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Intellectual Capital Performance Level of Indonesian Financial Sector

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The growing importance of intangible assets in recent decades and the reliance on financial measures alone may mislead the business operations in the long-term have motivated this study. Focusing on listed Indonesian financial sectors, this study aims to empirically find out if the five sub-sectors under study reveal similar or different level of Intellectual Capital Performance. This study also seeks to introduce the new indicator of intellectual capital performance, VAIC™ for business analysis. The result of this study reveals that in 2007, the overall mean of VAIC™ among the group of banks was higher than the four non-bank financial institutions.

Keywords: financial sector, Indonesia, intellectual capital performance, VAIC™

INTRODUCTION

Background of the Study. In today's economy value is being created by intangible (intellectual) capital and almost 80% of economic value creation is based on intellectual resources. However, most organizations still do not know how to reveal the value of these resources and how to give direction to future value creation (ECIC, 2009). The reliance on financial measures alone may mislead the business operations in the long-term. Increase in the value is the major objective of most commercial firms and the financial sector is no exception to this. Measuring the increase in value becomes challenging when the value itself is being created by intangibles. The role of financial assets owned by a firm is losing its importance in an economy which is dominated by service sector. The share of intangibles as a proportion of the total assets also is showing tremendous increase in recent years. As a result, every organization now finds logic in measuring, valuing and reporting its intangibles, as they also have become one of the important performance indicators to gain competitive advantage (Kamath, 2010)

Due to the evidence of the growing importance of intangible assets in recent decades as indicated by Pulic (2008), that today, the created value added does not depend upon the increase of produced goods but the knowledge content incorporated into goods and services and the growing difference observed between the market value of companies and their respective book value (Barros et al., 2010) have motivated this study. The VAIC™ method indicates corporate value creation efficiency or corporate intellectual ability (Shiu, 2006a). Pulic (2008) claimed that value is not created by the quantity of produced goods but through the quality created by knowledge workers. VAIC™ is a trademark of Ante Pulic & International Education Center, Inc. (Pulic and Bornemann, 1999).

A number of key reasons support the focus of study on the Indonesian financial sector. For instance, knowledge of the understanding and impact of IC is still within its infancy and the economic base grapples in traditional reliance on natural resources. Indonesia is one of the many non-member economies with which the OECD has working relationships, in addition to its 30 member countries. OECD (2008) noted that the growing importance of Intellectual Capital (IC) for sustained economic growth and its interest for IC investments is now at a high level as value creation is entirely based on knowledge. The financial sector is now at the top of the

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Indonesian government policy agenda. Recently, Indonesia has faced increasing difficulty in the bank intermediary function, similar to the problems that persisted for years following the 1997/1998 crisis. According to Bank Indonesia (2009), the global financial crisis was the major source of instability even though its impact in Indonesia was not particularly significant. The crisis' persistence brings the potential of shocks and intense pressures to the domestic financial sector.

Efficient financial institutions will have greater competitive advantage. The efficient operation of financial intermediaries and provider of financial services is instrumental for the efficient functioning of the financial system and the fueling of the economies of the twenty-first century. Schaeck, Cihak and Wolfe (2009) indicate that banking efficiency is also important to maintain the stability of the financial markets. But what drives the performance of these institutions in today's global environment? The financial sector is challenged to continuous productivity improvement.

The Main Problem. The main research problem of this study is to determine the prevailing Intellectual Capital Performance level of Indonesian Financial Sector. **Objectives of the Study.** This study is directed to find out if the five sub-sectors under study reveal similar or different level of Intellectual Capital Efficiency. This study also seeks to introduce the new indicator of intellectual capital efficiency, VAIC™ for business analysis.

LITERATURE REVIEW

Value Added Intellectual Coefficient (VAIC™). The VAIC™ method measures the efficiency of the firm's three types of inputs: physical and financial capital, human capital and structural capital namely the Capital Employed Efficiency (CEE) as indicator of VA efficiency of capital employed; Human Capital Efficiency (HCE) as indicator of VA efficiency of human capital; and Structural Capital Efficiency (SCE) as indicator of VA efficiency of structural capital. The sum of the three measures is the value of VAIC™. This aggregated indicator is the overall efficiency of a company and indicates its intellectual ability. The VAIC™ measures how much new value has been created per invested monetary unit in resources. It gauges and monitors the total value creation efficiency in the company according to accounting-based figures (Pulic, 2004). A high coefficient indicates a higher value creation using the company's resources, including intellectual capital.

The subordinate concept of VAIC™, Intellectual Capital Efficiency (ICE), describes the efficient use of intellectual capital within a company. VAIC™ indicates the total efficiency of value creation from all resources employed, and ICE reflects the efficiency of value created by the intellectual capital employed. The better a company's resources are utilized, the higher this company's value creation efficiency will be (Kujansivu and Lönnqvist, 2007).

ICE indicates the productivity of manual work and manual workers, in the same way that it represents the quantity of value added per invested monetary unit (efficiency of intellectual capital). ICE is an indicator for the productivity of knowledge workers (Pulic, 2008). ICE is calculated by summing up together the HCE and the SCE. Although the significance of financial capital has been diminishing with the rise of knowledge economy, its role in value creation cannot be ignored. Intellectual capital cannot create value by itself. To be more accurate, business efforts could give optimal results only if intellectual capital is combined with financial capital. The sum of both indicators, ICE and CEE gives an aggregated indicator that shows the overall efficiency of a company in value creation and features its intellectual ability (VAIC™). Starting in 1998, VAIC™ was tested in business practice, corrected and reexamined through laboratory work for 10 years of research and examination (Pulic, 2008).

Intellectual Capital Reporting. Studies have proven that intellectual capital is a significant business asset not only in the

information technology, high-technology and R & D industries (e.g., Kamaluddin and Abdul Rahman, 2009; Lu, et.al., 2010; Shiu, 2006a,b; Tseng and Goo, 2005 and Wang and Chang, 2005), but also includes other services and non-service industries such as banking and finance (e.g., Nik Muhammad and Amin Ismail, 2009; Rajith Appuhami, 2007 and Saenz, 2005), hotel industries (e.g., Pulic, Kolakovic and Jelcic, 2009 and Rudež, and Mihalič, 2007), in manufacturing including multinational firms (e.g. Kujansivu and Lönnqvist, 2007) and public organizations (*e.g.*, Joia, 2008).

Jelčić (2007) noted that in the developed countries the economic growth is increasingly based on service sector so the trend is from tangible to intangible value creation, instead of cost reduction. 1986 was the first year for the United States that the investment channeled into intangible assets exceeded the value of material assets and in the past 25 years the share of the non-material sector in gross domestic product has increased from 50 to 85 percent. This situation is similar in Europe, where service sector accounts for 65 – 70 percent of total business activities.

In developed economies today, EFFAS (2008) reported that the most important factor associated with corporate competitiveness and growth are invisible. These intangible assets are collectively called intellectual capital. It ranges from staff and management skills, software, R & D, brands and patents all the way to strategies, processes and relationships with suppliers and customers.

Li, Pike and Haniffa (2008) examined intellectual capital disclosure in corporate annual report of UK fully listed companies on the London Stock Exchange for financial year ends between March 2004 and February 2005, and the findings indicate that in the absence of mandatory disclosure, effective corporate governance mechanism impact positively on the variety, volume and format of intellectual capital disclosure. Striukova, Unerman and Guthrie (2008) reported the results of an empirical investigation into the intellectual capital reporting practices of UK companies in four distinct sectors. Major differences were found between the elements of intellectual capital reported in each sector studied. Sundac and Krmpotic (2009) argued that intellectual capital statement gives real outlook in competitive advantage of certain company. The study of Sonnier, Carson and Carson (2007) suggested management to choose to increase the level of their intellectual capital disclosure in an effort to explain the low performance metrics or to compensate for the failure of the traditional accounting model to capitalize costs associated with the development of intellectual capital resources. Abeysekera (2008) found that firms use disclosure to reduce tension between firms and their constituents, in the interest of further capital accumulation.

Low level of awareness of the importance of IC information, as well as the lack of proper guidelines for its disclosure, might have contributed to the scarcity of IC-related information in annual reports of public listed companies (Foong, Loo and Balaraman, 2009), but Campbell and Abdul Rahman (2010) maintained that as the structures of economies change and these changes are reflected in IC reporting, it is likely that annual reporting will change in sympathy with supposed user needs in future.

The Organization for Economic Cooperation and Development (OECD) have conducted studies addressing the need to identify, measure and report information on intangibles which are the major value drivers in the knowledge economy (OECD, 2006, 2008).

Competition is forcing many companies to accumulate IC and to seek to use them effectively to produce profitable innovations. Singh and Van der Zahn (2008), for example, asserted the determinants of IC disclosure beyond traditional factors and the growing significance of IC to a firm's sustainable competitive advantage. Further, Tai and Chen (2009) asserted that as the trend of knowledge economy, enterprises identify IC as the major resource of benefit making. IC evaluation model should be a feasible tool

for enterprise to discover the core competitive advantage and plan the direction of efficiency in accordance with different performance level of each item and criterion. Consistent with these arguments, Huang and Wang (2008), and Wei and Hooi (2009) found that in addition to book value, IC does provide incremental information for the evaluation of firms.

Financial Sector in Indonesia. A well diversified financial sector with sound banks as well as non-bank financial institutions (NBFIs) is the key to supporting the Indonesian government's articulated development objectives of increased economic growth, greater job creation, and a better standard of living for Indonesians. Banks and NBFIs are both key elements of a health and stable system that complement each other and offer synergies. However, at present, the Indonesian financial sectors continue to be dominated by banks with nearly 80% of financial system assets (Bank Indonesia, 2009). The rest of the financial sectors including insurance, pensions, mutual funds, leasing, factoring, and venture capital companies, are still small with less than 15 percent of GDP in assets combined. Banks are at the heart of Indonesia's economic crisis in 1997/1998 with more than 50% of (2000) GDP spent to recapitalize them. Given the scale of the banking crisis, policy attention has until recently been focused on strengthening the banking system and its regulation and supervisions. In line with the economy wide shift towards a long term development agenda, as articulated in the various policy packages released in 2006, strengthening NBFIs is now an urgent policy imperative (The World Bank, 2006).

The financial sector in Indonesia remains very underdeveloped relative to the benchmarks, with a dominant banking sector, emerging capital markets, and nascent non-bank financial institutions (Bolnick, Sundaram and James, 2008).

Nik Muhammad and Amin Ismail (2009) attempted to investigate the efficiency of intellectual capital and its performance in the Malaysian financial sector. The results based on data taken from 18 companies under financial sector for the year 2007 found that banking sector relied more on intellectual capital, followed by insurance companies and brokerage firms. It was also found that overall intellectual capital has significant and positive relationships with company's performance measured by profitability and ROA.

METHODOLOGY

Research Design. This study made use of the descriptive and comparative research designs to answer the research problem and objectives posed at the beginning of the study. Descriptive research design was conducted to describe value added intellectual coefficient (VAIC^{TM}) and its components used in this study. Comparative research was undertaken to confirm if the five sub-sectors reveal similar or different performance of intellectual capital performance.

Population. The listed financial sectors in general offer an ideal area of intellectual capital research, because: (1) there are reliable data available in the form of published annual reports; (2) the business nature of financial sector is intellectually intensive and (3) the whole staff is (intellectually) homogenous than in other economy sector. This study is limited to financial sector which are listed on the Indonesia Stock Exchange (IDX) for 2007. The classification of the sectors according to IDX is as follows: (1) bank; (2) financial institution; (3) securities company; (4) insurance; (5) investment fund/mutual fund; and (6) others. During 2007 no company was listed under investment/mutual fund classification. There were only 45 companies used for this study. These 45 companies were used to find out the similarity or different performance in terms Intellectual Capital Performance using Value Added Intellectual Coefficient (VAIC^{TM}) method among sub-sectors.

Data Collection. Data needed to derive value added intellectual coefficient and its indicators were derived from balance

sheets, income statements and notes to financial statements of the annual reports.

The model introduced by Pulic (1998) were used to measure Value Added Intellectual Capital ($VAIC^{TM}$). $VAIC^{TM}$ of a firm can be calculated using the following steps:

Calculation of value added (VA_{it}) :

$$\mathbf{VA_{it} = OUT_{it} - IN_{it}} \quad \mathbf{(1)}$$

Where: VA_{it} = Value added of a firm during the t period of time; OUT_{it} =Total sales/revenues of a firm during the t period of time; IN_{it} =All expenses/costs of materials, components and services (except labor/employees cost, taxation, interest, dividends, depreciation, amortization) incurred by a firm during the t period of time.

Value added can be calculated from the company accounts as follows:

$$\mathbf{VA_{it} = OP_{it} + EC_{it} + D_{it} + A_{it}} \quad \mathbf{(2)}$$

VA_{it} = OP_{it} (operating profit) + EC_{it} (employees costs) + D_{it} (depreciation) + A_{it} (amortization).

According to Riahi-Belkaoui, as cited in Nik Muhammad and Amin Ismail (2009), the value added by a firm during a particular period can be calculated and re-arranged by the following formula:

$$\mathbf{VA_{it} = DP_{it} + W_{it} + I_{it} + D_{it} + T_{it} + R_{it}} \quad \mathbf{(3)}$$

VA_{it} = DP_{it} (depreciation expense) + W_{it} (employees' salaries and wages) + I_{it} (total interest expenses) + D_{it} (dividends) + T_{it} (corporate tax) + R_{it} (profits retained for the year).

Following Pulic (2008), the following steps show the calculation of $VAIC^{TM}$ and its components, such as human capital efficiency coefficient, structural capital efficiency coefficient, intellectual capital efficiency coefficient and capital employed efficiency coefficient.

Human capital efficiency coefficient calculation:

$$\mathbf{HCE_{it} = VA_{it}/HC_{it}} \quad \mathbf{(4)}$$

Where: HCE = human capital efficiency coefficient; VA = value added; HC = total expenditures of employees (direct labor + indirect labor + administrative + marketing and selling + education, training + all incentives). This account considered as an investment, not cost, and thus not substantial part of input any more (Majid Makki and Aziz Lodhi, 2009; Nik Muhammad and Amin Ismail, 2009; Pulic, 2008 and Ranjith Appuhami, 2007).

Structural capital efficiency coefficient as the second component of IC:

$$\mathbf{SC_{it} = VA_{it} - HC_{it}} \quad \mathbf{(5)}$$

Where: SC = structural capital; VA = value added; HC = total expenditures of employees.

SC is the result of human capital past performance, e.g., organization, licenses, patents, image, standards, and relationship with customers (Nik Muhammad and Amin Ismail, 2009). Therefore:

$$\mathbf{SCE_{it} = SC_{it}/VA_{it}} \quad \mathbf{(6)}$$

Where: SCE = structural capital efficiency coefficient; SC = structural capital; VA = value added.

By adding up the partial efficiencies of human and structural capital the Intellectual Capital Efficiency (ICE) is obtained:

$$\mathbf{ICE_{it} = HCE_{it} + SCE_{it}} \quad \mathbf{(7)}$$

Where: ICE = intellectual capital efficiency coefficient; HCE = human capital efficiency coefficient; SCE = structural capital efficiency coefficient.

ICE is an indicator which shows how efficiently IC has created value.

Capital employed efficiency coefficient:

$$\mathbf{CEE_{it} = VA_{it}/CE_{it}} \quad \mathbf{(8)}$$

Where: CEE = capital employed efficiency coefficient; VA = value added;

CE = book value of the net asset of a company.

Value creation efficiency/value added intellectual coefficient:

$$\mathbf{VAIC^{TM}_{it} = ICE_{it} + CEE_{it}} \quad \mathbf{(9)}$$

Or

$$\mathbf{VAIC^{TM}_{it} = CEE_{it} + HCE_{it} + SCE_{it}}$$

Where: $VAIC^{TM}$ = value added intellectual coefficient; ICE = intellectual capital efficiency coefficient (HCE + SCE); CEE= capital employed efficiency coefficient.

Empirical results. Table 1 shows that the overall mean of Intellectual Capital Performance ($VAIC^{TM}$) and its components for group of banks were higher than the four non-bank financial institutions. This indicates that group of banks' intellectual capital has created more value as compared to the four non-bank financial institutions. Banking institutions show the highest result in efficiently using their intellectual capital, especially in human capital, compared to financial institution, securities companies, insurance, and others in year 2007. This finding is consistent with Nik Muhammad and Amin Ismail (2009) who also found that the banking sector in Malaysia relied more on intellectual capital followed by the other financial sectors and as stated by Bolnick, Sundaram and James (2008) that the non-banking financial sector in Indonesia is still in a nascent stage.

Table 1: Descriptive Statistics-Means of Groups Analysis in 2007

Group	Bank	Financial Institution	Securities Company	Insurance	Others
N	19	6	6	9	5
$VAIC^{TM}$	8.37	5.81	5.06	6.03	4.12
ICE	7.47	5.34	4.73	5..69	3.84
CEE	0.89	0.47	0.32	0.34	0.28
HCE	6.65	4.61	4.08	5.10	3.26
SCE	0.83	0.73	0.65	0.60	0.58

Table 2 displays the results from one-way between-groups ANOVA on the five sub-sectors in 2007. Subjects were divided into five groups according to Indonesian Stock Exchange (IDX) classification. A one-way between-groups analysis of variance was conducted to explore the different performance of Intellectual Capital with their indicators. From the analysis of variance at the F (4, 40) = 2.61, $p < 0.05$ level for the five sub-sectors in 2007, the results show that there were no statistically significant difference for ICP measured by $VAIC^{TM}$, intellectual capital efficiency (ICE), human capital efficiency (HCE).

Table 2: Analysis of Variance Means of Groups (Sub-sectors) 2007

Y	*Df*	*F***	*Prob.**	Significant/ Not Significant
$VAIC^{TM}$	4	0.51	0.73	Not Significant
ICE	4	0.31	0.87	Not Significant
CEE	4	9.69	0.00*	Significant
HCE	4	0.28	0.89	Not Significant
SCE	4	5.59	0.00*	Significant

***$F_{4,40}$ = 2.61; *Significant at the 0.05 level*

There were statistically significant differences in capital employed efficiency (CEE) as shown in Table 1. Post-hoc comparisons using the Tukey test indicates that the mean score of Bank Group was significantly higher than the Securities Company Group, Insurance Group and Others Group, $p < 0.05$, but not significantly higher than Financial Institution Group. This result indicates that Bank Group was

the best performer for capital employed efficiency as measured by CEE in 2007. This finding is relevant to Schaeck, Cihak and Wolfe (2009) that banking efficiency is important to maintain the stability of the financial markets.

There were statistically significant differences in structural capital efficiency (SCE) as shown in Table 2. Post-hoc comparisons using the Tukey test indicated that the mean score of Bank Group was significantly higher than Insurance Group, $p < 0.05$, but not significantly higher than the other three non-bank financial institutions. This result indicates that Bank Group has relatively created higher structural capital efficiency (SCE) compared to Insurance Group but not significantly higher than the other three groups in 2007. This finding is relevant to the conclusion of the study of The World Bank (2006), that poor practice and performance of NBFIs are linked to limited skills and human capital in the financial services sector. Financial Institution Group as a result of Tukey test, was significantly higher than Insurance Group, $p < 0.05$, but was not significantly higher than the other two non-bank financial institutions. Securities Company Group did not differ significantly from either the Insurance or Others Group. Insurance Group did not differ significantly from Others Group.

CONCLUSIONS

The growing importance of Intellectual Capital for sustained economic growth and its interest for intellectual capital (IC) investments is now at a high level as value creation is entirely based on knowledge have intensified the importance of this study. This study utilized listed Indonesian financial sector data to empirically determine the Intellectual Capital Performance. The measurement model of interest to this study is the Intellectual Capital Performance using Value Added Intellectual Coefficient (VAIC^{TM}) methodology introduced by Pulic (1998).

The empirical findings of this study show that overall Intellectual Capital Performance (VAIC^{TM}) and its components for group of banks were higher than the four non-bank financial institutions. Banking institutions show the highest result in efficiently using their intellectual capital, especially in human capital, compared to financial institution, securities companies, insurance, and others in year 2007. Banking sector relied more on intellectual capital, followed by insurance companies, financial institutions, securities company and others.

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