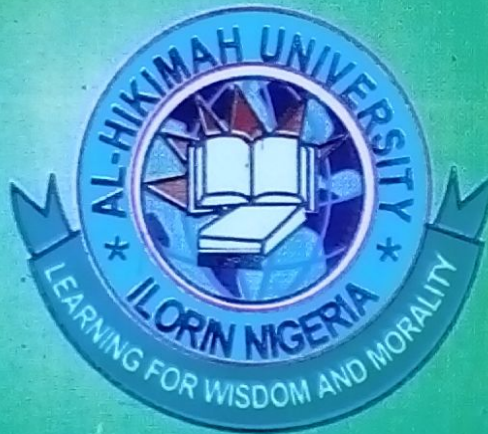


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APPLICATION OF THE VALUE ADDED INTELLECTUAL COEFFICIENT TO MEASURE CORPORATE PERFORMANCE: EVIDENCE FROM NIGERIAN SERVICE COMPANIES

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Abstract

This research work applies a new accounting method for measuring the 'value creation' efficiency of company, the Value Added Intellectual Coefficient (VAIC) of Pulic. It also investigates the correlation between VAIC components and corporate performance, based on 2010 annual reports of 20 Nigerian listed service companies. After modifying the model, the findings show that the VAIC components had a significant positive correlation with profitability (ROA) and market value (MV), and a negative correlation with productivity (ATO). Furthermore, the findings of the study suggest that service companies in Nigeria are capable of transforming intangible (intellectual) resources/assets to high value added services, as claimed by Pulic (2002).

Keywords: Intellectual capital, value creation, value added intellectual coefficient, corporate performance.

Introduction

In a knowledge based economy, there is a difference between the modern approach of value creation and the conventional/traditional way of monitoring and measuring performance. This difference in business operation and resources is due mainly to (i) the introduction of knowledge, an entire different position of labour and (ii) changes in business production resources. Before the advent and the recognition of knowledge, land, labour and capital were recognized as the main factors of production which determine the corporate performance (Mavridis, 2004). But today, the three factors have been fused into what is regarded as business operation resources. These operation resources are now referred to as tangible and intangible resources (Amir and Lev, 1996; Pulic, 2000; Goh and Lim, 2004), whose composition determines the

production of low and high value added products and services (Shiu, 2006). Now that the traditional factor of production has changed, there is a need to develop a new tool capable of measuring and valuing the new production resources (Green, 2008; Shiu, 2006).

Conventional accounting systems have been developed for measuring and valuing only physical or tangible assets. But these tools are inappropriate for measuring and valuing intangible assets as they could not adequately capture intangible assets (Shiu, 2006). With the recognition of intangible assets, various methods have been developed to measure and value intangible assets. Some of these methods are Skandia Navigator, EVA, CIV, Tobin's Q, Balance scorecard and VAIC (Shaikh, 2004; Shiu, 2006).

It is on this note that this study intends to examine the correlation between intellectual capital components and corporate performance of service firms in Nigeria with the use of value added intellectual coefficient (VAIC) method.

Literature Review

Although, there is no common accepted measuring system for intangible (intellectual) asset (Shiu, 2006), yet new methods of measuring and valuing corporate performance were developed by various practitioners and researchers having realised the shortcoming of the conventional method of measuring corporate performance. The following methods were developed and used by researchers in assessing the capability of intangible asset as an important component and indicator of corporate performance.

Intellectual Capital – Skandia Navigator

The wave of interest of intangible asset was sparked off by a few companies (Skandia, Dow Chemical and the Canadian Imperial) of which the representative is Skandia. Skandia which is the largest insurance company in Sweden (Chen, Zhu and Xie, 2004; Bontis, Dragonetti, Jacobson and Roos, 1999) realised that the existing accounting framework can not address the issue of intellectual (intangible) resource. Skandia appointed Leif Edvinsson as director of intellectual capital to develop a new model to solve the problem of intellectual resource reporting. Edvinsson developed a dynamic and holistic intellectual capital reporting model named the Navigator (Bontis et al, 1999). Thus, intellectual capital is a practitioner-created concept.

According to Skandia's model, intellectual capital was categorised into human capital and structural capital (Edvinsson and Malone, 1997). Human capital is delineated as the employees' competence, inter-relationship ability and value, while structural capital can be described as "what remains in the company when the employees go home" (Roos and Roos, 1997) such as brands, patents, processes, organizational structure and concepts. In Skandia's Intellectual Capital Value creation model, structural capital is divided into organizational capital and customer capital. By and large, Skandia's value-scheme covers both financial and non-financial measures to estimate the

company's market value (Chen et al, 2004). It goes further to create taxonomy to measure a company's intangible assets as well as to advise companies to look beyond the traditional financial indicator to measure the value of a company.

Economic Value Added (EVA)

Economic Value Added was introduced by Stern Stewart & Co, a New York-based consulting firm in the late 1990s as a technique to assist companies to pursue their financial directive. It is intended to aid maximising the wealth of the shareholders (Chen and Dodd, 2001) which cannot be done by the use of return on asset and return on equity (Bontis et al, 1999). EVA is the difference between a company's net operating profit after tax and the cost of capital of both equity and debt (Chen and Dodd, 2001).

It is a comprehensive financial management measure that can be used to tie together capital budgeting, financial planning, goal setting, and performance measurement (Bontis et al, 1999). EVA assists managers in decision making process in matter relating to valuation of shareholders' wealth (Bontis et al, 1999). Antola and Lonqvist, (2005) assumes that economic value added is almost the same thing as Residual Income (RI) which is well known to accountants. RI is the value remaining after shareholders and all other providers of capital have been paid or settled. Bontis et al (1999) posits that EVA is a benchmark for managers to compare project and respond to the pressure for performance accountability through the use of an appropriate metrics which is widely accepted. Hence, EVA is a measurement technique to calculate return on intellectual capital (Bontis, 1999). In contrast, Mouritsen (1998) and Andriessen (2004) submit that EVA method is not a good technique for measuring intellectual capital because it ties both financial and non-financial indicators together while the two are loose in intellectual capital (Nazari, 2010).

Calculated Intangible Value (CIV)

This method attempt to allocate a fixed value to intangible asset that does not change according to the companies' market value. Calculated Intangible Value Added (CIV) is designed to compute the value of a company's intellectual capital. Antola and Lonqvist (2005) posit that CIV is a quantitative method that estimates intellectual capital in monetary unit. The method assumes that a company's premium earnings are greater than those of its competitors in the same industry based on its intellectual capital valuation (Antola and Lonqvist, 2001).

CIV has seven steps to follow in order to calculate intangible value (Steward 1997). The steps are (i) calculate the company's average pre-tax earnings for the last three years; (ii) calculate average year-end tangible assets of the company for the last three years; (iii) calculate the company's return on tangible asset (ROA); (iv) calculate the industry average ROA for the last three years; (v) calculate excess ROA by multiplying the industry average ROA by

the average tangible calculated in step ii. Subtract the excess return from pre-tax earnings from step i. (vi) calculate the three years average corporate tax rate and multiply by the excess return. Deduct the result from the excess return. (vii) Calculate the net present value of the after-tax excess return. Use the company's cost of capital as a discount rate. (Nazari, 2010).

This method is criticized because of its rigidity as its opponents believe that market value constantly changes, thus the intangible value of intellectual capital (asset) changes also. This makes the method to lose its credibility in measuring intellectual capital (Bontis 1996).

Tobin's q

Another financial measure for valuing intellectual capital under market model is Tobin's q. Tobin's q is the same as the market-book value ratio except that Tobin's q uses replacement cost/value of tangible capital, rather than book value of tangible capital in the calculation (Kavida and Sivakoumar, 2009). It adopts market capitalization approach. Tobin James introduced q ratio in 1969. Since then, Tobin's q has been accepted, used as a measure of corporate performance and as an indicator of intellectual capital. This theory emphasises that if Q of a company is greater than one and also greater than competitor's Q, the company has the ability to produce higher profits than its competitors (Kavida and Sivakoumar, 2009). Thus, the difference between the market value and the replacement cost of tangible capital represents the value of intellectual capital. (Bontis 1996), evidence that Tobin's q can only be used as intellectual capital measurement method only if the companies under study have the same characteristics, they belong to the same industry and they are at the same level of operation. This is because Tobin's q is likely to be different across different companies and industries.

Balanced Scorecard

Balanced scorecard approach presumes that companies should measure their performance in order to "balance" the financial perspective. After a 'multi-year, multi-companies study' sponsored by Harvard Business School, Kaplan and Norson, (2001), propose that managers need a multi-dimensional measurement system to guide their policy making and suggest a "balanced scorecard" approach to measure performance (Chen et al, 2004; Bontis et al, 1999). This was the first attempt to encourage companies to measure both their financial and non-financial indicators (customer perspective groups, the internal business process and growth perspective) and link these measures in a systematic and coherent nature (Bontis et al, 1999). The balanced scorecard does not consider human resource as part of intellectual capital, thus overlooked the importance of human resource which is (significance of knowledge management) a critical success factor of the new economic entity as well as the key to its long-term survival (Chen et al, 2004; Bontis et al, 1999). The main aim of balanced scorecard is merely to supplement the traditional

accounting balancing perspective by adding non-financial perspective measure (Chen et al, 2004).

Value Added Intellectual Capital Coefficient (VAIC)

Following the debate on intellectual capital value creation, Pulic (1998; 2000) develops a useful measuring technique called Value Added Intellectual Coefficient (VAIC) which is further developed by Bornemann (1999). This method gives a new insight to measures of value creation and monitors the value creation efficiency in companies using basic accounting figures. Contrary to the traditional accounting measure that focuses on tangible assets in business reporting, Pulic picks interest in the driver(s)/component(s) that create value (Chang and Hsieh, 2011). Pulic (2000), provides that there are two key resources that added value. These are capital employed which consists of physical and financial capital and intellectual capital that consists of human and structural capital (Chang and Hsieh, 2011).

This method is preferred by many researchers because it makes use of data from financial statement and minimizes potentiality of subjectivity of data from using other instruments (Chang and Hsieh, 2011). It also decomposes intellectual capital to drivers in order to calculate each value created by IC drivers. Thus, VAIC method of evaluating the efficiency uses of intellectual resources is widely used. For instance, Bornemann (1999) finds a correlation between intellectual resources and economic performance of companies (Shiu, 2006). Firer and Williams (2003) find that there is an association between efficiency of value added (VA) and profitability, productivity and market valuation with mixed results. Also Shiu (2006) finds that intellectual components indicators are value relevant with corporate performance. More importantly, the VAIC indicators of Taiwan Technological industries are significantly correlated with corporate performance and are capable of creating and value added to their companies through efficient use of their intellectual resources.

It is against this background that Pulic (2004) opines that in value creation at this present knowledge based economy, tangible assets are not better than intangible assets although the two must go hand in hand. Therefore, the main aim of this study is to introduce the VAIC method as a tool for assessing the efficiency of production resources. Also, it is intended to modify this method in order to investigate the correlation of VAIC indicators and corporate performance of service companies in Nigeria. The next section covers data and methodology of this study.

Methodology

The service firms play an important and crucial role in the present Nigerian economy. Hence, in this study, data were gathered from a sample of 20 Nigerian listed service companies' annual reports for 2010. The study makes use of systematic random sampling of all service firms' 2010 annual reports present at

the Nigerian Stock Exchange Ilorin archive at the time of compiling the data.

Data was collected from the 2010 fiscal year financial statements of 20 listed Nigerian service companies. The companies were limited to one sector so as to obtain a homogeneous sample. The research work makes use of Value Added Intellectual Coefficient (VAIC) method to calculate the Value added by each component of intellectual capital of the sampled companies in order to determine how efficient these companies are in the use of their intellectual capital resources. Using this method for calculating VAIC, the descriptive statistics are presented in Table 1. In Table 2, the results of the linear multiple regression analyses used to measure the correlations between the variables are presented. This is inclusive of testing for multicollinearity among the variables. The results testing for relationship between VAIC and the corporate performance indicators are also given.

Research Design

The VAIC Method

Value Added Intellectual Coefficient (VAICTM) was first introduced by Pulic (1998) as a method of assessing the efficiency of intellectual (Intangible) asset. It gives a new insight to measurement of value creation and monitors the value creation efficiency in companies' production resource via tangible and intangible assets (Shiu, 2006). VAIC is developed to assess and evaluate the 'efficiency' in adding value (VA) to a company's total resources while each major resource component focuses on value addition in an organization and not on cost control (Shiu, 2006; Pulic 2000; Boremann, 1999). The VAIC approach is based on five steps. Firstly, to find out the competence of a company in 'creating' or value added (VA), the difference between output and input should first be calculated.

$$\text{OUT} - \text{IN} = \text{VA}$$

Where OUT (output) included the overall income from all products and services sold on market, IN (input) contains all expenses for operating the company, exclusive of labour expenses, which is not regarded as a cost. VA (value added) results from how current business and related resources (capital employed, human and structural) are used or employed. The next is to determine how much new value has been created by one unit of investment capital employed, while the second step is the calculation of the value added employed (including physical and financial).

$$\text{VA/CA} = \text{VACA}$$

Where VACA is the Value Added Capital Coefficient.

The third step is to assess the relation between value added and human capital employed in order to show how much value has been created and added by one financial unit invested in employees.

$$\text{VA/HC} = \text{VAHC}$$

Where VAHC is the Value Added Human Coefficient.

Pulic (1998) submits that structural Capital (SC) is calculated when human capital (HC) is deducted from value added; with HC and SC being in reverse order.

The fourth step is to find the association between VA and SC, indicating the share of SC in creating value.

$$SC/VA = STVA$$

Where STVA is the value Added Structural Capital Coefficient

$$\text{The fifth step is to assess each resource that helps to create VA. } VAIC^{TM} = VACA + VAHC + STVA$$

Where= VAIC, the Value Added Intellectual Coefficient, indicates corporate value creation efficiency. Prior researches from Shiu (2006) and Firer and William (2003) define VAIC as a composite sum of three separate indicators. These indicators are Human capital efficiency (HCE): indicator of the VA efficiency of human capital; Structural capital efficiency (SCE): indicator of the VA efficiency of structural capital; and Capital employed efficiency (CEE): indicator of the VA efficiency of capital employed. $VAIC = HCE + SCE + CEE$

As earlier mentioned, the study uses the VAIC method as modified by Shiu (2006) and Firer and William (2003) and the measure of independent variables as:

$$VAIC_i = HCE_i + SCE_i + CEE_i$$

Where $VAIC_i$ = VA intellectual coefficient for company I;

$HCE_i = VAI/HCI$; human capital coefficient for company I;

$SCE_i = SC_i/VA$; structural capital VA for company I and

$CEE_i = VAI/CE_i$; VA capital employed coefficient for company I

$VA_i = I_i$ (sum of interest expenses) + D_{pi} (depreciation expenses) + D_i (dividends) + T_i (corporate taxes) + P_i (profits retained for the year)

HCI = total investment salaries and wages for company I;

$SC_i = VAI - Hci$; structural capital for company I; and

CE_i = book value of the net assets for company I

In this research work, the following indicators stand for dependent variables. They are ROA, ATO and MV which were used as proxy measures respectively for profitability, productivity and market valuation (Nazari 2010; Shiu, 2006; Firer and William 2003).

ROA; ratio of the net income divided by book value of total assets;

ATO: ratio of the total revenue to total book value of assets;

MV: ratio of the total market capitalization (share price times number of outstanding common shares) to book value of net assets.

Size, Leverage and ROE were used in this study as control variables as suggested by prior studies ((Zegral and Maaloul, 2010; Al-Mamum, 2009; Shiu, 2006; Firer and William, 2003).

Size of the company: natural log of total market capitalization.

Leverage: total debt divided by book value of total assets.

Return on Equity (ROE): ratio of the net income divided by book value of total shareholders; equity.

Hypotheses

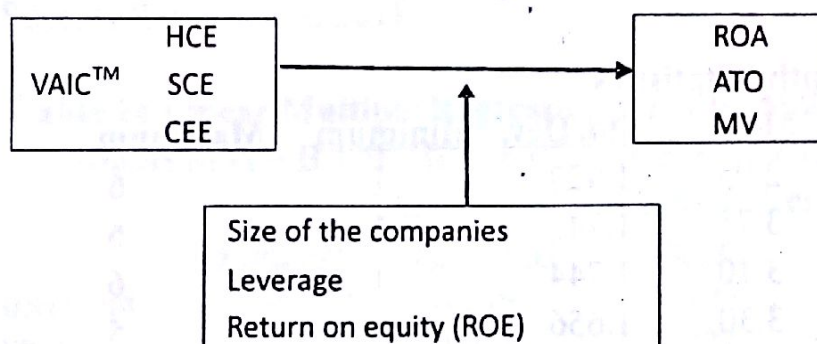
The following are the hypotheses to be tested in this study.

H1: Intellectual capital is a major resource in creating value for stakeholder especially in service industry.

H2: Intellectual capital components are significantly correlated with corporate performance measures

Research Framework

The research framework of this study is shown below:



Source: Adapted from Shiu, (2006)

Where the independent variables are VAIC, CEE, HCE and SCE

The dependent variables are ROA, ATO and MV and

The control variables are size of the company, leverage and ROE.

Data Analysis and Discussion of Results

Table 1 presents the means, standard deviations, minimum and maximum values of all the variables. The mean of VAIC 9.50 with a range of 1 to 6, which suggests that the listed Nigerian service companies created one (1) naira for every Naira employed.

Linear Multiple Regression Results for each component of VAIC

The results for the linear multiple regression analysis of the HCE, SCE and CEE of VAIC with ROA, ATO and MV are illustrated in Table 2a, 2b and 2c respectively. The explanatory powers of the three regressions were 93.1%, 93.4% and 95.3% respectively. Using a cut-off value of VIF less 5, no multicollinearity among the variables was found. Table 2a shows that SIZE had a significantly positive correlation with ROA ($p < 0.10$). Table 2b shows that SCE has a significant negative correlation with ATO ($p < 0.0001$). Table 2c depicts that HCE is significantly positively correlated with MV ($p < 0.05$) while SIZE also correlates significantly with MV ($p < 0.0001$). Also from Table 2a to 2c the contribution of each independent variable towards the dependent

variable is presented. HCE contributes the highest prediction of ROA, and MV, and SCE being the highest for ATO is followed by CEE.

Table 2a to 2c show that value added intellectual capital coefficient has a significantly positive correlation with corporate performance (ROA, ATO and MV). This result supports H1, stating that IC plays a major role in creating value for stakeholders. More importantly, this finding confirms previous studies conducted by Riahi-Belkaoui (2003), Shiu (2006) Tan et al, (2007) and Zeghal and Maaloul, (2010) who all found a significant positive association between IC and financial performance. However, contrary to theoretical expectation, the result in Table 2a indicates a negative correlation between SCE and ATO (productivity). Although it is contrary to findings of earlier researchers like Nakamura, (2001) and Gu and Lev, (2003) yet the finding is in line with Shiu (2006) who finds HCE to be negatively correlated with ATO.

Table 1 Descriptive Statistics

<u>Variable</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Minimum</u>	<u>Maximum</u>
ROA	20	2.95	1.927	1	6
ATO	20	3.75	1.743	1	6
MV	20	3.10	1.744	1	6
HCE	20	3.30	1.656	1	5
SCE	20	3.25	1.559	1	5
CEE	20	2.95	1.456	1	6
VAIC	20	9.50	2.790	1	6
SIZE	20	1.85	0.813	1	3
LEVERAGE	20	2.00	0.795	1	3
ROE	20	1.95	0.826	1	3

Source: Researchers, 2011.

Table 2a Linear Multiple Regression Results: Model 1 ROA

$$\text{Model ROA}_i = B + B_1 \text{HCE} + B_2 \text{SCE} + B_3 \text{CEE} + B_4 \text{SIZE} + B_5 \text{LEVERAGE} + B_6 \text{ROE} + e_i$$

<u>Parameter</u>		<u>Std. Error</u>	<u>t value</u>	<u>pr ≥ t </u>	<u>VIF</u>
Intercept	-0.881	0.373	-2.364	0.0340	
HCE	0.453	0.341	1.330	0.2060	3.9462
SCE	0.261	0.338	0.773	0.4531	4.4418
CEE	0.011	0.323	0.035	0.9723	4.6757
SIZE	0.870	0.421	2.068	0.0590	2.1625
LEVERAGE	0.320	0.468	0.684	0.5062	2.5560
ROE	-0.124	0.182	0.682	0.5071	1.6731
<u>Adj R-Sq</u>	<u>0.931</u>				

Source: Researchers, 2011

Table 2b Linear Multiple Regression Results: Model 2 ATO

$$\text{Model ATO}_i = B + B_1 \text{HCE} + B_2 \text{SCE} + B_3 \text{CEE} + B_4 \text{SIZE} + B_5 \text{LEVERAGE} + B_6 \text{ROE} + e_i$$

	<u>Parameter</u>	<u>Std. Error</u>	<u>value</u>	<u>pr ≥ t </u>	<u>VIF</u>
Intercept	0.000	0.328	-0.002	0.0990	
HCE	0.260	0.300	0.865	0.4030	3.9462
SCE	0.635	0.298	2.132	0.0053	4.4418
CEE	0.422	0.284	1.484	0.1620	4.6757
SIZE	- 0.164	0.371	-0.443	0.6652	2.1625
LEVERAGE	- 0.098	0.413	-0.237	0.8165	2.5560
ROE	0.013	0.161	0.083	0.9350	1.6731

Adj R-Sq 0.934

Source: Researchers, 2011

Table 2c Linear Multiple Regression Results: Model 3 MV

$$\text{Model MVi} = B + B_1 \text{HCE} + B_2 \text{SCE} + B_3 \text{CEE} + B_4 \text{SIZE} + B_5 \text{LEVERAGE} + B_6 \text{ROE} + e_i$$

	<u>Parameter</u>	<u>Std. Error</u>	<u>value</u>	<u>pr ≥ t </u>	<u>VIF</u>
Intercept	-0.416	0.279	-1.493	0.159	
HCE	0.567	0.255	2.227	0.0440	3.9462
SCE	-0.116	0.253	-0.459	0.6543	4.4418
CEE	0.279	0.241	1.155	0.2692	4.6757
SIZE	1.033	0.315	3.281	0.0060	2.1625
LEVERAGE	- 0.088	0.350	-0.253	0.8053	2.5560
ROE	-0.223	0.136	- 0.105	0.1260	1.6731

Adj R-Sq 0.953

Source: Researchers, 2011

Conclusion

In terms of the predicted hypotheses, the results from each component of VAIC, the correlation between the three resources based on profitability, productivity and market valuation are mixed. This finding is similar to that of Firer and Williams (2003) and Shiu (2006). To make a further comparison, the explanatory power of 95.3% and the directional signs for HCE (+) and SCE (-) associated with market value and productivity in this study were far 'better' than the explanatory power of 4.8% and 79.46% of both Firer and Williams (2003) and Shiu (2006). The study shows that HCE has a significantly positive effect on the market value, while SCE has a negative effect on profitability, and SIZE (control variable) has significantly positive effect on ROA. In the opinion of the researchers of this work, the major contribution of this study is to show the explanatory power of the proposed model.

VAIC indicates efficiency in creating corporate value or the extent of corporate intellectual resources. In the light of the high degree of correspondence with ROA and MV, the results for VAIC demonstrate that increases in value creation efficiency influence market valuation and profitability.

In conclusion, in a new economic era, where knowledge-intensive companies tend to dominate the economy of the service sector, it is necessary to maximize the utilization of resources especially the intellectual capital. Despite the fact that few studies in Nigeria have examined issues of intellectual capital components, this paper move ahead to develop VAIC indicators of intellectual capital resources to create value among service firms in Nigeria.

REFERENCES

- Al-Mamun, S. A. (2009) Human Resource Accounting Disclosure of Bangladeshi Companies and Its Association with Corporate Characteristics: *BRAC University Journal*, 6(1), 35-43.
- Amir, E., and B. Lev. (1996). 'Value-relevance of nonfinancial information: The Wireless communications industry'. *Journal of Accounting and Economics* 22 (1-3): 3-30
- Andriessen, D. (2004). *Making Sense of Intellectual Capital: Designing a Method for the Valuation of Intangibles*, Burlington, MA: Elsevier Butterworth Heinemann.
- Antola, J., Kujansivu, P. & Lonnqvist, A. (2005). Management accounting for intellectual capital. Proceedings for the 7th Conference on Manufacturing Accounting Research, Tampere, May 30- June 1.
- Bontis, N. (1996). There's a price on your head: managing intellectual capital strategically. *Business Quarterly*, 60(4), 40-47.
- Bontis, N. (1999). Managing organisational knowledge by diagnosing intellectual capital: framing and advancing the state of the field. *International Journal of Technology Management*, 18(5), 433-462.
- Bontis, N., Dragonetti, N. C., Jacobson, K., & Roos, G. (1999). The knowledge Toolbox: A Review of the Tools Available To Measure and Manage Intangible Resources. *European Management Journal*, 17 (4), 1-20.
- Bornemann, M. (1999). Potential of Value Systems According to VAICTM Method. *International Journal of Technology Management*, 18(5/6/7/8), 463-475.

- Chang, W. S., & Hseih, J. J. (2011). Intellectual Capital and Value Creation- Is Innovation Capital a Missing Link? *International Journal of Business and Management*, 6 (2), 3-12.
- Chen, J., Zhu, Z., & Xie, H. Y. (2004). Measuring intellectual capital: a new model and empirical study. *Journal of Intellectual capital*, 5 (1), 195-212.
- Chen, S., & Dodd, J., L. (2001). Operating Income, Residual Income and EVA: Which Metric Is More Value Relevant? *Journal of Managerial Issues*, 13(1), 65-89.
- Edvinsson, L. & Malone, M. (1997). Intellectual Capital: Realising Your Company's true Value by finding its Hidden Brainpower: *Journal of Human Resource Costing Accounting*, 4 (1), 21-33.
- Firer, S., & Williams, S. M. (2003). Intellectual capital and traditional measures of corporate performance. *Journal of Intellectual Capital*, 4(3), 348-360.
- Goh, P., C. & Lim, K. P. (2003). Disclosing Intelligent Capital in company Annual Reports: Evidence from Malaysia. *Journal of Intellectual capital*, 4(3), 348-360.
- Green, A. (2008). Intangible asset knowledge: The conjugality of business intelligence (BI) and business operational data. *The journal of information and knowledge management systems*, 38 (2), 184-191.
- Gu, F. & Lev, B. (2003). Intangible assets: measurement, drivers, usefulness, working paper, Boston University, Boston, M.A.
- Kaplan, R. S., & Norton, D. P. (2001). Transforming the Balanced Scorecard from Performance Measurement to Strategic Management: Part 1, *Accounting Horizons*, 15(1), 87-104.
- Kavida, V., & Sivakoumar, N. (2009). Intellectual Capital: A strategic Management Perspective. *Journal of Knowledge Management*, VII (5&6), 55-69.
- Kujansivu, P., & Lonnqvist, A. (2007). Investigating the value and efficiency of intellectual capital. *Journal of Intellectual Capital*, 8 (2), 272-287.
- Mavrids, D. G. (2004). The Intellectual Capital Performance of the Japanese Banking Sector. *Journal of Intellectual Capital*, 4(4), 92-115.
- Mouritsen, J. (1998). Driving growth: Economic Value Added versus Intellectual Capital. *Management Accounting Research*, 9(4), 461-482).
- Mouritsen, J. Larsen, H. T., & Bukh, P. N. (2001). Intellectual Capital and the 'Capable Firm': Narrating, Visualizing and Numbering for Managing knowledge. *Accounting, Organizations and Society*, 26(7), 735-762.

- Nakamura, L. I. (2001). What is the US gross investment in intangibles?: (At least) one trillion a year?, working paper, Federal Reserve Bank of Philadelphia, Philadelphia, PA
- Pulic, A. (1998). *Measuring the performance of intellectual potential in knowledge Economy*, Paper presented at the 2nd World Congress on Measuring and Managing Intellectual Capital, McMaster University, Hamilton.
- Pulic, A. (2000). VAIC – an accounting tool for IC management. *International Journal of Technology Management*, 20(5-8), 702-714.
- Pulic, A. (2004). Intellectual Capital- Does it create or Destroy Value? *Measuring Business Excellence*, 8(1), 62-68.
- Roos, G. & Roos, J. (1997). Measuring your company's intellectual performance. *Long Range Planning*, 30(3) 413-426.
- Riahi-Belkooui, 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.
- Shaikh, J. M. (2004). Measuring and Reporting of Intellectual Capital Performance Analysis. *Journal of American Academy of Business*, 4(1/2), 439-448.
- 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. (1997), *Intellectual Capital: The New Wealth of Nations*: Doubleday Dell Publishing Group, New York, NY.
- Tan, H. P., Plowman, D., & Hancock, P. (2007). Intellectual capital and financial returns of companies. *Journal of Intellectual Capital*, 8 (1), 76-95.
- Zeghal, D. & 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.