. As previously identified, IC is being used as a strategic asset and the generated competitive advantage and superior performance would be in the interest of many stakeholders of the firm in general. The competency theory of the firm recognizes the value of talented people in organizational system (Riahi-Belkaoui, 2003) and, further, indicates the value of human capital in the firm. Further, by looking at managerial objective theory, and agency theory, Riahi-Belkaoui (2003) emphasizes on managers' capability of disseminating IC related information so that the owners can use this information in attempting to monitor management's decisions. Accordingly, the role of IC information is very much concerned to both managers and owners as IC is stood as an assessing criterion of the performance of managers, especially, when the separation of ownership exists.

PROBLEM STATEMENT

With regard to the recommendations for further research, Kamath (2007) has pointed out that there is a necessity of extending the research on IC to alternative domestic settings and, also, to alternate industries in both manufacturing and service-oriented settings, as existing findings in diverse settings may be difficult to generalize. Further, the same researcher has identified the importance of exploring the impact of other characteristics of IC, and their association with performance and market behavior. In another way Tayles et al. (2007) have concluded recommending further research to establish whether the associations between IC and performance are supported by stock market performance based on secondary data sources rather than using self-reported performance. Moreover, Chen et al. (2005) have also identified the value of further investigation into the role of IC in different emerging economies. Further, Nazari and Herremans (2007) have stated that there are only a few studies in the IC literature which have analyzed the relationships among the components of IC and organizational success.

Although the term IC has been widely used for research in the developed world, there are very few studies in the context of emerging economies, and studies on implications of IC for specific industries also need to be addressed (Kamath, 2007). Further, the same researcher has identified that human capital in emerging economies as more prominent in the asset base in an organization. In consulting the range of literature on IC, the research in developed countries and emerging economies is in excess than the research in developing countries. According to Abeysekara (2007), relatively small number of research can be found with regard to the developing nations such as Sri Lanka, and etc. In reviewing the small number of research carried out in Sri Lanka on IC, it can be identified that the researchers have mainly concentrated on IC reporting aspect, and no attention has been paid on the benefits that IC can generate to the Sri Lankan firms, and how investors respond to the performance of IC.

Having identified the usage of IC as a strategic asset in modern day business and recent developments in the field of knowledge-related intangible assets, the potential value and contemporaneous importance of research on IC can be understood. Furthermore, research on IC in developing countries is very limited, the research findings on how companies benefit from IC is difficult to generalize to a diverse setting since IC is contextually different due to social, political, cultural and technological factors, and also currently available research on IC in Sri Lankan context is almost restricted to the IC disclosures. Therefore, a study which ground other than the IC disclosures in the context of Sri Lanka is timely needed.

Broadly, the value creation of a firm is done through both tangible and intangible assets. Similarly, the measurement of value creation from tangible assets is well developed and almost known. However, shift in the underlying production factors of a business within the new knowledge economy and the identification of IC including intangible assets, and value creation done through IC is still being emerged, especially, in countries that are categorized as developing. Therefore, this study focuses on studying whether IC is efficiently utilized by financial services sector and manufacturing sector listed firms in Sri Lanka to their advantage in creating value, how IC contributes to performance of such companies, and how investors respond to the level of IC of identified listed companies in the above two sectors.

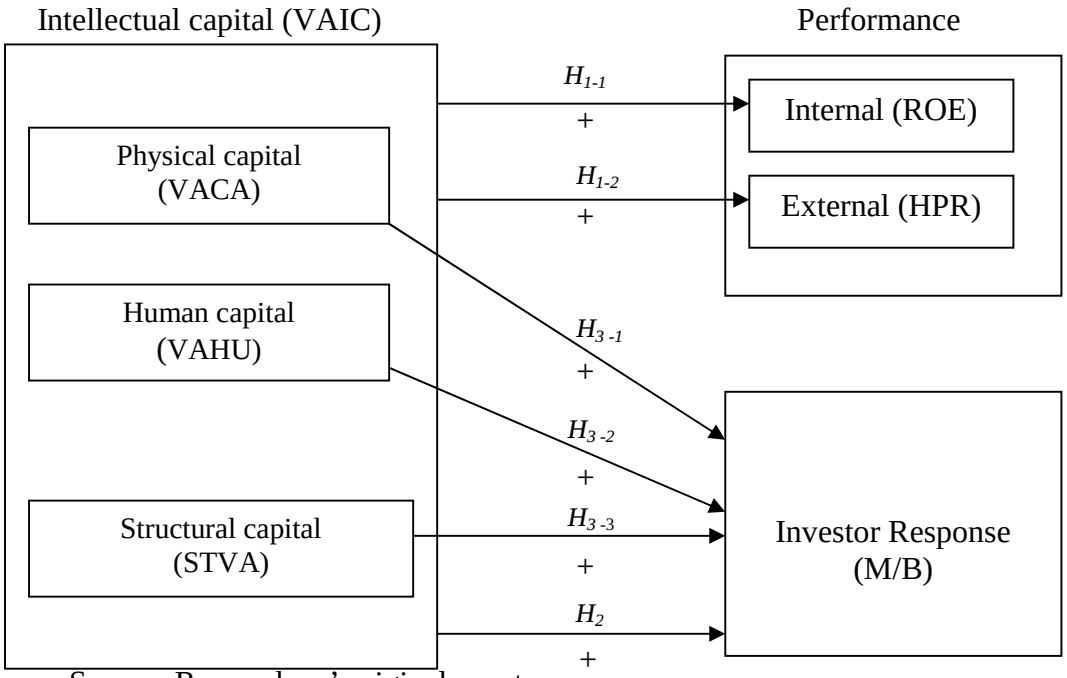
Based on the afore-stated research issue the following research objectives have been derived:

1. To investigate the relationship between IC and performance of listed financial services and manufacturing sector companies in Sri Lanka.
2. To identify the relationship between IC and investor response on the stocks of listed financial services and manufacturing sector companies in Sri Lanka.
3. To explain the influence of each component of IC on the investor decisions of listed financial services and manufacturing sector companies of Sri Lanka.

METHODOLOGY

The under-mentioned conceptual framework would further elaborate the tentative relationships of the study.

Figure 1: Conceptual framework



Source: Researchers' original construction

Variable Definitions

Dependent variables of the study

Internal performance, external performance, and investor response are identified as dependant variables of the study. Among them, the internal performance of a firm is greatly depended upon the historical decisions of managers on resources of a firm. Furthermore, the traditional perspective of measuring the internal performance of a firm uses exclusively the financial performance. However, the contemporary developments in performance measuring tools, e.g. Balanced Scorecard, perceive the performance of a firm in multiple perspectives. In this multiple perspectives, the financial performance measuring aspect retains as it used to in traditional way of measuring performance. Therefore, this retention of financial performance measures within the contemporary performance measurement frameworks shows that the

importance of applying financial performance in measuring the internal performance of a firm has not been argued. Therefore, in this study, financial performance has been selected considering the objective nature of recording data which uses to calculate its relevant measures. In parallel to the above argument of restricting to the financial performance measures, the subjective approach in recording non-financial information of many firms which ultimately dilutes the comparability of non-financial performance across the selected firms has also been assisted.

The ratio of Return on equity (ROE) has been selected to measure the internal performance of firms as ROE reflects the effectiveness of historical decisions of managers, especially, the separation of ownership is concerned. In addition, ROE represents wealth creation to shareholders of common stocks and according to Chen et al. (2005) ROE has identified as an important financial indicator for investors. The computation of ROE is as under-mentioned:

ROE = Pre-tax income ÷ Average shareholder equity

The external performance of a firm is generally viewed as the ability of generating returns to its shareholders. This return forms by adding two parts such as, return from share price fluctuations and dividend distributions. The calculation of holding period return (HPR) including both forms is as follows:

$$HPR = \frac{\text{Share price}_t - \text{Share price}_{t-1} + \text{Dividend}_t}{\text{Share price}_t}$$

t = value at the end of financial year; t-1 = value at the beginning of financial year

Investor response reflects on the market value of a listed company. The market value of a share in a listed firm denominates the currently trading value at a stock exchange. Further, Ghosh and Wu (2007) identify that the market-to-book value ratio (M/B) as a proxy measure for measuring the investor response. The calculation of M/B is stated below;

$$M/B = \frac{\text{Market value of common stock}}{\text{Book value of common stock}}$$

Independent variables

As depicted in the conceptual framework the VAIC - the aggregate measure for corporate intellectual ability and a proxy measure for IC - and three sub-components of VAIC, namely, VACA, VAHU, and STVA are used as independent variables in the study. However, instead of using the original assumptions of the VAIC as it granted, the researchers of the study have used certain definitions with some modifications depending on multidimensional view as an initiative to furtherance the rigor of existing IC measure that has been selected in conducting the study.

The Pulic's VAIC model and suggested modifications

Based on the suggestion of Kamath (2007), with the intention of improving the performance of IC measuring methods, the researchers of the study have added some new parameters to a mostly accepted IC measure in recent research works. The VAIC model which identified previously has been selected for this purpose. As far as the rigour and evolution of existing IC measures are concerned, Nazari and Herremans (2007) have argued that IC measures are still in exploratory stage and researchers from different disciplines, based on different theories, have an opportunity to add the multidimensionality for existing IC measurements. Similarly, Kamath (2007) has pointed out that existing parameters for evaluating IC performance are not exhaustive. Therefore, the modifications to VAIC model are suggested by carefully analyzing the fundamental assumptions of the model, and perceiving the practical usage of the model through another perspective. Among the fundamental assumptions of VAIC, the concept of human capital or knowledge capital of human is responsible for the performance of a firm. Therefore, the incurred expenses as wages (manpower or productive direct cost) or salaries (administrative or managerial staff indirect cost) have the predictability for the creation of value addition (Mavridis, 2005). According to another assumption, the value addition of a firm identifies as the difference between revenue of the firm and brought-in-materials (VA = Out - In) e.g. Mavridis (2005); Chen et al. (2005); Riahi-Belkaoui (2003); Nazari and Herremans (2007). However, in contrast to the above-stated economic value addition, some researchers have recognized the VA on stakeholder perspective and identified the total value addition by accumulating all the outflows to stakeholders e.g. Nazari and Herremans (2007), Riahi-Belcaoui (2003) and Chen et al. (2005). The equation used in computing the VA based on stakeholder theory is:

VA = Wages and salaries + Interest paid + Depreciation + Tax paid + dividend paid + retained earnings.

In reviewing the extant literature on IC, particularly in relation to the VAIC method of calculating IC, the recognition of VA can be viewed as in the revolutionary intend. In the initial usage of VAIC in IC research has adopted the economic value addition. However, moving a step further, the more recent research on IC has been identified VA on the perspective of stakeholder theory. Although the above-identified VA on the stakeholder theory has been able to broaden the concept of VA in the IC discipline, the critiques such as IC measures are still in exploratory stage, necessity to add multidimensional view in recognizing VA (Nazari & Herremans, 2007), and existing parameters for evaluating IC performance are not exhaustive (Kamath, 2007) indicate the importance of critical analysis of existing IC measures. In this respect, the VA on stakeholder theory can be categorized as occasionally unrealistic. Further, the above-stated argument can be forwarded based on the stewardship theory. According to the stewardship theory the principal stakeholders of a firm are owners and employees (principals and stewards). Further, the intension of both these two groups is to work towards increasing the wealth for their favour. In this respect, principals recruit stewards considering the ability to drive the organizational resources in order to maximize the profits, however, stewards work to satisfy their psychological and sociological characteristics at the end (Davis, Schoorman & Donaldson, 1997). Moreover, arguably, the above two parties do not intend to add value for other stakeholders of the firm. Therefore, the value additions such as, interest payments to creditors and tax payments to government are in beyond the interest of owners and employees of the firm. Further, such value additions are generated as results of the

effort of maximizing owners' wealth and benefit of managers. Therefore, in this study, the value addition to owners and employees is considered and computed as follows:

VA = Retained earnings + Total staff cost.

In addition to selecting the VA, the capital employed (CE) has also been selected in accordance to the stewardship theory. As per the VAIC model, the CE is the total of physical capital and financial assets. In contrast, Mavridis (2005) has identified equity, net profit and other various funds as CE. At the same time Chen et al. (2005) have defined CE as the difference between the total assets and intangible assets. In referring to the above definitions for CE, the identification of physical capital and, specially, the precise assessment of intangible assets is an intricate exercise. Therefore, the capital employed by owners has been selected as CA in this study. The computation of CE in this study is as follows:

CE = Shareholders fund – Deferred expenses

Other than the selection of value addition and capital employed in a relatively different perspective to the perspectives used in the IC literature, it has added a new parameter to the available human capital (HU) component of the VAIC too. Moreover, the existing literature shows wages and salaries expenses as a proxy measure for HU. However, the training and development expenses, provisions for retirement expenses and other perquisites paid to employees are entirely neglected from the calculation of above-identified HU. Therefore, in this study, the total staff cost, including wages and salaries, has been selected as the denominator for HU in the VAIC model.

In conclusion, the under-stated modified VAIC model has used in the furtherance of the study and calculation of needed components are done using;

VAIC = VACA + VAHU + STVA.

Where;

VA = Retained earnings + Total staff cost
CE = Shareholders' fund – Deferred expenses
HU = Total staff cost
ST = VA – HU
VACA = VA/ CE
VAHU = VA/ HU
STVA = ST/ VA

Furthermore, the calculation of independent variables of the study can be stated as follows;

VAIC = VACA + VAHU + STVA
VACA = VA ÷ CE
VAHU = VA ÷ HU
STVA = SC ÷ VA

Sample and Sampling Procedure

IC applies for any kind of organization. It has no doubt that IC is strategically important for any organization in the process of value creation. The formal organizations such as publicly listed, private, government institutions and also the

organizations such as non-governmental, and small and medium sized organizations are used IC as a strategic asset at different proficiencies. Among the afore-said organizations, small and medium sized, non-governmental, governmental, and private organizations have not been selected for the sample as they do not provide reliable IC, and performance related information on a consistent and comparable basis. However, considering the mandatory nature of preparing and submitting the financial statements, the listed companies on Colombo Stock Exchange (CSE) have been identified as most suitable population for the study. These listed companies have categorized into 20 different sectors considering the nature of the business and, relatively homogeneous firms have been included in each identified sector. Out of these sectors, financial services sector and manufacturing sector have been purposefully selected as the sample for the study. Further, these two sectors can be identified as consisting highest number of firms in terms of number of firms available in each sector, and the selection shows that two contrastingly different sectors are included in the sample. As a supportive view for the above sample selection, Firer and Williams (2003) have also recommended to select a sample which is consisting of firms that give more emphasis on IC such as financial service firms, and firms that do not emphasize IC such as manufacturing sector firms.

Data and Data Collection

Data for financial years starting 2002.01.01 or 2002.04.01 to 2006.12.31 or 2007.03.31 are included in the selected time horizon for the study. The published annual reports of sample companies for respective financial years, CSE Hand Book (2007), and data in the CSE Data Library (2007) are used as sources for collecting data. Furthermore, these secondary data sources ensure that derived data is valid and reliable for the study.

DATA ANALYSIS AND FINDINGS

The analysis of collected data has been carried out by adopting inferential statistical analysis tools. In this regard, the data arrangement for the analysis has two parts, namely, average data for the principal cross sectional analysis and cross sectional data over the time horizon selected for the extended analysis. Further, the Pearson's correlation analysis has been used in explaining the associations between IC and internal performance, external performance and the investor response. Moreover, the following regression models have been used to examine the sensitivity of the selected independent variables on the dependent variables in principal cross sectional analysis, and the extended analysis.

$$ROE_{it} = \beta_0 + \beta_1 VAIC_{it} + e_{it} \quad (1)$$

$$HPR_{it} = \beta_0 + \beta_1 VAIC_{it} + e_i \quad (2)$$

$$M/B_{it} = \beta_0 + \beta_1 VAIC_{it} + e_{it} \quad (3)$$

$$M/B_{it} = \beta_0 + \beta_1 VACA_{it} + \beta_2 VAHU_{it} + \beta_3 STVA_{it} + e_{it} \quad (4)$$

The model (1) uses to identify the relationship between internal performance and IC, and model (2) uses to identify the relation between IC and external performance. Further, the model (3) uses to identify the relationship between IC and the investor

response, whereas, the model (4) uses to identify the degree of contribution of each component of IC in determining the M/B of firms.

Results of the Principal Cross Sectional Analysis

Summarized results of the correlation and regression analyses are presented in table 1 and table 2, respectively.

Table 1

Correlation results of the principal cross sectional analysis

Variable	VAIC	ROE	M/B	HPR
VAIC	1.000			
ROE	0.093	1.000		
M/B	0.069	0.063	1.000	
HPR	0.103	0.430	0.045	1.000

Source: Researchers' original construction

Correlations between VAIC and ROE, VAIC and HPR, and VAIC and M/B are important amongst the relationships that appeared in table 1, especially in testing the hypothesized relationships in the study. Moreover, the correlations between the three sets of variables, VAIC and ROE; VAIC and HPR; VAIC and M/B, are 0.093, 0.103 and 0.069, respectively. In addition to the correlation results, the results of the regression analysis conducted in the principal cross sectional analysis can also be used in the exercise of testing the set hypotheses in the study.

Table 2

Summary of the regression results of the principal cross sectional analysis

Model 1: $ROE_{it} = \beta_0 + \beta_1 VAIC_{it} + \varepsilon_{it}$

Independent variable	Coefficient	Prob. Value
Intercept	1.705	0.000
VAIC	0.022	0.597
R - squared	0.004	

Model 2: $HPR_{it} = \beta_0 + \beta_1 VAIC_{it} + \varepsilon_{it}$

Independent variable	Coefficient	Prob. Value
Intercept	0.256	0.000
VAIC	0.004	0.425
R - squared	0.010	

Model 3: $M/B_{it} = \beta_0 + \beta_1 VAIC_{it} + \varepsilon_{it}$

Independent variable	Coefficient	Prob. Value
Intercept	1.705	0.000
VAIC	0.022	0.597
R - squared	0.004	

Model 4: $M/B_{it} = \beta_0 + \beta_1 VACA_{it} + \beta_2 VAHU_{it} + \beta_3 STVA_{it} + \varepsilon_{it}$

Independent variable	Coefficient	Prob. Value
Intercept	1.182	0.022
VACA	1.531	0.047
VAHU	0.082	0.100
STVA	-0.350	0.083
R - squared	0.099	

Source: Researchers' original construction

The H_1 of the study tests the relationship between IC and performance of the firm. In this respect the two sub-divisions of H_1, which appeared as H_{1-1} and H_{1-2}, test the association between IC and internal performance, and IC and external performance, respectively via the association between VAIC and ROE and VAIC and HPR. The results of the principal cross sectional analysis (in table 1 and 2) show that there is a positive association between VAIC and ROE as well as between VAIC and HPR; thereby it provides sufficient evidence to accept the H_{1-1} and H_{1-2} of the study. However, the reported results show that these correlations are weakly positive, whilst probability values of the analysis indicate that the associations are not significantly positive. Moreover, the probing of positive associations under H_1 provides the answer for the first research question raised in the study, and thus shows the attainment of the first objective of the study which is to investigate the relationship between IC and performance of the selected firms.

The H_2 in the study has been established to test the relation between IC and investor response, and this relation is tested through the association between VAIC and M/B. In this respect, the results in table 1 and 2 provide evidence to test the H_2, and thus prove a positive association between IC and investor response. Although the H_2 is accepted, the recorded correlation between VAIC and M/B appears as weakly positive, and such a relation can also be identified as not significant with reference to the probability value of the model 3 regression results in table 2. However, the positive association between VAIC and M/B addresses the second research question of the study. Hence, this identification fulfills the achievement of the second objective of the study.

The rest of the results in table 2 are useful in discussing the probing of the third hypothesis by way of testing the three sub-components of it. According to the results, the influence from VACA and VAHU on M/B reports as positive whereas the influence from VACA is significantly positive because the probability value of this variable stands as 0.047. In contrast to the above-identified positive sensitivity, the STVA influences negatively on M/B. Moreover, the application of the above-discussed results to the three components of H_3 enables the researcher to accept $H_{3-1}$and H_{3-2}, and reject H_{3-3}. Furthermore, this application coincides with a positive influence from the efficiency of physical capital utilization and the human capital utilization on investor response where the former influence is more significant. The rejection of H_{3-3} emphasizes the fact that the influence of structural capital efficiency on investor response is not positive. The testing of the third hypothesis indicates that the influence of the components of IC on investor response is diverse and further provides the answer for the third research question of the study. Moreover, the identification of the above influence shall assess the accomplishment of the third objective of the study.

Results of the Extended Analyses

In addition to the principal cross sectional analysis that has been presented in the preceding section, the researchers have carried out some additional analyses by arranging data into different formats. Furthermore, such analyses have been carried out with the intention of providing additional evidence for predicted causal relationships of the sample companies by adopting the same hypotheses, research questions and objectives derived in the study. In this respect, an analysis has been

carried out using average values of variables over the selected five financial years of the two sectors with the view of investigating the predicted relationships separately for the selected sectors. Further, the analysis addresses the inability to distinguish findings of the principal cross sectional analysis into the two selected sectors. In addition, another analysis has been carried out in order to identify the relationships separately for each financial year in the study since that identification is impossible with former analyses i.e. principal cross sectional analysis and sector-wise analysis. The analyzed data of the Financial Services sector, the Manufacturing sector and cross sectional data of five selected financial years are presented in the following sub-sections.

Analyzed Data of the Financial Services Sector

The analyzed data of the above sector obtained by employing the correlation technique and the developed regression models in line with testing the predicted relationships is presented and discussed in this section. In this relation, table 3 depicts results of the correlation analysis and table 4 summarizes the regression results of the analysis.

Table 4.3
Results of the correlation analysis for data of the Financial Services sector

Variable	VAIC	ROE	M/B	HPR
VAIC	1.000			
ROE	-0.059	1.000		
M/B	0.048	0.241	1.000	
HPR	0.047	0.251	-0.059	1.000

Source: Researchers' original construction

Correlation results of the above table provide evidence to test the hypothesized associations in the study even in relation to the Financial Services sector. Accordingly, the correlation between VAIC and HPR, and VAIC and M/B are supportive evidence to accept $H_{1\text{-}2}$ and H_2 of the study. However, the reported correlation between VAIC and ROE does not provide supportive evidence to accept $H_{1\text{-}1}$ of the study. Therefore, these test results explain positive associations between VAIC and HPR, and VAIC and M/B of the firms in the Financial Services sector. Thus it shows a negative association between VAIC and ROE of such organizations. Moreover, the above hypothesis test results provide an avenue to discuss the derived research questions and objectives of the study in relation to the Financial Services sector. The application of the hypothesis test results in probing the research questions and objectives of the study by relating them to the Financial Services sector shows an existence of a positive association between IC and internal performance, a negative association between IC and external performance, and a positive relation between IC and investor response. Nevertheless, it is noteworthy that the above-specified correlations can be categorized as weak in their nature.

Table 4

Summarized results of the regression analysis of data in the Financial Services sector

Model 1: $ROE_{it} = \beta_0 + \beta_1 VAIC_{it} + \varepsilon_{it}$

Independent variable	Coefficient	Prob. Value
Intercept	1.787	0.004
VAIC	0.021	0.796
R - squared	0.002	

Model 2: $HPR_{it} = \beta_0 + \beta_1 VAIC_{it} + \varepsilon_{it}$

Independent variable	Coefficient	Prob. Value
Intercept	1.948	0.004
VAIC	0.017	0.800
R - squared	0.002	

Model 3: $M/B_{it} = \beta_0 + \beta_1 VAIC_{it} + \varepsilon_{it}$

Independent variable	Coefficient	Prob. Value
Intercept	1.787	0.004
VAIC	0.021	0.796
R - squared	0.002	

Model 4: $M/B_{it} = \beta_0 + \beta_1 VACA_{it} + \beta_2 VAHU_{it} + \beta_3 STVA_{it} + \varepsilon_{it}$

Independent variable	Coefficient	Prob. Value
Intercept	-1.316	0.113
VACA	7.314	0.000
VAHU	0.055	0.341
STVA	0.468	0.531
R - squared	0.544	

Source: Researchers' original construction

The results in table 4 enunciate, especially in reference to the probability values of each model, that the tested relationships are not significant except for the association between VACA and M/B. Further, the regression results in the table under model 4 assist in testing the three divisions of H_3 by relating them to the Financial Services sector and also facilitates in appraising the accomplishment of the third objective of the study. In this respect it can be seen that M/B is positively influenced by VACA, VAHU and STVA in the Financial Services sector and it also indicates a significant positive influence from VACA on the dependent variable, M/B. Moreover, it confirms that the influence of different value creation efficiencies on investor response is diverse and this observation fulfills the attainment of the third objective of the study under the Financial Services sector.

Analyzed Data of the Manufacturing Sector

As in the previous analysis, average values of selected variables covering the Manufacturing sector have been deployed in this analysis. Further, data analysis tools such as correlation and regression along with the developed regression models have been employed in analyzing the data. Statistics derived in the process are summarized and presented in table 5 and 6 where the former table presents the correlation results and the latter a summary of the regression results.

Table 5
Results of the correlation analysis for data of the Manufacturing sector

Variable	VAIC	ROE	M/B	HPR
VAIC	1.000			
ROE	0.126	1.000		
M/B	0.093	-0.013	1.000	
HPR	0.211	0.541	0.163	1.000

Source: Researcher's original construction

Correlations between VAIC and ROE, VAIC and HPR, and VAIC and M/B are important amongst the appeared correlations in table 5 in order to test the $H_{1\text{-}1}$, $H_{1\text{-}2}$ and H_2 of the study. Testing of these hypotheses shows that there is evidence to accept the above three hypotheses and it is further emphasized that there are positive relationships between IC and both internal and external performance, and IC and investor response in the Manufacturing sector. Thus the identification of the above positive associations ensures the achievement of first the two research objectives of the study. However, it should be noted that this achievement applies only to the Manufacturing firms of the sample. Furthermore, the regression results in table 6 under the first three models, especially the probability value, categorize the above associations as not significantly positive.

In addition to the testing of the first two hypotheses and the achievement of the first two research objectives above, the results in table 6 under model 4 assist the test of the third hypothesis of the study and also help in assessing the third objective of the study.

Accordingly, it can be identified that there is sufficient evidence to reject the first and third component ($H_{3\text{-}1}$ and $H_{3\text{-}3}$) of the third hypothesis. Similarly, the coefficient value of VAHU in table 6 provides supportive evidence to accept $H_{3\text{-}2}$.

Table 6
Results of the regression analysis for data of the Manufacturing sector

Model 1: $ROE_{it} = \beta_0 + \beta_1 VAIC_{it} + \varepsilon_{it}$

Independent variable	Coefficient	Prob. Value
Intercept	0.060	0.262
VAIC	0.004	0.506
R - squared	0.015	

Model 2: $HPR_{it} = \beta_0 + \beta_1 VAIC_{it} + \varepsilon_{it}$

Independent variable	Coefficient	Prob. Value
Intercept	1.846	0.003
VAIC	0.071	0.262
R - squared	0.044	

Model 3: $M/B_{it} = \beta_0 + \beta_1 VAIC_{it} + \varepsilon_{it}$

Independent variable	Coefficient	Prob. Value
Intercept	1.625	0.000
VAIC	0.021	0.622
R - squared	0.008	

Model 4: $M/B_{it} = \beta_0 + \beta_1 VACA_{it} + \beta_2 VAHU_{it} + \beta_3 STVA_{it} + \varepsilon_{it}$

Independent variable	Coefficient	Prob. Value
Intercept	1.932	0.005
VACA	-0.105	0.906
VAHU	0.025	0.700
STVA	-0.243	0.195
R - squared	0.097	

Source: Researchers' original construction

Analyzed Cross Sectional Data of Selected Financial Years

The calculated variable values for each financial year have been separately employed in deriving correlation and regression results which shall be used in testing the established hypotheses of the study. The application of derived correlation results and regression results in assessing the pre-determined hypotheses, research questions and objectives of the study are presented next.

Table 7
Correlation results of cross sectional data (2002 – 2006)

	VAIC				
Dependent variable	2002	2003	2004	2005	2006
ROE	0.195	-0.245	-0.206	0.230	0.227
HPR	0.036	0.105	0.200	0.347	0.313
M/B	-0.166	0.606	-0.073	-0.091	-0.018

Source: Researchers' original construction

According to the correlation results reported in table 7, it can be observed an improved association between VAIC and ROE towards the end of the time frame. Similarly, the relationship between VAIC and HPR of the sample companies has continuously increased to a meaningful position (0.3) despite a slight decline in 2006. However, except for 2003, the relation between VAIC and M/B is negative throughout. Meanwhile, based on the evidence in table 7, $H_{1\text{-}1}$ can be accepted for 2002, 2005 and 2006 whilst $H_{1\text{-}2}$ can be accepted throughout the time frame of the study. Further, a positive relationship between IC and internal performance in 2002, 2005 and 2006 can be seen, and also a positive association between IC and external performance. However, the relationship between IC and investor response is reported as negative throughout except for 2003.

According to the results of the regression analysis, the sensitivity of the dependent variable (ROE) on the independent variable (VAIC) has increased as the years progressed i.e. 0.009 in 2002 to 0.022 in 2006. Similarly, the explanatory power of model 1 has also increased slightly. Yet, those identified values cannot be categorized as significant. Similar to the values in model 1, the regression results of model 2 on external performance also indicates improvements in both sensitivities and explanatory powers. Furthermore, the association between IC and external performance stands as significant towards the end of the time frame. The regression results for model 3 of the study, do not indicate a significant association between variables. However, it shows a little improvement by the year 2006. Moreover, according to the results of model 4, investor response is more focused on the value creation efficiency of the physical capital. Similarly, the value creation efficiency of

the structural capital is also considered as important for investors. However, the human capital aspect is seen as insignificant among the components of IC.

Furthermore, the regression results are useful in testing the $H_{3\text{-}1}$, $H_{3\text{-}2}$ and $H_{3\text{-}3}$ for the selected financial years. Accordingly, the $H_{3\text{-}1}$ can be accepted for 2005 and 2006, and it indicates that the influence of value creation efficiency on investor response is positive in the two financial years mentioned above and negative in other years. Moreover, it has been reported that this influence is significant as well. The coefficient value of VAHU assists in accepting the $H_{3\text{-}2}$ in 2003 and 2004, and also shows a positive influence of human capital efficiency on investor response in these years. According to the statistics, the $H_{3\text{-}3}$ can be accepted in 2003 and 2006 and this acceptance enunciates a positive influence of structural capital efficiency on investor response. All in all, the discussion continued thus far under the third hypothesis of the study demonstrates that investor response is diversely influenced by the components of IC and thus establishes the achievement of the third research objective of the study under the above analysis.

CONCLUSION

Discussion

This section discusses the conclusions derived in the study based on the findings presented in the previous section. Further, the discussion is performed by relating the findings of the study to the predicted associations under the conceptual framework, achievement of its objectives and also in relation to the extant literature on the issue under consideration.

The application of results in principal cross sectional analysis to the predicted associations under the conceptual model shows an existence of a weak positive correlation between IC and internal performance, and a similar relationship between IC and external performance. Further, it can be witnessed a positive relation between IC resources of these companies and investor response. Moreover, results derived from the regression model which tested the investor response on components of IC for selected companies indicate that: the value creation efficiency of physical capital is significantly and positively related with investor response; value creation ability of human capital is positively contributed to investor response; and negative sensitivity of value creation efficiency of structural capital indicates the insignificant nature of its influence. Therefore, it can be observed that the physical capital component still maintains its dominance over intangible assets in the process of value creation in the selected companies. However, the positive sensitivity of human capital indicates that investors, at least, do respond positively on the main component of IC. The assessment on the achievement of research objectives, based on the findings of the principal cross sectional analysis, show positive associations between IC and both internal and external performance for the first objective of the study which investigates the relationship between IC and performance of the selected firms. Further, the positive association between IC and investor response fulfills the achievement of second objective of the study. The relatively diverse coefficient values of independent variables in the regression model 4 explains that investor response on the components of IC is not at the same level of emphasis where this observation is in the intention of third objective of the study.

The comparison of findings between the Financial Services and the Manufacturing sector which derived in the extended analysis, especially in the sector-wise analysis, provides additional evidence to the generalized findings that have been discussed previously. According to results, a negative correlation exists between IC and internal performance of the Financial Services firms, whereas, the same relation is positive for the Manufacturing firms. However, the correlation between IC and external performance in both sectors maintains a positive association whilst the Manufacturing sector demonstrates a stronger one. In addition, the investor response on IC stands as positive in both sectors. Further, it has been found a substantially diverse pattern in the two selected sectors in respect to the valuation of IC components by investors. Under this, investors of Financial Services sector do emphasize positively on each component in which the emphasis is significant on the physical capital value creation efficiency. In contrast, the investors in the Manufacturing firms positively response on human capital component, and they do not place values on the other two components.

The results of the financial year-wise cross-sectional analysis show an improved positive relation between IC and internal performance in 2005 and 2006 compared to other financial years considered for the analysis. Similarly, the relationship between IC and external performance has reported a considerable positive relationship (around 0.3) for the financial years 2005 and 2006. However, the positive association that has been identified between IC and investor response in the principal cross sectional analysis has reported as negative in this analysis. Moreover, the results in this analysis, especially for 2005 and 2006, report a same nature of association by being consistent with the identified significant positive relation between investor decisions and value creation efficiency of physical capital in the principal cross sectional analysis. However, the results of the financial year-wise analysis report a negative association between human capital and investor response, and also indicate a significantly positive emphasis on structural capital for 2006.

The comparison of conclusions of the study with the extant literature would also provide an impetus for the current study. In this regard the researcher has selected several key studies in the literature on IC, and this task has begun by comparing the results of this study with another key study by Chen et al. (2005). The study by Chen et al. (2005) was conducted by selecting listed companies on Taiwan Stock Exchange during 1992 to 2002, and by adopting VAIC method for measuring the IC. The results of both Chen et al. (2005) and current study indicate that IC has a positive impact on financial performance of firms. However, the level of significance of results between two studies has been reported with variances as Chen et al. (2005) reports a coefficient value on VAIC in ROE model as 0.39, whereas, the current study on listed companies on CSE reports 0.02. The reasons for this difference can be identified in the lanes of methodology adopted in two comparative studies, and contextual differences between two nations. Under the methodological differences, the representative companies in samples of two studies create a great influence on results. In the Chen et al. (2005), major composition of the sample was represented by the Electronic Industrial companies, where, Taiwan plays an important role in the global electronic appliances supply chain, and this industry considered being the most important industry in Taiwan. Comparatively, the study on CSE has included the financial services sector and manufacturing sector firms in order to maintain a balanced view on usage of IC, as Firer and Williams (2003) have identified that the

Financial Services sector uses IC heavily in the value creation process, and the Manufacturing sector does not emphasize more on IC. In addition, the suggested modifications to the VAIC model in the current study are also affected in reporting diverse results. In this respect the Chen et al. (2005) have used the VAIC model in the perspective of stakeholder theory compared to the study on CSE has used the VAIC model with the view of stewardship theory. Moreover, the contextual differences (Marr et al., 2004) and technological advancements (Firer & Williams, 2003) have been identified as determinants of a nation's level of IC. Therefore, the advancements in social, economic and technological aspects in Taiwan in comparison to Sri Lanka may have affected in reporting diverse results. Apart from the relation between IC and financial performance, the results of investor response on IC and investor emphasis on each component of IC can also be compared. Chen et al. (2005) have found that investors place higher values on firms with greater IC and also the investors place different values on three components of value creation efficiencies. Same as the results in above study, the study on CSE too indicates that investors place values on IC and also place different values on components of value creation efficiencies. However, the coefficients on VAIC in the model of testing the investor response have some variations as the coefficient in the Taiwan study stands as 0.065 and in Sri Lanka 0.022. Further, this would indicate that Taiwanese investors are more concerned on IC. Similarly, the coefficient on VACA 8.24 in Taiwan and 1.53 in Sri Lanka indicate that investors in both contexts are more concerned on value creation efficiency of physical capital. However, the coefficient VAHU 0.082 in Sri Lanka in comparison to 0.009 in Taiwan explains that Sri Lankan investors pay more attention on human capital aspect than Taiwanese investors do. Further, the positive coefficient on STVA in contrast to the negative coefficient in Sri Lanka indicates that the emphasis on structural capital by Taiwanese investors is significant. In conclusion, the above comparisons enunciate the fact that investor response on Taiwan firms is greatly determined by the value creation of physical capital and structural capital, whereas, in Sri Lanka by physical capital and human capital.

In another study by Tan et al. (2007), investigating the association between IC and financial performance of 150 publicly listed companies on Singapore Exchange has found that IC and company performance is positively related. Therefore, the results of the CSE study are also consistent with above findings as IC is positively correlated with both internal and external performance in the principal cross sectional analysis. However, strengths of the associations are relatively low in the CSE study.

Firer and Williams (2003) have conducted a study to identify the association between IC and performance of the South African publicly traded companies. The findings of the study indicate that human capital and structural capital efficiencies as not significantly correlated with performance. In comparing the results of the study on CSE with Firer and Williams (2003), the results of the analysis 2002 in the current study has been selected as Firer and Williams (2003) have conducted the research for 2001. Accordingly, in the Sri Lankan study, the correlation between IC and ROE is 0.195 and the relation between IC and HPR is 0.036 in comparison to the negative values in Firer and Williams (2003). Therefore, it can be concluded that results in the Sri Lankan context is slightly favorable than the South African setting.

Tayles et al. (2007) suggest that the investment in IC is associated with business performance of large Malaysian firms. Similarly, the same association can be

witnessed in the Sri Lankan listed firms though there is a methodological difference between two studies. Moreover, the study on CSE provides evidence to the suggested further research by Tayles et al. (2007) as to establish an association between IC and stock market performance that appears in secondary data sources.

Riahi-Belkaoui (2003) concludes identifying a positive effect from IC on financial performance of US multinational firms. In line with this, though the selected sample is comparatively different, the study on CSE listed firms is also reported a positive relation with IC and internal performance though the strength of the relation is relatively low in latter study.

Nazari and Herremans (2007) have identified an inherent limitation for many micro-level IC measuring models as they are using internally available data. However, according to them the introduction of VAIC model has been able to alleviate that limitation, and also they have encouraged other researchers to apply the model in different settings. In this respect, the empirical study in Sri Lanka has been able to provide additional evidence to this suggestion.

Although the study has been able to generate important findings on the selected phenomenon in the Sri Lankan context, it is not free from some limitations that are discussed in detail in the following section.

Limitations of the Study

The present study has certain limitations that need to be taken into account when referring the study, and its contribution. Moreover, any subsequent researcher who wishes to draw upon this study will have to consider the limitations arise out of the empirical context within which this study has been undertaken. More specifically, the inability to generalize findings beyond the selected empirical context remains as the forefront limitation. This intrinsic limitation has also been identified as a continuing paradox for research conducts in relation to the RBV of the firm, and this inability creates as a result of identifying idiosyncratic resources in conducting research on the RBV (Gibbert, 2006). Further, Levitas and Ndofor (2006) view that IC resources as a subset of the broader resource categories of the firm and they too have recognized the generalizability issue (issue on external validity) attached in studies related to the RBV. Therefore, if generalization takes place the resource criterion which common for both RBV and IC theories, idiosyncrasy, would violate. However, Cook and Campbell (1979) as cited in Levitas and Ndofor (2006: 137) view that the external validity as the least important among methodological validities.

In addition to the in-born generalizability issue that has been discussed in above, the generalization of findings of this study to another context has to be considered with a proper understanding of the context-specific differences in accounting practices and traditions. Apart from the impact of national accounting practices and traditions, the impact of context-specific factors such as socio, cultural, political, economic and more importantly the technological advancements are essentially restricting the generalization of findings to diverse settings. Moreover, any effort to generalize findings of the study to any other sector other than the Financial Services and Manufacturing sectors even within the country can also create tribulations as resource base of other sectors are relatively different from one another. However, the findings

of this study can be applied in formulating a fair view of how the listed firms on CSE are benefiting from IC, because, the extant literature on IC identifies that the Financial Service sector heavily utilizes IC resources while manufacturing sector stands in the other end.

The restriction of data sample into two sectors from twenty sectors listed on CSE, and limiting the collection of data to only financial year 2002 to 2006 can also be considered as some of the delimitations of the study. In relation to the selection of time horizon for the study, the researcher has intentionally omitted data before the financial year 2002 as the concept of IC was not that popular among accounting professionals and other interested parties in Sri Lanka at that time, and the non-availability of published annual reports of some companies at the completion of data collection, compelled the researcher to ignore data for 2007 and 2008. However, the limitations discussed here may be starting points for future research works on IC.

Directions for Future Research

Essentially, the future researchers would find a broader platform to initiate their research on the theme by lifting the self-imposed limitations of the current study. In this respect, as a way out to generalizing issues, the potential studies can be carried out as a full market wide study in the Sri Lankan context so that it would provide a better external validity. However, the future researchers will have to pay their attention on the question of collecting data from organizations that are not publishing audited financial statements.

Moreover, the potential research on this emerging theme can be focused in identifying the changes in the established relationships in this study for IC and internal performance, external performance, investor response, and valuation of components of IC by investors in recently concluded financial years such as, 2007 and 2008.

Further, there is an enormous space to explore the issue on most efficient and rigorous measure for measuring IC as still there are no consensuses on it as this is an emerging discipline. Moreover, the future studies can consider in exploring the level of preparedness of Sri Lankan organizations to better harness the IC resources, and to which extent the macro factors of the nation are affecting in embracing and proliferating the value creations of IC resources.

Implications of the Study

The results of the current study are important for developing countries as IC has increasingly been recognized as the major driver of corporate and national growth as illustrated in Kaplan and Norton (2004) citing Tan et al. (2007) p.194. Further, having known the fact that stimulation of investments is an urgent task of governments of developing countries; the results of the study reveal that the development of IC resources is no less important than capital investments on physical resources in the process of creating value and sustainable advantages. Therefore, the national policy makers even in the Sri Lankan context will have to pay more attention on the issue and have to allocate resources to expand the volume of IC resources, especially structural capital. Furthermore, the results are generally interested to numerous stakeholders such as, shareholders, institutional investors, scholars, and managers.

Meantime, the relations between IC and performance help to embolden the modern day managers to harness and manage IC to their betterment. Moreover, the positive relationship between IC and performance spur the managers to develop knowledge-based strategies, especially in order to increase the efficiency of IC related assets. Similarly, this study would help shareholders to understand the performance of IC of their companies, and the study would be considered as an example on that regard with its simple approach to measure the level of IC.

In addition to the above-identified practical implications, the empirical findings imply that despite the efforts to improve firm's IC base the business environment and market in Sri Lanka still appear to place a greater weight on corporate performance based on physical capital. This implies that the need of intensifying the relevant initiatives to encourage a greater acceptance and understanding of the concept, IC.

The ranking of IC has also made it possible to establish priorities and develop strategic plans, which will in turn enhance their future performance. The ranking could also help stakeholders and investors to assess the value creating potential of sample companies. Eventually, these findings are important in formulating and implementing policies for IC, categorically, to identify the necessity of formulating a framework for reporting IC as suggested by Abeysekera (2007).

In line with the promised contribution in drawing the research idea, the study has able to add the much discussed multidimensionality to an existing IC measure by looking at the value addition aspect from the stewardship theory, alternative to the economic value addition and value addition based on the stakeholder theory. In addition to the theoretical contribution discussed above, this study has also been able to contribute to the on going debate in IC literature by studying an issue beyond the aspect of IC reporting. Further, this study may stand as the first study which has explored the potential benefits from IC to the firms in the context of Sri Lanka.

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