Investigating the Effect of Intellectual Capital on Bank Performance in Malaysia

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ABSTRACT

The purpose of this paper is to investigate the state of intellectual capital among the banks in Malaysia, and to examine its consequent effect on bank business performance. The study employed the quantitative approach through a survey instrument design. The population was the branch managers of domestic banks in Malaysia, and they were chosen because these banks have extensive branch networks, even in rural areas. Data were collected using questionnaires, and the constructs used were developed from prior research and previously tested for reliability. A total of 1844 questionnaires were mailed to the respondents, and 260 usable responses were received, giving a response rate of 14.09 percent. Descriptive statistics were used to analyze the characteristics of the respondents including frequency, mean, and measures of reliability, while multivariate technique employed was multiple regressions. The findings revealed that significant relationships exist between human and structural capitals and bank performance, while no significant relationship was found between relational capital and bank performance These findings may be of help to bank managers to utilize more of their internal resources to compete and survive the intensely competitive business environment.

Keywords: Banks, bank managers, intellectual capital, performance

INTRODUCTION

In the era of globalization, the competitive business environment of the banking industry is expected to intensify dramatically. Similarly, the banking industry in Malaysia has seen noticeable changes in its business environment as a result of financial liberalization and consolidation, economic transformation, and more discerning consumers. These developments have been reinforced by technological advancements which allowed the developments of new and more efficient delivery and processing channels as well as more innovative products and services. Against this backdrop, a number of challenges have emerged. Foremost, is the intensified competitive pressures faced by the banks not only from other banks but also from non-traditional competitors such as non-bank financial intermediaries as well as the capital markets which are offering similar products and services. In addition, the ever changing and sophisticated needs of the customers have intensified the already highly competitive market. These customers have become more educated, better informed and more internalized as the Malaysian economy becomes more and more knowledge based. As a result, banks are required to adopt innovative strategies to keep pace with the changing environment and customers' requirements (Al Swidi & Mahmood, 2011). In addition, banks must manage their resources well, and these can easily be achieved by mobilizing their intangible assets in the form of knowledge, technological skills and experience, and strategic capabilities to achieve performance advantages (Thacker & Hanscombe, 2003). Knowledge can also be used to create business value, achieve business goals, and develop greater value from the core competencies of the business (Tiwana, 2001).

There is also a growing recognition of the significant of intellectual capital as a form of knowledge in getting and sustaining competitive advantage (Edvinssone & Malone, 1997; Stewart, 1997). Intellectual capital (IC) is a critical firm resource that includes intangible assets such as knowledge, information, intellectual property, and employees' experiences, commitments or capabilities (Barney, 2002). Past research has demonstrated the positive association between intellectual capital and organizational performance (Kamath, 2007; Tovstiga & Tulugurova, 2007; Bontis, 1998). Intellectual capital is also viewed as a key determine of business performance of knowledge intensive industries. However, the banking sector which is often being characterized as a highly knowledge industry has been given less attention by those researchers (Mavridis, 2004). Moreover, relatively little is known on how components of

IC individually and collectively affect a bank's performance. Realizing its importance in providing a competitive edge and contributing towards better performance, this research was undertaken to focus on the effect of the IC and its components on the performance of banks in Malaysia. Thus, following research questions were formulated:

1. What is the state of intellectual capital among banks in Malaysia?
2. What is the relationship between intellectual capital and bank performance in Malaysia?

LITERATURE REVIEW

According to Roos and Roos (1997) and Bontis, Keow and Richardson (2002), intellectual capital (IC) is the sum of the 'hidden' assets of a firm not fully captured on the balance sheets. It is the knowledge, experience, expertise, and associated intangible assets such as trademarks, patents and brand rather than the firm's hard physical and financial capital. However, this asset is the most important source for sustaining the firm's competitive advantage. Studies have also concluded that most firms have three forms of IC embedded in their people, structures, and customers. These are human capital, structural capital, and relational capital (Stewart, 2001; Grace, 2006; Curado & Bontis, 2007; De Castro & Saez, 2008; Hsu & Fang, 2009). Human capital is the knowledge, skills, experience, intuition, and attitudes of the workforce (Stewart, 1997), and can be enhanced by increasing the capacity of each worker (Teo, 1998). Structural capital includes patents, copyrights, and information-age assets such as data bases and software. These are organizational and technological elements that pursue integration and coordination within the firm (De Castro & Saez, 2008). Relational capital is the value of a firm's relationships with the people with whom it does business. It is the likelihood that these people will keep doing business with the firm (Stewart, 1997; Edvinsson & Malone, 1997).

Past studies have found that IC may enhance firm performance (Bontis, Keow & Richardson, 2002; De Castro & Saez, 2008). Firms with more human, relational and structural capital should be able to better enact their environment as well as respond and adapt to environmental changes (Gold, Malhotra & Segars, 2001). Besides, it increases a firm's information processing capacity through the creation of lateral relations and investments in information system (Reeds, 2000; Youndt, 1998). These bolster the firm's performances. From a human capital perspective, an increase in employee skills, knowledge and abilities most likely translates into increased performance because it generates new ideas and techniques that can be embodied in production equipment and processes (Saa-Perez & Garcia-Falcon, 2002; Reeds, 2000). It may also initiate changes in production and service delivery method, and improves the link between employees, managers, and customers. In relational capital, the knowledge tied up in relationships among employees, customers, suppliers, alliance partners, and trade associations may lead to process innovation and better problem solving. These tend to increase production and service delivery efficiencies, thereby reducing organizational costs (Marinova, 2004; Lee & Choi, 2003; Reeds, 2000; Youndt, 1998). Structural capital can improve firm performance by reducing its operational costs. Structural capital embedded in routines, procedures, and information systems can help filter information as well as direct and simplify information processing, and organizational sense making, all of which should diminish organizational costs (Reeds, 2000; Garvin, 1993). Based on these discussions, the following hypotheses were formulated:

H1: There is significant relationship between human capital and performance of banks in Malaysia.
H2: There is significant relationship between relational capital and performance of banks in Malaysia.
H3: There is significant relationship between structural capital and performance of banks in Malaysia.

Figure 1 below illustrates the proposed model that hypothesized the relationships between the dimensions of intellectual capital and bank performance.

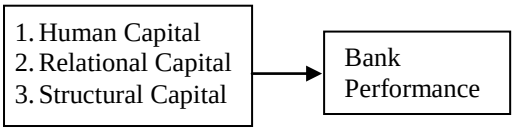

Figure 1: Intellectual capital – performance relationship framework

The proposed framework is supported by the resource-based theory which seeks to identify

factors that explain why firms are able to gain and sustain a competitive advantage. The theory asserts that a firm's performance is mainly driven by a unique set of firm resources that are difficult to imitate, rare and valuable. As long as competitors are unable to buy or imitate or substitute the resources controlled by a firm, these resources will continue to be a source of competitive advantage (Barney, 2002). Thus, intellectual capital as a form of unique intangible resources may be a value driver of a bank in achieving competitive advantage.

METHODOLOGY

Data Collection Procedures

Data were collected by means of a mail survey questionnaire completed by branch managers of the domestic banks. Although there are limitations in the use of questionnaire based research, the benefits arising from cost savings, convenience, anonymity, and reduced interview bias seem to outweigh the limitations. The sampling frame was obtained from the Association of Bank Malaysia (ABM). Branch managers were chosen because they are responsible for strategic decisions at the corporate and the strategic business unit levels, and therefore they are in the best position to describe the various organizational characteristics of their banks (Dwairi, 2004; Abd Wahid, 2011). Furthermore, this study focused more on those responsible for the execution of strategy, not the top management who formulated it.

A total of 1844 branch managers from the sampling frame were sent with the questionnaires and 360 completed questionnaires were returned with a response rate of 14.09 percent. This response rate is acceptable considering the fact that mail survey response rates of over 30 percent are rare, and are frequently as low as 5 to 10 percent (Alreck & Settle, 1995). Similar studies by Mahmood and Abd Rahman (2007), and Mahmood and Idris (2003) revealed response rates of 13.8 percent and 24.0 percent respectively. Fifteen returned questionnaires were later detected as outliers and were deleted from the data. There is also an issue of non response bias which is pertinent to a survey method of data collection. Non response bias exists when there are significant differences between the answers of those who have responded and those who do not respond. However, since the number of responses received was more than the minimum sample size of 322 as suggested by Saunders, Lewis and Thornhill (2007), a test of non-response was not appropriate.

Measures and Instrumentation

This study proposed three definitional dimensions of intellectual capital, namely; human capital, relational capital, and structural capital. The instruments for these dimensions were adapted from a previous research by Youndt (1998). Although the instruments were previously tested for validity and reliability, some of the questions were slightly modified to make them more relevant to the purpose of this study. The questionnaire of the three dimensions each consists of five items and uses a five point Likert scale on which the respondents have to indicate the extent to which the items represent their bank's strategy.

For measuring performance, a subjective approach developed by Dess and Robinson (1984) and Gupta and Govindaran (1984) was adopted. Past research has indicated that subjective measures can be consistent with objective measures, and were a reliable means for measuring performance (Dess & Robinson, 1984; Pearce, Robbins & Robinson, 1984; Venkatraman & Ramanujam, 1987). Moreover, subjective measures may increase the response rate where objective data are either not available or respondents not willing to reveal the information. The questionnaire consists of three items, and respondents were asked to rank the performance of their bank for the past three years based on a Likert type scale ranging from much lower (1) to much higher (5). A three year average performance measure was used in order to reduce the decision variation impact of the bank's annual financial report (Covin, Slevin & Heeley, 2001).

Reliability and Validity

A reliability test was conducted to determine the internal consistency of the measures used. Table 1 below shows all the constructs have Cronbach Alpha values of more than 0.8 which is higher that that recommended by Hair et al. (2006).

Table 1: Reliability scores for Intellectual capital constructs

Construct	No. of items	Alpha value
Human capital	5	.899
Relational capital	5	.843
Structural capital	5	.811
Performance	3	.853

The constructs were also validated through factor analysis. Before performing factor analysis, the suitability of data was assessed through two tests; Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, and Bartlett's Test of Sphericity. The KMO has to be more than 0.50 and Bartlett's Test of Sphericity has to be significant. For factor analysis, principle component analysis and Varimax rotation were performed. It was suggested that items that had factor loadings lower than 0.30 should be eliminated (Hair et al., 2006).

The KMO and Bartlett's test of Sphericity for intellectual capital constructs were examined. The KMO result of above 0.90 and Bartlett's test of sphericity at $p<0.001$ assessed the data factorable, and thus factor analysis was performed. The varimax rotated principal component factor analysis applied has revealed a three factor structure that explained 69.04 percent of the variance. Only factor loadings of at least 0.30 were included in the final analysis. Thus, no items were deleted. Eigenvalues for each factor were greater than 1.0. The three factors were designated as human capital (F2), relational capital (F1) and structural capital (F3) (See Table 2 below).

Table 2: Factor analysis for intellectual capital

Items	Factor1	Factor2	Factor3
Our employees are skilled at collaborating with each other to diagnose and solve problems (6)	.734		
Our employees share information and learn from one another (7)	.786		
Our employees interact and exchange ideas with people from different areas of the bank (8)	.791		
Our employees have the capacity to partner with customers, suppliers, alliance partners to develop business solutions (9)	.784		
Our employees apply knowledge from one area of the bank to problems and opportunities that arise in another (10)	.781		
Our employees are high skilled (1)		.647	
Our employees are widely considered the best in our industry (2)		.810	
Our employees are creative and bright (3)		.591	
Our employees are experts in their particular jobs and functions (4)		.497	
Our employees are able to develop new ideas and knowledge (5)		.448	
Our bank uses patents and licenses as a way to store knowledge (11)			.691
Our bank's knowledge is mostly contained in manuals, data base (12)			.814
Our bank's culture contains valuable ideas, ways of doing business (13)			.887
Our bank embeds much of the knowledge and information in structures, systems, and processes (14)			.755
Our bank protects vital knowledge and information to prevent loss in the event key people leaves the organization (15)			.649
Eigen values	8.244	1.111	1.002
Percentage of variance explained	54.958	7.409	6.677

The data for performance were also assessed via the KMO test of sampling adequacy with a value of 0.719 and Bartlett's test for sphericity with $p<0.001$. The results assessed the data factorable and factor analysis was performed. The varimax rotated principal component factor analysis has resulted in a single factor loading that explained 76.84 percent of the variance. Only loadings of at least 0.30 were included in the factor. Thus, all the three items were loaded on a single factor, and is displayed in Table 3 below.

Table 3: Factor analysis for performance

No	Item	Loading
1.	Overall business performance for the past three years	.845
2.	Overall performance relative to competitors for the past three years	.896
3.	Overall sales growth relative to competitors for the past three years	.888
	Eigen value	2.305
	Percentage of variance explained	76.84
	KMO: .719	
	Bartlett's Test of Sphericity: Sig p< 0.001	

RESULTS AND DISCUSSIONS

Characteristics of the respondents

The findings in Table 4 below revealed that nearly 72 percent of bank managers holding the position at branch levels were male. This

concurs with previous studies of Mahmood and Abd Rahman (2007), Mahmood, Abd Rahman and Rahman (2003), and Mahmood (2000) that shows the banking industry in Malaysia was still male dominated at the higher managerial level. The ethnic groups were diversely distributed, and this reflects that of the country with a majority of them Malays contributing 53.3 percent, followed by the Chinese with 27.0 percent, Indians (12.5%) and others (7.2%).

Most of the respondents possessed at least an undergraduate degree with 70 percent of them while another 18 percent were diploma holders. There were also 23 respondents who had post graduate degree including two of them with doctorate qualification. This shows the importance of academic credentials for managerial positions in the Malaysian banking industry. In terms of experience, about 80 percent of the respondents had been in the banking industry for more than 10 years with 25.5 percent of them having been in the industry for more than 20 years. None of the respondents had less than 5 years working experience with the banks. This again shows the importance of banking experience as a criterion for a managerial position in the industry. Thus it is expected that the respondents were all well-versed and knowledgeable in their jobs. Another important finding is that more than 75 percent of the respondents had been in the branch managerial position for less than 10 years and only 7.8 percent had been holding the post longer than 15 years. A possible reason for the low longevity of bank managers at branch levels is that long experienced bank managers would normally be pulled back to the head office for more responsible positions (Mahmood, 2000).

The findings also revealed that about 70 percent of the respondents' banks had less than 25 employees. Only 30 of the banks had 25 or more staff employed at the branch levels. Therefore these findings show that the size of bank branch in Malaysia as measured by the number of employees is relatively small. This is expected as most banking operations today are fully computerized and the application of e-banking demands less employees.

Table 4: Characteristics of Respondents

		Frequency	Percentage
Gender	Male	248	71.9
	Female	97	28.1
Ethnicity	Malay	184	53.3
	Chinese	93	27.0
	Indians	43	12.5
	Others	25	7.2
Qualification	SPM/STPM	36	10.4
	Diploma	62	18.0
	Bachelor degree	224	64.9
	Master	21	6.1
	Doctorate	2	0.6
Managerial position	Less than 5	145	42.0
	5 and less than 10	117	33.9
	10 and less than 15	56	16.3
	15 and above	27	7.8
Banking experience	More than 5 but less than 10	69	20.0
	10 and above but less than 15	114	33.0
	15 and above but less than 20	74	21.5
	20 and above	88	25.5
Number of staff	More than 10 but less than 15	97	28.2
	15 and above but less than 20	87	25.2
	20 and above but less than 25	55	15.9
	25 and above	106	30.7

State of Intellectual Capital

The means of all items of the intellectual capital are shown in Table 5 below. All the items were measured on a five point scale. The mean scores for the items of human capital ranged from 3.91 to 4.06 giving an overall mean of 3.99. According to Mahmood and Abd Rahman (2007) and Mahmood (2005), a mean rating value of 4.21 and above for a 5-point scale is considered 'very high', while a mean value of between 4.20 and 3.41 is considered as 'high'. This shows that the level of human capital among the bankers was relatively high. The mean scores of relational capital ranged from 3.87 to 4.05, while those of structural capital ranged from 3.94 to 4.28. The findings indicate that banks in Malaysia operate in a situation of a relatively high intellectual capital. Thus, intellectual capital has now being viewed as a crucial approach to continuous growth and strategic renewal, a strategy even more useful in hostile business environment like the banking industry.

Table 5: Means of Intellectual Capital

No.	Item	Mean	SD
	Human Capital		
1.	Our employees are creative and bright	4.06	.858
2.	Our employees are highly skilled	4.04	.765
3.	Our employees are experts in their particular jobs and functions	3.99	.755
4.	Our employees are widely considered the best in the industry	3.97	.773

5.	Our employees are able to develop new ideas and knowledge	3.91	.789
	Relational Capital		
6.	Our employees share information and learn from one another	4.05	.751
7.	Our employees apply knowledge from one area of the bank to problems and opportunities that arise in another	3.94	.801
8.	Our employees have the capacity to partner with customers, suppliers, alliance partners to develop business solution	3.93	.765
9.	Our employees are skilled at collaborating with each other to diagnose and solve problems	3.91	.789
10.	Our employees interact and exchange ideas with people from different areas of the bank	3.87	.835
	Structural Capital		
11.	Our bank's culture contains valuable ideas and ways of doing business	4.28	.836
12.	Our bank embeds much of its knowledge and information in structures, systems and processes	4.09	.741
13.	Our bank's knowledge is mostly contained in manuals, data base	4.08	.736
14.	Our bank protects vital knowledge and information to prevent loss in the event key people leaves the organization	4.08	.785
15.	Our bank uses patents and licenses as a way to store knowledge	3.94	.801

Testing of Hypotheses

Multiple regression analysis was used to test the relationships between intellectual capital constructs and performance of banks, and the results are shown in Table 6 below. The overall model was significant (F = 59.278, p<.001) accounting for 34.3 percent of the variance in bank performance. When all the three constructs were considered simultaneously, only two constructs showed significant positive relationship to performance, that is human capital (B=.394, p<.05), and structural capital (B=.351, p<.001). However, relational capital had shown no significant relationship with performance. Thus, only Hypotheses 1 and 3 are supported. The results are in contrast to most of major findings of previous studies (For example, Sharabani & Jawad, 2010; De Castro & Saez, 2008; Bontis, Keow & Richardson, 2002), which concluded that all constructs of IC contribute significantly to organizational performance. Only Seleim and Ashour (2007) did not find any relational capital influence to firm performance. The relational capital encompasses knowledge embedded within the bank in its relationship with the customers. The relatively small size of most banks in this study may have an impact on the relationships with the customers that it would not facilitate direct exchange and sharing of information. There is also a possibility that the advent of information technology in the banking system necessitates the less demand in face to face interactions with the customers.

Table 6: Regressions of human, relational and structural capitals and performance

	B	Beta	T	Sig
Human Capital	.483	.394	2.060	.040*
Relational Capital	-.099	-.080	-.415	.679
Structural Capital	.402	.351	6.551	.000**

*Sig. *p< .05, **p<.001*

CONCLUSION

This study was conducted to investigate the level of intellectual capital (IC) among the banks and to test the relationship between constructs of intellectual capital and bank performance in Malaysia. Fierce competition has created tremendous pressure for the banks to be more efficiently managed and to utilize more of their internal resources to achieve sustainable operations. The findings of this study provide support that banks in Malaysia are not only having high intellectual capital intensity but they also contribute to sustaining their competitive advantage and improve business performance. This proves that intellectually oriented culture could strengthen performance. These findings may be of help to the management of banks to intensify initiatives to encourage better understanding on the significance of IC which boosts a bank's competitive position and superior performance. This helps the banks to be more responsive to the intensively competitive and ever changing market environment.

While this study represents an important step in the intellectual capital and banking literature, it also raises some questions that need to be addressed by future research. First, this study was cross-sectional, and it does not allow the determination of cause and effect or the impact of changes overtime. Future research should involve collecting data on a longitudinal basis in order to draw causal inferences. Second, the

study also relies on self reports of bank managers. Data sometimes tend to be more positive and may not always be completely truthful. Future studies should investigate the implementation of IC activities within these banks in an attempt to more directly measure the effective of those being implemented. Third, only three dimensions were incorporated in defining the IC for the study. Other factors or attributes that are important for fostering IC should also be included. Finally, future research should refine the methodology used in the study to provide further insights. Nevertheless, this study has generated insights that increase a fund of knowledge that will contribute positively to bankers and also policy makers in Malaysia.

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