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Determinants of Intellectual Capital Performance: Empirical Evidence from Hotels in Mauritius

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Abstract

The purpose of this paper is to empirically analyse the main determinants of intellectual capital performance in a dynamic setting of 43 Mauritian hotels over the period 2007 to 2018 by employing a dynamic panel vector error correction model (PVECM) which simultaneously allows for endogeneity and causality issues amongst the variables used. The results show that efficiency, profitability, size as well as human resource intensity positively and significantly influence the intellectual capital performance of Mauritian companies in the long run. On the other hand, barriers to entry and leverage negatively impact on the performance of intellectual capital. This analysis is practically useful to the management of organizations as it provides them with useful information regarding which variables managers should focused upon if they intend to improve the intellectual capital efficiency of the organizations. The paper brings additional evidences from the case of an emerging economy. More importantly, it analyses the determinants of IC efficiency using dynamic panel data framework and takes into account the possible endogenous and indirect relationships which may exist in the hypothesized link.
Keywords: Intellectual Capital, PVECM, Mauritius, Dynamic Panel Data

1. Introduction

In a knowledge economy, a considerable part of an organization's value consists of intangible assets such as the value of its worker's knowledge. Knowledge intensive economic activities have become the main driver for sustainable economic and cultural growth in the 21st century, where tangible assets are slowly being replaced by intangible assets. As a result, the sources of competitive advantage in today's business world have shifted from traditional assets to intellectual ones (Bontis et al., 2015; Dženopoljac et al., 2016; Osinski et al. 2017). Indeed Intellectual Capital (IC) is considered as the most important critical success factor within companies which in turn boost their capacity to stand out over competitors (Mendoza, 2017; Gonzalez et al., 2017). This is supported by Janošević and Dženopoljac (2015) who stated that the foundations of IC which stimulate performance in the knowledge based era are mainly, knowledge, intellectual property and human competence, brands, customer relationship as well as reputations. All these elements have been taken into consideration by Bontis (1998) when he defined IC as the different forms of knowledge, information, intellectual property as well as experience within organizations. Sullivan (2000) further added that IC is organizational knowledge that can be converted into profits and Dženopoljac et al. (2016) considered this definition of IC as an appealing one as it not only explained the dynamic nature of IC but also viewed its effect on an organization's performance as a potential, depending on

whether managers will realize this potential. Hence, in the knowledge based era, IC can be considered as company's value driver that transforms production resources into assets with increased value.

It has accordingly become imperative for decision makers in the organizations to be aware of the factors affecting intellectual capital performance so as to take actions towards improving their future financial performance. Prior studies in this field have highlighted that there are several internal factors such as the profitability and efficiency level of the organization as well the organizational size, growth, leverage, risk level or human resource intensity level and also external factors like barriers to entry in the industry which impact on the performance of intellectual capital. Despite numerous empirical studies have been undertaken on intellectual capital and its effects on financial performance, studies on the determinants of IC performance are relatively scant. While most of the prior empirical studies have focused on the determinants of intellectual capital disclosure (Kateb, 2014; Chaabane et al., 2015; Kamnath, 2017; Mehrotra et al., 2017 and more recently Seng et al., 2018), relatively few works (Hidayah and Adityawarman, 2017; Atena and Mehdi, 2017; Garg, 2016; Soheili and Pakdel, 2012 and El – Bannany, 2008) have concentrated on the factors influencing the intellectual capital performance of firms. Moreover, the relatively few studies carried out on the determinants of IC performance have focused mainly on developed countries with inadequate consideration given in the examination of intellectual capital practices of business within emerging countries (Al-Hamadeen & Suwaidan, 2014; Aziz and Hashim, 2017). In addition, most of the former studies in this field have concentrated mainly on the banking sector and have provided mixed empirical results with respect to the influence of the various determining factors. To the best of our knowledge, all these prior studies have utilized static models of regression analysis.

The motivation for the present study is to make a contribution to the research field of intellectual capital by concentrating on an industry where it must be considered unfamiliar. The purpose of this paper is to explore the determinants of intellectual capital in the hotel industry. Even though hotels are not primarily considered knowledge-intensive, they are providers of service. The hotel sector is an important segment of the tourism industry and makes a notable contribution to the economic growth of several destinations. Since hotels provide intangible services, owning and managing of IC is of great importance to their success. The performance and effectiveness of hotel organizations depends largely on the knowledge of employees (human capital), the organizational knowledge (structural capital comprising mainly of the hotels systems/routines) and on its relational and customer capital. It has therefore becomes imperative for the hospitality sector to be aware of the main factors that influence IC as this will provide support for the management of human resources as well as enhance customer relationship management, thus improving the decision making process (Engstrom et al., 2003). Furthermore, the majority of existing studies in the field of IC and financial performance have focused on hotel organizations located in developed and industrialized economies, with very few research carried out in small island development states which are highly dependent on the hotel sector for sustained economic growth. . Small islands also face resource constraints and are environmentally, politically, and economically vulnerable. As a result of their special characteristics, the World Investment Report (2013) emphasizes on the role of human resources in the economic development of such nations, arguing that the main endowments of small island developing states is IC.

In an attempt to supplement the literature and improve our understanding of the main contributors of IC performance, this study employs a dynamic panel vector error correction model (PVECM) to investigate the main determinants of intellectual capital performance of 43 hotels in Mauritius over the period 2007 to 2018. This methodology allows us to test for the potential static and dynamic interdependencies between the determinants of IC as measured by the Value Added Intellectual Capital (VAIC) index, computed using the Pulic's Value-Added Intellectual Coefficient (VAIC) method for IC performance. It is noteworthy that, unlike existing studies that have focused on few standard determinants of IC performance namely profitability, efficiency and risk, this paper

includes additional potential determinants including internal factors related to size, human re-source intensity and leverage as well as one external determinant namely barriers to entry.

2. Literature Review

The main determinants of intellectual capital performance of companies, as identified in the related literature, are efficiency, profitability, size, human resource intensity, barriers to entry and the leverage level of the company among others. The following section provides a review of the related literature, as classified by their determinants.

2.1 Company's Profitability and Efficiency

An organization's profitability level as well as its efficiency level are both considered as important determinants of its intellectual capital performance (El-Bannany, 2008; Mondal & Ghosh, 2012; Sefidgar et al., 2015). Profit is primarily the revenue remaining after all costs are paid and according to Hermuningsih (2013), profitability is defined as the ratio of management effectiveness based on the repayment capability of the organization generated from its sales and investment. El – Bannany (2008) further added that while profits are considered as a regular financial performance, losses are considered as irregular or unusual ones and as such directors need to be more careful and cautious in dealing with them. Dealing with losses involve a major opportunity cost as the time and resources spent on investigating the causes of the losses could have instead been used to innovate or undertake research and development, thereby, increasing profitability. The more time managers devote to identify the causes of the negative financial results, the less time they can spend to embark on value adding intellectual capital activities and vice versa (Soheili & Pakdel, 2012).On the other hand, the realization of profits allows the directors to under-take other useful activities for the company such as motivating, training, conducting re-search and development activities as well as encouraging staff to innovate which might contribute to add value to the organization. Therefore, profitable companies are likely to have better intellectual capital performance than those companies with negative financial result and with lower profit (Mondal and Ghosh, 2012; Sefidgar et al., 2015).

Besides profitability, efficiency is also an important factor influencing the intellectual capital performance of firms (Soheili & Pakdel, 2012). Chan (2003) defined efficiency as the utilization of resources, such as labour, at their best while simultaneously minimizing production cost, both of which result in a savings of time and money and consequently, improve financial performance. Effective utilization of intellectual capital enables the organisations to enjoy a cost advantage which in turn result in a reduction in the production cost of companies. It may also result in an increase in market share by attracting more customers (El Bannany, 2008). Since the efficiency of an organization depends largely on its stock of resources, one of which is IC, we can assume that company's efficiency influences intellectual capital performance and there must be a positive relationship between them

Khlif and Souissi (2010) explained the positive relationship between intellectual capital performance and both profitability and efficiency by two main theoretical arguments, namely the agency theory and the signalling theory. Firstly, as suggested by agency theory, higher performance makes it easier for managers to convince shareholders about their superior managerial abilities. They are likely to disclose and reveal more information about their intellectual capital performance so as to obtain higher degrees of confidence from investors, which may be reflected in higher compensation. Secondly, as stipulated by the signalling theory, profitable companies have more incentives to divulge about their intellectual capital performance order to screen themselves from less profitable firms. Moreover, managers may use information pertaining to improved intellectual capital performance to obtain personal advantages in the form of continuance of their positions or compensation arrangements. Another important aspect related to profitability and intellectual capital performance pointed out

by Li, Pike and Haniffa (2008) is that profitability may be the result of continuous investment in intellectual capital and in view of that, companies are likely to engage in intellectual capital disclosure to signal the significance of such investment.

On the other hand, Bidaki and Hejazi (2014) were of the view that the relationship between profitability and intellectual capital performance can be explained by both the stakeholder theory and the agency theory. Improved financial performance makes it easier for managers to convince stockholders about their superior managerial abilities. This in turn improves the relationship between managers and the different stakeholders and might even reduce agency costs. Thus, profitability can increase relational capital which is a component of the VAIC and will therefore has appreciated contribution to aggregate intellectual capital performance.

Interestingly, there is also theoretical support with respect to the bi causality link between efficiency and intellectual capital performance. Besides efficiency impacting on the IC performance, growth economists have shown that investment in human capital also con-tribute in increasing total factor productivity and efficiency, whether at micro (company wise) or macro (economy wise) level (Barro, 2001; Barro and Sala-i-Martin, 1995; Benhabib and Spiegal, 1994; O'Neil, 1995). The concept that investment in human capital led to growth and improved efficiency in fact dated back to the time of Smith (1776) and the early classical economists who emphasized the importance of investing in human capital. Solow (1956) was the first to formalize the study of productivity growth within the context of an aggregate production function model, with labour being a contributing determinant. Romer (1989) further added that human capital which is a combination of knowledge and technical know-how, is identified as one of the components that can contribute positively to productivity and efficiency of organizations. Several empirics have also emphasized on the need for investment in human capital for productivity and efficiency enhancement. Human capital efficiency can fast track productivity growth at an organizational level.

Although, there is a dwarf of empirical studies on the determinants of IC performance, most of them have revealed statistically significant and positive effect of both company's profitability and efficiency on value added intellectual capital coefficient. For instance, El-Bannany (2008), in his study on the determinants of IC performance within UK banks for the period 1999 to 2005, investigated the link between both profitability and efficiency and the IC performance using multiple regression analysis and reported positive and sig-nificant coefficients for both determinants. Ousama et.al (2012) also provided evidence of a positive relationship between profitability and intellectual capital of companies in Ma-laysia. Likewise, Mondal & Ghosh (2012), Eftekhare el al. (2014) and Sefidgar et al. (2015) tested for profitability as a factor influencing IC performance and have obtained similar results as that of El-Bannany (2008). Using a tobit regression analysis, Kweh, Chan and Ting (2015), examined the determinants of IC efficiency for Malaysian public listed soft-ware companies and found that sales growth, as a proxy for company's efficiency, significantly improve the intellectual capital management efficiency of the organization. More recent study from Meresa (2016) for the case of a panel of Ethiopian bank validated prior studies.

2.2 Company's Size

Prior studies have put forward that company's size is a significant factor which positively influence the IC performance of companies (see El-Bannany, 2014; García-Meca et al., 2005; Kamath, 2008; Li et al., 2008). Dewi et al. (2014) were also of the view that there exists a direct relationship between the size of organizations

and their intellectual capital performance, supported by the agency theory. As a firm grows in size, the relationship between the different stakeholders, namely, the principal and the agents becomes more complex. This may eventually give rise to conflict between managers of firms and share-holders, resulting in an increase in agency costs. In order to reduce these costs, firms voluntarily disclose the information about their intellectual capital performance (Taliyang et al., 2011). Larger companies, as compared to smaller ones, are well diversified and thus have better internal management information system and a relatively higher capability to disclose the information about their intellectual capital performance while also reaping economies of scale. All these activities jointly contributed towards increasing the internal intellectual capital performance (Ferreira et al., 2012). Large firms possessed more financial resources contributing towards the generation of both product and process innovations and making the firms more progressive (Mondal & Ghosh, 2012; Maressa, 2016).

Empirical work from El-Bannany (2012) demonstrated a positive impact of size of UAE banks and their intellectual capital performance. Large firms have access to more external facilities such as access to external funding, government support as well as clarity of their economic activities. Consequently, larger firms are operationally more efficient than smaller ones and this enable them to attract more investors as well as employ better qualified staff. This result is supported by Laeven et al (2014) who explained the statistically positive and significant relationship between size and IC performance amongst Russian companies by the fact that the larger an organization is, the more complex it becomes. In order to manage this complexity, the organization will require more capable human re-sources. However, contradictory results were obtained by Joshi et al. (2010) when they inspect the intellectual capital performance of Australian banks and found that size of banks has no impact on their intellectual capital performance. Similarly, Hidayah and Adityawarman (2017) concluded that size does not significantly impact on the IC performance in Indonesia.

2.3 Human Resources Intensity

Human resources intensity refers to the proportion of labour used in a particular process relative to other factors of production. Making required investments and incentives on employees of companies as means of encouragement to carry out their duties and create innovation for the firms is a better mechanism to improve intellectual capital performance (Eftekhare et al., 2014). Any investment made to benefit employees is supposed to create value and an increase in staff costs may increase the motivation of the workforce. Consequently, this motivation would lead to increases in innovation such as offering new services to customers in order to develop intellectual capital performance (Soheili & Pakdel, 2012). The human capital theory (Becker, 1964) laid emphasis on the relationship between human resources intensity and IC performance. This theory pointed out that the greater is the individual's human capital, the better will be his performance at a particular task. Lucas (1990) and Becker (1993) applied the human capital theory at organizational level and they were of the view that firms which invest in improving the skills of their work-force tend to be more productive and realize higher earnings. They further added that in-vestment in human capital, mainly in the form of education and training, allows the employees to increase their productivity as well as increasing their knowledge and skills. This evidently enhances the performance of intellectual capital. Chowdhury and Kirkpatrick (1990) also posited that policies implemented by organization's gearing towards the development of human capital intensity can make a significant contribution, enabling the organizations to improve its production structures required to retain its competitive advantage, which in turn contribute towards improving the intellectual capital performance.

El – Bannany (2008) in his investigation of the determinants of IC performance for UK banks over the period 1995 to 2005 concluded that the greater the ratio of staff cost to total income, that is, the higher the human resource intensity, the better will be the intellectual capital performance of the banks. Human resources intensity has also been tested empirically as a determinant of IC performance of Ethiopian banks by Meressa (2016) and her fixed

effect regression estimates confirmed the existence of a significant and positive relationship between human resource intensity and IC performance.

2.4 Barriers to Entry

The pioneering study on barriers to entry and competitive performance of firms can be traced backed from Bain (1956) who identified four main forms of barriers, namely, capital requirements, economies of scale economies, product differentiation, governmental regulation as well as absolute cost advantage such as patents, secret production methods and so on. Porter (1980) also considered barriers to entry as a major determinant that adversely influence the performance of firms. He further stated that the theoretical justification for this relationship lies in the fact that the existence of barriers to entry in a particular market would impose disadvantages on potential new entrants relative to incumbent firms. These disadvantages could discourage new firms to enter the industry, thereby allowing existing firms to raise prices and reap above normal profit (see, Yip, 1982; Bain, 1956; Shepherd, 1972; Karakaya & Stahl, 1991). The theory of contestable market (Baumol et al., 1982) which is often used as a reference to explain the theoretical link between barriers to entry and firm performance, state that impediments to entry and exit in a market adversely impact on the working of the invisible hand. The basic underlying of the contestability theory is that when freedom of entry and exit prevails, the entrant can somewhat undercut the incumbents' price, sell fairly more than some of the incumbents and reduce their profits. The threat of new entry somehow induce firms to be more efficient and competitive. However, in the presence of barriers to entry and exit, firms will benefit from monopoly powers, enabling them to achieve monopoly prices and profits, causing a welfare cost. According to Harberger (1954), barriers to entry in a market results in misallocation of resources such as labour, capital and so on, which in turn adversely impact on IC performance.

El – Bannany (2008, 2012) linked the relationship between barriers to entry and profitability to IC performance. He stated that these advantages arising due to barriers to entry will in turn, reduce the organizations motivation to enhance and improve the IC performance. Industrial economists often consider barriers to entry as distortions to the competitive pressure that prevent the invisible hands to function efficiently. In other words, the existence of barriers to entry may adversely impact on the allocative and dynamic efficiency of organizations. This may discourage them to motivate their staff to be more creative and innovate, thus having a negative impact on the performance of labour within the firms while also be harmful on the dynamism of the organization as well as on their IC performance. However, Hidayah and Adityawarman (2017) tested for the determinants of IC performance for Indonesian Syariah Bank for the period 2010 to 2015 and their results show that the existence of barriers to entry in the industry does not affect IC performance of the banks.

2.5 Leverage

The agency theory can also be used to predict the performance of intellectual capital, via, its level of voluntary intellectual capital disclosure, in relation to the level of leverage in a company (Whiting & Woodcock, 2011). According to Berger and Bonaccorsi de Patti (2006), an increase in the leverage level of an organization results in an increase in agency costs as there might be the risk of transfer of wealth from debtholders to shareholders. This gives rise to higher monitoring costs as highly geared companies will be monitored more closely by stakeholders such as financial institutions. The increased in agency costs due to higher leverage level could be reduced through increased disclosure (An et al., 2011). To minimize this agency cost, highly geared companies have more incentives to disclose more information. This increase in leveraging and the associated agency costs has been established as one of the drivers for firms to voluntarily disclose information (Oliveira et al., 2006; White et al, 2007). A higher IC disclosure level in turn results in better IC performance. White et al. (2007) empirical test of the determinants of IC amongst Australian biotech companies concluded that leverage was a key and

significant driver for IC disclosure amongst large firms. Similarly, research by Atena and Mehdi (2017) revealed that firms with higher leverage have better IC performance as this help them to convey a positive signal to their creditors about their financial position.

3. Methodology

The main objective of this study is to investigate the determinants of IC performance in Mauritius for 43 firms operating in the hospitality sector over the period 2007 to 2018. Relevant data has been collected from the annual reports (both the income statements and the balance sheets) of companies in Mauritius and an index has been constructed to measure the level of intellectual capital of the different organizations operating in the hospitality sector.

3.1 Model Specification

Grounded on the few studies on the topic under investigation (see El-Bannany, 2008; Soheili & Pakdel, 2012; Eftekhare *et al*., 2014; & Sefidgar *et al*., 2015), the following conceptual model is used to assess the impact of the above mentioned determinants on the performance of intellectual capital:

$$\mathbf{VAIC = (EFF, ROA, SIZE, HRI, BE, LEV)} \quad (1)$$

The empirical equation is thus specified as follows:

$$\mathbf{VAIC_{it} = \beta_0 + \beta_1 EFF_{it} + \beta_2 ROA_{it} + \beta_3 SIZE_{it} + \beta_4 HRI_{it} + \beta_5 BE_{it} + \beta_6 LEV_{it} + \mu_{it}} \quad (2)$$

Where:
$VAIC_{it}$ = value added intellectual capital coefficient in company i during year t;
EFF_{it}= Efficiency of company i during year t
ROA_{it} = profitability of company i during year t
$SIZE_{it}$= size of company i during year t
HRI_{it}= Human resource intensity of company i during year t
BE_{it}= Barriers to entry during year t
LEV_{it}= Leverage level during year t
β_0 = constant;
$\beta_{1\text{-}6}$ = parameters estimated; and
x= the respective companies in the sample
t= the time dimension

3.2 *Definition and Measurement of Variables*

3.2.1 Dependent Variable- Intellectual Capital Performance

According to Chan (2009), there are forty two methods identified in the literature to measure IC. Among these methods, the value added intellectual coefficient (VAIC)[1] is advocated as the most suitable method to measure IC performance of any organization (Kamath, 2008; Zeghal and Maaloul, 2010; Joshi et al., 2010)**.** The value added intellectual capital (VAIC) method developed by Pulic (1998) will thus be used to measure the intellectual capital performance of firms in Mauritius.

3.2.2 Explanatory Variables and their Measurements

[1] Detailed Computation of the VAIC Index is provided in Appendix A.

Table 1 below provides details on the measurements of the explanatory variables (discussed at length in the previous section) used in this study.

Table 1: Definition of Explanatory Variables

Variables	Measurement	Prior Studies
Efficiency Level (EFF)	The ratio of company i assets divided by total sectoral market assets in year t	El- Bannany (2008)
Profitability Level (ROA)	The ratio of profit after tax to total assets	Meressa (2016); Hidayah and Adityawarman (2017) Matar and Eneizan (2018)
Size (SIZE)	Logarithm of total assets	Kweh et al. (2015); Meressa (2016); Hidayah and Adityawarman (2017)
Human Resource Intensity (HRI)	The ratio of staff costs to total revenue for company i in year t	El-Bannany(2008); Meressa (2016)
Barriers to Entry (BE)	The ratio of fixed assets to total assets for company i in year t	El – Bannany (2008); Hidayah and Adityawarman (2017)
Leverage (LEV)	the ratio of debt to total assets	Garg (2016), Matar and Eneizan (2018)

4. Results

4.1 Panel Unit Root Tests

Preliminary tests on the time series properties of the data are crucial and a test for the stationarity of the data using the Im, Pesaran, and Shin (IPS) (2003) panel unit root tests is accordingly conducted. The result reject stationarity in all cases in favor of a unit root for all the variables and confirmed that all variables is integrated of order one. The IPS results are also confirmed by the ADF- Fisher, PP- Fisher and Levin, Lin & Chu panel unit root tests at the 5 percent significance level for each variable.

4.2 Panel Cointegration Tests

In the presence of all I (1) variables, we subsequently check for co-integration to detect the existence of a long run co-integration relationship amongst the variables. The Pedroni co-integration test confirmed the presence of long run relationship between the variables of interest (rejecting the null hypothesis of no cointegration at 5% significance level). The table below summarizes the result from the cointegration tests.

Table 2: Results of co-integration test

	Statistic	Prob.
Panel v-Statistic	-1.910305	0.8187
Panel rho-Statistic	4.241174	0.9994
Panel PP-Statistic	2.471166	0.9148
Panel ADF-Statistic	3.955136	0.9984

Group rho-Statistic	5.238572	1.0000
Group PP-Statistic	0.595763	0.7243
Group ADF-Statistic	3.896689	0.9981

4.3 The PVECM model

Since the variables in the model are cointegrated as shown in Table 2 above, there exists a linear, stable and long-run relationship among the variables, in such a way that the disequilibrium errors would tend to fluctuate around zero mean. We adopt a Panel Vector Error Correction Model (PVECM) framework which adjusts to both short run changes in variables and deviations from equilibrium. The PVECM also interestingly allows for the analysis of reverse causality as well as indirect effects while also accounting for dynamism in IC modelling. A lag length criteria of one is chosen.

4.4 The Long Run Estimates

Table 3 below presents the long run estimates from the PVAR estimation

Table 3: The long run estimates

Variables	Coefficients VAIC Equation	T Statistics VAIC Equation
VAIC	-	
EFF	0.00000126	1.6455*
ROA	6.71	9.6282***
SIZE	1.0082	1.95002*
HRI	6.827	1.68666*
BE	-13.169	-2.28253**
LEV	-0.3052	-1.88941*
Constant	-164117.4	

*significant at 10% ** significant at 5%, ***significant at 1%

Focusing on column 2 (the VAIC equation/model), the estimated value of ROA shows evidence of a direct significant relationship between company's profitability (ROA) and intellectual capital performance. This positive link can be explained by the fact that profits serve as a motivational ladder for employees to work harder. The more profits an organization reap, the more resources will be available and devoted to intellectual capital activities such as encouraging and rewarding staffs to deliver high quality customer service, undertaking research and development to improve company's image and products and so on. Such a result confirms the fact that hotels in Mauritius with higher profit earning capabilities have better IC performance than those with lower profitability and also support both the agency theory and the signaling theory explained above This finding is in line with the works from El – Bannany(2008); Soheili and Pakdel (2012); Eftekhare et al. (2014); Sefidgar et al. (2015) and Meressa (2016).

The results also indicate that efficiency (EFF) is statistically significant and affects intellectual capital positively. This implies that the more efficient a firm is, the better will be the performance of its human capital. It confirms the result of Kweh et al. (2015) that an increase in efficiency serves as a motivational factor for employees to

work harder and smarter. However, our results contradict that of El Bananny (2008) who reported a negative and significant relationship between efficiency and IC performance.

Referring to the variable barriers to entry variable (BE), it is observed that the coefficient in the long run regression results is significant and negative, indicating that the existence of barriers to entry reduces the performance of IC and vice versa. The finding is consistent with those of El Bannany (2011, 2012) who also established that barriers to entry kills the incentive for organisations to innovate as they are protected from the threat of new entrant, which in turn adversely influence the IC performance. This result shows contradiction to that of Hidayah and Adityawarman (2017) whose results purport that barriers to entry has no impact of IC performance in the enterprise sector.

Size of organizations (SIZE) is also seen to influence IC performance, confirming that larger organizations have better IC performance than smaller ones. Similar results were obtained by Taliyang et al. (2011). Our findings of this study with respect to the size variable is inconsistent with that of Joshi et al. (2010), Al- Musalli and Ismail (2012) as well as Meressa (2016). The endogenous growth theory can also be used to explain the link between intellectual capital performance and firm's size. Barro (2001) stated that improved IC management can generate higher growth mainly because more and better intellectual assets facilitates the adoption of better technology and methods of production. Our empirical results purport that increased intellectual capital performance can prove beneficial for the growth of companies. Based on existing literature, this can occur in the following ways. Better IC facilitates the adoption of new innovations within the firms and also enhances the process of "learning by doing". In addition, firms with better IC performance find it easier to both adapt and imitate knowledge that has been created in other firms in the economy. All these according to Ballot et al. (2001) and Boschma et al. (2009) contribute positively and significantly to the growth of the firms.

Human resources intensity depicts a positive impact on intellectual capital and indicates that the larger the ratio of staff cost to total cost, the better is the intellectual capital performance of firms. The positive relationship is well discussed by Meressa (2016) who posited that a higher ratio of staff cost may be interpreted as the organization making more valuable investment in its human resource. An increase in recognition of labour as an important factor of production may in turn encourage the human capital to be more devoted and innovative which in turn boost their performance. Our result is however in contradiction to El Bannanny (2008) who found that investment in intellectual capital has a negative and significant coefficient.

Further analyzing the results, we note that leverage has an inverse impact on the IC performance of hotels in Mauritius. This suggests that hotels that have high debt in their capital structure will end up performing abysmally in terms of IC. Similar results have been obtained by Duho & Onumah (2018) in the case of banks in Ghana. The result, however, is in contrast with the finding of Hidayah and Adityawarman (2017).

4.5 Short Run Estimates

In the presence of co integration, we estimate a VECM which allows the long run behavior of the endogenous variables to converge towards their co integrated relationships, which accommodates short run dynamics. In this study, the VECM is estimated using an optimum lag length of 1. The empirical results of the short run estimates for equation 2 of the VECM are displayed in Table 4 below and the figures in column two represents the short run coefficient and represent the short run equilibrium. The error correction model shows the degree to which the equilibrium behavior drives short run dynamics. It refers to the rate at which the previous period disequilibrium of the system is being corrected. The value of the ECM is -0.396 implies that the system corrects its previous period disequilibrium at a speed of 39.6%. It denotes that any shock to VAIC will adjust by almost 40% in the first year. The full convergence process will take around two and a half years. Therefore, the speed of adjustment is relatively high.

Table 4: Short Run Estimates

Variables	D(VAIC)	T Statistics
Error Correction	-0.396483	-13.8073***
D(VAIC(-1))	0.08866	0.04060
D(EFF(-1))	0.00000128	1.90741
D(ROA(-1))	3.051951	1.95487
D(SIZE(-1))	0.0405532	1.32087
D(HRI(-1))	0.4711756	0.23842
D(BE(-1))	-0.0746417	-0.148046
D(LEV(-1))	0.02974719	1.15478
R^2	0.501518	

From the estimated short run equation (Table 4), it is found that profitability, proxied by ROA, as well as efficiency (EFF), have significant positive impact on the performance of IC. Size, leverage, barriers to entry as well as human resource intensity have insignificant positive impact on VAIC.

5. Discussions

Manuscripts should normally not exceed 9000 words (everything included) and must be prepared using APA format. All references cited in the article must be listed in the References and the names must be spelled correctly in both places (This is one point that often is overlooked). Please do NOT use footnotes and do NOT list references as footnotes at the end of each page.

5.1 Theoretical Contributions

The main findings of this study thus highlights critical factors that determine intellectual capital performance which in turn will increase the ability of organization to perform better. This is important mainly because in most hotels in Mauritius, there is an enormous intellectual potential, which is most of the time underutilized, but holds the key to major business improvement. This study postulates that intellectual capital should be treated as an important driver of financial performance and accordingly hotel managers must pay more attention to the intangible aspects of their business in the future, failing which, they may miss the potential to create value. Investment in human capital should be achieved through the hiring of competent workers for the particular job opportunities as only a well-educated workforce would be able to provide a high level of friendly, efficient and professional service, which is a major ingredient in ensuring satisfied customers and continued growth in the hospitality sector. The empirical results with regard to the determinants of IC performance will then be very useful in the formulation of decisions at managerial level in addressing the factors that will contribute to enhance the efficiency and performance of intellectual capital. Senior management should focus on major determinants like size, profitability, human resource intensity, efficiency of intangibles when making operational decisions, which may in turn contribute towards maximizing value creation, performance and productivity. This analysis is important for investors as well as creditors as it enables them to understand the critical factors affecting a firm's value before making investment decisions.

The practical implications are quite useful to the managements of organizations as our results provide them with useful information regarding which variables they should focused upon if they intend to improve their intellectual capital efficiency. The result of this paper can also be useful to investors and creditors as it will enable them to

understand the critical determinants influencing an organizations value before making investment decisions (Goh, 2005).

5.2 Practical Implications

All manuscripts undergo an internal review process involving journal editors and may include members of the editorial board. This process can take as long as two to four weeks, after which manuscripts are either rejected or sent into peer review pursuant to possible publication. Peer review may take an additional eight to ten weeks. The decision to publish is ultimately predicated upon the outcome of peer review, the judgment of the editors, and, if necessary, a satisfactory editing and/or revision process that meets journal's standards.

5.3 Limitations and Future Research Recommendations

This study is not without limitations. The sample is restricted to 43 hotels in Mauritius only. Future studies should investigate this topic using a larger sample of firms operating in the hospitality sector. Another flaw of this research lies in the fact that the data collected from the annual reports of the individual hotels to test the main research objective is limited to a time frame of 2007 to 2018. This data collection limitation is due to the fact that the company's annual reports are accessible at the Registrar of Companies only as from the year 2007 and not since the inception of the companies

6. Conclusions

This paper has empirically investigated the determinants of IC performance for 43 firms in the hospitality sector in Mauritius for the period 2007 to 2018 using dynamic panel data analysis namely a PVCEM. Results from the analysis show that efficiency, profitability, size as well as human resource intensity are amongst critical ingredients of IC performance, in the long run. On the other hand, barriers to entry and leverage negatively impact on the performance of IC. It is also important to note that this study departs from the restricted existing empirical works that investigate this topic as it has employed a dynamic PVECM methodology that enabled us to detect both long run and short run relationships. The PVECM results stress on the fact that most of the mentioned determinants of IC performance are significant only in the long run, implying that a time inertia exist.

APPENDIX A

Value Added which is the difference between total sales (OUT) and material costs (INPUT) is calculated according to the methodology proposed by Riahi-Belkaoui (2003) as follows:

$$R_{it} = S_{it} – B_{it} – DP_{it} – W_{it} – I_{it} – D_{it} – T_{it} \quad (3)$$

Where R = retained earnings for the period, S = net sales revenue obtained for the period, B = cost of goods sold plus all operational and other expenses in the period apart from labour, taxation, interest, dividend and depreciation, DP = depreciation charged during the period, W = wages and salaries paid to the employees for the period, I = interest expenses paid during the period, D = dividends paid to the shareholders for the period, T = taxes for the period. The elements in the above equation can be rearranged as follows;

$$S_{it} - B_{it} = DP_{it} + W_{it} + I_{it} + D_{it} + T_{it} + R_{it} \quad (4)$$

In the above equation, while the left hand side shows the difference between net revenues and all expenses excepting wages, interest, dividend, tax and depreciation, the right hand side shows how the firm has distributed its generated revenue among the stakeholders. According to the Theory of Stakeholder View (Donaldson and Preston, 1995), the right hand side of equation (3) is the total value added to the firm during the given period and hence can be written as follows:

$$VA_{it} = DP_{it} + W_{it} + I_{it} + D_{it} + T_{it} + R_{it} \quad (5)$$

The VAIC indirectly measures IC via the measurement of Capital Employed Efficiency, Human Capital Efficiency, and Structural Capital Efficiency.

Pulic (2000) suggested that the HCE captures the value added efficiency of human capital in an organization and made up of total salary and wage costs. The human capital efficiency is this the ratio of the Value Added to the Human Capital is calculated as follows:

$$\mathbf{HCE = VA/HC}$$

Edvinson and Malone (1997) proposed that structural capital is "everything left at the office when the employees go home", including elements as hardware, software, databases, organizational structure, patents, trademarks and everything else of the organizational capability that supports the employees' productivity. SC is dependent on the created value added and in reverse proportion to the Human Capital. Total VA less its human capital is used as a proxy of a firm's structural capital (SC).

$$\mathbf{SC = VA - HC}$$

SCE which indicates the value added efficiency of structural capital is calculated as follows:

$$\mathbf{SCE = SC/VA}$$

The CEE is an indicator of the value added efficiency of capital employed. Capital employed is defined as the book value of a firm's net assets and CEE may be calculated by the following formula:

$$\mathbf{CEE = VA/CE}$$

Intellectual capital efficiency (ICE) is the summation of the efficiencies of HC and SC and is calculated as:

$$\mathbf{ICE = HCE + SCE}$$

and:

$$\mathbf{VAIC = ICE + CEE}$$

Substituting the ICE equation in the in the VAIC equation:

$$\mathbf{VAIC = HCE + SCE + CEE}$$

The higher the VAIC, the higher is the value creation by a particular resource employed in the organization. Thus, a positive coefficient is expected.

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