

MEDIATING EFFECT OF MANAGEMENT ACCOUNTING PRACTICES ON THE RELATIONSHIP BETWEEN INTELLECTUAL CAPITAL AND FIRM PERFORMANCE

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ABSTRACT

The review of literature on intellectual capital (IC) performance and management accounting practices (MAP) indicates a close association between the elements of IC and the elements of MAP. Previous studies focused more on improving performance through Intellectual Capital and Management Accounting Practices, taking them separately, but failed to look at the combined effect of IC and MAP, while many studies in Asian context looked at measuring IC rather than its influence on firm performance. Thus, the purpose of the present study is to understand the interaction of Intellectual Capital and Management Accounting Practices that could influence Firm Performance, particularly, the mediating role of MAP in explaining the relationship between IC and firm performance. Data for the study was collected using a questionnaire administered in 82 financial institutions in Sri Lanka. The questionnaires were distributed among finance managers of thirteen banks, nineteen finance and leasing companies and fifty insurance companies. All respondents were at the senior managerial level. The collected data was analyzed through structural equation modeling using the SmartPLS Package. Pearson correlation coefficients were obtained to test the hypotheses of the study. This study is, to the best of our knowledge, the first study to establish the mediating effect of management accounting practices on the relationship between IC and firm performance. The study found a positive relationship between IC and firm performance, and a positive relationship between MAP and firm performance. Moreover, the study revealed that MAP mediates the relationship between IC and firm performance. The findings of the study support the theoretically expected positive relationship between IC and firm performance. Further, the empirical results of the study confirm the Resource-Based View of the firm, which asserts that resources would bring competitive advantages to the firm. The findings also encourage managers to use non-financial information, especially relating to employees, customers, and processes, to design key performance indicators of the firm in order to enhance the value creating ability of the intangible assets of the firm. The study further adds empirical evidence to the impact of IC and its components; human capital, structural capital and relational capital, on management accounting practices of Sri Lankan financial institutions.

Keywords: Intellectual Capital, Management Accounting Practices, Firm Performance, Financial Institutions, Sri Lanka

Introduction

Organizations use management accounting practices (MAP) to make decisions regarding the effective and efficient use of resources. In the past, several management accounting practices such as activity-based-costing, balanced scorecard, and bottleneck accounting were developed with the purpose of improving organizational performance. However, in practice, performance is improved by applying management accounting practices in different ways (Kaplan and Norton, 1996). The inconsistency in performance implies that there could be other factors that influence firm performance. Previous studies have identified knowledge management (Williamson, 2004), environment management (Klassen and McLaughlin 1996), corporate governance (Bhagat and Bolton, 2008) and intellectual capital (IC) (Tayles, Pike, and Sofian, 2007) as determinants of firm performance. In the contemporary knowledge-based business environment, IC becomes more relevant than the other factors (Tayles et al., 2007), as it creates superior performance in organizations in a sustainable manner.

IC refers to valuable, intangible, and inimitable resources which could be used in creating value for the firm (Marr and Chatzkel, 2004). Furthermore, IC bears the characteristics of rarity, inimitability, non-substitutability and non-observability (Ahmed Riahi-Belkaoui, 2003). According to Golfetto and Gibbert (2006), resources which are imperfectly mobile, simultaneously valuable, rare, costly to imitate, and non-substitutable are considered strategic assets. Given the afore-mentioned characteristics of IC, it qualifies to be a strategic asset which generates competitive advantages and superior performance for the firm. Firms utilize IC in their value creation processes to generate performance through the quality of relationships, structures, and people (Segelod, 1998). IC contributes towards both achieving and sustaining a competitive advantage (Wu, Chang & Chen, 2006). This focus on IC shows that it provides a greater competitive advantage and that it improves firm performance. Consequently, IC has become an alternative to tangible physical assets and capital as the primary basis of creating value (Wu et al., 2006). Hermans and Kauranen (2005) argued that the combination of well-balanced components of IC implies high value creation potential and anticipated future income. Thus, drawing from the resource-based theory, IC can be construed as contributing to an increase in an organization's competitive advantage due to the superior value created by its unique resources and capabilities.

The literature on Intellectual Capital in the Asian context is varied, and relies heavily on external reporting (reporting on financial statements) of Intellectual Capital (Abeysekera & Guthrie, 2005, Phusavat, Comepa, Sitko-Lutek & Ooi, 2012.). However, external financial statements provide very limited information on Intellectual Capital (Financial Accounting Standards Board, 2001). Moreover, there is little evidence provided by internal reporting systems for Intellectual Capital that provides

managers with reliable information for decision making on strategic direction, risk factors, experience, integrity and managerial qualities leading to Firm Performance (Aruppallal, Wickramasinghe, & Mahakalanda, 2015). Previous studies (Naranjo-Gil & Hartmann, 2006) focused more on improving performance through Intellectual Capital and Management Accounting Practices, taking them separately, but failed to look at the combined effect of IC and MAP, while many studies in the Asian context looked at measuring IC (Nimtrakoon, 2015) rather than its influence on Firm performance. Thus, the purpose of the present study is to understand the interaction of Intellectual Capital and Management Accounting Practices that could influence Firm Performance

Research Objectives

More specifically, the objectives of this study are to examine (i) the relationship between Intellectual Capital and Firm Performance (ii) the relationship between Intellectual Capital and Management Accounting Practices and (iii) the influence of MAP on the relationship between Intellectual Capital and Firm Performance.

Research questions

The study raises the questions (i) Does MAP mediate the relationship between IC and Firm performance? (ii) Does any particular IC component have a greater influence on firm performance?

Significance of the study

A study of IC in the financial industrial context appears to be both appealing and appropriate, firstly because the financial industry is heavily dependent on an efficient utilization of IC for achieving success when compared to other industries, because delivering high quality services by a financial institution depends on its investment in elements of items related to IC such as its human resources, brand building, systems, and processes (Ahuja and Ahuja,(2012), Secondly, there is a scarcity of empirical evidence discussed in relation to IC, MAP (Cleary, 2015) and firm performance, and this study attempts to address this gap. This study contributes significantly to the area of study since it helps the financial industry to effectively use MAP to improve firm performance through the efficient and effective utilization of IC.

The remainder of the paper is structured as follows. In the subsequent section, the literature related to IC, management accounting, and firm performance is reviewed. The conceptual framework, hypotheses, and other methodological concerns of the study are represented in Section 3. Section 4 presents the empirical results and highlights the findings of the study. Section 5 concludes with a discussion of the theoretical and practical contributions of the paper, its limitations and suggestions for further research.

2. Literature review

2.1 Intellectual capital

IC is the possession of knowledge and experience, professional knowledge and skills, good relationships, and technological capacities, which when applied will give organizations a competitive advantage (CIMA, 2001; Choo and Bontis, 2002; Dumay, 2013). IC has three components: human capital(HC), structural capital(SC), and relationship capital(RC) (Bontis, 1998; Tayles et al., 2007; Stahle P., Stahle S. & Aho, 2011). According to the above authors, HC comprises of the knowledge, professional skills and experience, and creativity of employees. Scafarto,, Ricci & Scafarto (2016) further identified that SC consists of innovation capital (intellectual assets such as patents) and process capital (organizational procedures and processes) and suggested that each IC component will positively affect business performance.

Relationship capital (RC) comprises of the knowledge of market channels, customer and supplier relationships and governmental or industrial networks (Stahle et al., 2011).Furthermore, the authors include all resources that are linked to the external relationships of the firm with customers, suppliers, or other stakeholders within RC. Therefore, RC could be considered as the knowledge that is embedded in the relationships with any stakeholder, in other words, knowledge that will affect the life of the firm.

2.2 Effect of Intellectual Capital on Firm Performance

Firer and Williams (2003) reported that a relationship between the value addition of a company's intangible resources and productivity, profitability, and market valuation is generally limited and mixed. A case study conducted on Telekom Malaysia Berhad (TMB) by Muhammad and Ismail (2009) uncovered the fact that leveraging and managing IC, knowledge management, and spiritual capital had a greater impact on TMB's overall performance when compared to other types of capital. The findings even illustrated the fact that the inability of TMB to manage and leverage IC to an optimum level has contributed to the slowdown of growth of performance.

Using a database of 18 companies for the year 2007, Muhammad and Ismail (2009) attempted to examine the effectiveness of IC and its performance in the financial sectors of Malaysia. Subsequently, the authors found that the banking sector was the most relaxed with regard to IC, followed by companies in the insurance industry and the brokerage industry. Moreover, the authors found that IC has a positive relationship with firm performance (measured through return on assets).According to Janošević and Bontis (2016), firms that have invested highly in IC would have a better opportunity to utilize future opportunities.

Using eleven company cases in the UK, Beattie and Smith (2013) revealed conceptual linkages between IC, value creation, and business models. They concluded that the business model concept offers a powerful overarching concept within which to re-focus the IC debate. Salehi Enayati & Javadi, (2014) investigated the relationship between IC and the economic value added of the listed companies on the Tehran Stock Exchange. The results of the study showed that there is a significant relationship between intellectual capital efficiency, relational capital efficiency, human capital efficiency, structural capital efficiency, and economic value added. Research by Cleary and Quinn (2016) on intellectual capital in Irish Small and Medium Enterprises, found that IC and its three components have a positive impact on performance. Another research study by Dženopoljac, Janošević and Bontis (2016) examined the role of intellectual capital (IC) in creating value in the Serbian information communication technology (ICT) sector, and found that there is no relationship between IC and financial performance, but that capital employed efficiency has a relationship with Financial Performance.

Penrose (2009) argued that it is not the resources themselves that create value but how those resources are used in combination with each other. In other words, both intangible and tangible resources are only like the raw materials that are combined and coordinated in production processes that add value. Organizations with identical resource architectures can use their resources in very different ways, and consequently their firm performance outcomes can vary to a great extent (Kianto, 2014). Therefore, a great deal of IC resides in managerial capabilities like Management Accounting Practices (MAP), orchestrating the organizational resource base.

2.3 Management Accounting Practices and Intellectual Capital

Management Accounting is defined as a branch of accounting that channels information to managers regarding internal and external business environments (BPP Professional Education, 2005). Novas, Alves & Sousa, (2017) reported that there is a positive and statistically significant relationship between Management Accounting Systems (MAS) and the three dimensions of IC. Moreover, Bontis (1998) stated that with an understanding of organizational, behavioral, as well as economic implications, management accountants should be able to interpret and communicate management accounting information to stakeholders. Therefore, it could be argued that organizations could perform better than their competitors with an effective use of management accounting, since it would offer timely and accurate information to their decision makers.

Previous studies support a positive relationship between MAP and Firm Performance. Cleary (2015) developed a model to analyze the relations between MAP, IC, and performance in the Irish sector of communication and information technologies, and suggested a direct relationship between MAP and IC. Lynn(2000) reinforced the idea that MAP provide the conditions for knowledge (which is only the raw material used to create IC) and which is converted into HC, SC, and RC. This argument was further strengthened by Tayles et al., (2007) when they supported the hypothesis that Management Accounting Practices support the development of IC through the development of its dimensions HC, SC, and RC. Cleary, 2015 further supported the previous research study on the relationship between the three elements of IC and business performance. Massaro, Dumay and Bagnoli (2015), investigating empirically how IC affects strategic intent and how strategic intent fosters IC development, found that the three components of IC strongly support a firm's performance and that the firm should pay special attention to product and service diversification which is linked closely to MAP.

2.4 The effect of Management Accounting Practices on Firm Performance

Mikes (2006), on the other hand, studied both risk management and management accounting control as multiple control systems in an organization. They conducted a case study to explore the changing context and internal dynamics of a multiple control system acting as the divisional control in a financial services organization. Based on a political and institutional perspective, Mikes(2006)showed how two control systems, the risk management system and accounting controls (being part of MAP), complemented one another and influenced firm performance. Research into MAP suggests that MAP has an important role in ensuring efficiency in the management of a firm and thus serve to improve firm performance. Ahmad and Zabr (2015) in their study using data from 500 Malaysian firms reported that MAP play an important role in the management of small and medium-sized organizations, especially to increase efficiency and effectiveness in their management processes, resulting in better firm performance.

The current pace of technological and economic innovation in financial markets illustrates the critical need for information as an aid for sound decision-making in financial institutions (Hussain, 2000). This need for information could be achieved through MAP. Through the advancement of information technology, management accounting information could be incorporated into many functions in the organization. Hence, the advancement of management accounting information is essential for value creation and for the future success and continued existence of an organization (IFAC, 1998). Proposing a different point of view, Mouck (2000) states that the traditional capital budgeting model is almost useless for increasing returns in sectors that are highly technical and that operate in a knowledge era. Another study by Tayles et al., (2007) on companies in Malaysia states that IC is closely linked with MAP, business performance, and the ability to counter the negative effects of the market.

2.5 The Influence of Intellectual Capital and, Management Accounting Practices on Firm Performance

Tayles, Bramley, Adshead & Farr (2002) argued that the attainment of successful Management Accounting Practices supports the management of Intellectual Capital. This was further supported by Novas, Sousa, & Alves, M. D. C., (2012) who revealed that Management Accounting Practices have a statistically significant positive effect on the level of investment in Intellectual Capital. Further, several authors Chu, Chan and Wu et al., (2011) and Williamson (2004), have proposed that Management

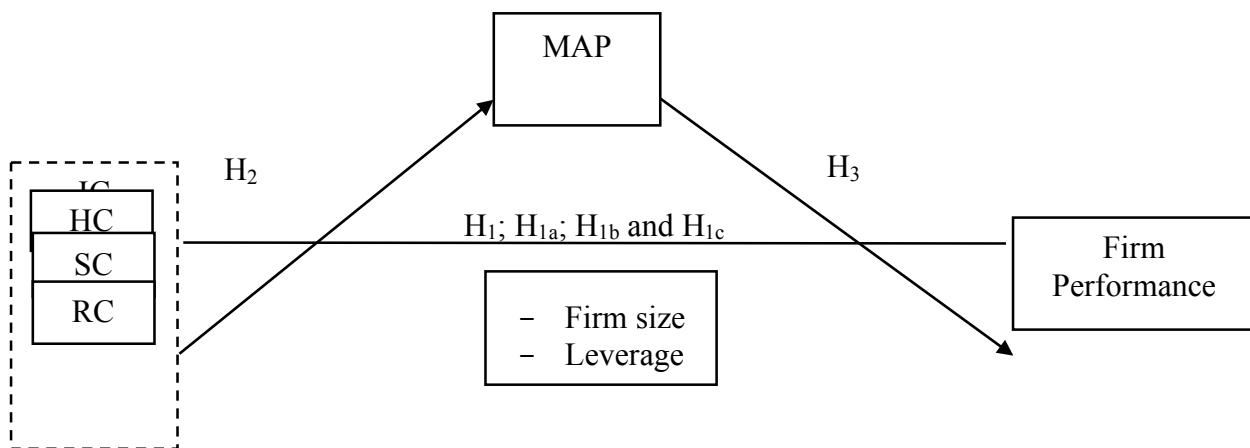
Accounting practices support risk management activities. Thus, both Intellectual Capital and Management Accounting practices are expected to complement each other and serve the purpose of aiding decision-making in enterprises in order to improve performance

Novas et.al., (2017) examined the role of management accounting systems (MAS) in the development of intellectual capital (IC) with the elements of human capital (HC), structural capital (SC), and relational capital (RC) and the resultant effects on organizational performance. They reported positive and statistically significant relationships between the three dimensions of IC, in line with previous research, and reported further, that SC has a positive and significant link with organizational performance. This study highlights the role of MAS as information networks that collect, process, and communicate information that influence the development of IC, as well as being networks of relationships that support the establishment of conditions for the creation and integration of organizational knowledge and the development of IC.

Conceptual framework and Hypotheses

Based on the literature review, this study adopts the definition that IC is comprised of knowledge-related, intangible assets that create competitive advantage and superior performance in a sustainable manner. Moreover, the study separates IC into HC, SC, and RC as shown in Figure1. The conceptual framework illustrates the impact of MAP on firm performance and the observed interrelationship between IC and MAP.

Figure 1: Conceptual Framework



As illustrated in Figure 1: Conceptual Framework, the following hypotheses are identified:

- H₁:** IC has a positive relationship with firm performance.
 - H_{1a}: HC has a positive relationship with firm performance.
 - H_{1b}: SC has a positive relationship with firm performance.
 - H_{1c}: RC has a positive relationship with firm performance.
- H₂:** IC has a positive relationship with MAP
- H₃:** MAP has a positive relationship with firm performance
- H₄:** MAP mediates the relationship between IC and firm performance.

3. Methodology

This study is based on the positivistic research philosophy which assumes that reality is stable and can be observed and described from an objective viewpoint (Levin, 1988). Accordingly, the deductive approach and quantitative method were selected as they permit the formulation of hypotheses and the statistical testing of expected results to an accepted level of probability (Snieder and Lerner, 2009).

Sample and Data Collection

Based on prior research on IC, the study employed a questionnaire survey for data collection (Bontis, 1998; Dooley, 2000; Lovero, 2000; Usoff & Thibodeau., 2002).The study employed 82 financial institutions in Sri Lanka in 2016 (Central Bank report, 2015), The unit of analysis of this study was the firm, and these firms comprised of 82 financial institutions in Sri Lanka. The questionnaires were distributed among finance managers of thirteen banks, nineteen finance and leasing companies and fifty insurance companies. All respondents were at the senior managerial level.

Kannan and Aulbur (2004) have studied the use of perceptual measures in intellectual capital research extensively. They argue that perceptual measures are often used to examine organizational factors that contribute to employee performance, human capital development, and organizational performance. Given that intangible assets are difficult to measure objectively, it is common to find the use of proxy metrics and perceptual measures (Kannan and Aulbur, 2004). Thus, in this study, the measurement of IC and firm performance is based on the instrument developed by Sharabati, Naji Jawad & Bontis, 2010. IC was measured in three dimensions: HC; Learning and education, Experience and expertise- Innovation and creation; SC; Structural capital systems and programs, Research and development (R&D), and Intellectual property rights (IPRs), and RC; Strategic alliances, Licensing and agreements, Customer and supplier relations, and Customer knowledge. Firm performance was measured using 10 items such as the “company has an improving market value”, and the “company ensures a sustainable profit growth”. The instrument developed by Naranjo-Gil & Hartmann, 2006 was used to measure MAP as it consists of questions based on the style used in MAP and the type of management accounting information used by the financial institutions. The respondents were asked to rank their answers using a Likert type scale ranging from 1 (strongly disagree) to 5 (strongly agree) based on the current status of the company. The use of innovative management accounting systems information was assessed through 6 items on a Likert type scale where if the given technique is not known, the value was taken as 0, a very low application as 1, and very high application as 5. Altogether, eighteen techniques were listed, including some techniques related to the Balanced Scorecard, Value Chain Analysis, and Total Quality. The unit of analysis of this study was the financial firms in Sri Lanka. Financial firms were selected for this study as they had exposure to both MAP as well as IC in the Sri Lankan context. Teece (2012) in his study collected data from senior managers, arguing that they are the ideal personnel to provide information at an organizational level.

Data analysis

Before estimating a structured model to draw statistical evidence to test the hypotheses of this study, the necessary pre-tests were carried out to ascertain whether the collected data is suitable for the estimation. In this respect, the study uses the Kolmogorov-Smirnov test statistic and the Shapiro-Wilk test statistic to check the normality of the distribution of data. Since these test statistics revealed that half the variables used in the study did not score a significant value of more than 0.05, the assumption of normality for the data set was not satisfactory (Kothari, 2004). Since the data collected for this study are non – normal and also the sample size of this study is relatively small (i.e. 82 respondents), the projected model is expected to generate relatively complex relationships (Chengalur-Smith, Duchessi & Gil-Garcia, 2012; Hair, Black, Babin, Anderson & Tatham., 2006). In such cases, the Partial Least Squares (PLS) method is more appropriate to find statistical evidence (Handbook of Partial Least Squares, 2010). Therefore, the SmartPLS Package was used in this study. Tests for linearity and homoscedasticity were omitted as the bootstrapping technique was applied to analyze the data. However, a Pearson correlation coefficient analysis was performed and it verified that there is no multicollinearity seen among the independent variables of the study, as the correlation values did not exceed 0.85.

4.1 Measurement model

According to Hair et al., (2006), testing of the measurement model prior to testing the structural model is essential because a valid structural theory test cannot be conducted with bad measures.

The purpose of developing a measurement model is to assess the reliability and validity of the constructs used in the study. In this respect, the average variance extracted (AVE) and the reliability of the constructs are examined in Table 1. According to the Table, the construct reliability of the measurement model indicators is proven, since the composite reliability and Cronbach’s Alpha are all well above 0.7. In fact, convergent validity was ensured, as all the indicators have achieved an AVE value of well above 0.5. Meanwhile, the firm size and firm leverage, the control variables of the model, are considered observed variables and are not included in Table 1.

Discriminant validity is assessed by comparing AVE values and Squared Multiple Correlations (SMC) of variables. According to Table 1, it is clear that the diagonal values (square root of AVE) are higher than the correlation values, row wise and column wise. Hence, the measurement model, the validity, and the reliability are justified through the results obtained. Therefore, the first step of the PLS analysis is completed.

Table 1: Descriptive, Validity and Reliability Statistics

Construct/ Variable	Mean	SD	Factor Loading	AVE	CR	Cronbach’s Alpha	AVE Vs SMC				
							IC	FP	MAP	SIZ E	
IC	HC	2.93	0.520	0.917	0.796	0.921	0.872				
	RC	2.89	0.450	0.893				0.796**			
	SC	2.94	0.493	0.865							
		3.14	0.362	1.000							
FP	2.96	0.409	0.783	0.856	0.874	0.768	0.651**		0.856**		
MAP	TYPE				0.706	0.825	0.715	0.587**	0.658**		

<i>USE</i>	3.04	0.331	0.855
Control Variables			
<i>SIZE</i>	2.96	0.349	1.000
<i>LEVERAGE</i>	2.77	0.734	1.000

Notes: Number of observations is 82; ** Significant at 0.5 percent level

4.2 Estimation of the structural model

Estimates of the structural model in Table 2 illustrate the relationship between exogenous (i.e. IC) and endogenous variables (i.e. MAP and financial performance) in the model presented in Figure 1: Conceptual Framework. The estimates related to testing the mediating effect of MAP on the relationship between IC and firm performance are depicted in Table 3. The standardized beta value of the traditional regression model was considered as the path coefficient. The significance was determined using the t-value generated through bootstrapping.

Table 2: Correlation Statistics

<i>Variable</i>	<i>FP</i>	<i>MAP</i>	<i>Relative Hypothesis</i>
<i>IC</i>	0.624**	0.608**	H ₂
<i>HC</i>	0.610**	0.510**	H _{2a}
<i>IC RC</i>	0.585**	0.540**	H _{2b}
<i>SC</i>	0.395**	0.578**	H _{2c}
<i>MAP</i>	0.479**		
<i>SIZE</i>	0.060**		
<i>LEVERAGE</i>	0.123**		

Notes: Number of observations is 82; ** Significant at 0.5 percent level

According to the results presented in Table 2, a statistically significant positive correlation between IC and firm performance could be observed at the 5 per cent significance level. Hence, the statistics establish the relationship predicted in H₁ of the study. Moreover, the R² value for firm performance is 0.624 (p= 9.806). Thus, 62 per cent of the total variation in firm performance is explained by the level of IC in the firms selected for the study. The three components of IC -HC, SC and RC- also have path coefficients of 0.610 (p= 7.026), 0.585 (p= 8.166), and 0.395 (p= 4.574) respectively, at a 5 per cent significance level. Likewise, the results suggest that there are statistically significant positive relationships between all three components (HC, SC and RC) and the performance of the firms selected for the study. This confirms H_{1a}, H_{1b}, and H_{1c} of the study. Moreover, it can be seen that HC contributes more to firm performance than the other two components.

Intellectual Capital has a significant positive causal impact (0.596, p=10.973) on Management Accounting Practices. Following the same pattern, the three elements of Intellectual Capital (HIC, RIC and SIC) have correlation coefficients of 0.510 (p= 6.1840), 0.540 (p=8.405) and 0.578 (p= 9.864) respectively with Management Accounting Practices, at the 0.05 significance level. Furthermore, SIC has a higher impact on Management Accounting Practices than the other two elements.

According to the correlation statistics in Table 2, there is a positive, significant relationship between management accounting practices and firm performance (0.479, p=9.402), which is significant at the 0.05 significance level. Thus, H₃ of the study is confirmed.

Table 3: Path Analysis

<i>Path</i>	<i>Direct effect</i>	<i>T-Value</i>	<i>Indirect effect</i>	<i>T-Value</i>	<i>Decision</i>
IC → FP	0.534**	7.150	0.330**	4.013	Partial mediation
HC → FP	0.509**	4.824	0.353**	4.059	Partial mediation
SC → FP	0.494**	5.631	0.343**	4.662	Partial mediation
RC → FP	0.361**	4.464	0.049**	0.525	Full mediation

Notes: Number of observations is 82; ** Significant at 0.5 percent

A variable may be considered as a mediator to the extent to which it carries the influence of a given independent variable (IV) onto a given dependent variable (DV). Usually, mediation can be said to occur when the IV significantly affects the mediator, and the IV significantly affects the DV during the nonappearance of the mediator, while the mediator has a significant unique effect on the DV, and the effect of the IV on the DV shrinks on the addition of the mediator to the model (Preacher and Hayes, 2008). These criteria can be employed to judge whether or not mediation takes place. As indicated in Table 3, all of the three conditions above are satisfied; this suggests that the mediator of the present study (i.e. MAP) has a significant unique effect on the DV of the study (i.e. firm performance), which is true for all four mediating relationships as predicted in H_4 , H_{4a} , H_{4b} , and H_{4c} .

Furthermore, MAP becomes a partial mediator, as both direct paths and indirect paths are significant in most of the relationships except those involving H_{4c} . Due to the partial mediation, the strength of the relationships between IC, HIC, and RIC and firm performance increases (see the total effect value in Table 3). However, the full mediation of MAP (see Table 3) on the relationship between SIC and firm performance has decreased the strength of the correlation observed without the mediating effect (see Table 2).

5. Findings and Discussion

This study found a positive relationship between IC and firm performance which is mediated by MAP. Moreover, the findings of the study support the Resource-Based View which asserts that resources would bring a competitive advantage to improving performance. According to the findings, IC and especially human capital, becomes an important resource to the selected firms in this study in achieving a higher performance. The findings of the study also support the findings of Goh (2005), where the researcher studied Malaysian commercial banks and found that generally, all banks have comparatively higher human capital efficiency than relational or structural capital efficiencies. The study further supports the work of Andreeva & Garanina (2016), where the researchers found that structural and human capital positively influence organizational performance. Further, the reported positive influence of IC on firm performance in the present study supports the positive impact of IC on firm performance found by Komnenic and Pokrajcic (2012).

The present study reported a statistically significant correlation of 0.624 between IC and firm performance. This finding is in line with the correlation found between the same variables in the study by Abdullah and Sofian (2012). This study establishes a mediating effect of MAP on the relationship between IC and firm performance. This mediating effect could also be observed with similarities in the elements of IC and the components of MAP. Hence, incorporation of MAP to organizational practices and thus strengthening them would improve the performance of the IC of the firm. Further, the literature points to the need for reshaping MAP with intangible and non-monetary means in order to gain the relevance of IC (Edvinsson and Malone, 1997; Kaplan and Norton, 1996, Skoog, Koga, Johanson and Henningsson, 2002; Sveiby, 1997).

This study establishes the mediating effect of Management Accounting Practices on the relationship between Intellectual Capital and Firm Performance, which supports the Resource Based View. Therefore, the mediating role of Management Accounting Practices established in this study suggests incorporating Management Accounting Practices where the performance of Intellectual Capital could be improved. The study further supports the view that in the Asian context there is a need to reshape Management Accounting Practices utilizing intangible and non-monetary means in order to regain relevance of MAP to firm performance. (Edvinsson & Malone, 1997; Kaplan & Norton, 1996, Skoog, Koga, Johanson & Henningsson, 2002; Sveiby, 1997).

Furthermore, the present study supports the fact that IC exists in the form of human, structural, and relational capital, which bring competitive advantage to the organization. It could also be seen that MAP is built on IC, thus confirming the findings of Grantt (1991). Therefore, the usage of strategic resources like IC and capabilities such as MAP could be built and strengthened in order to create competitive advantages.

While most managers are aware of the importance of their organization's IC, they lack the means by which to obtain information about it and how to manage it (Sveiby, 1997). The mediating effect established in the present study provides a valid solution for the above issue, as managers could use MAP to institutionalize IC and enhance the performance of their firms which operate in a knowledge-based economy. Moreover, it could also be said that management accounting practices are not only cost reducing techniques but also value adding activities. The findings of the study support the view of Inkinen (2015), who found that IC influences firm performance mainly through interactions, combinations, and mediations.

Conclusion

The aims of this paper were to understand the influence of MAP on the relationship between Intellectual Capital and Firm Performance and the relationships between Intellectual Capital, Firm performance, and Management Accounting Practices. The empirical investigations of this study supported the hypothesis that Firm Performance is positively influenced by Intellectual Capital. The study also revealed that MAP mediated the relationship between IC and Firm Performance. The findings of the study also support previous findings, where in general, financial institutions have comparatively higher human capital efficiencies than relational or structural capital efficiencies, and HC has a greater influence on firm performance than RC or SC. The study further contributes to empirical studies on IC, MAP and Firm Performance in the Asian context.

Limitations

The findings drawn from this research have several limitations. Collecting data from managers in the financial sector in Sri Lanka was arduous, especially because of the sensitive nature of the data they process. The data were collected at a single point of time and thus longitudinal studies were required to test the robustness of the present findings. This study employed its unit of analysis as the company and the data was gathered from an individual manager. Hence, as suggested by Naranjo-Gil and Hartmann (2006), future studies could collect data from multi-level management as teams (focus groups) to draw better insights. A replication of the study in industries such as information technology, telecommunication, and healthcare where other service-oriented managers can be found will provide additional empirical evidence on the impact of IC and Management Accounting Practices on Firm Performance.

References

- Abdullah, D. F., & Sofian, S. (2012). The relationship between Intellectual Capital and corporate performance. *Procedia-Social and Behavioral Sciences*, 40(1), 537-541.
- Abeyssekera, I., & Guthrie, J. (2005). An empirical investigation of annual reporting trends of intellectual capital in Sri Lanka. *Critical Perspectives on Accounting*, 16(3), 151-163.
- Ahmad, K., & Mohamed Zabri, S. (2015). Factors explaining the use of management accounting practices in Malaysian medium-sized firms. *Journal of Small Business and Enterprise Development*, 22(4), 762-781.
- Ahuja, B. R., & Ahuja, N. L. (2012). Intellectual capital approach to performance evaluation: A case study of the banking sector in India. *International Research Journal of Finance and Economics*, 93(1), 110-122.
- Andreeva, T., & Garanina, T. (2016). Do all elements of intellectual capital matter for organizational performance? Evidence from Russian context. *Journal of Intellectual Capital*, 17(2), 397-412.
- Aruppallal, D., Wickramasinghe, V., & Mahakalanda, I. (2015). Intellectual Capital and Financial Performance in Sri Lankan Banks.
- Beattie, V., & Smith, S. J. (2013). Value creation and business models: refocusing the intellectual capital debate. *The British Accounting Review*, 45(4), 243-254.
- Bhagat, S., & Bolton, B. (2008). Corporate governance and Firm Performance. *Journal of corporate finance*, 14(3), 257-273.
- Bontis, N. (1998). 'Intellectual Capital: An exploratory study that develops measures and models. *Management Decision*, 23-74. doi:10.1108/14691930710715051
- BPP Professional Education. 2005. CIMA Management Accounting: Business Strategy. London: BPP Publishers.
- Central Bank., (2015). Annual Report. Central Bank of Sri Lanka, Colombo
- Chen, M.C. Cheng, S.J. and Hwang, Y. (2005). An empirical investigation of the relationship between Intellectual Capital and firms market value and financial performance. *Journal of Intellectual Capital*. 63- 87, doi:10.1108/14691930710625051
- Chengalur-Smith, I., Duchessi, P., & Gil-Garcia, J. R. (2012). Information sharing and business systems leveraging in supply chains: An empirical investigation of one web-based application.. *Information & Management*, 49(1), 58-67. doi:10.1016/j.im.2011.12.001.
- Choo, C. W., & Bontis, N. (2002). Knowledge, intellectual capital, and strategy. *The strategic management of intellectual capital and organizational knowledge*, 185-204.
- Chu, S.K.W., Chan, K.H. and Wu, W.W.Y. (2011). Charting Intellectual Capital performance of the gateway to China. *Journal of Intellectual Capital*, 432- 463. doi:10.1108/14691930320715051
- CIMA (2001). 'Managing the Intellectual Capital within today's knowledge-based organisation'. Technical Briefing, CIMA, London. Retrieved from http://www.cimaglobal.com/Documents/ImportedDocuments/Tech_rept_Effective_Performance_Mgt_with_Balanced_Scd_July_2005.pdf
- Cleary, P. (2015). An empirical investigation of the impact of management accounting on structural capital and business

- performance. *Journal of Intellectual Capital*, 16(3), 566-586.
- Cleary, P., & Quinn, M. (2016). Intellectual capital and business performance: An exploratory study of the impact of cloud-based accounting and finance infrastructure. *Journal of Intellectual Capital*, 17(2), 255-278.
- Dooley, M. P. (2000). Can output losses following international financial crises be avoided?. National bureau of economic research, 40(1), 537-541.
- Dženopoljac, V., Janošević, S., & Bontis, N. (2016). Intellectual capital and financial performance in the Serbian ICT industry. *Journal of Intellectual Capital*, 17(2), 373-396.
- Edvinsson, L., & Malone, M. S. (1997). Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Brainpower. *South African Journal of Education*, 28(3), 321-333.
- Firer, S., & Mitchell Williams, S. (2003). Intellectual capital and traditional measures of corporate performance. *Journal of intellectual capital*, 4(3), 348-360.
- Goh, P.C., (2005), Intellectual Capital performance of commercial banks in Malaysia, *Journal of Intellectual Capital*, 4(3), 78-107.
- Golfetto, F., & Gibbert, M. (2006). Marketing competencies and the sources of customer value in business markets. *Industrial Marketing Management*, 35(8), 904-912.
- Grant, R. M. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. *California management review*, 33(3), 114-135.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis*. Upper Saddle River, NJ: Pearson Prentice Hall.
- Hermans, R., & Kauranen, I. (2005). Value creation potential of intellectual capital in biotechnology—empirical evidence from Finland. *R&D Management*, 35(2), 171-185.
- Hussain, M. M. (2000). *Management accounting systems in services: empirical evidence with non-financial performance measurement in Finnish, Swedish and Japanese banks and other financial institutions*. Universitas Wasaensis.
- Inkinen, H. (2015). Review of empirical research on intellectual capital and firm performance. *Journal of Intellectual capital*, 16(3), 518-565.
- International Federation of Accountants (IFAC) (1998), *The Measurement and Management of Intellectual Capital: An Introduction*, 7, IFAC, London.
- Kannan, G., & Aulbur, W. G. (2004). Intellectual capital: measurement effectiveness. *Journal of intellectual capital*, 5(3), 389-413.
- Kaplan, R.S. & Norton, D. (1996), *The Balanced Scorecard: Translating strategy in to action*, Harvard Business Press, Boston.MA
- Kaplan, R. S., & Norton, D. P. (1998). Putting the balanced scorecard to work. *The Economic Impact of Knowledge*, 315-324.
- Kianto, A., & Andreeva, T. (2014). Knowledge Management Practices and Results in Service-Oriented versus Product-Oriented Companies. *Knowledge and Process Management*, 21(4), 221-230.
- Klassen, R. D., & McLaughlin, C. P. (1996). The impact of environmental management on Firm Performance. *Management science*, 42(8), 1199-1214.

- Komnencic, B., & Pokrajčić, D. (2012). Intellectual capital and corporate performance of MNCs in Serbia. *Journal of Intellectual Capital*, 13(1), 106-119.
- Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International (P) Ltd, New Delhi.
- Levin, D. O. (1988). *The American college and the culture of aspiration, 1915-1940*. Cornell University Press.
- Lovero, E. M. (2000). The strategic impact of quality and relative market share on Intellectual Capital deployment and shareholder value maximization: An empirical study. *Management Review*, 49(1), 58-67. doi:10.1016/j.im.2011.12.001
- Lynn, B. E. (2000). FEATURE EDITORIAL-INTELLECTUAL CAPITAL-There's real wealth in intellectual capital. The thing is, you've got to uncover and manage it. *Ivey Business Journal*, 64(3), 48-52.
- Marr, B., & Chatzkel, J. (2004). Intellectual Capital at the crossroads: managing, measuring, and reporting of IC. *Journal of Intellectual Capital*, 5(2), 224-229.
- Massaro, M., Dumay, J., & Bagnoli, C. (2015). Where there is a will there is a way: IC, strategic intent, diversification and firm performance. *Journal of Intellectual Capital*, 16(3), 490-517.
- Mikes, A. (2006). Interactive control use as a political and institutional phenomenon—the case of divisional control in a financial services organization.
- Mouck T. (2000). Beyond Panglossian theory: strategic capital investing in a complex adaptive world. *Accounting, Organisations and Society*, 25(3), 261-283.
- Muhammad, N. M. N., & Ismail, M. K. A. (2009). Intellectual Capital efficiency and firm's performance: study on Malaysian financial sectors. *International Journal of Economics and Finance*, 1(2), 206.
- Naranjo-Gil, D., & Hartmann, F. (2006). How top management teams use management accounting systems to implement strategy. *Journal of Management accounting research*, 18(1), 21-53.
- Nimtrakoon, S. (2015). The relationship between intellectual capital, firms' market value and financial performance: Empirical evidence from the ASEAN. *Journal of Intellectual Capital*, 16(3), 587-618.
- Novas, J. C., Alves, M. D. C. G., & Sousa, A. (2017). The role of management accounting systems in the development of intellectual capital. *Journal of Intellectual Capital*, 18(2), 286-315.
- Novas, J. C., Sousa, A., & Alves, M. D. C. (2012). On the Relations between Management Accounting Systems and Intellectual Capital: Evidence for Portuguese Companies'. CEFAGE-UE Working Paper, 13.
- Penrose, E. T. (2009). *The Theory of the Growth of the Firm*. Oxford university press.
- Phusavat, K., Comepa, N., Sitko-Lutek, A., & Ooi, K. B. (2012). Intellectual capital: national implications for industrial competitiveness. *Industrial Management & Data Systems*, 112(6), 866-890.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling and comparing indirect effects in multiple mediator models. *Behaviour research methods*, 40(3), 879-891.
- Riahi-Belkaoui, A. (2003). Intellectual capital and firm performance of US multinational firms: a study of the resource-based and stakeholder views. *Journal of Intellectual capital*, 4(2), 215-226.
- Salehi, M., Enayati, G., & Javadi, P. (2014). The relationship between intellectual capital with economic value added and financial

- performance. *Iranian Journal of Management Studies*, 7(2), 245.
- Scafarto, V., Ricci, F., & Scafarto, F. (2016). Intellectual capital and firm performance in the global agribusiness industry: The moderating role of human capital. *Journal of Intellectual Capital*, 17(3), 530-552.
- Segelod, E. (1998). Capital budgeting in a fast-changing world. *Long Range Planning*, 31(4), 529-541.
- Sharabati, A. A. A., Naji Jawad, S., & Bontis, N. (2010). Intellectual capital and business performance in the pharmaceutical sector of Jordan. *Management decision*, 48(1), 105-131.
- Skoog, M., Koga, C., Johanson, U., & Henningsson, J. (2002). The Japanese Government's Intellectual Capital reporting guideline: What are the challenges for firms and capital market agents? *Journal of Intellectual Capital*, 7(4), 474-491.
- Snieder, R., & Lerner, K. (2009). *The art of being a scientist: A guide for graduate students and their mentors*. Cambridge University Press.
- Stähle, P., Stähle, S., & Aho, S. (2011). Value added intellectual coefficient (VAIC): a critical analysis. *Journal of Intellectual Capital*, 12(4), 531-551.
- Sveiby, K. E. (1997). *The new organizational wealth: Managing & measuring knowledge-based assets*. Berrett-Koehler Publishers.
- Tayles, M, Pike, R.H.&Sofian, S.(2007), Intellectual Capital, Management Accounting Practices and corporate performance, Accounting, Auditing and Accountability Journal.doi: 10.4508/09513570340403461.
- Tayles, M., Bramley, A., Adshead, N., & Farr, J. (2002). Dealing with the management of Intellectual Capital: The potential role of strategic management accounting. *Accounting, Auditing & Accountability Journal*, 15(2), 251-267.
- Teece, D. J. (2012). Dynamic capabilities: Routines versus entrepreneurial action. *Journal of Management Studies*, 49(8), 1395-1401.
- Usoff, C. A., Thibodeau, J. C., & Burnaby, P. (2002). The importance of intellectual capital and its effect on performance measurement systems. *Managerial Auditing Journal*, 17(1/2), 9-15.
- Vinzi, V., Chin, W. W., Henseler, J., & Wang, H. (2010). *Handbook of partial least squares*.
- Williamson, D. (2004). A call for management accounting control research into risk management. MARG Conference, Aston Business School, Aston, 10(1) ,9-10.
- Wu, W. Y., Chang, M. L., & Chen, C. W. (2008). Promoting innovation through the accumulation of intellectual capital, social capital, and entrepreneurial orientation. *R&d Management*, 38(3), 265-277.