The Effect of Intellectual Capital on Company Value of Banking Companies in Indonesia

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ABSTRACT

Intellectual capital is considered an important resource that allows companies to maintain their competitive advantage in corporate value creation efforts, but the limitations of financial statements in explaining company value and the uncertainty of the definition of intellectual capital mean that most investors’ perceptions of company value still focus on the company's financial performance. Several previous studies have found different results regarding the influence between variables. This study aims to examine the effect of intellectual capital on company value with company size, leverage, and company growth as control variables. The population of this study is banking sector companies listed on the Indonesia Stock Exchange (IDX) for the period 2010-2021. The sampling method uses purposive sampling with certain criteria and obtained samples of 29 companies. The analysis method used is multiple linear regression analysis. The results showed that Capital Employed Efficiency (CEE), Human Capital Efficiency (HCE), and Structural Capital Efficiency (SCE) were not proven to have an effect on company value. This can happen because there is no optimal involvement of intellectual capital in efforts to create added value in the banking sector, so the research is expected to increase awareness in empowering all intellectual capital it has. Future research may also expand the limitations of this study by using measurement methods and other types of industry.

Key Word
Intellectual Capital, Company Value

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INTRODUCTION

Intellectual capital has in recent years become a concern in the corporate world and is considered an important resource for companies in maintaining their competitive advantage. Saunila & Ukko (2014) in their research found that almost in all industrial sectors, operations, and company management depend on the ability to produce innovations that can be created by intangible assets. The important role of intellectual capital is what causes companies today to start switching from labor-based business to knowledge-based business.
Intellectual capital is used to describe the entire intangible assets of the company such as processes, innovation capacity, patents, knowledge and abilities of employees, talents, skills, and social recognition (de Frutos-Belizon et al., 2019). Kalkan et al., (2014) in their research stated that the basic components of intellectual capital consist of three components, namely human capital, structural capital, and customer capital. Value Added Intellectual Coefficient (VAIC™) method developed by Pulic (2000) is widely used to measure the efficiency of tangible assets (capital used) and intangible assets (human and structural capital).

Company value (EV) is an investor's assessment of the company as seen from the company's stock price (Septia, 2018). Company value is considered as the good name or reputation of a company that is recognized by the public and other companies that determine investors' decisions to invest their capital in the company. The greater the value of intellectual capital generated by the company, the more efficient the use of company capital will result in the creation of added value for the company. Tobin's Q ratio is used to describe a company's value. The greater the value of Tobin's Q indicates that the company has good growth prospects. The more appreciation of investors and creditors for the capital given is believed to be due to the intellectual capital created by the company.

Banking is one of the institutions that has an important role in the economy in a country, especially developing countries so that it is considered worthy of being the object of this study. Banking is an intellectually intensive business field and includes a service sector that relies heavily on the intelligence of human resources in providing services to customers. This should make the banking sector have a good corporate value achievement compared to other industrial sectors.

However, several previous studies have found inconsistent results related to how intellectual capital affects the value of a company. Research conducted by Nguyen & Doan (2020) shows that intellectual capital measured by VAIC™ has a positive effect on company value as measured by Tobin's Q ratio. Similar research was also conducted by Lukas et al., (2018) on banking companies, resulting in a positive impact that intellectual capital has on company value. However, some studies show different results. Susanti et al., (2020) , in their research on the goods and consumption sector, showed that intellectual capital does not affect company value. Similarly, Sitohang & Manik (2021) , which examined real estate subsector companies, found that intellectual capital measured by VAIC™ did not affect company value.
RESEARCH METHODS

Data Types and Sources

The data type used in this research is secondary data obtained indirectly through intermediary media (Sugiyono, 2021). Secondary data in this study were obtained through journals, books, historical reports, documentary data, and other sources related to research. This research uses a quantitative approach, a method used to examine specific populations or samples using research instruments and data analysis that is quantitative or statistical, which aims to test established hypotheses (Sugiyono, 2021). The data used is quantitative in the form of notes on the financial statements of companies in the banking sector for the 2010-2021 period, which related companies have published on the official website of IDX www.idx.go.id and the official website of related companies. The data collection method used in this research is literature study and documentation.

Population and Sample

The population used in this study are all banking sector companies listed on the Indonesia Stock Exchange (IDX) in the 2010-2021 research period. This study used a sample of banking sector companies determined by the non-probability sampling method, namely purposive sampling. Purposive sampling is a sampling technique used as the object of research based on specific criteria. The criteria used in this study are as follows:

1. Banking sector companies listed on the Indonesia Stock Exchange during the study period, namely 2010-2021.
2. Companies in the banking sector that provide their financial reports consecutively during the study period, namely 2010-2021.
3. Companies in the banking sector that provide complete data needed during the research period, namely 2010-2021.

<table>
<thead>
<tr>
<th>No.</th>
<th>Criteria</th>
<th>Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Banking companies listed on the Indonesia Stock Exchange during the study period</td>
<td>48</td>
</tr>
<tr>
<td>2.</td>
<td>Banking companies whose financial statements are not available consecutively during the study period</td>
<td>(14)</td>
</tr>
<tr>
<td>3.</td>
<td>Banking companies that do not provide the necessary data during the study period</td>
<td>(5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Research Samples</th>
<th>29</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of processed data (29x12)</td>
<td>348</td>
</tr>
</tbody>
</table>
Research Variables and Variable Measurement

Independent variables influence or cause changes or the emergence of the dependent variable (Sugiyono, 2021). The independent variable in this study is intellectual capital. Intellectual capital is measured using the Value Added Intellectual Coefficient (VAICTM) component developed by Pulic (2000). Value Added Intellectual Coefficient (VAICTM) is an instrument used to measure the performance of a company's intellectual capital and measure how efficient intellectual capital and capital employed are in creating value based on the relationship of the three main components of intellectual capital, namely capital employed (CE), human capital (HC), and structural capital (SC). VAICTM formulation (Pulic, 2000), as follows:

\[
VAICTM = \text{CEE} + \text{HCE} + \text{SCE}
\]

Information:
- VAICTM = Value Added Intellectual Coefficient
- CEE = Capital Employed Efficiency
- HCE = Human Capital Efficiency
- SCE = Structural Capital Efficiency

The VAICTM formulation and calculation stages are as follows:

**Value Added (VA)**

VAICTM calculation begins by calculating the company's ability to create value added (VA). Company value added (VA) is influenced by capital employed (CE), human capital (HC), and structural capital (SC) as indicators for VA generated by customer capital. Value added (VA) is calculated as the difference between output and input. Value added (VA) can be written in the following equation:

\[
VA = OUT - IN
\]

Information:
- Value Added (VA) = difference between output and input
- Output (OUT) = Total income and other income
- Input (IN) = Operating expenses (other than employee expenses)

**Capital Employed Efficiency (CEE)**

Capital Employed Efficiency (CEE) is the ratio of value added (VA) to capital employed (CE), which shows how much contribution is generated by each unit of CE to the company's value added.

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

Information:
- CEE = Capital Employed Efficiency (VA to CE Ratio)
- VA = Value Added
- CE = Capital Employed (Equity + Net Profit)
Human Capital Efficiency (HCE)

Human capital efficiency (HCE) is the ratio of value added (VA) to human capital (HC). This ratio describes the contribution generated by each rupiah invested in human capital (HC) to value-added (VA).

\[ HCE = \frac{VA}{HC} \]

Information:
HCE = Human Capital Efficiency (VA to HC Ratio)
VA = Value Added
HC = Human Capital (Salary + Benefits)

4. Structural Capital Efficiency (SCE)

Structural capital is the ratio of structural capital (SC) to value-added (VA). SC is the difference from VA minus expenses incurred in improving employee capabilities (HC). This ratio is used to measure the amount of structural capital (SC) needed by a company to produce one rupiah from value added (VA) and how successful structural capital (SC) is in creating company value.

\[ SCE = \frac{SC}{VA} \]

Information:
SCE = Structural Capital Efficiency
VA = Value Added
SC = Structural Capital (SC = VA-HC)

Dependent Variable

The dependent variable is a variable that is affected or becomes a result because of the independent variables (Sugiyono, 2021). Firm value is used as the dependent variable in this research. Firm value is the selling value of a company still operating from an investor's view of a company, as seen from its share price. Firm value in this study is measured using Tobin's Q ratio. Tobin's Q results from the sum of the market value of shares and the market value of debt compared to the value of all capital in the company's production (Lukas et al., 2018). In a study conducted by (Mediyanti et al., 2021), the interpretation of Tobin's Q ratio can be carried out using the following parameters:

1. If the results of Tobin's Q > 1 indicate that the company's management is successful in managing the company's assets.
2. If the results of Tobin's Q < 1 indicate that the company's management has failed to manage the company's assets.
3. If the results of Tobin's Q = 1 indicate stagnant company management in managing company assets.
Tobin's Q is calculated using the following formula (Lukas et al., 2018):

\[
Tobin's\ Q = \frac{MVE + D}{EBV + D}
\]

Information:
Tobin's Q  = Firm value
MVE  = Closing share price x number of shares outstanding at the end of the year
D  = Debt (book value of total debt)
EBV  = Equity Book Value (book value of total equity)

Control Variables
Control variables are controlled or kept constant so that the influence of the independent variables on the dependent variable is not influenced by external factors that are not examined (Sugiyono, 2021). The control variables in this study consist of three variables: company size, leverage, and company growth.

1. Company Size (Size)
   Company size is calculated using the natural logarithm value of the company's total assets. The larger the company's size, the greater the assets owned and the more funds it needs to maintain its operational activities. The formula for company size is as follows (Suwardika & Mustanda, 2017b):
   \[
   Size = \ln(\text{Total asset})
   \]

2. Leverage
   Leverage shows how much a company's equity or capital is financed by debt. Leverage in this study uses the Debt to Equity Ratio (DER) calculation, which compares the total long-term debt to the total equity owned by the company. The Debt to Equity Ratio (DER) formula is as follows (Novitasari & Krisnando, 2021):
   \[
   DER = \frac{\text{Longterm debt}}{\text{Equity}} \times 100\%
   \]

3. Company Growth (Growth)
   Company growth is defined as an increase or decrease in the total assets experienced by the company during one period (Novitasari & Krisnando, 2021). The company's growth is proxied by the asset growth ratio, which shows the percentage of asset growth over time. Company growth is calculated using the following formula (Suwardika & Mustanda, 2017):
   \[
   
   Growth = \frac{\text{Activa}(t) - \text{Activa}(t-1)}{\text{Activa}(t-1)} \times 100\%
   \]
Data Analysis
1. Classic assumption test
   In this study, we used 5 classic assumption tests, namely the normality test using the Kolmogorov Smirnov test, the multicollinearity test using the tolerance value and VIF (Variance Inflation Factor), the heteroscedasticity test using the Scatterplot test, the autocorrelation test using the Durbin-Watson test (DW-Test) (Ghozali, 2016).
2. Multiple Linear Regression Analysis
   According to Ghozali (2016), multiple linear regression analysis is used to test the effect of more than one independent variable on the dependent variable. The multiple linear regression model in this study is as follows:
   \[ \text{Tobin's Q} = \alpha + \beta_1 \text{CEE} + \beta_2 \text{HCE} + \beta_3 \text{SCE} + \beta_4 \text{SIZE} + \beta_5 \text{LEV} + \beta_6 \text{GROWTH} + \epsilon \]
   Information:
   \( \text{Tobin's Q} \) = Firm Value
   \( \alpha \) = Constant
   \( \beta \) = Regression Coefficient
   \( \text{CEE} \) = Capital Employed Efficiency
   \( \text{HCE} \) = Human Capital Efficiency
   \( \text{SCE} \) = Structural Capital Efficiency
   \( \text{SIZE} \) = Company Size
   \( \text{LEV} \) = Leverage
   \( \text{GROWTH} \) = Company Growth
   \( \epsilon \) = Error

RESULTS AND DISCUSSION

Tabel 2.
Descriptive Statistical Analysis

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEE</td>
<td>348</td>
<td>.0000</td>
<td>2.1971</td>
<td>.213187</td>
<td>.2138070</td>
</tr>
<tr>
<td>HCE</td>
<td>348</td>
<td>1.1112</td>
<td>9.3947</td>
<td>2.532268</td>
<td>1.1877546</td>
</tr>
<tr>
<td>SCE</td>
<td>348</td>
<td>.1000</td>
<td>.8936</td>
<td>.531637</td>
<td>.1808882</td>
</tr>
<tr>
<td>TOBINSQ</td>
<td>348</td>
<td>.0124</td>
<td>2.0800</td>
<td>.903246</td>
<td>.3482655</td>
</tr>
<tr>
<td>SIZE</td>
<td>348</td>
<td>25.6124</td>
<td>35.0844</td>
<td>31.483770</td>
<td>1.8252007</td>
</tr>
<tr>
<td>LEV</td>
<td>348</td>
<td>.0014</td>
<td>16.0786</td>
<td>5.848069</td>
<td>3.7445717</td>
</tr>
<tr>
<td>GROWTH</td>
<td>348</td>
<td>.0004</td>
<td>2.8377</td>
<td>.309655</td>
<td>.3885004</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>348</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CEE and HCE show that the average of both is relatively small by looking at the average value that is close to the minimum value. And an average value close to its standard deviation value indicates that the data variance of the two is relatively small. This shows that the contribution made by every unit of CE and every one dollar spent by the company for its HC is relatively low. While SCE shows a relatively large average value by looking at its average value which is close to the maximum value and the variation of SCE data is relatively large compared to other variables. The company's value has an average value of 0.903246 or <1 which illustrates the absence of growth and good performance from the company's management in managing company assets.

**Multiple Linear Regression Analysis**

Multiple linear regression analysis was conducted to test the effect of more than one independent variable on the dependent variable (Ghozali, 2016). Multiple linear regression analysis in this study was conducted to test the effect of independent variables, namely intellectual capital (CEE, HCE, SCE) and control variables of company size, leverage, and company growth on the dependent variable, namely firm value. The resulting multiple linear regression equation in this research can be formulated as follows:

\[ \text{Tobin's } Q = 1.869 + 0.136 \text{ CEE} + 0.008 \text{ HCE} + 0.264 \text{ SCE} - 0.043 \text{ SIZE} + 0.045 \text{ LEV} - 0.152 \text{ GROWTH} + \varepsilon \]

**Tabel 3. The Coefficient of Determination (R2)**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.63</td>
<td>.400</td>
<td>.389</td>
<td>.2721614</td>
<td>.814</td>
</tr>
<tr>
<td>2a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on Table above, the Adjusted R Square value is 0.389 or 38.9%, meaning that the dependent variable (CEE, HCE, SCE) plus control variables (company size, leverage, and company growth) is only able to explain the dependent variable (firm value) of 38.9% and the remaining 61.1% (100% - 38.9%) is explained by other variables outside the variables examined in this study.
Tabel 4.
Simultaneous Test (Test F)

<table>
<thead>
<tr>
<th>Model</th>
<th>ANOVAa</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>16.829</td>
<td>6</td>
<td>2.805</td>
<td>37.866</td>
<td>.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>25.259</td>
<td>341</td>
<td>.074</td>
<td>37.866</td>
<td>.000</td>
</tr>
<tr>
<td>Total</td>
<td>42.087</td>
<td>347</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: TOBINSQ
b. Predictors: (Constant), GROWTH, SIZE, CEE, HCE, LEV, SCE

Based on Table 4.8, it is known that the sig. 0.000 < 0.05, which means that the regression equation model formed is significant, meaning that the independent variables, namely CEE, HCE, and SCE, plus control variables, namely company size, leverage, and company growth, can be used to predict and explain the dependent variable, namely firm value.

Tabel 5.
Partial Test (t-test)

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficientsa</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>1.869</td>
<td>.276</td>
<td>6.762</td>
</tr>
<tr>
<td></td>
<td>CEE</td>
<td>.136</td>
<td>.083</td>
<td>.083</td>
</tr>
<tr>
<td></td>
<td>HCE</td>
<td>.008</td>
<td>.025</td>
<td>.026</td>
</tr>
<tr>
<td></td>
<td>SCE</td>
<td>.264</td>
<td>.174</td>
<td>.137</td>
</tr>
<tr>
<td></td>
<td>SIZE</td>
<td>-.043</td>
<td>.009</td>
<td>-.228</td>
</tr>
<tr>
<td></td>
<td>LEV</td>
<td>.045</td>
<td>.005</td>
<td>.482</td>
</tr>
<tr>
<td></td>
<td>GROWTH</td>
<td>-.152</td>
<td>.041</td>
<td>-.170</td>
</tr>
</tbody>
</table>

The t-test is used to determine the effect of each independent variable on the dependent variable using a significance value of <0.05. If the sig. <0.05, the hypothesis is accepted, meaning that there is an influence of the independent variables, namely intellectual capital (CEE, HCE, and SCE), partially on the dependent variable, namely firm value, as measured by Tobin's Q ratio. Likewise, the control variables in this study, namely firm size, leverage, and whether there is a partial influence on company growth on firm value. The following are the results of the t-test:
Discussion

Capital Employed Efficiency (CEE)

CEE has a significant level of 0.105, meaning that a significant level of more than 0.05 indicates that CEE does not affect firm value. CEE shows the company's added value that can be generated from the available capital. The significant level of CEE in this study shows that the management of available funds (equity and net profit) by banking sector companies during the 2010-2021 period has yet to have the option to create significant added value for the company. This signifies that the company needs to be able to manage its capital employed efficiently, so it cannot contribute to increasing the value of the company.

The results of this study do not support the resource-based view theory (RBV), which states that companies must have a competitive advantage to create added value for companies by utilizing tangible and intangible resources. The top management and use of capital employed by the company's capabilities can be assessed as an effort to improve the financial performance of the company. When the company's financial performance can reflect its ability to utilize employee capital in the form of available funds effectively and efficiently, it will impact increasing company value.

Human Capital Efficiency (HCE)

HCE has a significant level of more than 0.05, equal to 0.760, indicating that HCE doesn't influence company value, so the second hypothesis is rejected. HCE is used to see how much value is generated from all the costs spent to improve employee performance or can be measured by salary and benefits expenses. The results obtained in this study indicate that the costs incurred by the company for its employees do not affect increasing the company's value. The results of this study indicate that the development of potential and the utilization of human capital competencies possessed by employees have yet to be carried out optimally by banking sector companies during the study period. These results also indicate that the costs incurred by the company in the form of salaries and benefits have yet to be able to motivate employees to be creative in creating a competitive advantage that is valuable, rare, hard to imitate, and has no substitute. This does not support the knowledge-based theory, which states that a high contribution of human capital will create a competitive advantage that can create added value for the company. Companies that can create added value to the company through the expertise and knowledge possessed by their employees will increase a positive market response to the company's performance, so that the company's value will also increase.
Structural Capital Efficiency (SCE)

SCE has a significant level of more than 0.05, equal to 0.130, so the third hypothesis is rejected. These results indicate that SCE does not affect firm value. SCE is non-human knowledge such as database, strategy, culture, organizational structure, and others used to support human capital in creating added value. Based on the results of this study, the structural capital owned by banking sector companies in this study has not been able to increase the ability of employees to increase value added to the company. This indicates that the size of the structural capital owned by the company will not affect the value of the company. An employee who has high knowledge will not produce intellectual capital if he is not equipped with high structural capital because the existence of structural capital, such as culture, organizational systems, strategy, technology, and rules, can motivate employees to create innovations so that the company's competitive advantage will be formed. Based on the resource-based theory, which states that to achieve a competitive advantage, companies must have valuable, rare, hard-to-imitate, and irreplaceable resources.

Firm Size, Leverage, and Growth as Control Variables

The results of this research show that there is an effect of firm size as a control variable on firm value in a negative direction, which means that if the company's size increases, the company's value will decrease. Based on research by Ramdhonah et al., (2019), a company size that is too large will be considered a negative signal for investors. This is due to more flexibility for the management so that the company's size is too large, which is considered to cause a lack of efficiency in overseeing operational activities and strategies by the management, thereby reducing the worth of the company.

The test results show that leverage affects firm value. This shows that when the value of leverage increases, it will cause the company's value also to increase. This test indicates that the company can optimize the use of debt as company capital to create added value for the company. The better debt management by the company, the better the corporate value generated; this is due to interest costs on debt which reduce tax payments resulting in an increase in company profits and the possibility of allocating more enormous dividends. The level of use of debt will make the company more careful in managing the funds obtained efficiently so that it will not cause financial distress by the trade-off theory, which states that the use of debt will increase the value of the company to a certain point (optimal) when the charge investment funds from extra obligation equivalent the expense of monetary pain. On the investment side, investors will assume that the company's condition is experiencing rapid development, requiring additional funds. These developments can be in the
form of expansion and diversification by forming a portfolio. Then this will lead to an increase in the value of the company.

Research on company growth indicates that company growth affects firm value in a negative direction. This study’s findings indicate that the growth of a company that continues to grow will reduce its value of the company. This is because the higher the company's growth, the greater the funds must be available internally and externally for company investment. When the company is in a developmental condition that requires more funding, the profit generated from the company’s operational activities will be used to reinvest, not for dividend payments to investors (Suwardika & Mustanda, 2017a). This will then be a negative signal for the shareholders, which will cause a decrease in the supply of shares in the capital market and lead to a decrease in the company's value.

CONCLUSION
This study was conducted to see whether there is an influence of intellectual capital consisting of CEE, HCE, and SCE on company value. The results of this study showed that all three were not proven to have an effect on company value. Researchers indicate that there is a utilization of all components of intellectual capital that has not been carried out optimally during this research period to create competitive advantages that will affect the creation of company value.

This research provides an important reminder for companies in Indonesia, especially banking sector companies related to improving policy making in empowering all assets owned by companies, both capital employed, human capital, and structural capital.

The limitation in this study is that it only uses one method of measuring company value, namely Tobin's Q ratio and this study limits the object of research to the banking sector. Therefore, it is expected that further researchers can use other measurement methods, use other variables that are thought to have an influence on company value, and expand the object of research so that it will produce new findings that are different and useful for interested parties.

ACKNOWLEDGEMENTS
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REFERENCES


