IMPACT OF INTELLECTUAL CAPITAL ON COMPANY PERFORMANCE IN TIMES OF FINANCIAL DISTURBANCES

Dominique Razafindrambinina[1*] and Zaenab Assegaf[2]

Abstract: This research investigates the impact of intellectual capital and its components on company financial performance during times of financial disturbances. The sample comprises financial companies listed in the Indonesian Stock Exchange for the period from 2004 to 2011. Intellectual Capital is measured by Value Added Intellectual Coefficient. The results suggest that intellectual capital elements namely human capital efficiency and capital employed efficiency positively impact on company performance mainly after the crisis period. We found that companies are still lacking awareness of the potential of intellectual capital, especially of structural capital which is a very important factor to withstand crises.

Keywords: Intellectual capital, VAIC, Company Performance, Earnings per Share, Return on Assets, Leverage, Firm Size

JEL classification: G30, O34

1. INTRODUCTION

The world economy was shaken when the 2007 US housing crisis became a global financial crisis. Many referred it as the worst crisis since the great depression (Fratianni & Marchionne, 2009). Initially, it was a subprime-mortgage crisis, and then it turned into an international debacle. If there is an industry which suffered the most from the crisis, it was the financial industry; financial institutions began incurring losses as housing prices started to fall in 2006; major problems were faced by the US financial Industry and these quickly affected other countries as well (Shiller, 2008).

Hundreds of banks went bankrupt during the three-year period following crises. By 2010, there were more banks failing in the period than even after the great depression (Gracanin & Kalac, 2011). The numbers were adding up very quickly, in 2008 alone many banks had lost over ninety percent of their value.

1. Binus Business School, School of Accounting and Finance, Bina Nusantara University – Jakarta, Indonesia
2. BBS - McKinsey & Company, Jakarta – Indonesia

The Global Financial Crisis of 2007 – 2008 was chosen as a central problem in this research instead of the south East Asian monetary crisis of 1998, due to its global impact. One may argue that the monetary crisis of 1998 is more relevant to the Indonesian context as its impacts were directly visible to the Indonesian economy. However, the global financial crisis is relevant to the current time period, and its impacts were directly and indirectly felt around the globe; making it - as the name suggested - global issue.

One of the factors that affected the number of companies impacted by the 2008 global financial crisis is traditional accounting systems. The company's inability to recognize their intangible assets is due to the limitation of the accounting systems that have not been able to report the investments made to gain non-physical resources. Non-physical investments that can be reported in accordance with current accounting standards are limited to the investment in the form of intellectual property, and do not recognize nor measure intellectual capital, because of its tendencies to focus on physical assets. Intangible assets which are recognized and measured in financial statements are still based on historical value that is cost instead of its potentials in terms of creating value (Stewart, 1997).

A company can create additional value when it can utilize all of its resources and investments. The additional value can come from tangible or intangible sources, whether it is from its ability to produce their products or the loyalty of their customers. That additional value can be reflected in their financial performance. According to Roos & Roos (1997), intellectual capital is the invisible assets which a company owns, but is not reflected in the financial statement. It includes skills, experience, and ideas that every member of the company possesses. Brooking (1996) argued that intellectual capital is what creates value for a company beyond the book value stated in financial statements.

Sawarjuwono and Kadir (as cited in Pramudita, 2012) stated that added value is generated from intellectual assets that could come from a company's culture, or its ability to motivate its employees so that they can maximise their productivity. This is what makes intellectual capital as a source of creation of value added in order to achieve a competitive advantage. The role of intellectual capital in businesses is, and should be, managed strategically because many companies have realized the importance of intellectual capital and thus making intellectual capital a key factor value creation for the company. That awareness is characterized by the term knowledge-based company, where these companies promote knowledge and skills to achieve a competitive advantage by increasing investment in intellectual capital.

2. THEORETICAL FOUNDATIONS

Thomas Stewart referred to intellectual capital as the "company's most valuable asset" (1994). In the simplest sense, Stewart (1997) explained that it is the total of all knowledge that everyone in the company has which can be, and is being, used to create value for

the company. Furthermore, he clarified that intellectual capital is not intangible assets as companies usually refer to (e.g. patents, copyright), but rather something beyond that; something which each person knows and cannot share with others, thus when they are combined they created something differentiated, that is what he meant by the term 'knowledge'.

According to Saint-Onge (1996), knowledge can be divided into two categories; explicit and tacit knowledge. Explicit knowledge is common knowledge which can be learned, taught, and shared with other people; things that can be written, said, or expressed. On the other hand, tacit knowledge is less clear than explicit knowledge, but it arguably plays a more important part in creating value. Tacit knowledge is applied and understood, but not explained, things like personal values, principles, perspective and mindset. Tacit knowledge clearly has more control over a person, and even a company's, behavior.

Bontis (1998) made a point to differentiate between information and knowledge; where information is simply a source of knowledge. It is through this understanding that one can see how intellectual capital works, it is not simply counting and taking into account everything that is known by each individual of the company, and what they managed strategically in order to get something valuable out of it.

The definition of intellectual capital for this research is "nonphysical and non-monetary assets owned by companies which are managed to increase value". Although many experts may differ in their terms of classifications, it is inferred that each version is similar to each other. Researchers may generally agree that the components of intellectual capital consist of human capital, structural capital and relational capital.

Human capital is everything that is possessed by each individual employee of a company when it is collectively put into use to contribute for the interests of the company (Bontis, 1996). It includes employees and their knowledge, skills, experience, creativity, ideas and energy. Structural capital is what the company owns, such as aesthetic facilities and infrastructures which help human capital to function. It is from within the company but cannot be attributed to the employees; it comprises cultures, management processes, software systems and on-balance-sheet intangible assets such as patents and copyrights (Peltoniemi, 2006). The third component of IC is relational capital which is the relationships a firm establishes with its external stakeholders; suppliers, customers, etc. It also encompasses the trust of those stakeholders and the firm's image and reputation. Sveiby (1997) also explained that this capital is more delicate than the other components of intellectual capital, in the sense that firms have no definitive power to manage it.

Those determinants of IC present challenges for their description. Ante Pulic (2004) has developed the Value Added Intellectual Capital (VAIC) as a method to measure intellectual capital. It works on the foundation of companies' purpose of creating value; where value is no longer measured solely by the tangibles, but also through the intangibles. Pulic acknowledged that although they are aiming for value creation,

companies sometimes ended up destroying that value. This could happen if the company does not appropriately manage their resources, and it would most likely be related to their intangible resources (Pulic, 2004; Ståhle, Ståhle, & Aho, 2011)

Pulic further argued that the model he built is a solution to several problems that exist on the other measurement methods; it provides information that is useful for all stakeholder groups of the company. VAIC uses monetary and readily-available data accessible by all stakeholders; this addresses several issues. Firstly, it does not rely on sensitive information of the company. Secondly, it indicates performance measures and value creation which are comparable between companies. Finally, it can objectively predict future efficiencies (Pulic, 2000; 2004).

Jurczak (2008) reviewed many measurement methods of intellectual capital from all categories. Her research concluded that VAIC is the most appropriate measurement for intellectual capital; it captures the holistic condition while providing enough detail for all level of management, and provides comparable measures. In addition, it recognizes the link between resource inputs, activity and financial outcome. VAIC is among the most widely used methods of intellectual capital measurements, and it has received a lot of reviews and criticism (Andriessen, 2004; Chang, 2007; Nazari & Haremas, 2007; Firer & Williams, 2003; Mention, 2012).

Prior studies have explored the association of IC and company performance. In this research company performance is measured by earnings per Share (EPS). Earnings per share is a measurement from the perspective of the shareholders and investors, it is total earnings of the company divided by the number of common shares outstanding. EPS indicates the demand of a company's shares and the potential gain of holding each share of the company; making it the single most important variable of stock price (Gannon, 2011).

EPS as the measure of firm performance can represent the interests of the company's range of stakeholders based on agency theory and signalling theory. Unlike ROA and ROE, which merely serve as measures of performance in terms of signalling theory alone, EPS is more capable of providing a signal to investors that are willing to invest in the company. It is also able to indicate the agency conflict between investors and managers as agents.

According to Ken and Tsai (2010), revenue is not enough to indicate the company's profitability; he uses return on equity (ROE) and EPS as indications of companies' profitability. Rehman, Rehman, Usman & Asghar (2012) proved that while VAIC significantly affect ROE, ROA, and EPS, the test on the individual component displayed that EPS demonstrated no impact on any of the individual components of VAIC.

Maditinos, Sevic, & Theriou (2009) used economic value added (EVA) and shareholder value added (SVA) measurements of intellectual capital in Greece and related it to ROI, ROE and EPS. They confirmed that EPS was highly influenced by EVA measurement. Hong, Plowman & Hancock (2007) applied a modified version of

VAIC to measure intellectual capital and correlated it to EPS, ROE and ASR and determined substantive implications between them. Also using modified VAIC, Chang & Hsieh (2011) found a negative correlation between intellectual capital and ROE, EPS and ROA; while having a significant positive correlation with the gross profit margin.

3. METHODOLOGY

The purpose of our research is to examine the impact of IC on company performance during crisis. Our sample encompasses the financial companies listed in Indonesia Stock Exchange over the period 2004 - 2011. The companies were listed in the Indonesia Stock Exchange prior to 2004. They represent more than 55% of all financial companies.

Financial disturbance is a non-physical condition, that is not measurable by calculation; it is a phenomena identified through financial indications that happen over a certain period of time. For the purpose of the study the financial disturbance of 2008 has been chosen. The data will be divided into two continuous time frames; before and after the financial crisis. The former is the time period between 2004 and 2007; the latter between 2008 and 2011. This study uses a quantitative approach which is focused on the goal of generalization, with statistical testing and is rendered neutral from the subjective influence of researchers (Sekaran, 1992).

The paper research questions are as follows:

1. Does intellectual capital have an impact on company performance in times of financial disturbances?

2. Which component of intellectual capital has the most significant impact on company performance in times of financial disturbances?

To answer the above questions, the following hypotheses are proposed

H1: Intellectual capital positively impacts company performance in times of financial disturbances.

Intellectual capital as measured by VAIC is classified into 3 components: human capital, structural capital, and capital employed. Therefore, to answer the second question, the second hypothesis is divided into three sections for each of the three corresponding components of VAIC.

H2a: HCE positively impacts company performance in times of financial disturbances

H2b: SCE positively impacts company performance in times of financial disturbances

H2c: CEE positively impacts company performance in times of financial disturbances

Then the author runs the following regression models separately for before and after the crisis:

$$\text{EPS} = \beta_0 + \beta_1\text{VAIC} + \beta_2\text{ROA} + \beta_3\text{SIZE} + \beta_4\text{LEV} + \beta \qquad (1)$$

$$\text{EPS} = \beta_0 + \beta_1\text{HCE} + \beta_2\text{SCE} + \beta_3\text{CEE} + \beta_4\text{LEV} + \beta_5\text{ROA} + \beta_6\text{SIZE} + \beta_7\text{LEV} + \beta \qquad (2)$$

Where,

EPS – Earnings Per Share; VAIC – Value Added Intellectual Capital; HCE – Human Capital Efficiency; SCE – Structural Capital Efficiency; CEE – Capital Employed Efficiency; ROA – Return On Assets; SIZE – Firm Size; LEV – Leverage; å - random error term.

According to Pulic (1998) the measurement of intellectual capital and its components requires the identification of value added which indicates the firm's ability to create value; it is the firm's total output minus total input, or revenue minus costs. The author has replicated Pulic's intellectual capital calculation.

Table 1
VAIC Derivation*

Variable	Formula	Legend
Value Added	VA = OUT – IN	VA = value added, OUT = total revenue, IN = total cost of sales
Human Capital Efficiency	HCE = VA / HC	VA = value added, HC = Human Capital
Structural Capital Employed	SC = VA – HC	SC = structural capital, VA = value added, HC = human capital
Capital Employed Efficiency	CEE = VA / CE	VA = value added, CE = capital Employed
Value Added Intellectual Coefficient	VAICTM = HCE + SCE + CEE	HCE = human capital efficiency, SCE = structural capital efficiency, CEE = capital employed efficiency

*Pulic (1998)

Company performance is measured through the financial and accounting ratio of Earnings per Share (EPS). EPS is calculated by dividing the net income by the number of shares outstanding. Return on Assets (ROA) is a measure of profitability of the company, showing how much earnings were generated from the invested capital. It allows investors to know how effectively the company is converting its invested assets into net income. ROA is equal to net income divided by total assets. A higher result indicates higher profitability.

Leverage is used to evaluate a company's debt levels. It is calculated as total debts divided by total assets. Firm size is measured by the natural log of total assets. According to Esrock & Leichty, 1998, as companies grow, there is greater demand placed on these big firms by society.

Table 2 displays that the average intellectual capital is relatively large, and it was higher before the crisis. The standard deviation implies that the size of the spread of intellectual capital is quite heterogeneous. The average of HCE shows that the

Table 2
Descriptive Statistics

		N	Mean	Std. Deviation	Minimum	Maximum
HCE	Before Crisis	129	3.9661	6.42242	-2.29	56.86
	After Crisis	155	2.9580	3.11982	-2.45	17.84
	Total	284	3.4159	4.91991	-2.45	56.86
SCE	Before Crisis	129	.9358	3.42856	-1.36	38.82
	After Crisis	155	.4911	.78900	-4.19	4.39
	Total	284	.6931	2.38846	-4.19	38.82
CEE	Before Crisis	129	.2726	.41428	-.40	4.37
	After Crisis	155	.2806	.16926	-.42	.84
	Total	284	.2769	.30534	-.42	4.37
VAIC	Before Crisis	129	5.1745	7.24247	-.93	58.36
	After Crisis	155	3.7297	3.38203	-4.00	18.93
	Total	284	4.3859	5.51979	-4.00	58.36
EPS	Before Crisis	129	41.4332	61.53970	-75.00	292.00
	After Crisis	155	76.5852	97.75659	-32.15	439.38
	Total	284	60.6183	84.97408	-75.00	439.38
ROA	Before Crisis	129	.0398	.08700	-.28	.85
	After Crisis	155	.0313	.03604	-.06	.23
	Total	284	.0352	.06440	-.28	.85
Firm Size	Before Crisis	129	13.4620	1.96083	10.47	19.58
	After Crisis	155	14.6681	2.29523	10.59	19.92
	Total	284	14.1202	2.22882	10.47	19.92
Leverage	Before Crisis	129	3.7804	5.37059	.03	35.23
	After Crisis	155	4.2839	4.38500	.01	15.62
	Total	284	4.0552	4.85512	.01	35.23

company's Value Added (VA) generated is relatively large for the Human Capital (HC). The average of HCE before the crisis is higher than the post-crisis period.

The SCE average depicts that the structural capital of the company is still relatively small, and it is higher before the crisis compared to the post-crisis period. The average value of CEE illustrates that the company is able to generate value-added and it is lower after the crisis. Financial performance EPS shows an average value of 60.6183. The distribution of the data is relatively heterogeneous, where the average EPS before the crisis is lower than its post-crisis period. The EPS smallest value denotes that profit decreases by 75 rupiah is for each of its common shares, where its greatest value is equal to 439.38 or 439.38 rupiah per share.

Descriptive results of control variable of firm profitability ROA in the table 2 showed positive results indicating that the companies have been able to effectively generate net income over the entire management's existing assets. Its average before crisis is higher than after the crisis period.

The study will be conducted separately for before and after crisis. Each period is divided into two models, namely regression model 1 and 2 for the period before the crisis; and model 3 and model 4 for the period after the financial crisis. Model 1 and 3

Dominique Razafindrambinina and Zaenab Assegaf

are related to the impact of intellectual capital (VAIC) to the financial performance, while model 2 and 4 are testing the impact of the components of intellectual capital (HCE, SCE, CEE) on financial performance.

4. FINDINGS

Table 3 and 4 depict the results of the regression analysis of the impact of intellectual capital on a company's financial performance before and after the crisis respectively.

Table 3
Regression model 1 – Impact of VAIC on EPS, Before Crisis

Independent variables	Coefficients	t-stat	p-value
(Constant)	-293.184	-9.882	.000
VAIC	-1.012	-1.903	.059
ROA	268.516	6.275	.000**
Firm Size	24.937	10.555	.000**
Leverage	-1.728	-2.020	.046*

** significant at 95% level; EPS – Earnings Per Share;
VAIC – Value Added Intellectual Capital; ROA – Return On Assets;
SIZE – Firm Size; LEV – Leverage

Table 3 shows that without the input of intellectual capital, and the other variables the company will face a great decline in their earning per share. The results also depict that VAIC negatively and insignificantly influences EPS in the period before the financial crisis. During prosperous times, intellectual capital did not impact on company performance before the crisis because companies relied more on their profitability (ROA) in times of prosperity. Company size also impacts on firm performance.

Table 4
Regression Model 2 – Impact of VAIC on EPS - After Crisis

Independent variables	Coefficients	t-stat	p-value
(Constant)	-436.971	-9.525	.000
VAIC	4.364	2.032	.044*
ROA	1250.858	6.225	.000**
Firm Size	35.054	9.953	.000**
Leverage	-5.488	-2.993	.003**

*significant at 90% level; ** significant at 95% level; EPS – Earnings Per Share;
VAIC – Value Added Intellectual Capital; ROA – Return On Assets;
SIZE – Firm Size; LEV – Leverage

From table 4, after the crisis the company performance will decline by 436.971 rupiah per share without the contribution of VAIC, ROA, Size and Leverage. Within the same period, VAIC positively and significantly affects the company's EPS, with its 1 unit increase EPS will grow by 4,364 rupiahs ceteris paribus. The positive impact of intellectual capital on company performance in times of financial disturbances is supported by Tan *et al.* (2007), Abdel-Aziz, Shawqi & Bontis (2010). Chang & Hsieh

(2011) also found that intellectual capital is correlated with ROE, EPS and ROA even though with a negative sign.

Table 5
Regression Model 3 – Impact of IC Components on EPS - Before Crisis

Independent variables	Coefficients	t-stat	p-value
(Constant)	-312.943	-11.093	.000
HCE	-1.611	-2.751	.007
SCE	-1.350	-1.391	.167
CEE	42.214	4.872	.000**
ROA	234.899	5.772	.000**
Firm Size	26.200	11.713	.000**
Leverage	-3.047	-3.637	.000**

** significant at 95% level; EPS – Earnings Per Share; VAIC – Value Added Intellectual Capital; HCE – Human Capital Efficiency; SCE – Structural Capital Efficiency; CEE – Capital Employed Efficiency; ROA – Return On Assets; SIZE – Firm Size; LEV – Leverage

Table 5 shows that before crisis, EPS declines by 312.943 without the effect of the other variables. HCE significantly impacts EPS however it is of negative implication. Consequently any unit of increase of HCE will result in decline company performance. This finding is consistent with those of Firer & Williams (2003) and Shiu (2006). This result might indicate the sign of high employee turnover, where costs of hiring and firing employees are high, rather than actual salaries for the effectiveness of employees' work. Before crisis SCE has insignificant and negative impact on EPS. This outcome is supported by Shiu (2006) who demonstrated that SCE is negatively related with financial performance.

Before crisis period, CEE is the only component of intellectual capital that plays an important role in EPS performance. CEE positively and significantly affects EPS. Any increase of CEE will greatly improve the company's financial performance. This finding is consistent with Clarke, Seng & Whiting (2011), Firer & Williams (2003), and Shiu (2006). ROA and Firm Size also significantly contribute to the company's performance before the crisis.

Table 6
Regression Model 4 – Impact of IC Components on EPS - After Crisis

Independent variables	Coefficients	t-stat	p-value
(Constant)	-326.470	-7.505	.000
HCE	9.254	4.668	.000**
SCE	-.628	-.095	.924
CEE	144.817	4.180	.000**
ROA	553.684	3.200	.002**
Firm Size	23.339	6.996	.000**
Leverage	-5.677	-3.205	.002**

** significant at 95% level; EPS – Earnings Per Share; VAIC – Value Added Intellectual Capital; HCE – Human Capital Efficiency; SCE – Structural Capital Efficiency; CEE – Capital Employed Efficiency; ROA – Return On Assets; SIZE – Firm Size; LEV – Leverage

After crisis the results from table 6 exhibits that two components of intellectual capital, namely HCE and CEE significantly and positively impact company's performance EPS. Each unit of HCE increase will augment financial performance (EPS) by 9.254 percent, ceteris paribus. That result may indicate that human capital is one of the most important factors for the company's performance. Companies tend to rely more on employees to recover from the crisis. Ahangar (2011), Clarke et.al, (2011), and Muhammad & Ismail (2009) found similar results in their research.

After the crisis period, SCE is not contributing to the company's performance. The author assumes that any expenses on structural capital are inappropriate to overcome the crisis. That is consistent with Suhendah (2012) and Pramudita (2012), who found that Structural Capital has no positive effect on profitability in Indonesian companies, and Shiu (2006) in Taiwan. Similar to the findings of Irene Wei & Hooi (2009), SCE showed a negative effect on company's performance.

Among all the elements of intellectual capital, CEE contributes the most to the company's accomplishments after a financial disturbance. Each unit increase of CEE will greatly improve the company's performance, ceteris paribus.

5. CONCULSION

Our findings suggest that intellectual capital and its components influence a company's performance in times of financial disturbances. However, the investigation in each study period shows that before the global financial crisis of 2008 intellectual capital and two of its components, namely human capital and structural capital are not proven to have a significant impact on the financial performance of the company. Only capital employed efficiency (CEE) demonstrated a significant effect on the financial performance of the company. This situation could mean that before a crisis, the company's performance is largely determined by profitability and the size of its capital.

On the other hand, after the financial crisis we found that human capital in general and its components, namely human capital efficiency and capital employed efficiency significantly contributed to the company's performance. Therefore, intellectual capital is a crucial component and a key factor for company performance. Cabrita & Bontis (2008) state that human capital is the most important component of intellectual capital; however, there is a need to understand that intellectual assets are of no value to the companies if they are not used efficiently. In addition to the added value of capital, the effectiveness of human capital is a factor that will support the merits of a company's performance. In Indonesia, companies that are capable to efficiently maximise the added value of both humans and capital were well equipped to confront the financial crisis.

The results also allow us to suggest that Human capital becomes an important factor only after the crisis. It is possible that in Indonesia companies may lack the awareness to manage and encourage development of human capital. Employees and managers may lack the motivation to efficiently utilize their intellectual assets to add

value for the company. Financial threats such as the global financial crisis may pose as a motivation for employees to work more productively to maintain their position and thus for the companies' performance.

The lack of impact from structural capital could be attributed to poor investment decisions and structural capital management in Indonesian companies. The inefficiency of structural capital on company performance suggests that Indonesian companies are unable to meet the company's routine processes and structures that support employee efforts to produce optimal intellectual performance and overall business performance, such as operating systems, organizational culture, management philosophy and all forms of intellectual property owned by the company. It may also be possible that many Indonesian companies do not acknowledge the importance of structural capital, thus many of the investments made on what could be structural capital are spent as costs, and do not contribute to the value creation process.

Capital employed efficiency constantly affects the company's performance in both periods. This may suggest that the efficiency of capital use is of great importance for the company performance. The results may also imply that Indonesian companies have yet to give any emphasis in managing their intellectual capital. Their business focus is still emphasising solely on the physical assets, this was shown by the significance of capital employed efficiency as well as firm size and profitability before and after the crisis. However, Indonesian businesses have become more intellectually intensive after the crisis, in comparison to the period before the crisis. This may result from the losses of physical assets that the companies incurred, leading them to rely more on intellectual assets.

Initially, the author would propose to improve awareness of intellectual capital and its full capability in Indonesia since it could potentially improve the management of intellectual capital. Second, Indonesia should regulate a framework or standard for intellectual capital, which would be a concrete method to increase awareness.

References

Abdel-Aziz, A., Shawqi, N. J., & Bontis, N. (2010), Intellectual capital and business performance in the pharmaceutical sector of Jordan: *Management Decision, 48*(1), 105-131. doi:http://dx.doi.org/10.1108/00251741011014481.

Ahangar, R. G. (2011), The relationship between intellectual capital and financial performance: An empirical investigation in an Iranian company. *African Journal of Business Management*, *5*(1), 88-95.

Andriessen, D. (2004), IC valuation and measurement: classifying the state of the art. *Journal of Intellectual Capital, 5*(2), 230-242.

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.

Brooking, A. (1996), *Intellectual Capital: Core Asset for the Third Millennium Enterprise*. Thomson Learning.

Cabrita, M. D. R., & Bontis, N. (2008), Intellectual capital and business performance in the Portuguese banking industry. *International Journal of Technology Management, 43*(1-3), 212

Chang, S. L. (2007), *Valuing intellectual capital and firms' performance: Modifying Value Added Intellectual Coefficient (VAIC™) in Taiwan IT industry (China)* (Vol. 68, No. 07).

Chang, W. S., & Hsieh, J. J. (2011), Intellectual capital and value creation - is innovation capital a missing link? *International Journal of Business and Management, 6*(2), 3-12.

Clarke, M., Seng, D., & Whiting, R. H. (2011), Intellectual capital and firm performance in Australia. *Journal of Intellectual Capital*, *12*(4), 505-530.

Esrock, S., and Leichty, G. (1998), 'Social responsibility and corporate web pages: self-presentation or agenda setting?' *Public Relations Review*, 305-319.

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

Fratianni, M., & Marchionne, F. (2009), The role of banks in the subprime financial crisis. *Review of Economic Conditions in Italy*, *1*.

Gannon, R. (2011), *A quantitative study of the relationship between corporate leadership structures: country market status, and firm performance among industrial firms* (Capella University). *ProQuest Dissertations and Theses*, 130. Retrieved from *http://search.proquest.com/docview/915643594?accountid=10382. (915643594)*.

Gracanin, S., &Kalac, E. (2011), The impact of fair value accounting on the crisis in banking sector of EU and USA. *Ekonomska Istrazivanja, 24*(2), 1-17. Retrieved from *http://search.proquest.com/docview/1315596509?accountid=10382*

Hong, P. T., Plowman, D., & Hancock, P. (2007), Intellectual capital and financial returns of companies. *Journal of Intellectual Capital, 8*(1), 76-95. doi: *http://dx.doi.org/10.1108/14691930710715079*

Irene, Wei. K. T., & Hooi, H. L. (2009), Intellectual capital performance of financial institutions in Malaysia. *Journal of Intellectual Capital, 10*(4), 588-599. doi: *http://dx.doi.org/10.1108/14691930910996661*

Jurczak, J. (2008), Intellectual capital measurement methods. *Economics and Organization of Future Enterprise, 1*(1), 37-45.

Ken, Y., & Tsai, T. (2010), From successful innovation to market profitability. *International Journal of Organizational Innovation (Online), 3*(2), 293-308.

Maditinos, D. I., Sevic, Z., & Theriou, N. G. (2009), Modelling traditional accounting and modern value-based performance measures to explain stock market returns in the Athens stock exchange (ASE). *Journal of Modelling in Management, 4*(3), 182-201. doi: *http://dx.doi.org/10.1108/17465660911006431*

Mention, A. L. (2012), Intellectual Capital, Innovation and Performance: a Systematic Review of the Literature. *Business and Economic Research*, *2*(1).

Muhammad, N. M. N., & Ismail, M. K. A. (2009), Intellectual capital efficiency and firm's performance: study on Malaysian financial sectors. *International Journal of Economics and Finance, 1*(2), 206-212.

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

Peltoniemi, M. (2006), Diversity of the intellectual capital of firms within an industry. *Emergent Themes in Intellectual Capital Research, 1.*

Pramudita, G. (2012), *Influence of Intellectual Capital Toward Market Value and Financial Performance of Banking Companies Listed in Indonesia Stock Exchange 2008-2010* (Doctoral dissertation, Fakultas Ekonomika dan Bisnis).

Puliæ, A. (1998), January. Measuring the performance of intellectual potential in the knowledge economy. In *The 2nd" World Congress on the Management of Intellectual Capital".*

Pulic, A. (2000), VAIC™–an accounting tool for IC management. *International journal of technology management*, *20*(5), 702-714.

Pulic, A. (2004), Intellectual capital–does it creates or destroys value? *Measuring business excellence*, *8*(1), 62-68.

Rehman, W. U., Rehman, H. U., Usman, M., & Asghar, N. (2012), A link of intellectual capital performance with corporate performance: Comparative study from banking sector in Pakistan. *International Journal of Business and Social Science, 3*(12), N/A.

Roos, G., & Roos, J. (1997), Measuring your company's intellectual performance. *Long range planning*, *30*(3), 413-426.

Saint-Onge, H. (1996), Tacit knowledge: the key to the strategic alignment of intellectual capital. *Strategy & Leadership, 24*(2), 10-16.

Sawarjuwono, T., & Kadir, A. P. (2004), Intellectual Capital: Handling, measurement and reporting (A library research). *Jurnal Akuntansi dan Keuangan*, *5*(1), pp-35.

Sekaran, U. (Ed. 6), (2013), *Research methods for business*. John Wiley & Sons.

Shiller, R. J. (2008*), The subprime solution: How today's global financial crisis happened, and what to do about it.* Princeton University Press.

Shiu, H.-J. (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.

Ståhle, P., Ståhle, S., & Aho, S. (2011), Value added intellectual coefficient (VAIC): a critical analysis. *Journal of Intellectual Capital*, *12*(4), 531-551.

Stewart, T. A. (1994), Your company's most valuable asset: intellectual capital. *Fortune, 130*, 68-68.

Stewart, T.A. (1997), *Intellectual Capital: The New Wealth of Organizations.* Doubleday Books.

Suhendah, R. (2012), The effect of Intellectual Capital towards profitability, productivity, and IPO: *SNA XV*. Banjarmasin

Sveiby, K. E. (1997), *The New Organizational Wealth: Managing & Measuring Knowledge-Based Assets.* Berrett-Koehler Pub.

Tan, H. P., Plowman, D., & Hancock, P. (2007), Intellectual capital and financial returns of companies. *Journal of Intellectual capital*, *8*(1), 76-95.