

# Knowledge Management on Company Performance with Risk Management Analysis: Evidence from financial sector in Thailand

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## Abstract

There has been increased interest in the application of Knowledge Management (KM) in managerial issues as a way of demonstrating the field's value. There are studies regarding company performance which have been broadly used among researchers. Recognized models can be considered as the economic activity revealed in a company's financial statements by considering three input dimensions, Human Capital (HC), Structural Capital (SC) and Capital Employed (CE). Through this model, knowledge assets can be linked with operating (ROA) and financial performance (ROE). However, there are still other factors that impact company productivity; these are considered as intangible risk management. Intangible risk management identifies a type of risk that occurs, but is ignored by the organization due to a lack of identification ability. These risks may lessen the knowledge workers' productivity, decrease cost effectiveness, profitability, service, quality, reputation, brand value, and earnings quality.

This paper argues that Knowledge Management research fails to identify and provide a detailed understanding of the role of risk management in improving a company's performance. This study suggests that the framework of Knowledge Management on Company Performance should be incorporated with risk management. Instead of focusing exclusively on the nature and attributes of financial knowledge and the management of learning, research should also direct attention to the risk management factors that mitigate undesirable effects and contribute to benefit optimization from the variations in business environments. This paper extends the model analysis to measure VAICTM and provides a deeper investigation of the relationship between intellectual capital, risk management and a company's performance. The model provides managers with a way to measure company performance on Knowledge Management together with organizational risk by responding to organizational awareness of profitability consistent for sustaining the long-term value of the company.

**Keyword:** Knowledge Management, Knowledge Asset, Risk Management, Company Performance, Intellectual Capital

## 1. Introduction

With the world moving toward globalization, many businesses have had to develop and become more complex. Many factors drive the global economy and make the world a challenging business environment with complex implications for most courses of action. That makes it difficult for some enterprises to provide products and services with sufficient margins to stay in business (Wiig, 2004). Utilization of only tangible assets may not be enough to win business in the long term. Intangible assets or intellectual capital will be another factor that plays an important role in sustainable business competition. However, it is very difficult to measure the intangible assets in monetary form.

Thailand is one of the countries with an emerging market economy. As Thailand is an open economy, changes in the world's economy are likely to affect Thailand. So it is very important to be aware of these facts. Thailand should recognize the importance in the current economy to identify the direction and develop strategies necessary to reduce the risks that the country may face. The Eleventh National Economic and Social Development Plan (2012-2016) is a good example of how to develop the economy based on systematic knowledge. The financial sector is regarded as the heart of the Thai economy as it is a source of money to support savings and investments inside the country. Thailand experienced a significant economic crisis in 1997, referred to as the "Tom Yum Kung Crisis." This event illustrates that Thailand was not prepared to deal with such a situation. The Bank of Thailand had to use strict measures to suspend the operations of 16 commercial banks and 42 other financial institutions nationwide. Of these 58 entities, only two could eventually recover, and the remaining 56 entities were permanently closed at the end of 1998. This event taught Thailand to recognize the sensitivity of the financial sector to outside factors such as economic risk, fluctuations of the money market, or even changes in government policy. The survival and success of a financial organization depends critically on the efficiency of managing these risks (Khan and Ahmed, 2001). Therefore, the financial sector must be managed in such a way as to minimize the risks of internal factors in order to be able to withstand external risks

in the future. However, the problem is how can we manage internal risk. Risk management has been focused on by the government and the private sector since 1997 after Thailand experienced the economic crisis. Thailand has reformed and reorganized the financial sector continuously, especially for commercial banks. The regulations regarding funds have been changed to accommodate a risk-based approach. The guidelines of consolidated supervision have been developed to prevent the risk of high competition from commercial banks both in Thailand and overseas (Siwasarit, 2010). In terms of financial risk, it can be removed or reduced by using the financial model. But the risk of managing intangible assets or intellectual capital is rarely considered because measuring the value of an intangible asset is difficult. This research is designed to study the relationships between the fluctuation of value added based on the VAICTM method to focus on the efficiency of resources which create value to the company (Pulic, 2000) and the influences of intangible assets to add value affecting the operating efficiency of the financial institutions registered on the Stock Exchange of Thailand.

The remainder of the paper is organized as follows. In section 2, we briefly discuss and describe the previous studies. Section 3 shows our framework, explains the study hypotheses and describes all of the variables. In section 4, we show and clarify our experiment results. Section 5 summarizes and discusses the paper.

## 2. Literature review

### 2.1 *Intellectual Capital and Knowledge Management*

Knowledge Management (KM) has been defined as "the process by which an organization creates, captures, acquires, and uses knowledge to support and improve the performance of the organization" (Kinney, 1998). According to Sveiby's description, the definition of knowledge management and intellectual capital is a term that is best defined by its use, and therefore it is probably still correct to regard Intellectual Capital (IC) and Knowledge Management (KM) as twins - two branches of the same tree. Also, it may be said that Intellectual Capital deals with articulate, reasonable, knowledgeable and substantial fruits of the mind. It claims intangible (tacit) and tangible (explicit) dimensions, which are not mutually exclusive, but actually complement each other. The conversion of knowledge into a valuable asset has come to be known as an intellectual asset or Intellectual Capital (Kok, 2007). According to various literature studied, Intellectual Capital may be classified as follows:

- Human capital: Most of the researcher agree that human capital represents the individual knowledge stock of an organisation as represented by its employees (Bontis et al., 2001) and view it as a combination of: genetic inheritance; education; experience (Hudson, 1993)
- Structural capital: the fundamental nature of structural capital is the knowledge rooted within an organization such as business infrastructure/processes, working methods, information systems, databases, intellectual property (patents, copyrights, trademarks), organizational design, location advantages, corporate culture (Daum, 2005)
- Customer capital and relational capital: The main theme of customer capital is the knowledge embedded in the marketing channels and customer relationships that an organization develops through the course of conducting business. Customer capital represents the potential an organization has due to ex-firm intangibles (Bontis, 1999).

### 2.2 *Intellectual capital and Company performance*

Intangible assets or Intellectual Capital are immaterial resources (not financial assets/financial capital or physical resources such as fixed/current assets) that, as a factor of production, play a fundamental role in the value creation process of an enterprise and enable it to compete successfully (Daum, 2005). The association between Intellectual Capital and company performance has been examined earlier. (e.g. Appuhami, 2007; Bontis, Chu et al., 2011; Rahman and Ahmed (2012); Saengchan, 2008; Ze'ghal and Maaloul, 2010).

Bontis et al. (2000) revealed a positive relationship between human capital and customer capital. In addition, customer capital has a significant influence on structural capital. Finally, the development of structural capital has a positive relationship with business performance. Appuhami (2007) studied *The Impact of Intellectual Capital on Investors' Capital Gains on Shares: An Empirical Investigation of Thai Banking, Finance & Insurance Sector*. To investigate the impact of corporate value creation efficiency on investors' capital gains, the author used the data collected from listed companies in Thailand's stock market and Public's (1998) Value Added Intellectual Coefficient as the measure of intellectual capital and a developed multiple regression model. The empirical research found that companies' intellectual capital has a significant positive relationship with its investors' capital gains on shares. The findings enhance the knowledge base of intellectual capital and develop a concept of intellectual capital in achieving competitive advantages in emerging economies such as that of Thailand. Likewise a study of Sangchan (2008) applied the VAICTM method to study the relationship between the efficiency of Intellectual Capital and commercial banks in Thailand. The study found that the efficiency of total assets (CEE) plays a major role in enhancing the returns; these findings are compatible with those of Ze'ghal and Maaloul (2010). Wasim et al. (2011) examined the Intellectual Performance (IC) of 12 Modaraba

companies and its impact on corporate performance by employing the predictive analysis. The empirical results revealed that one of the important components to strengthen the IC performance is Human Capital Efficiency (HCE) which means increasing investment to boost the employees' productivity would increase the human efficiency of employees. The results show that (both HCE and SCE have significant relationship with financial performance (ROE) and (EPS), HCE has significant relationship with financial performance (ROE and EPS), and SCE has significant relationship with financial performance (ROE) and (EPS) whereas CEE has substantive effect on ROE and ROI. Even though several studies indicate that intellectual capital plays a significantly important role in company performance, there are still other studies showing different results. Chu et al. (2011) investigated the impact of intellectual capital on business performance in Hong Kong. They found that there was no relationship between intellectual capital (Value added intellectual capital) and the business performance (Market to book value, Return on asset and Asset turnover). Similarly, Rahman and Ahmed (2012) investigated associations, first, between a company's intellectual capital and market value, and second, between a company's intellectual capital and financial performance in Bangladesh, selected from three different industries. They found that intellectual capital and its components do not have significant influence in determining either the financial performance of a company or its value in the market.

### *2.3 Enterprise Risk management and Company performance*

#### *What is Risk?*

When talking about Risk, the first thing that people may think of is the instability of some events in the future. In fact, Risk and uncertainty differ in many aspects. Uncertainty must be considered in a sense radically distinct from the familiar notion of Risk, from which it has never been properly separated. The essential fact is that "Risk" means, in some cases, a quantity susceptible to measurement, while at other times it is something distinctly not of this character; and there are far-reaching and crucial differences in the bearings of the phenomena depending on which of the two is actually present and operating. It would appear that a measurable uncertainty or "Risk" proper, as we shall use the term, is so far different from an un-measurable one that it is not in effect an uncertainty at all." (Knight, 1921) The difference between Risk and instability can be illustrated by comparing it to fighting. The fighter who knows the rules of fighting must find a way or a strategy to win. After the first person fight, the opponent must prevent or do something to get the score back. However, if the other combatant is more skilled, it is possible that he may win the match. Therefore, this situation is called "Risk." In contrast, if the fighters are not aware of the strategies of the war, they must guess in order to fight one another. When neither side can prepare a strategy to attack the other, this situation is called "instability." For Risk, an individual or organization can make the most effective choice at the acceptable Risk tolerance level to deal with unexpected problems.

Since the subprime crisis in 2008 businesses have focused attention on risk management, but managing risk is all about achieving objectives (Woods et al. 2008; Cotter, 2009; Van der Stede, 2009; Palermo, 2011). For the organization, the word "enterprise", according to Enterprise Risk Management (ERM), in itself clearly shows a different meaning than traditional Risk Management. Enterprise means to integrate or aggregate all types of risks; using integrated tools and techniques to mitigate the risks and to communicate across business lines or levels, compared to Traditional Risk Management (Tahir and Razali, 2011). Even though measuring and evaluating the risk thoroughly within an organization is difficult, because each organization has its own success factors as well as tangible and intangible asset management, we found studies that examined the relationships between the risk, intellectual capital, and the company performance.

Jafari, Chadegani and Biglari (2011) investigated the association of total risk management and company's performance. The results indicated positive and significant relationship between total risk management and company's performance in companies that have invested in research, development and innovations along with companies that have a greater level of intellectual capital and industries that have rapid knowledge growth. This study is compatible with prior research. Andersen (2008) examined the firm-specific investment rationale as a plausible explanation for positive risk management effects. As a consequence of the firm-specific investment rationale he found that effective risk management outcomes are associated with superior corporate performance. Further he indicated that companies that vary in levels of intellectual capital and investment in innovation also differ in their risk management effects. Therefore, Bannany (2008) investigated the determinants of intellectual capital performance in the UK banks. The results indicated that the standard variables, bank profitability and bank risk, are important. The finding also showed that investment in information technology (IT) systems, bank efficiency, barriers to entry and efficiency of investment in intellectual capital variables, which have not been considered in previous studies, have a significant impact on intellectual capital performance.

### 3. Methodology and Hypotheses

#### 3.1 Measurement of intellectual capital performance

In order to measure the company intellectual capital, the value added intellectual coefficient (VAICTM) model, developed by Ante Pulic (2000), is employed to appraise the intellectual capital of firms. The better a company's resources have been utilized, the higher a company's value creation efficiency will be (Pulic, 2000). According to Pulic's models, VAICTM encompasses Human Capital efficiency (HCE), Capital Employed efficiency (CEE) and Structural Capital efficiency (SCE). Though VAICTM uses accounting data, it does not focus on the cost of the firm. It does focus on the efficiency of resources that create value to the firm (Pulic 2000, Bornemann 1999, Appuhami 2007).

$$VAICTM = HCE + SCE + CEE$$

$$VA = OUTPUT - INPUT$$

$$OUTPUT = \text{Total Revenue}$$

$$INPUT = \text{All Expense (Except wage, tax, interest, dividend, depreciation)}$$

$$HC = \text{Human cost (Conceded as an investment)}$$

$$SC = \text{Structural capital (VA-HC)}$$

$$CA = \text{Capital Employed (Physical Asset + Financial Asset)}$$

$$HCE = VA/HC$$

$$CEE = VA/CE$$

$$SCE = SC/VA$$

#### 3.2 Measurement of risk

In this study, risk is measured as the ex ante instability of a company value added stream. Smoothing the difference of total revenues and all the expenses incurred in earnings can also come from risk management on a company's operations. It is also possible that the link between earnings volatility and earnings predictability reflects other factors, e.g., earnings smoothing behavior, where managers smooth earnings to provide a more predictable measure of company performance (Dichev & Tang, 2008). This paper used the standard deviation of value added to represent the business risk. The widely known standard deviation formula is:

$$s = \sqrt{\frac{\sum_{i=1}^N (X_i - \bar{X})^2}{N - 1}}$$

#### 3.3 Dependent variables

In viewing operating performance, the most basic and enormously important ratio to use in evaluating company performance is ROA and ROE. The return on assets formula and return on equity will enable us to understand the company's ability to generate profits from their assets and shareholder equity.

ROA provides the best overall measure of operating performance. Every action that we take will find its way into the ROA (return on assets) measure; if several things change, this can make it difficult to identify what is causing the change in ROA. However, when we are trying to assess where we should focus our energy for improvement, we can control the number of changes proposed. This makes it easy to identify the importance of a particular change. ROA is calculated by the ratio of net income to total assets.

ROE is certainly a "hint" that management is giving shareholders more for their money. It's a basic test of how effectively a company's management uses investors' money - ROE shows whether management is growing the company's value at an acceptable rate (McClure, 2010). ROE is calculated by the ratio of profit after tax to total shareholder equity.

#### 3.4 Samples and Data Collection

To examine the existing hypotheses, we chose a specific industry in order to eliminate the effect of different levels of human capital, structural capital and relation capital. Secondly, we can infer that the companies, being in the same sector, cover the structure of similar assets. Therefore, we may presume that the companies within the same industry should have superior performance, if they have higher competency to manage their intellectual capital. The population frame for this study is the listed financial institute companies in The Stock Exchange of Thailand (SET) and we collected financial data including return on asset and return on equity in years 2008 until 2010 from SETSMART (The winner of Thailand ICT excellence awards 2010: Knowledge Management Projects) (TMA, 2011). The data for this study were congregated by using purposive sampling method - populations with deficient data are omitted from consideration.

### 3.5 Hypotheses

The objective of this research is to investigate the impact of the independent variable, intellectual capital and variation of value added on the dependent variable, overall business performance, in the financial sector. Thus, we will investigate the hypotheses as follows:

Ha: There is a meaningful association between VAICTM, Risk ( $\alpha$ VA) and financial performance (ROA and ROE) of Financial companies.

Hb: There is a meaningful association between Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), Capital Employed Efficiency (CEE) and Risk ( $\alpha$ VA) with financial performance (ROA and ROE) of Financial companies.

### 3.6 Research Model

This research applies multiple linear regressions to measure the relationship between the efficiency in operation of the Thai commercial banks and the value added intellectual coefficient (VAICTM) and the relationship between the value added and the efficiency of using human capital, structural capital and physical capital. The impacts from the value added fluctuation of the business affecting the operating efficiency are also studied.

$$ROA_a = \alpha + \beta (VAICTM) + \beta_2 (\sigma VA) + \varepsilon$$

$$ROE_a = \alpha + \beta (VAICTM) + \beta_2 (\sigma VA) + \varepsilon$$

$$ROA_b = \alpha + \beta_1 (HCE) + \beta_2 (SCE) + \beta_3 (CEE) + \beta_4 (\sigma VA) + \varepsilon$$

$$ROE_b = \alpha + \beta_1 (HCE) + \beta_2 (SCE) + \beta_3 (CEE) + \beta_4 (\sigma VA) + \varepsilon$$

Where: VAICTM= the value added intellectual coefficient, HCE = Human capital performance as measured by the ratio of the value added to intellectual capital, CEE = Capital employed performance as measured by the ratio of the value added to capital employed, ROA = Company profitability as measured by the ratio of annual net income to average total assets, ROE = Relationship between company profitability and stakeholder investment as measured by the ratio of annual net income to average total equity,  $\beta_0$  = the intercept,  $\beta_1$  = the slope for CEE,  $\beta_2$  = the slope for HCE,  $\beta_3$  = the slope for SCE,  $\sigma VA$  = the standard deviation of value added and  $\varepsilon$  = the random error term.

## 4. Results

Table no.1 shows the descriptive statistics of all variables found from 2008 to 2010. Although the world economy was weak and fragile because of the financial crisis in the United States, the financial companies in Thailand were still able to operate very well. The implication is that this was caused by their ROA and ROE which are performance indicators in operating from two perspectives; efficiency in using assets and efficiency in profitability that provided some benefits to the shareholders. Both of these had positive values of approximately 3.12% and 6.57% respectively. Therefore, when this is compared to the perspective of using assets in order to build the value added for the business, this incident indicates that those companies that are in the financial business have mostly gained their advantages from their human capital. So, it can be implicitly stated that in the era of the knowledge based economy the business owner must build the value added to his/her business by using intellectual assets more than financial assets. In addition, this research study was related to the research results of Pfeffer (1995), Sveiby (1997), Bontis et al. (2000), Wiig (2003) and Wasim et al. (2011)

Table no. 2 shows the correlation coefficient between mean of company performance and value added of the business in using the advantages from every perspective of the business's assets by using Pearson correlation coefficient and also examining the level of significance. It indicates that the correlation coefficient of company performance, value added of intellectual capital and risk from fluctuation of value added is between -0.1 and 0.375. ROE, VAIC and HCE all have a positive relationship with significance of 0.01 and 0.05. These results show that human resources and intellectual capital could build wealth for share holders while ROA also has a positive relationship without significance with HCE, CEE and VAIC. Both ROA and ROE have negative relationships without significance to risk in value added for the business. Nevertheless, negative relationships could be inferred if we identify and decrease risk. This may help your business' performance improve. In order to clarify some confusion, the researcher has performed the Multiple Regression Analysis as shown on the next table in order to examine the hypothesis.

At the beginning Table 3, the equation of Multiple Regression Analysis was used to examine the relationship between independent variables and dependent variables. We found that intellectual capital has a positive relationship with significance to operating performance, and fluctuation of value added has a negative relationship with significance to operating performance. However, when studying the relationships between ROA and factors of VAICTM, we found that each of them have relationships with significance, so the hypothesis Ha was accepted. We also examined the hypothesis about the relationship of VAICTM and Risk and how that affected Financial Performance. VAICTM had a positive relationship with significance, while risk had a negative relationship with significance to financial performance, which accepted the hypothesis Ha at the

confidence level of 95% and independent variables could explain the transition of dependence variable about 18%. These findings imply that investment in developing human resources, training employees, hiring competency, information systems, operation processes and managing innovation can create better resource sector efficiency than investments in physical or financial assets. Business risk should be the major concern because if it is decreased, it would increase financial performance. Additionally, enterprise risk management leads to the ability to adapt in order to deal with change.

## 5. Conclusion and Suggestions

In this research, we studied Knowledge Management on Company Performance with Risk Management Analysis: Empirical Study in Thailand. We chose financial companies which were registered on the SET. This empirical study found that even though the economic system in Thailand is an open economy, it is also sensitive to change from external factors. During the period of financial crisis in 2008, Thai financial companies were able to maintain their performance. In addition, business was driven by knowledge assets; human resources in particular could increase value added for the shareholders. This study supported Appuhami's research which found that the Intellectual capital of Thai financial companies could build the competitive advantage. When the efficiency in asset management was considered, we found that the investment in intellectual capital could help to increase value added to Thai financial companies. Unfortunately, this study could not provide enough information regarding investments in knowledge assets on every perspective, i.e. human capital, structural capital and financial capital. The results of the research study conflicted with Seangchan's research in 2008 which found that the efficiency of total assets (CEE) played a major role in enhancing the returns; both financial and physical assets have been utilized effectively in generating high value returns. When we considered risk management, we found that risk from fluctuation of value added in financial companies led the negative impacts to the ability of firms' performance. If businesses could forecast the ability to build value added with certainty, they could prepare themselves to handle external changes and also improve the efficiency of internal costs. Unfortunately, identifying the risk of knowledge assets was difficult and this study focuses on the knowledge assets of 47 listed financial companies on The Stock Exchange of Thailand from 2008 to 2010. Additionally, we present only one methodology for measuring the impact of knowledge assets on company performance. Finally, ROA and ROE ratios were typically estimated for presenting the firm's performance. Also, this research study measured only risk from fluctuations of value added. Future research can extend the analysis by testing with other sectors, designing other methods to measure VAICTM, and choosing other ratios for deeper investigation of the relationship between intellectual capital and a company's performance or the applied model in order to measure other risks to forecast risk of knowledge assets.

## References

- Andersen TJ (2008). The Performance Relationship of Effective Risk Management: Exploring the Firm-Specific Investment Rationale. *Long range planning* 41(2), 155-176.
- Appuhami, B.A. (2007). The Impact of Intellectual Capital on Investors' Capital Gains on Shares: An Empirical Investigation of Thai Banking, Finance & Insurance Sector. *International Management Review* Vol.3, No.2, 14-25.
- Bontis, N., Chua, W.C.K. and Richardson, S. (2000). Intellectual Capital and Business Performance in Malaysian Industries. *Journal of Intellectual Capital*, Vol.1, No.1, 85-100.
- Bontis, N. (1998). Intellectual Capital: An Exploratory Study that Develops Measures and Models. *Management Decision*, Vol.36, No.2, 63-76.
- Bontis, Nick. (1999). Managing Organizational Knowledge by Diagnosing Intellectual Capital: Framing and advancing the state of the field, *International Journal of Technology Management*, Vol.18, Nos. 5-8, 433-462.
- Bontis, N. (2010). Intellectual Capital and Business Performance in the Pharmaceutical Sector of Jordan. *Journal of Management Decision*, Vol. 48, No. 1, 105-131.
- Bornemann, M., (1999), Potential of Value Systems According to the VAICTM Method. *International Journal Technology Management*, Vol.18, No.5-8, 463-475.
- Chu SKW, Chan KH and Wu WWY. Charting intellectual capital performance of the gateway to China. *Journal of Intellectual Capital* (2011) 2: 433-50.
- Cotter, C. (2009), *Risk management*, Financial Management, January, 44-45.
- Daum, J.H. (2005), Intangible assets-based enterprise management: a practical approach, Proceedings of 2005 PMA IC Symposium, Stern School of Business, New York University, Manhattan, 15 December 2005.
- Dichev, I.D. and Vicki W. T. (2008), Matching and the changing properties of accounting earnings over the last 40 years, forthcoming in *The Accounting Review*.
- El-Bannany, M. (2008). A study of determinants of intellectual capital performance in banks: the UK case. *Journal of Intellectual Capital*, 9(3), 487-498.

- Firer, S., and Williams, M. (2003). Intellectual capital and traditional measures of corporate Performance. *Journal of Intellectual Capital* Vol.4, No.3, 348-360.
- Firer, S. and Stainbank, L. (2003) Testing the relationship between intellectual capital and a Company's performance: evidence from South Africa, *Meditari Accountancy Research*, Vol. 11, 25-44.
- Jafari, M., Chadegani, A.A. and Biglari, V (2011). Effective risk management and company's performance: Investment in innovations and intellectual capital using behavioral and practical approach. *Journal of Economics and International Finance*, Vol. 3 (15), 780-786
- Khan, T. and Ahmed, H., (2001) Risk Management –An Analysis of Issues in Islamic Financial Industry, Islamic Development Bank-Islamic Research and Training Institute, Occasional Paper ( No.5), Jeddah.
- Kinney, T. (1998). Knowledge management, intellectual capital and adult learning *Adult Learning*, 10 (2), 2-5.
- Knight, F. N. (1921), *Risk, Uncertainty, and Profit*, Hart, Schaffner, and Marx/Houghton Mifflin Company, Boston.
- Kok, A. (2007), Intellectual capital management as part of knowledge management initiatives at institutions of higher learning, *The Electronic Journal of Knowledge Management*, Vol. 5 No.2, 181-92.
- McClure, B. (2010). ROA and ROE Give Clear Picture of Corporate Health, available at: <http://www.investopedia.com/articles/basics/05/052005.asp#ixzz1sBo0DP5h> (December 20, 2011).
- Nonaka, I. (1991). The knowledge-creating company. *Harvard Business Review*, 2007, 162-170.
- Palermo, T. (2011). Integrating risk and performance in management reporting, London School of Economics and Political Science available at: [http://www.cimaglobal.com/Documents/Thought\\_leadership\\_docs/6307\\_R269\\_Integrating%20risk\\_FINAL.pdf](http://www.cimaglobal.com/Documents/Thought_leadership_docs/6307_R269_Integrating%20risk_FINAL.pdf)(Jun 20, 2012)
- Pfeffer, J. (1994). *Competitive Advantage through People: Unleashing the Power of the Work Force*. Boston: Harvard Business School Press.
- Pulic, A. (2000a).VAIC – an accounting tool for IC management. *International Journal of Technology Management*, 20 (5-7), 702-14.
- Pulic, A. (2000). MVA and VAICTM Analysis of Randomly Selected Companies from FTSE 250. Austrian Intellectual Capital Research Center, Graz – London.
- Pulic, A. (2004). Intellectual Capital-Does It Create or Destroy Value?, *Measuring Business Excellence*, Vol. 8, No. 1, 62-68.
- Rahman, S. and Ahmed, J.U. (2012). Intellectual Capital Efficiency:Evidence from Bangladesh, *Advances in Management & Applied Economics*, vol.2, no.2, 109-146
- Saengchan, S. (2008). The Role of Intellectual Capital in Creating Value in the Banking Industry. Faculty of Economics, Chulalongkorn University, Thailand
- Siwasarit, W. (2010). The reforming of the banking system after the financial crisis in Thailand. Faculty of Economics, Thammasart University, Thailand
- Sveiby, K-E. (1997). *The New Organizational Wealth: Managing and Measuring Knowledge-Based Assets*, Berrett-Koehler, New York, NY.
- Sveiby, K. (2001). Intellectual Capital and Knowledge Management, available at: <http://www.sveiby.com/articles/IntellectualCapital.html> (February 2, 2012)
- Tahir, M. I. and Razali, R.A. (2011), The relationship between enterprise risk management (ERM) and firm value: evidence from Malaysian Public Listed Companies, *International Journal of Economics and Management Sciences*, Vol. 1, No. 2, 2011, 32-41
- TMA. (2011). Thailand Management Association: The Winners of Thailand ICT Excellence Award 2010, available at: <http://www.tma.or.th/TMANews/tabid/63/articleType/ArticleView/articleId/13/Thailand-ICT-Excellence-Awards-2010.aspx> (January 20, 2012).
- Van der Stede, W. (2009), *Enterprise Governance*, Financial Management, February, 38-40.
- Wasim ul Rehman, Chaudhary Abdul Rehman, Hafeez ur Rehman and Ayesha Zahid (2011), Intellectual capital performance and its impact on corporate performance:An empirical evidence from Modaraba sector of Pakistan. *Australian Journal of Business and Management Research*, Volume 1, No. 5, 8-16.
- Wiig, K.: *People-Focused Knowledge Management. How Effective Decision Making Leads to Corporate Success*. Elsevier Butterworth-Heinemann, Burlington (2004)
- Woods, M. Kajuter, P. and Linsley, P. (2008), *International risk management*, CIMA publishing, London.
- Ze'ghal, D. (2000). New assets for the new economy. *FMI Journal*, Vol. 11, No. 2, 3-40 (Financial Management Institute of Canada).
- Ze'ghal, D. and Maaloul, A. (2010). Analyzing value added as an indicator of intellectual capital and its consequences on company performance. *Journal of Intellectual Capital*, Vol.11, No.1, 39-60.

**Table 1: Descriptive Statistics-Financial Sector**

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	47	-6.26	14.07	3.2137	4.34259
ROE	47	-20.39	26.20	6.5718	9.25805
HCE	47	-.18	20.82	3.8888	4.09420
SCE	47	-3.86	3.92	.5667	.88765
CEE	47	-.02	2.67	.1856	.38812
VAIC	47	-3.59	22.11	4.6410	4.56167
$\sigma$ VA	47	.01	6.16	.4318	.94628
Valid N (listwise)	47				

**Table 2: Correlations among variables – Financial Sector**

	ROA	ROE	HCE	SCE	CEE	VAIC	$\sigma$ VA
ROA	1						
ROE	.714(**)	1					
HCE	.208	.375(**)	1				
SCE	-.010	.046	.181	1			
CEE	.070	-.046	.554(**)	.051	1		
VAIC	.191	.342(*)	.980(**)	.361(*)	.592(**)	1	
$\sigma$ VA	-.100	-.137	.398(**)	.047	.841(**)	.438(**)	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 3: the results of the regression analysis on explanatory variables ROA and ROE – Financial Sector**

Coefficients of Regression Model									
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Adj. R <sup>2</sup>	F	Sig.
		B	Std.Error	Beta					
<b>ROAa</b>	constant	2.381	.892		2.669	.011	.036	1.836	.167
	VAIC	.276	.153	.290	1.803	.078			
	$\sigma$ VA	-1.041	.739	-.227	-1.409	.166			
<b>ROAb</b>	constant	2.686	.923		2.911	.006	.035	10.540	.247
	HCE	.219	.190	.206	1.152	.256			
	SCE	-.211	.722	-.043	-.292	.772			
	CEE	4.158	3.342	.372	1.244	.220			
	$\sigma$ VA	-2.259	1.242	-.492	-1.818	.076			
<b>ROEa</b>	constant	3.386	1.751		1.934	.060	.183	6.153	.004
	VAIC	1.009	.301	.497	3.354	.002			
	$\sigma$ VA	-3.470	1.450	-.355	-2.393	.021			
<b>ROEb</b>	constant	3.501	1.818		1.926	.061	.176	3.449	.016
	HCE	1.280	.374	.566	3.419	.001			
	SCE	-.392	1.423	-.038	-.275	.785			
	CEE	-4.397	6.584	-.184	-.668	.508			
	$\sigma$ VA	-2.010	2.448	-.205	-.821	.416			



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