EFFECT OF INTELLECTUAL CAPITAL AND INTELLECTUAL CAPITAL DISCLOSURE ON FIRM VALUE

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Abstract: This research aims to review, analyze, and provide empirical evidence about the influence of intellectual capital, intellectual capital disclosure, and financial performance on listed companies in Indonesia Stock Exchange. The population of this research is 525 companies listed in Indonesian Stock Exchange 2011-2015. 365 companies were taken as a sample of this research using purposive sampling method. The research method used was multiple linear regression analysis. Intellectual capital was measured using VAICT™; intellectual capital disclosure was measured using intellectual capital disclosure index; corporate financial performance was measured using Return of Assets (ROA), and firm value was measured using Tobin’s Q. This study found that intellectual capital has no effect on firm value, while intellectual capital disclosure and corporate financial performance have positive influence on firm value. Future research is suggested to use cross-country companies as the sample.

Keywords: Intellectual capital, intellectual capital disclosure, corporate financial performance, firm value

The company always strives to maintain and enhance firm value. One of the steps that can be taken by a company in order to maximize firm value is by owning intellectual capital, disclosing intellectual capital, and performing good corporate financial. According to Choo and Bontis (2002: 15), intellectual capital represents the existing knowledge within an organization at a particular time. Company’s intellectual capital consists of human resources, structure, organizational routine, intellectual property, and a relationship between company and customers, suppliers, distributors, and corporate partners.

Intellectual capital disclosure is also important to be done by the company. Intellectual capital disclosure will be a good signal for a company and help stakeholders in making a decision. According to Abeysekara (2006), the intellectual capital disclosure is intended to meet stakeholder’s needs for intellectual capital information.

Corporate financial performance is also something that companies should not ignore in order to achieve good firm value. Corporate financial performance is usually measured by using the net income of company (Harmono, 2014: 23).
This study is an implementation of resource-based theory, which assumes that the resources of the company, either tangible or intangible, can help the company implement strategies to improve efficiency and effectiveness (Charles and Kroll 1997). This research is also an implementation of stakeholder theory. This theory suggests that companies should be fair, ethical, moral, and not just concerned with economic aspects so that the management actions and results can be said to be appropriate (Mainardes et al, 2011).

This study was motivated by the inconsistency of previous studies’ results. The research which was conducted by Wang (2008) revealed that intellectual capital positively affects firm value. Research conducted by Berzkalne and Zelgalve (2014) found that intellectual capital affects firm value in Lithuania and Latvia; intellectual capital has proven to have no effect on firm value in Estonia. This research also examined the influence of intellectual capital and intellectual capital disclosure on firm value, reported during 2011-2015. The results of this study are expected to reflect more recent conditions than the previous studies. This study is a development of studies conducted by Berzkalne and Zelgalve (2014) and Jehene (2013). This study combined the tests conducted in previous studies: examining the influence of intellectual capital and intellectual capital disclosure on firm value.

Unlike the previous studies, this research used the latest list of items that are used in a study conducted by Mubarak and Haji (2014): 44 items in total. These items are broader and evolved than the intellectual capital component used in intellectual capital disclosure index in the previous studies about the effect of intellectual capital disclosure on firm value. The next difference lies in the selection of measurement of variable intellectual capital. The measurement of intellectual capital used in this research is VAICTM proposed by Pulic (2004). The measurement is the development of intellectual capital measurement used by Pulic (1998).

THEORETICAL AND HYPOTHESIS FRAMEWORK

Resource-based Theory and Stakeholder Theory

This research is based on resource-based theory because intellectual capital is company’s resource described in the theory. According to Solihin (2012: 50), the resource-based theory assumes that the strategy formulation and the success of implementation are strongly influenced by unique company’s resource which has core competencies. Deegan and Unerman (2006: 286) state that all stakeholders have the right to be treated fairly by the organization. Stakeholder theory also considers that stakeholder power is irrelevant. This means that the impact of organizational activity is the responsibility of all stakeholders, not only the responsibility of the holder of economic power within an organization.

Intellectual Capital

Intellectual capital is a valuable and skillful resource based on knowledge, both tacit knowledge, and explicit knowledge. Tacit knowledge is a hidden knowledge that cannot or is difficult to imitate by others. Explicit knowledge is the knowledge that is easily transferred or imitated by others (Christa, 2011). According to Engelman et al, (2015), intellectual capital is the knowledge assets of the company and how those assets change are expected to change over time.

According to Kalkan et al (2014), there are three basic components of intellectual capital, namely human capital, structural capital, and customer capital. Human capital can be in the form of employee’s knowledge, skill, and ability. Human capital is also a combination of human ability in an organization to solve problems faced by business. Creativity and innovation that exist within the company also can be triggered by human capital.

Structural capital is an infrastructure that allows human capital to function. Structural capital
includes building, hardware, software, process, patent, trademark, organization’s image, organization, information system, and database. Customer capital is the power and loyalty of customers towards a company. Customer capital indicators consist of customer satisfaction, repeat business, economic welfare, and price sensitivity.

**Intellectual Capital Disclosure**

Intellectual capital disclosure is a new form of communication that aims to control the relationship between management and workers. Managers can create strategies to reach stakeholder’s requests and to convince stakeholders of the benefits of their company policy. The company has begun to realize the importance of management and intellectual capital disclosure. Stakeholders want more reliable information about factors related to intellectual capital (Ulum, 2009: 149).

According to Abeysekara (2006), the intellectual capital disclosure is embodied in reports made with the aim of meeting the user’s needs for general information. Bhasin (2012) adds that various forms of the intellectual capital disclosure provide valuable information to investors as they help reduce uncertainty about future prospects and facilitate more precise assessment of the company.

**Corporate Financial Value**

Company performance is the reflection of company’s ability to generate net profit from activities carried out during an accounting period. Many studies have found that company with high returns on the investment of companies that earn a large profit is considered successful and has good performance; otherwise, if the profit earned by the company is relatively small or decreases from the previous period, it can be said that the company is less successful and has a poor performance (Susanti, 2010).

**Firm Value**

Firm value of is investor’s perception of the company, which is often associated with stock price (Rodoni and Ali, 2014: 4). The high firm value will result in the return to stakeholders and provide added value to stakeholders so that the company can maintain its business sustainability. Firm value is a measure used by investors as a basis for the decision-making process in order to achieve competitive advantage (Cahyadi, 2012).

**Research Model**

Based on resource-based theory, companies with sustainable competitive advantage resulting from unique resource owned can implement value creation strategies that cannot be implemented by the current competitor or other potential competitors (Charles and Kroll 1997). According to Kuncoro (2006: 40), resources owned by a company can increase its firm value. Yuliani (2013) revealed that company’s resources and unique ability will form a strategy. The strategy should enable the company to make use of its resources and its ability to achieve excellence in the internal environment.

This is evidenced by the research which was conducted by Wang (2008). The results show that intellectual capital has a positive effect on firm value. Research which was conducted by Chen et al (2005) reported that corporate intellectual capital positively affects firm value. Bemby et al (2015) also revealed that intellectual capital has a positive effect on firm value.

A research which was conducted in Tunisia reported that intellectual capital has a positive effect on value creation and ensures the sustainability of the company. It shows that intellectual capital not only affects firm value in developed countries but also in developing countries like Tunisia (Bchini, 2015). Yamola et al (2013) also revealed that intel-
Intellectual capital has a positive effect on value creation.

Mhedhbi (2013) examined the relationship between intellectual capital and value creation. Intellectual capital is divided into human capital, structural capital, and customer capital, which is proved to have a positive effect on value creation. According to Sudarsanam et al (2006), intangible assets contribute to corporate competitive advantage and value creation because intangible assets can create an opportunity for a company to continue growing. Hypothesis 1: intellectual capital has a positive effect on firm value.

The company is required to disclose important information to stakeholders in the annual report timely, accurately, understandably and objectively. However, the company also should have the initiative to not only disclose the information required but also the information needed by stakeholders (Daniri, 2005: 150). The traditional financial statement has failed to present the information required by stakeholders; therefore, the information beyond traditional financial statements should be disclosed, such as intellectual capital information (Sawarjuwono and Kadir, 2003). Information disclosure required by stakeholders is expected to increase firm value. This is evidenced by research which was conducted by Jihene (2013). She conducted a research on the influence of intellectual capital on firm value in 50 companies registered in Tunisian Stock Exchange in 2006-2009. The study found that intellectual capital disclosure has a positive effect on firm value. This is supported by a research which was conducted by Orens et al (2009), which explains that intellectual capital disclosure has a positive effect on firm value.

According to Ching et al (2013), there is a demand for information disclosure about intellectual capital, the especially human capital. It can provide a competitive advantage and value creation to the company. Bhasin (2012) states that organizational managers must have initiatives to measure, manage, and distribute information about intellectual capital that refers to value creation for corporate stakeholders.

Hypothesis 2: Intellectual capital disclosure positively affects firm value.

Based on resource-based theory, if a company has the right resources and ability, the company will have a high industry attractiveness, which is reflected by the high profit generated (Solihin, 2012: 59). Investors will be attracted to companies with high industry attractiveness.

The research which was conducted by Irayanti and Tumbel (2014) found that corporate financial performance has a positive effect on firm value. Hypothesis 3: corporate financial performance has a positive effect on firm value.

RESEARCH METHOD

Sample and Sampling Technique

The population of this study consists of 525 companies listed on Indonesian Stock Exchange in 2011-2015. Those companies were selected because according to Jihene (2013), research on intangible resources should involve population from several industrial sectors with the aim of avoiding a specific relationship on a particular sector.

365 samples were taken in this research by using purposive sampling method, a sampling method that has a specific goal or target. Criteria used in sampling method: (a) companies listed on Indonesia Stock Exchange from 2011 to 2015. This aims to know the intellectual capital and intellectual capital disclosure of the companies listed on Indonesia Stock Exchange for 5 years, (b) companies which publish an annual report with complete data in accordance with research variables. It aims to obtain the test results with the expected accuracy level, (c) companies that have positive equity value and positive profit during the period of observation. Companies with positive equity value and positive profit are considered capable of organizing and disclosing their intellectual capital, (d) companies that present financial statements in Indonesian Rupiah. The calculation of variable firm value in this study requires information of stock price. The stock price is presented in Rupiah; therefore, to be a sample of this study, other information in financial statements should be presented in Indonesian Rupiah.
Variables in this research were intellectual capital, intellectual capital disclosure, corporate financial performance and firm value. Intellectual capital was measured using VAIC™. The first step of measurement was to calculate Value Added (VA). Value added (VA) was calculated using the formula (Pulic, 2004) as follows:

\[
VA = OUT - IN
\]

Note :
VA : Value Added
OUT : Total sales and Other Revenue
IN : Sales Expenses and Other Expenses (other than expenses for employee)

After obtaining Value added (VA), the next step to do was to calculate structural capital (SC) with the following formula (Pulic, 2004):

\[
SC = VA - HC
\]

Note :
SC : Structural Capital
HC : Total expenses for the employee, including wages and salaries, benefits and compensation, bonus, pension, training, and education.

Value added (VA) and Structural Capital (SC) obtained from the previous calculation served as the basis for calculating Human Capital Efficiency (HCE) and Structural Capital Efficiency (SCE). The formulas used in the calculation of each component of intellectual capital are presented below (Pulic, 2004):

\[
\begin{align*}
HCE &= \frac{VA}{HC} \\
SCE &= \frac{SC}{VA}
\end{align*}
\]

Note :
HCE : efficiency indicator of human capital value added
SCE : efficiency indicator of structural capital value added

The results of HCE and SCE calculation became the basis for calculating Intellectual Capital Efficiency (ICE) value, by summing HCE and SCE.

\[
ICE = HCE + SCE
\]

ICE is a combination of human capital and structural capital. To obtain the value of a resource optimally, it is also necessary to involve financial capital. Therefore, it is necessary to calculate Capital Employed Efficiency (CEE) with the formula below:

\[
CEE = \frac{VA}{CE}
\]

Note :
CE : Capital Employed

The final step to get the value of company’s intellectual capital was to add up ICE and CEE values that had been obtained in the previous calculations. The amount of intellectual capital owned by a company (VAIC) was calculated with the formula below:

\[
VAIC = ICE + CEE
\]

The reason for using such measurement is because it refines the measurement of the previous intellectual capital (Pulic, 2004). This measurement has been used by Berzkalne and Zelgalve (2014).

The intellectual capital disclosure was analyzed using content analysis, i.e. by weighting the items of intellectual capital disclosure in company’s annual report. 44 items of company’s intellectual capitals were examined in this study and have been used by (Mubarak and Haji, 2014). Intellectual capital item is scored 1 if it is disclosed in the annual report, and is scored 0 if it is not disclosed in the annual report. This measurement was used by Scaltrito (2014), Li and Mangena (2014), and Mondal and Ghosh (2014). The list of intellectual capital disclosures is presented in Appendix 1. The formula used was:
PICs = \frac{\sum_{i=1}^{m} di}{M}

Note:
- PICs: Index of intellectual capital disclosure
- di: 1, if an item of intellectual capital is disclosed in company’s annual report
  0, if an item of intellectual capital is not disclosed in company’s annual report
- M: maximum score, if a company discloses its intellectual capital, namely 44

Company performance is a reflection of the company’s ability to generate net profit from activities conducted during the accounting period (Susanti, 2010). In this study, corporate financial performance is measured using Return on Assets (ROA), by using the following formula (Brigham and Houston, 2010: 146):

\[
\text{ROA} = \frac{\text{Net Profit}}{\text{Total Asset}}
\]

Return on Assets (ROA) was chosen to calculate corporate financial performance in this study because from various kinds of the existing corporate performance measurement, ROA is a measurement of corporate financial performance which is most often used by managers (Brealey et al, 2008: 81).

In this study, the firm value was measured using Tobin’s Q because Tobin’s Q is a measure of firm value that shows the current financial market estimation of the return value of each investment made (Herawaty, 2008). According to Sartono (2010: 487), the formula of Tobin’s Q is presented below:

\[
\text{Tobin’s Q} = \frac{\text{MVE} + \text{D}}{\text{BVE} + \text{D}}
\]

In which:
- Tobin’s Q: Firm Value
- MVE: Equity Market Value, (stock price at year-end multiplied by the number of outstanding shares at year end)
- D: Book Value of Total Liabilities
- BVE: Equity Book Value, (difference between company’s total assets and total liabilities)

The analysis technique used in this research was multiple linear regression analysis. The analysis aims to examine the effect of intellectual capital, intellectual capital disclosure, and corporate financial performance on firm value. Regression equation in this research is:

\[
Y = a + b_1X_1 + b_2X_2 + b_3X_3 + e
\]

Note:
- Y: Firm Value
- X_1: Intellectual Capital
- X_2: Intellectual Capital Disclosure
- X_3: Corporate Financial Performance
- a: Interceptor Constant
- b_1 and b_2: Regression Coefficient
- e: Error

Criteria in deciding to accept or reject hypothesis:

- If significant value <0.05, hence there is the influence of the independent variable on the dependent variable.
- If significant value >0.05, hence independent variable has no effect on dependent variable.

RESULTS

365 companies were taken as the final sample in this study. The hypotheses were tested using t-test in multiple linear regressions. The t-test was used to determine the effect of intellectual capital and intellectual capital disclosure on firm value. The results of hypothesis testing can be seen in Table 1 below.
Hypothesis 1 states that intellectual capital positively affects the firm value of. The results of the statistical test show that the level of significance of 0.404, which is greater than 5% or 0.05; therefore, hypothesis 1 was not supported by the results of this study. The results show that intellectual capital has no effect on firm value.

Hypothesis 2 states that intellectual capital disclosure positively affects firm value. The results of the statistical test showed a significance level of 0.000, which supported hypothesis 2. Intellectual capital disclosure has a positive effect on firm value.

Hypothesis 3 states that corporate financial performance has a positive effect on firm value. The results of statistical test show level of significance of 0.000, which supports hypothesis 3 that corporate financial performance has a positive effect on firm value.

**DISCUSSION**

**Effect of Intellectual Capital on Firm Value**

The results of statistical test supported hypothesis 1 that intellectual capital has a positive effect on firm value, is not supported by the results of this study. The results of this study are consistent with the results of this study which was conducted by Ferraro and Veltri (2011) and Berzkalne and Zelgalve (2014) that intellectual capital has no effect on firm value. The results of this study are inconsistent with the research which was conducted by Wang (2008), Yamola et al (2013), and Bchini (2015).

Ferraro and Veltri (2011) conducted research on the impact of intellectual capital owned by companies on firm value of companies registered in Italy. Italian market was selected as a sample of research because Italian market is considered not functioning properly (compared to the UK or America); it is evidenced by the rare company’s documents about intellectual capital. The research which was conducted by Ferraro and Veltri (2011) found that intellectual capital does not affect firm value due to the imperfect function of the Italian market.

The results of this study are consistent with the research which was conducted by Ferraro and Veltri (2011). The results may be caused by low and even negative Italian market view of intellectual capital owned by the company. They may assume that resource investment in the form of intellectual capital is risky and has a low degree of certainty of its outcome. This is supported by Garcia-Meca and Martinez (2007) stating that resource investment in the form of intellectual capital is considered negative because the results of such investments may be unpredictable.

This also might be due to the low awareness and/or ability of investors to read and capture good signals regarding the ownership of company’s intellectual capital. This is evidenced by the results of VAICTM calculation in the sample of this study presented in Appendix 3, indicating that the movement is not in line with the stock price, the number of outstanding shares, or net equity of the company that is a component in the calculation of fair value. The results of this study imply that apparently the investors of the companies being studied in this study could not detect and combine intellectual capital information in the business valuation process well.

Intellectual capital might not be adequately reported to stakeholders; this made the intellectual capital of the companies used as the sample in this study.
study have no effect on firm value. Therefore, the intellectual capital disclosure is also important to be done in addition to company’s intellectual capital. This is explained in hypothesis 2.

The resource-based theory has not been proven to measure the influence of intellectual capital on firm value of the companies listed on Indonesian Stock Exchange during the period of observation. Investors of the companies used as the sample in this study may have other perspectives and considerations in their investment decision making.

Effect of Intellectual Capital Disclosure on Firm Value

The statistical results supported hypothesis 2 stating that intellectual capital disclosure has a positive effect on firm value. The regression coefficient of intellectual capital disclosure is 0.188 and the significance level is 0.000. Any increase in company’s intellectual capital disclosure of 1 unit will lead to an increase in the corporate value of 0.188 units.

The results of this study are consistent with the research which was conducted by Jihene (2013), Orens et al (2009), and Ching et al (2013), finding that intellectual capital disclosure positively affects firm value. The results of this study are not in line with the research which was conducted by Abeysekara (2011), revealing that intellectual capital disclosure does not affect firm value.

Jihene (2013) conducted a research on intellectual capital disclosure and firm value on 50 companies listed on Tunisian Stock Exchange. Companies that were taken as the research sample were various sectors in Tunisian Stock Exchange. The method used was the combination of content analysis of company’s annual report and interview with respondents consisting of financial analyst and portfolio manager. The results showed that intellectual disclosure affects firm value. There was a relevance of intellectual capital information to the valuation of companies in financial markets.

The research which was conducted by Orens et al (2009) analyzed the content of a company’s website regarding the effect of intellectual capital disclosure on firm value. The research was conducted on 267 non-financial companies in Europe in 2012. The results supported the hypothesis formulated that intellectual capital disclosure affects firm value. Europe, in which the sample of this study located, had greater intellectual capital disclosure; it would result in greater firm value as well.

Ching et al (2013) also conducted research on the influence of intellectual capital in the form of company’s human capital on firm value. The study also used a method that combined the results of annual report analysis and interview with financial analysts and investment managers. The research was conducted in Malaysia as a developing country; it strongly emphasized in maintaining its economic condition and knowledge. The results proved that intellectual capital disclosure has a positive effect on firm value. Information intellectual capital is information needed by investors.

The results of this study are consistent with the previous studies described above. Company’s intellectual capital disclosure can be a sign of quality for investors about the company’s performance in the future. Company’s intellectual capital disclosure also plays a role in reducing information asymmetry in financial markets, thus the information about intellectual capital will be transparently known by various parties, not only known by the company. According to Mouritsen (2003), investors and financial advisers will rely on intellectual capital disclosure in annual reports as they evaluate the value and prospects of a company.

Company’s effort to increase intellectual capital disclosure will trigger an increase in firm value. Good intellectual capital disclosure will increase investors’ willingness to invest in the company concerned.

Stakeholder theory empirically is proven to explain the influence of intellectual capital disclosure on firm value. Information about companies, both financial information and non-financial information, as intellectual capital information is a must for all stakeholders, not for a few stakeholders only. Voluntary information disclosure in the form of intellectual capital disclosure can also be used as a basis for business decision making by all stakeholders.
Effect of Corporate Financial Performance on Firm Value

The results of statistical tests supported hypothesis 2 that company’s financial performance has a positive effect on firm value. The regression coefficient of company’s financial performance is 0.180 and the significance level is 0.000. Every increase in corporate financial performance by 1 unit will lead to an increase in the firm value of 0.180 units.

The results of this study are supported by research which was conducted by Irayanti and Tumbel (2014). The study examined the effect of corporate financial performance on firm value in food and beverage companies listed on Indonesia Stock Exchange during 2009-2012. The corporate financial performance was proven to affect firm value.

The results of this study have implications that can be input in making investment decisions. Increase in company intellectual capital disclosure and its financial performance can be a good signal to attract potential investors or retain old investors. Companies can use the results of this research as one of the motivators in disclosing their intellectual capital and improve their financial performance.

Limitation of this study lies in the results of determination coefficient test (only 6.0%). The results show that only 6.0% of the dependent variable (Y), namely firm value, can be explained by dependent variable (X2), namely intellectual capital disclosure, and the dependent variable (X3), namely corporate financial performance. Only 365 companies were taken as a final sample in this study, with 5 years of the observation period, from 2011 to 2015. Many companies listed on Indonesia Stock Exchange were excluded from the research sample because they did not meet the criteria for the sample of this study.

CONCLUSION AND SUGGESTION

The results show that intellectual capital does not affect the firm value of companies listed on Indonesia Stock Exchange, while intellectual capital disclosure and corporate financial performance have a positive effect on firm value of companies listed on Indonesia Stock Exchange. Intellectual capital does not affect firm value because investors assume that the investment in the intellectual capital has a low degree of certainty; investors lack awareness in capturing good signals about the intellectual capital within a company. Therefore, company’s intellectual capital must be disclosed.

Based on the results of this study, researchers suggest the next researcher add other independent variables or other factors that can affect firm value and to expand the sample research (study cross-country companies); therefore, the influence of intellectual capital disclosure on firm value in various countries can be explained better.

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