

Intellectual capital performance of financial institutions in Iran

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Abstract: This paper aims to investigate the intellectual capital performance and its association with financial performance of banks and financial institutions in Iran for the period 2007 to 2012. Regression models were used to examine the relationship between variables. The related result of this study shows that the relationship between VAIC, HCE, and SCE and financial performance are positive and significant. But the findings indicate that there is negative and insignificant relationship between CEE and financial performance. In addition, the results reveal that banks managers need to understand the importance of IC and its critical role in the firm and to survive in universal competition market.

Key words: *Intellectual capital; Firm profitability; Classification of IC; Measurement methods of IC*

1. Introduction

Investigating the effect of IC on firm performance is the important parts of this study. According to the resource-based view (RBV), the resource of organizations, especially intangible assets contribute to maintain high performance (Hsu and Wang, 2012). One of the important resources for driving organizations performance and creating value is IC (Itami and Roehl, 1991; Mayo, 2000; Teece, 1998). In addition, IC is referred to as the intangible value drivers of organizations that have an impact on their financial achievements and play an increasing role in their performance (Bozburu, 2004; Brennan, 2001; Petty and Guthrie, 2000). There are many studies that examine the relationship between IC and financial performance (measuring by traditional measures such as ROA and ROE) and its literature (Chan, 2009b; Clarke, Seng and Whiting, 2011; Firer and Williams, 2003; Gan and Saleh, 2008; Goh, 2005; Hsu and Wang, 2012; Malhotra, 2003; Mondal and Ghosh, 2012; Pal and Soriya, 2012; Ting and Lean, 2009), but empirical evidences are inconclusive and far from achieving a solid scientific consensus. Therefore, this study made an attempt to enrich the IC literature, and investigated the relationship between IC and financial performance.

The remainder of this paper proceeds as follows: the next section introduces IC, its classifications, and the VAIC measure and presents related empirical

research. The following section develops the theoretical framework for our research hypotheses, and depicts empirical procedures and samples used to test our hypotheses. The penultimate section presents and discusses empirical findings, and the final section concludes with research results and their implications.

2. Literature and background of the study

2.1. Definition of IC

There is a wide range of definitions of IC in the literature. In the recent decades, there have been many attempts to find a standard definition of IC and acceptable definition by many researchers (Edvinsson and Malone, 1997). Definitions of IC focus on different items that can help create value in firms. Stewart (1997) stated IC as the knowledge, experience, intellectual property and information are intellectual material which helps to create wealth. In the another definition, Booth (1998) defined IC as the ability of organization that can convert new ideas into services or products.

There are a number of considerable classifications of IC. But, according to the comprehensive classification of IC, that there are a broad consensus about it, components of IC are human capital, structural capital, and relational capital (Bontis, 1998, 1999; Roos, Edvinsson and Dragonetti, 1997; Stewart, 1991, 1997; Sveiby, 1997a).

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The methods of measuring IC have been developed and applied by organizations and researchers. However, it was posited by Kaplan and Norton (1996) and Stewart (1997), that managing IC of any organization require appropriate measurement; hence, the significance of managing organizational IC needs adequate measurement.

Williams (2001) and Luthy (1998) classified the measuring approaches for IC into four groupings which is as thus:

- Direct Intellectual Capital methods (DIC): in this model, the monetary value of IC is directly determined by identifying its components. They are separately recognized and utilized as indicators.
- Market Capitalization Methods (MCM): in this method, the difference between stockholder's equity and market capitalization of companies are calculated.
- Return on Assets methods (ROA): this approach compares the tangible assets of a company on an annual financial growth compared to the whole industrial average and utilized the average of earnings for estimating the value of intellectual capital.
- Scorecard Methods: this technique reports in a graphical manner the various parts of IC or intangible assets.

Value Added Intellectual Coefficient is one of the methods under the return on assets method. The Value Creation Efficiency Analysis had been stated by Pulic (1998, 2000a, 2004) and this method called VAIC, measures firm resources through annual reports data. Pulic (2004) stated that the efficiency and size of IC are identified by this method. In this method, components of VAIC are human capital efficiency (HCE), structural capital efficiency (SCE), and capital employed efficiency (CEE).

Chan (2009a) Presents some advantages of VAIC method that are mentioned as follows:

- This method applies instructive indicators to all beneficiaries.
- The results of VAIC are objective and quantifiable indicators.
- Understanding VAIC is simple for users and beneficiaries.
- The form of this method is standard.
- The result of this method can be compared with traditional financial indicators because it is measured by financial figures.
- The results of VAIC are valid and reliable because it utilizes financial data.
- This method has a track record in application and deployment in research of the field of IC of listed firms in many countries such as Malaysia, Taiwan, and Singapore.
- The intellectual capital measurement that is provided by VAIC is consistent with the resource-based view and stakeholder view.

2.2. IC and Performance

One of the important resources for increasing firm performance and creating value in them is the IC (Itami and Roehl, 1991; Mayo, 2000; Teece, 1998). Narver and Slater (1990) and Jaworski and Kohli (1993) in their researches discover that there is power relationship between the tendency of market and performance. The organizations can be successful if they indicate and manage their IC by including intangible assets in the organizations (Nonaka and Takeuchi, 1995).

Ting and Lean (2009) conducted a study in Malaysia with title "Intellectual capital performance of financial institutions in Malaysia". They found the positive and significant relationship between VAIC and ROA. In addition, components of VAIC (HCE, SCE, and CEE) had the positive and significant effect on firm performance.

Results of Firer and William (2003) study in South Africa showed that:

- Positive relationship between structural capital efficiency and ROA
- Positive relationship between capital employed efficiency and market to book value ratio
- Negative relationship between human capital efficiency and market to book value ratio and asset turnover

There are many studies that examine the relationship between IC and financial performance (measuring by traditional measures such as ROA and ROE) and its literature, but empirical evidences are inconclusive and far from achieving a solid scientific consensus. Therefore, this study made an attempt to enrich the IC literature, and investigated the relationship between IC and financial performance. Thus, hypothesizing:

H. VAIC is positively related to financial performance.

H1. Human Capital Efficiency is positively related to financial performance.

H2. Structural Capital Efficiency is positively related to financial performance.

H3. Capital Employed Efficiency is positively related to financial performance.

3. Sample and Data Collection

The data of this paper collected to investigate the results from the annual reports of firms listed in the Tehran Stock Exchange (TSE). They belong to Banks and Financial Institutions sector. The sample period was 6 years, from 2007 to 2012.

4. Results and Analysis

Statistical software STATA was employed to analyse the data. Table 1 illustrates the overview of the nature of data analyzed, using the descriptive statistics.

The pooled sample regression results in Table 2 presents that the F statistic is highly significant ($F = 139.74, p < 0.000$). Therefore, the four predictor variables can be considered to be influencing ROEA.

The R² of 0.37; suggests that the variables in the model explain only 37% of the variation in ROEA.

Table 1: Descriptive Statistics Analysis Result

Variables	Minimum	Maximum	Mean	Std. Deviation
ROEA	-0.83	0.91	0.0692	0.06851
VAIC	-0.91	5.79	1.7931	1.81625
HCE	-1.57	5.82	1.2453	1.62911
SCE	-2.04	1.51	0.1796	0.40314
CEE	-0.19	0.89	0.2061	0.17081

ROEA= Financial Performance (ROA and ROE)

Findings show that VAIC (coefficient = 0.041, p-value = 0.021), HCE (coefficient = 0.518, p-value = 0.000), and SCE (coefficient = 0.045, p-value = 0.000) are positively and significantly affecting ROEA. Thus it can reasonably be concluded that Hypothesis H₁, H₂ are accepted. Regarding to CEE (coefficient = -0.712, p-value = 0.415), it is negatively and insignificantly influencing ROEA. Thus it can safely be concluded that Hypothesis H₃ are rejected.

5. Discussion and Conclusion

This paper provide empirical evidence which IC could have effect Iranian banks financial performance and also would be an effective factor in value creation and wealth increase of shareholders. Banks managers need to understand the importance of IC and its critical role in the firm and to survive in universal competition market. they should better manage IC as soon as possible and consider even though generally accepted accounting standards deter to the recognition of IC in financial statements, investors are aware of importance of IC in firms financial performance.

Table 2: The Result of the Effect of VAIC, HCE, SCE, and CEE on ROEA

Variables	Coefficient	P-Value
VAIC	0.041	0.021**
HCE	0.518	0.000**
SCE	0.045	0.000**
CEE	-0.712	0.415
CONS	-0.041	0.000
R ²	0.37	
F-Value (Sig. F)	139.74 (0.0000)	

** Significant at p < 0.01, * significant at p < 0.05.

These results support the findings of Abdulai *et al*, (2012), who found a significant relationship between IC and performance. Moreover, the findings remain consistent with the suggestions made by Zeghal and Maaloul (2010) and Muhammad and Ismail (2009). This indicates that IC plays a major role in reducing a company's production costs. In addition, this results show that the value added intellectual capital coefficient has a significantly positive association with a company's financial performance. This finding supports the significant role of IC in creating value for stockholders as well as for other stakeholders.

The implications of the findings of the current study in the field of IC are recognizing the most influential elements of IC on Iranian banks financial performance. It would help banks to have a clearer understanding and better management of the organizational capabilities they possess. It will also help them to identify which indicators are the better predictors of their success.

This result is consistent with earlier studies, i.e. Chan (2009a), Chen (2005), and Alipour (2012). Among the two studies conducted in Iran, Alipour (2012) founded that components of IC are positively and significantly influencing financial performance in the insurance companies, and Dadashinasab *et al*. (2012) succeeded in explaining a positive and

significant relationship between components of IC and firm financial performance.

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