The Effect of Intellectual Capital on Performance: A Study among Iranian Automotive Industry

Majid Dadashinasab[1], Dr. Saudah Sofian[2], Mohsen Asgari[3], Majid Abbasi[4]

[1]PHD scholar, Department of Management and Human Resource Development Universiti Technologi Malaysia, Skudai Johor, Malaysia
[2]Department of Management and Human Resource Development Universiti Technologi Malaysia, Skudai Johor, Malaysia
[3]M.A. Student of Accounting, Kerman Science and Research branch, Islamic Azad University, kerman, Iran
[4]M.A. Student of Accounting, Payam-e-Noor University, Behshahr, Mazandaran, Iran

ABSTRACT

The purpose of this study is to investigate empirically the relation between the value creation efficiency and firms' financial performance. This research employed by using drawn from companies that were listed in Tehran Stock Exchange (TSE), from Automotive Industry and spare parts sector. In addition pulic's Value Added Intellectual Coefficient (VAICe) as the efficiency measure of capital was employed. Regarding to intellectual capital, the researchers constructed regression models to examine the relationship between firm value creation efficiency and firms' financial performance. The findings of this current study demonstrated that firms' intellectual capital had a positive impact on financial performance, and the components of VAIC (VACA, VAHU, and STVA) were positively and significantly influenced on ROA, ROE and GR.
KEYWORDS: Intellectual Capital, Financial Performance, Value Added, Automotive Industry and Spare Parts Sector

1. INTRODUCTION

To report and measure of intellectual capital had increased with the growth of knowledge-based organizations in the world economy. Tangible assets were covered by traditional financial statements of the firms. But intangible assets were ignored by these statements. There was a gap increases between the book value and market value of the organization that was caused the researchers were compelled to investigate it.

During the last decade, intellectual capital was defined as the knowledge-based equity of firms and had attracted a significant amount of practical interest (Campisi & Costa, 2008; Petty & Guthrie, 2000). However, the importance of intellectual capital was known, but firms faced many problems with its managing, measuring and reporting(Andrikopoulos, 2005; Kim & Kumar, 2009; Nazari & Herremans, 2007).

Based on the various researchers, the hidden value was not revealed in the financial statement that was intellectual capital. It lead companies to obtain a competitive advantage (Chen, Cheng & Hwang, 2005; Edvinsson & Malone, 1997; Lev, 2001; Lev & Radhakrishnan, 2003; Lev & Zarowin, 1999; Ruta, 2009; Yang & Lin, 2009). Nowadays, to create intellectual capital is the source of economic value to the production of material goods (Chen, et al., 2005).

The purpose of this paper was to investigate the relationship between intellectual capital and financial performance. The methodology for the measurement of intellectual capital was in line with Chen, et al. (2005), Maditinos, Chatzoudes, Tsairidis and Theriou (2011).

The empirical investigation was carried out by using data drawn from a panel consisting of 28 companies listed in the Tehran Stock Exchange (TSE), from Automotive Industry and spare parts sector from 2006 to 2010.

2. REVIEW OF LITERATURE

There was not standard definition of intellectual capital. It was defined by researchers based on different perspective. They had attempted to classify intellectual capital due to different criteria. Some of them were described in following.

According to Abeysekera and Guthrie (2005) Yongvanich and Guthrie (2005) intellectual capital was categorized into three components:

---
*Corresponding Author: Majid Dadashinasab, PHD scholar, Department of Management and Human Resource Development Universiti Technologi Malaysia, Skudai Johor, Malaysia**.** E-mail: majiddadashinasab@gmail.com

a) Human capital
b) External capital
c) Internal capital

Sveiby (1997) described internal structure, external structure and competence are components of intellectual capital.

Brooking (1996) divided intellectual capital to four components: intellectual property assets, market assets, human-centered assets and infrastructural assets.

a) Market assets: they included brands and distribution channels or everything of organizations that firms could connect with their customers and others.

b) Human-centered assets: they were knowledge, skills, Innovation and experience of employees to make effective decisions and solved the problem of organizations.

c) Intellectual property: they included know-how, brands and Inventions.

d) Infrastructural assets: they included methods, technologies and Procedures which helped the organizations for having the even function.

The main categorized of intellectual capital was utilized by several researchers in the field of intellectual capital by Bontis (1996, 1998 & 1999) Roos, Dragonetti and Edvinsson (1998), Stewart (1991 & 1997), Sveiby (1997), Edvinsson and Malone (1997), Saint-Onge (1996) and Edvinsson and Sullivan (1996). They stated that human capital, structural capital and relational capital were three components of intellectual capital.

Spiritual capital was new component of intellectual capital that was described by Ismail (2005). He stated that it was values, faith, culture, principles, intangible knowledg and emotion embedded of individuals in their minds and hearts which were the central part of firm.

To measure intellectual capital was determined as one of the important issues in intellectual capital. Although there were about the 34 methods identified in the relevant literature but there was no universally accepted intellectual capital measurement method among them. One of the attempts about categorizing these various methods was carried out by Sveiby (2007). He had classified them into four approaches.

- Direct Intellectual Capital methods (DIC)
- Market Capitalization Methods (MCM)
- Scorecard Methods (SC)
- Return on Assets methods (ROA)

In this study Value Added Intellectual Coefficient (VACI) method was employed to measure the intellectual capital. It was presented by Pulic (1998) that placed as a subset of ROA group method. This method measured the resources in firms through the information of annual reports. some accounting researchers criticized VAIC and stated the main assumptions of this method were problematic and have unsatisfying results (Andriessen, 2004). Moreover it was considered as an attractive and valuable method rather than other methods in measuring intellectual capital by many scholars who preferred and used it (Chan, 2009; Chen, et al., 2005; Ghosh & Mondal, 2009; Goh, 2005; Kamath, 2007; Kujansivu & Lönnqvist, 2007; Pulic, 2004; Shiu, 2006; Ting & Lean, 2009; Yalama & Coskun, 2007; Ze´ghal & Maaloul, 2010).

Various studies had applied VAIC method to investigate the relationship between intellectual capital and financial, business and economic performance of the firms. Some of them were briefly described in Maditinos, et al. (2011) who carried out a study about impact of intellectual capital on financial performance and market to book value ratio of firm. They used VAIC method for evaluating intellectual capital, ROE, ROA, and GR were utilized for measuring financial performance. The aim this study was a sample of 96 companies listed in the Athens Stock Exchange. The result of this research indicated financial performance of the firms had only significant related with the human capital efficiency, and other relationships were not supported by findings of this study.

The relationship between intellectual capital and performance of firm in the United Kingdom was investigated by Zeghal and Maaloul (2010). In this study, Economic Income (OI/S), ROA, and MB were used for evaluating performance. The findings of this research indicated there were positive significant relationship between intellectual capital and ROA, negative relationship between Capital Employed Efficiency and Economic Income and positive relationship between Capital Employed Efficiency, ROA and MB.

Ting & Lean (2009). They carried out a research on intellectual capital performance of financial institutions in Malaysia. The findings of this research on financial institutes were examined during 1999 to 2007. The results of this research indicated that three components of intellectual capital were related with profitability of firm.

Chan (2009) conducted a study in Hong Kong Stock Exchange. He stated there was no significant relationship between financial performance and intellectual capital of firm. ROA, MB, ROE and ATO are used for measuring financial performance. This study was lasted from 2001 to 2005. The important of physical capital was one of the

main results of this study. On the other hand, physical capital was the most important factor for improving productivity, profitability, and market valuation of the firms.

Kamath (2007) analyzed the VAIC for measuring the value-based performance of Indian banking sector from 2000 to 2004. The finding of this study showed that public sector banks were the top performance in Capital Employed Efficiency while foreign banks were the top performance in the Human Capital Efficiency.

Firer & Williams (2003) conducted a study about relationship between traditional financial performance and intellectual capital which was measured by VAIC method. A sample of 75 South African public traded companies was examined in this research. The results of this study indicated that there were no significant relationship between three components of value added efficiency and dependent variables (productivity, profitability and market value). This finding revealed that they depended mostly on their tangible resources.

2.1 Automotive Industry sector in Iran

Recently, after oil and gas industry, the second most active industry in Iran is automotive sector. 46% of all cars are produced in Iran. Iran is one of the largest vehicle producers between its neighboring countries. The automotive industry of Iran had an increasing trend during the past decade. Production of car has increased 445% during 1998-2008. The new automotive manufacturing companies have been established as well as a relaxation of the protection policies of Iranian government.

2.2 The conceptual framework

A conceptual framework of present study expanded on previews methodologies as Chen, et al. (2005), Firer and Williams (2003) and Maditinos, et al. (2011) investigated the relationship between intellectual capital and financial performance. The hypotheses of the study were presented in following.

2.3 Intellectual capital and financial performance

There were many factors that affected more towards organization's performance, but intellectual capital was one of the important factors as the predictors towards organization's performance. In addition, one of the important resources in increasing firm's performance and creating value for them was related to the intellectual capital (Itami & Roehl, 1991; Mayo, 2000; Teece, 1998).

Narver and Slater (1990), Jaworski and Kohli (1993) in their studies discovered that there was power relationship between performance and the tendency of market. The organizations could be succeeded if they managed and indicated their intellectual capital (Nonaka & Takeuchi, 1995).

Therefore, many investigations had started for surveying the effects of intellectual capital (Martinez-Torres, 2006; Rudez & Mihalic, 2007). One of the obvious effects of the intellectual capital was the increasing competitive advantage and logically was the increasing in performance of firm. There were many studies to survey relationship between intellectual capital and performance, and its literature. The present paper made an attempt to enrich the literature of intellectual capital, thus, hypothesizing:

H. VAIC was positively related to financial performance.
H1. Human Capital Efficiency was positively related to financial performance.
H2. Structural Capital Efficiency was positively related to financial performance.
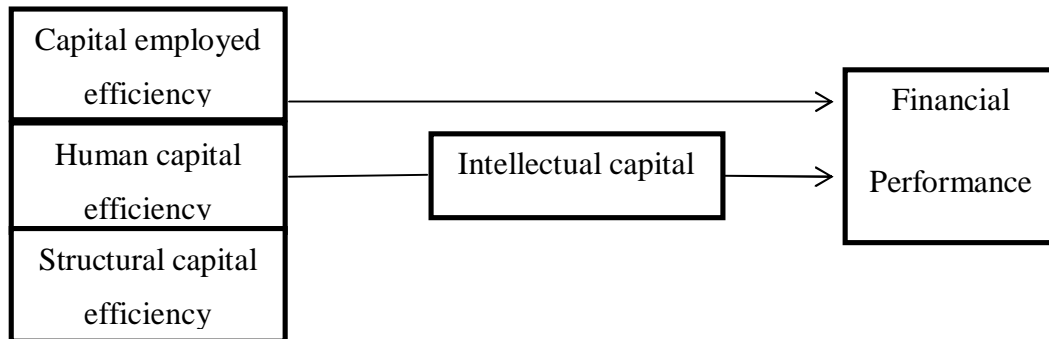H3. Capital Employed Efficiency was positively related to financial performance.

Figure (1) – Conceptual framewok of the research

3. RESEARCH METHODOLOGY

3.1 Sample and data selection

The data of this paper collected to investigate the results from the annual reports of 28 companies listed in the Tehran Stock Exchange (TSE). They belong to Automotive Industry and spare parts sector. The sample period was 5

year, from 2006 to 2010. There were two main reasons for choosing this sample. First, it was related to the importance of this industry in Iran and the region. Second, was related to importance of the development of this industry in the last years (about 445%).

3.2 Variable definition

3-2-1 Independent Variables

The independent variables of this study were included VACA (value added efficiency of capital employed), VAHU (value added efficiency of human capital), STVA (value added efficiency of structural capital) and VAIC (Value Added Intellectual Coefficient). VA (value added) was calculated before the calculation of the above variables. The methodology of calculating VA was presented by Riahi-Belkaoui (2003).

HU (human capital), CE (capital employed) and SC (structural capital) were calculated.

HU = Total investment on employees (salary, wages, etc.)

CE = Total assets - intangible assets

SC = VA - HU

Finally VAHU, VACA, STVA and VAIC were calculated:

$$VAHU = VA/HU$$
$$VACA = VA/CE$$
$$STVA = SC/VA$$
$$VAIC = VACA + VAHU + STVA$$

Some certain advantages were provided by using of this measurement methodology:

a) It was consistent.

b) Its calculating was easy.

c) Comparison between countries and industries were possible because it was standard measure.

d) Data were reliability because they were provided by financial statements which were usually audited by professional public accountants.

3-2-2 Dependent Variables

Financial performance was dependent variable of this study. It was measured with the use of three indicators:

(1) ROE (Return on equity): ROE = Net Income/Shareholder's Equity

The percentage of profit earned on common stockholders' investment in the firms was measured by ROE.

(2) ROA (Return on assets): ROA = Net Income/Total Assets:

ROA showed that how much profit a firm was able to create for each dollar of assets invested

(3) GR (Growth revenues): GR = [Current year revenue /Prior year revenue – 1] * 100%

The growth of a firm was indicated by this traditional measure.

3.2.4 Regrission models

There were various regressio models for examining the hypotheses of the study.

Models 1 and 2 examined the relationship between VAIC and financial performance. Regression models 1a,1b and 1c examined the relationship between VAIV and ROA, ROE and GR. Regression models 2a, 2b and 2c examined the relationship between components of VAIC (VACA, VAHU, STVA) and ROA, ROE and GR.

$$(1a)\ \mathbf{ROA} = \beta 0 + \mathbf{VAIC}\ \beta 1 + e$$
$$(1b)\ \mathbf{ROE} = \beta 0 + \mathbf{VAIC}\ \beta 1 + e$$
$$(1c)\ \ \mathbf{GR} = \beta 0 + \mathbf{VAIC}\ \beta 1 + e$$
$$(2a)\ \mathbf{ROA} = \beta 0 + \mathbf{VACA}\ \beta 1 +\ \mathbf{VAHU}\ \beta 2 + \mathbf{STVA}\ \beta 3 + e$$
$$(2b)\ \mathbf{GR}\ = \beta 0 + \mathbf{VACA}\ \beta 1 +\ \mathbf{VAHU}\ \beta 2 + \mathbf{STVA}\ \beta 3 + e$$
$$(2c)\mathbf{ROE} = \beta 0 + \mathbf{VACA}\ \beta 1 +\ \mathbf{VAHU}\ \beta 2 + \mathbf{STVA}\ \beta 3 + e$$

4. RESULTS AND ANALYSIS

In this study, statistical software employed by SPSS to analyses the data was collected. The data analysis of this study comprised of descriptive statistic, correlation analysis and multiple regression.

4.1 Descriptive statistic and correlation analysis

Due to obtain an overview of the nature of data in analyzing, the descriptive statistics for all variables were illustrated in Table 1.

Table 1. Descriptive statistics for all study variables

Statistics

		ROE	ROA	GR	VACA	VAHU	STVA	VAIC
N	Valid	28	28	28	28	28	28	28
	Missing	0	0	0	0	0	0	0
Mean		.4562	.4269	.2775	.7922	1.2088	.5403	.7338
Median		.3086	.1952	.2603	.2433	.3323	.3150	.3240
Std. Deviation		1.29151	1.06573	.46320	2.52521	2.92770	1.36207	1.55045
Variance		1.66800	1.13577	.21456	6.37670	8.57142	1.85525	2.40390

The means (median) of ROE, ROA, GR, VACA, VAHU, STVA and VAIC were represented as 0.4562, 0.4269, 0.2775, 0.7922, 1.2088, 0.5403, and 0.7338 (Table 1).

The correlation analysis provided an initial preview of the results. It was concluded VAIC and its components were significantly related with financial performance (Table 2).

Table2. Correlation analysis for selected study variables

Independent variable		ROE	ROA	GR
VACA	Pearson Correlation	0.488	0.443	0.343
	Sig.(2-tailed)	.000	.000	.000
VAHU	Pearson Correlation	0.765	0.396	0.395
	Sig.(2-tailed)	.000	.000	.000
STVA	Pearson Correlation	0.26	0.365	0.331
	Sig.(2-tailed)	.000	.000	.000
VAIC	Pearson Correlation	0.789	0.477	0.548
	Sig.(2-tailed)	.000	.000	.000

4.2 Empirical results of multiple regressions

4.2.1 VAIC and financial performance

ROA and VAIC: The result of relationship between ROA and VAIC was presented in Table 3. Finding showed that there was significant relationship between them.

$$ROA = 0.186 + 0.328 \ \beta1+e$$

ROE and VAIC: The result of relationship between ROA and VAIC was presented in Table 4. Finding showed that there was significant relationship between them.

$$ROE = -0.026 + 0.567 \ \beta1$$

GR and VAIC: The result of relationship between ROA and VAIC was presented in Table 5. Finding demonstrated that there was significant relationship between them.

$$GR = 0.157 + 0.164\beta1$$

According to relationship between VAIC and the three financial performance measures, H was supported by the empirical data.

Table 3: ROA and VAIC			
Independent variable	Coefficient	t-statistic	Significance
Constant	.186	2.040	.043
VAIC	.328	6.141	.000

Notes: Adjusted R^2 = 0.228; F-value = 37.714 (p - value > 0.05)

Table 4. ROE and VAIC			
Independent variable	Coefficient	t- statistic	Significance
Constant	-.026	-.336	.737
VAIC	.567	14.519	.000

Notes: Adjusted R^2 = 0.622; F -value = 210.809 (p - value > 0.05)

Table 5. GR and VAIC			
Independent variable	Coefficient	t-statistic	Significance
Constant	.157	4.166	.000
VAIC	.164	7.409	.000

Notes: Adjusted R^2 = 0.300; F-value = 54.890 (p - value > 0.05)

4.3 Components of VAIC and financial performance

ROA and components of VAIC (STVA, VAHU, and VACA): The result of relationship between ROA and components of VAIC was presented in Table 6. Finding showed that there was a significant relationship between them.

$$ROA = 0.109 + 0.113 \beta1 + 0.100\beta2 + 0.199\beta3 +$$

ROE and components of VAIC (STVA, VAHU, and VACA): The result of relationship between ROA and components of VAIC was presented in Table 7. Finding showed that there was a significant relationship between them.

$$ROE = -0.054 + 0.107 \beta1 + 0.299\beta2 + 0.118\beta3$$

GR and components of VAIC (STVA, VAHU, and VACA): The result of relationship between ROA and components of VAIC was presented in Table 8. Finding showed that there was a significant relationship between them.

$$GR = 0.155 + 0.031 \beta1 + 0.043 \beta2 + 0.085 \beta3$$

Based on the relationship between components of VAIC and the three financial performance measures, H1, H2 and H3 were supported.

Table 6. ROA and components of VAIC			
Independent variable	Coefficient	t-statistic	Significance
Constant	0.109	1.223	0.224
VACA	0.113	3.259	0.001
VAHU	0.100	3.508	0.001
STVA	0.199	3.287	0.001

Notes: Adjusted R^2 = 0.320; F-value = 19.798 (p-value > 0.05)

Table 7. ROE and components of VAIC			
Independent variable	Coefficient	t-statistic	Significance
Constant	-0.054	-0.703	0.483
VACA	0.107	3.586	.000
VAHU	0.299	12.091	.000
STVA	0.118	2.259	0.026

Notes: Adjusted R^2 = 0.654; F-value = 79.230 (p - value > 0.05)

Table 8. GR and components of VAIC			
Independent variable	Coefficient	t-statistic	Significance
Constant	0.155	3.775	0.000
VACA	0.031	1.946	0.054
VAHU	0.043	3.285	0.001
STVA	0.085	3.059	0.003

Notes: Adjusted R^2 = 0.239; F-value = 13.159 (p - value > 0.05)

5. Finding and conclusion

In this current research Intellectual capital performance was measured. VAIC method was applied on a sample consisting of 28 companies listed in the Tehran Stock Exchange (TSE), from Automotive Industry. ROA, ROE, and GR measure the financial performance.

The empirical finding from this study had a clearly significant positive relationship between VAIC and ROA, ROE and GR. This paper showed that STVA, VAHU, and VACA had a significant positive effect on financial performance. In other words, the profitability of a firm was positively influenced by increase in value creation

efficiency. Moreover, findings of this study may be exercised by the managers to utilize and organize intellectual capital to have additional profit able output.

REFERENCES

Abeysekera, I. and Guthrie, J. (2005). An empirical investigation of annual reporting trends of intellectual capital in Sri Lanka. *Critical Perspectives on Accounting*, 16(3), 151-163.

Andriessen, D. (2004). *Making sense of intellectual capital: designing a method for the valuation of intangibles.* U.S.A: Elsevier Butterworth-Heinemann.

Andrikopoulos, A. (2005). The real-options approach to intellectual capital analysis: a critique. *Knowledge & Process Management*, 12(3), 217-224.

Bontis, N. (1996). There's a price on your head: managing intellectual capital strategically. *Business Quarterly*, 60(4), 40–47.

Bontis, N. (1998). Intellectual Capital: An Exploratory Study That Develops Measures and Models. *Management Decision*, 36(2), 63-76.

Bontis, N. (1999). Managing organisational knowledge by diagnosing intellectual capital: framing and advancing the state of the field. *International of Journal of Technology Management*, 18(5), 433-462.

Brooking, A. (1996). *Intellectual Capital: Core assets for the third millenium enterprise.* London: International Thomson Business Press.

Campisi, D. and Costa, R. (2008). A DEA-based method to enhance intellectual capital management. *Knowledge and Process Management*, 15(3), 170-183.

Chan, K. (2009). Impact of intellectual capital on organisational performance: An empirical study of companies in the Hang Seng Index (Part 1). *The Learning Organization*, 16(1), 4-21.

Chen, M., Cheng, S. and Hwang, Y. (2005). An empirical investigation of the relationship between intellectual capital and firms' market value and financial performance. *Journal of Intellectual Capital*, 6(2), 159-176.

Edvinsson, L. and Malone, M. S. (1997). *Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Brainpower.* New York, NY: Harper Business.

Edvinsson, L. and Sullivan, P. (1996). Developing a model for management intellectual capital. *European Management Journal*, 14(4), 187-199.

Firer, S. and Williams, S. M. (2003). Intellectual capital and traditional measures of corporate performance. *Journal of Intellectual Capital*, 4(3), 348-360.

Ghosh, S. and Mondal, A. (2009). Indian software and pharmaceutical sector IC and financial performance. *Journal of Intellectual Capital*, 10(3), 369-388.

Goh, P. C. (2005). Intellectual capital performance of commercial banks in Malaysia *Intellectual Capital*, 6(3), 385-396.

Ismail, M. B. (2005). *The Influence of Intellectual Capital on the Performance of Teclekom Malaysia.* Doctor of Engineering, Universiti Teknologi Malaysia, Skudai.

Itami, H. and Roehl, T. W. (1991). *Mobilising Invincible Assets.* Cambridge: Harvard University Press.

Jaworski, B. J. and Kohli, A. K. (1993). Market orientation: Antecedents and consequences. *Journal of Marketing*, 53-70.

Kamath, G. (2007). The intellectual capital performance of the Indian banking sector. *Journal of Intellectual Capital*, 8(1), 96-123.

Kim, D., Kumar, V. and Kumar, U. (2009). A framework of intellectual capital management based on ISO 9001 quality management system: the case study of ISO 9001 certified Public R&D Institute. *Knowledge and Process Management*, 16(4), 162-173.

Kujansivu, P. and Lönnqvist, A. (2007). Investigating the value and efficiency of intellectual capital. *Journal of Intellectual Capital*, 8(2), 272-287.

Lev, B. (2001). *Intangibles: Management, and Reporting.* Washington, DC: Brookings Institution Press.

Lev, B. and Radhakrishnan, S. (2003). The measurement of firm-specific organization capital. Retrieved from www.cib.espol.edu.ec/Digipath/DPapers/47205.pdf

Lev, B. and Zarowin, P. (1999). The boundaries of financial reporting and how to extend them. *ournal of Accounting Research*, 37(Autumn), 353-385.

Maditinos, D., Chatzoudes, D., Tsairidis, C. and Theriou, G. (2011). The impact of intellectual capital on firms' market value and financial performance. *Journal of Intellectual Capital*, 12(1), 132-151.

Martinez-Torres, M. R. (2006). A procedure to design a structural and measurement model of intellectual capital: an exploratory study. *Information and Management*, 43, 617–626.

Mayo, A. (2000). The role of employee development in the growth of intellectual capital. *Personnel Review*, 29(4), 521-533.

Narver, J. C. and Slater, S. F. (1990). The effect of a market orientation on business profitability. *Journal of Marketing*, (20-35).

Nazari, A. and Herremans, I. M. (2007). Extended VAIC model: measuring intellectual capital components. *Journal of Intellectual Capital*, 8(4), 595-609.

Nonaka, I. and Takeuchi, H. (1995). *The knowledge creating company*. New York: Oxford University Press.

Petty, R. and Guthrie, J. (2000). Intellectual capital literature review: measurement, reporting and management. *Journal of Intellectual Capital*, 1(2), 155-176.

Pulic, A. (1998). Measuring the performance of intellectual potential in knowledge economy. *available at: www. measuring-ip. at/Opapers/Pulic/Vaictxt. vaictxt. html (accessed 26 February 2004).*

Pulic, A. (2004). Intellectual capital–does it create or destroy value? *Measuring Business Excellence*, 8(1), 62-68.

Riahi-Belkaoui, A. (2003). Intellectual capital and firm performance of US multinational firms: a study of the resource-based and stakeholder views. *Journal of Intellectual Capital*, 4(2), 215-226.

Roos, J., Roos, G., Dragonetti, N. C. and Edvinsson, L. (1998). *Intellectual Capital: Navigating in the New Business Landscape*. New York: New York University Press.

Rudez, H. and Mihalic, T. (2007). Intellectual capital in the hotel industry: a case study from Slovenia. *Hospitality Management Decision*, 26, 188–199.

Ruta, C. D. (2009). HR portal alignment for the creation and development of intellectual capital. *International Journal of Human Resource Management*, 20(3), 562-577.

Saint-Onge, H. (1996). Tacit knowledge: the key to the strategic alignment of intellectual capital. *Strategy & Leadership*, 24(2), 10-14.

Shiu, H. (2006). The application of the value added intellectual coefficient to measure corporate performance: evidence from technological firms. *International Journal of Management*, 23(2), 356-365.

Stewart, T. A. (1991). Brainpower: intellectual capital is becoming corporate America's most valuable asset and can be its sharpest competitive weapon; the challenge is to find what you have - and use it. *Fortune*, 123(11), 44-60.

Stewart, T. A. (1997). *Intellectual capital: the new wealth of organizations*. New York, NY: Doubleday.

Sveiby, K. (1997). *The new organizational wealth: managing & measuring knowledge-based assets*. San Francisco: Berrett-Koehler Pub.

Sveiby, K. E. (2007). Methods for Measuring Intangible Asset, from http://www.sveiby.com/Portals/0/articles/IntangibleMethods.htm.

Teece, D. J. (1998). Capturing value from knowledge assets, the new economy markets for know-how and intangibles assets. *California Management Review*, 40(3), 55-79.

Ting, I. W. K. and Lean, H. H. (2009). Intellectual capital performance of financial institutions in Malaysia. *Journal of Intellectual Capital*, 10(4), 588-599.

Yalama, A. and Coskun, M. (2007). Intellectual capital performance of quoted banks on the Istanbul stock exchange market. *Journal of Intellectual Capital*, 8(2), 256-271.

Yang, C. C. and Lin, C. Y. Y. (2009). Does intellectual capital mediate the relationship between HRM and organizational performance? Perspective of a healthcare industry in Taiwan. *International Journal of Human Resource Management*, 20(9), 1965-1984.

Yongvanich, M. and Guthrie, J. (2005). Extended performance reporting: an examination of the Australian mining industry. *Accounting Forum*, 29(1), 103-119.

Ze´ghal, D. and Maaloul, A. (2010). Analysing value added as an indicator of intellectual capital and its consequences on company performance. *Journal of Intellectual Capital*, 11(1), 39-60.

Zeghal, D. and Maaloul, A. (2010). Analysing value added as an indicator of intellectual capital and its consequences on company performance. *Journal of Intellectual Capital*, 11(1), 39-60.