"Impact of intellectual capital on earnings management and financial performance"

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# IMPACT OF INTELLECTUAL CAPITAL ON EARNINGS MANAGEMENT AND FINANCIAL PERFORMANCE

## Abstract

Intellectual capital is widely recognized as one of the most important assets in modern businesses, but it is only reported in the financial statement in certain conditions. This study aims to evaluate the role of value-added intellectual capital (VAIC) in moderating the relationship between earnings management and financial performance. This research uses data from non-financial companies listed on the Singapore Exchange and Indonesia Stock Exchange covering the period of 2016–2021, with a total of 3,303 firm-year observations. VAIC is measured using Pulic's intellectual capital model and earnings management using the Kasznik Model (1999). This study uses multiple linear regressions to examine the relationship between variables. The findings indicate that earnings management has no significant effect on the financial performance of Singapore, but it has a significant positive effect on the financial performance of Indonesia. Furthermore, this study discovers that intellectual capital moderates the relationship between earnings management and financial performance in both countries differently, that intellectual capital moderation is positive (negative) for the Singapore (Indonesia) sample. These findings suggest that the role of intellectual capital varies depending on stock exchanges; Singapore is considered a developed country in Southeast Asia, whilst Indonesia is considered a developing one. This study concludes that the role of intellectual capital in the relationship between earnings management and financial performance varies between market characteristics and across industries.

| **Keywords** | intellectual capital, earnings management, financial performance, earnings quality, accruals |
|---|---|
| **JEL Classification** | M16, M41, O34 |

## INTRODUCTION

The financial statement provides financial and non-financial information on business performance in a certain period for parties with the rights and willingness to make decisions (Ghazali et al., 2015). It shows the ability of business entities to generate earnings. There are several ways to measure financial performance: liquidity, profitability, solvency, efficiency, and leverage ratio (Fatihudin et al., 2018). The most common ratio used to assess financial performance is the profitability ratio.

Earnings quality reflects business entities' performance (Dechow & Schrand, 2004). Firms with good financial performance will tend to maintain or improve their performance in the next period through better accounting practices (Huynh & Nguyen, 2019). To maintain the value of earnings per share (which is expected to increase), managers manage the earnings (Barth et al., 1999). This behavior causes higher financial performance and controls.

According to Leuz et al. (2003), the earnings management in Indonesia ranked 12, and Singapore ranked 23 out of 31 countries that have been

observed. Singapore represents a developed country in ASEAN, which has a low level of earnings management but a high use of intellectual capital. In contrast, Indonesia represents a developing country with the opposite characteristics. According to World Bank Data, Singapore has the largest market capitalization, the highest number of research and development researchers and technicians, and uses IC to the highest degree among countries in ASEAN and is the second biggest in Asia. Unlike Singapore, Indonesia ranks lower among countries in ASEAN and Asia.

Earnings management may affect financial performance, but it is not the only factor. Technology's rapid growth makes business entities no longer focus on tangible assets. In the knowledge-based economy, intellectual capital development gives business entities added value (Powell & Snellman, 2004). Human knowledge and abilities become the key to the success of a business (Suseno et al., 2019).

This study investigates the role of intellectual capital as a moderating variable in the relationship between earnings management and financial performance and how this role differs between developed and emerging markets.

## 1. LITERATURE REVIEW

Stewardship theory assumes that firms' executives are motivated to make themselves stewards of stakeholders responsible for business' activities (Davis et al., 1997). Managers prefer to make decisions based on stakeholder's interests rather than personal interests, and in turn they expect intrinsic rewards (Lambright, 2009). As stewards, managers improve a firm's performance even under challenging circumstances and environment that is heavily influenced by politics.

Earnings management is one of the accounting techniques that managers use to change certain information about a firm's economic performance to influence the contractual outcome (Healy & Wahlen, 1999). Earnings management is a way of intervening financial reporting process that do not violate accounting regulations. Accrual earnings management is carried out by using accounting policies and accrual discretion to achieve earnings targets, while real earnings management is performed by changing business strategy to manage the reported earnings. There are two types of earnings management: efficient and opportunistic. Managers avoid reporting a decrease in earnings and a loss to reduce expenses in transactions with stakeholders (Burgstahler & Dichev, 1997). Other researches show that the stock market values accrual discretionary. Accrual discretionary components have more incremental information than non-discretionary components. In an efficient market, managers perform earnings management to give private information about future profitability to increase the value relevance. However, because of the opportunistic earnings management, accrual discretionary could reverse the fact about earnings (Subramanyam, 1996).

Managers always want to present good reports and they perform earnings management to achieve it. This activity makes investors misled by provided information. Abbas and Ayub (2019) say there is a positive relationship between accrual earnings management and financial performance. In other research, there is a positive relationship between earnings per share, return on equity, and accrual discretionary (Humeedat, 2018). This indicates that industrial corporations are trying to show positive earnings. According to the research on Nigeria, two out of three measurements of earnings management show a positive relationship with ROA (Ado et al., 2020).

Managers have some discretion to choose which methods and judgements are used to provide financial statements. No one should be blamed for this practice as low as it is according to the regulations, even though it raises some ethical concerns. Based on a study by Siregar and Utama (2008), discretionary accrual of firms listed on the JSE (Jakarta Stock Exchange) has a significant positive effect and is an efficient tool for increasing financial performance. Earnings management is used to fulfill the market's expectations and please stakeholders (Bartova et al., 2002). Therefore, it is common to find that earnings management actions

taken by managers are based on certain pressures. Managers take low cost actions to influence potential investors' perceptions of the value of the business entity (Dye, 1988). Hence, this study is going to investigate whether accrual earnings management influences a firm's financial performance.

Recently, IC has become an important asset for a business entity. Investors believe that firms with efficient IC could gain higher profit and higher sales in the future. Intellectual capital is measured with value-added intellectual capital (VAIC), first developed by Pulic (2000). VAIC is obtained from the total value added of human capital, structural capital, and capital employed. The value-added itself can be calculated by finding the difference between output and input. Output is reflected by sales; input is all expenses to obtain output (Pulić, 2008).

EM might alter a firm's financial performance, although it is not the only factor that leads to the change. A study by Chen et al. (2005) tells us that investors price higher for firms with more efficient intellectual capital management because it enhances a firm's profitability. Previous studies confirmed a relationship that firms with higher intellectual capital produces a higher earnings quality (Sarea & Alansari, 2016). One of earning quality measurements is earnings management. Those two aspects have an inverse relationship, whereas higher earnings management causes lower earnings quality. Sydler et al. (2014) also say that the higher value of intellectual capital would improve the value of return on assets. Besides, intellectual capital also affects financial performance, as explained by Acuña-Opazo and González (2021). This study illustrates that the more efficient an intellectual capital, the bigger the firm's value-added. This study expects to provide benefits for stakeholders in assessing the performance of business entities, as well as making decisions in investing and assisting business entity management in paying attention to other aspects to improve financial performance. The purpose of the study is to investigate and contrast the various roles of intellectual capital in earnings management and financial performance in two different market characteristics – Indonesia as an emerging market and Singapore as a developed market.

Based on the literature review and previous studies, the hypotheses in this study are:

$H_1$: *Earnings management has a positive influence on financial performance.*

$H_2$: *Intellectual capital moderates the relationship between earnings management and financial performance.*

## 2. METHOD

This study uses all non-financial firms listed on Singapore Exchange (SGX) and Indonesia Stock Exchange (IDX) and covers the period of 2016–2021. There are 3,193 firm-years for Singapore and 3,640 firm-years for Indonesia in total. Next, this study excludes firms with financial reporting period other than December 31 and those with uncomplete information. This step leaves us with 1,301 and 2,002 firm-year observations for Singapore and Indonesia, respectively. Data are obtained from Unicorn Data Service, annual reports from www.sgx.com and www.idx.co.id.

The dependent variable is return on assets (ROA) as profitability measure calculated by dividing net income by total assets. Independent variable used is discretionary accruals measured with the Kasznik Model (1999). The steps to derive accruals earnings management (discretionary accruals) are:

$$TA_{it} = NI_{it} - CFO_{it}, \tag{1}$$

where *TA* is total accruals, *NI* and *CFO* refer to net income and cash flow from operation, respectively. After obtaining total accruals, the second step is regressing total accruals with delta revenue ($\Delta REV$), plant, property and equipment ($PPE$), and incremental cash flow from operation ($\Delta OCF$). All variables are divided by lagged total assets ($A_{t-1}$) using Equation (2):

$$TA_{i,t} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \left( \frac{\Delta REV_{i,t}}{A_{i,t-1}} \right) + \\ + \beta_3 \left( \frac{PPE_{i,t}}{A_{i,t-1}} \right) + \beta_4 \left( \frac{\Delta OCF_{i,t}}{A_{i,t-1}} \right) + e_{i,t}. \tag{2}$$

Third step, the non-discretionary accruals (NDA) are found performing Equation (3):

$$NDA_{i,t} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} +$$

$$+\beta_2 \left( \frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}} \right) + \beta_3 \left( \frac{PPE_{i,t}}{A_{i,t-1}} \right) + \quad (3)$$

$$+\beta_4 \left( \frac{\Delta OCF_{i,t}}{A_{i,t-1}} \right) + e_{i,t}.$$

For the final step, discretionary accrual (DA) is calculated by subtracting non-discretionary accrulas (NDA) from total accruals (TA):

$$DA_{i,t} = TA_{i,t} - NDA_{i,t}. \qquad (4)$$

In those equations, i,t refres to firm $i$ in period $t$. Discretionary accruals (DA) refres to accruals earnings management.

Moderating variable of the study is value-added intellectual capital (VAIC), measured by Pulic's Model (2000). All of the information to calculate VAIC can be derived from the notes to the financial statements that are part of the annual report. For the first step, value added is calculated by subtracting input from output:

$$VA = Out - In, \qquad (5)$$

where VA is the value added, that is derived by subtracting all expenses except expenses related to employees (In) from all income, including operating and miscellaneous revenue (Out).

Next step, the three components of value-added intellectual capital (VAIC) are calculated, which are value added capital employed (VACE), value added human capital (VAHC), and structural capital value added (SCVA) as follow:

$$VACE = \frac{VA}{CE}, \qquad (6)$$

where VACE is value added capital employed, measured by value added divided by capital employed (CE). Capital employed is the total of stockholder equity obtained from the statement of financial position.

$$VAHC = \frac{VA}{HC}, \qquad (7)$$

where VAHC is value added human capital, measured by value added divided by human capital expenditures, including employee expenses from salaries, wages and pension expenses.

$$SCVA = \frac{SC}{VA}, \qquad (8)$$

where SCVA is structural capital value added, measured by structural capital (SC) divided by value added. Structural capital is obtained by substracting value added (VA) and human capital expenditures (HC).

Final step is to add all of the components to get the VAIC:

$$VAIC = VACE + VAHC + SCVA. \qquad (9)$$

This study uses a dummy variable to represent VAIC (DVAIC). DVAIC = 1 if the VAIC is more than the median, and 0 otherwise.

Leverage, firm size, and operating cash flow are the controlling variables. Based on a study by Ahmad et al. (2015), leverage has a significant negative relationship with financial performance. Higher leverage indicates higher financial risk for an entity. Leverage (LEV) is measured as debt to total assets.

The second controlling variable used is firm size (SIZE). Doğan (2013) concludes that firm size positively affects financial performance. It can be said that big firms make use of the scale economy to run effectively. SIZE is measured by natural logarithm of total assets.

Operating cash flow (OCF) is the amount of cash generated by normal business operations of entities. It shows how a firm manages its operations. Positive operating cash flow indicates that a firm could generate cash from its business and will increase its financial performance (Liman & Mohammed, 2018). For this research, operating cash flow is divided by lagged total assets.

There are two models used to verify hypotheses of this study. Equation (10) is used to test $H_1$ and Equation (11) to test $H_2$. Each equation for the sample from Singapore and Indonesia is applied separately.

$$ROA_{i,t} = \alpha_0 + \alpha_1 DA_{i,t} + \alpha_2 LEV_{i,t} + $$
$$+\alpha_3 SIZE_{i,t} + \alpha_4 OCF_{i,t} + \varepsilon_{i,t}. \qquad (10)$$

To support $H_1$, $\alpha_1$ should be > 0 and significant.

$$ROA_{i,t} = \alpha_0 + \alpha_1 DA_{i,t} + \alpha_2 DVAIC + $$
$$+\alpha_3 DVAIC \cdot DA_{i,t} + \alpha_4 LEV_{i,t} + \qquad (11)$$
$$+\alpha_5 SIZE_{i,t} + \alpha_6 OCF_{i,t} + \varepsilon_{i,t}.$$

This study uses a dummy variable for *VAIC*. *DVAIC* = 1 if *VAIC* higher than mean, and *DVAIC* = 0 otherwise. $H_2$ is supported if $\alpha_3$ is significant.

To get deeper understanding, whether there are any differences in the moderating effect of IC in accrual EM and a firm's financial performance, a dummy variable for countries (*DCountry*) is used, and regression in Equation (12) is run.

$$ROA_{i,t} = \alpha_0 + \alpha_1 DA_{i,t} + \alpha_2 DVAIC + $$
$$+\alpha_3 DVAIC \cdot DA_{i,t} + \alpha_4 DCountry + $$
$$+\alpha_5 DCountry \cdot DA_{i,t} + $$
$$+\alpha_6 DCountry \cdot DVAIC + \qquad (12)$$
$$+\alpha_7 DCountry \cdot DVAIC \cdot DA_{i,t} + $$
$$+\alpha_8 LEV_{i,t} + \alpha_9 SIZE_{i,t} + \alpha_{10} OCF_{i,t} + \varepsilon_{i,t}.$$

*DCountry* refers to a dummy variable for countries. *DCountry* = 1 for firms from Indonesia, and *DCountry* = 0 if otherwise. If $\alpha_7$ is significant, then

it is concluded that there is a difference in the moderating effect of IC in accrual EM and ROA between two countries.

## 3. RESULTS

There is adequate literature about intellectual capital and earnings management. However, there is still less information about how intellectual capital would moderate the relationship between earnings management and financial performance that is proxied by profitability. To plug the notable gap, this section presents the difference of the intellectual capital's role in developed and emerging countries.

Based on Table 1 and Table 2, a total sample is 1,301 firm-years for Singapore and 2,002 firm-years for Indonesia. The standard deviation for VAIC is quite high in both countries. Pearson Correlation was also conducted on Singapore and Indonesia data (untabulated). The results show that there is correlation between financial performance, earnings management, and dummy VAIC in both countries.

Table 3 shows the result of the first model (Equation 10) for Singapore data. It shows that earnings management has no significant impact on financial performance because Singapore does not perform much accrual earnings management.

**Table 1.** Descriptive statistics for Singapore (N = 1,301)

| Variables | Mean | Median | Minimum | Maximum | Std. Deviation |
|---|---|---|---|---|---|
| ROA | 0.003 | 0.020 | −5.886 | 12.294 | 0.419 |
| VAIC | 0.435 | 1.922 | −11169 | 1552.129 | 322.078 |
| DA | 0.008 | 0.007 | −0.724 | 3.531 | 0.157 |
| LEV | 0.472 | 0.447 | 0.008 | 7.026 | 0.314 |
| SIZE | 19.457 | 19.231 | 13.361 | 28.693 | 1.879 |
| OCF | 0.040 | 0.039 | −4.845 | 2.748 | 0.200 |

**Table 2.** Descriptive statistics for Indonesia (N = 2,002)

| Variables | Mean | Median | Minimum | Maximum | Std. Deviation |
|---|---|---|---|---|---|
| ROA | 0.053 | 0.036 | −4.375 | 2.192 | 0.151 |
| VAIC | 4.660 | 2.302 | −131.261 | 1997.609 | 50.205 |
| DA | 0.029 | −0.015 | −5.088 | 22.428 | 0.700 |
| LEV | 0.491 | 0.442 | 0.001 | 64.626 | 1.459 |
| SIZE | 28.352 | 28.306 | 22.035 | 33.537 | 1.765 |
| OCF | 0.041 | 0.059 | −54.408 | 11.429 | 1.297 |

**Table 3.** H1 regression result – Data for Singapore

| | Dependent variable: ROA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Variables** | **All sample** Coeff. t-value | **EPS ≥ 0** Coeff. t-value | **EPS < 0** Coeff. t-value | **Lev ≥ Med** Coeff. t-value | **Lev < Med** Coeff. t-value | **Size ≥ Med** Coeff. t-value | **Size < Med** Coeff. t-value | **OCF ≥ Med** Coeff. t-value | **OCF< Med** Coeff. t-value |
| Constant | −0.134* | −0.113*** | −0.608*** | −0.639*** | 0.083* | 0.047*** | 0.046*** | −0.071** | −0.309 |
| | −1.651 | −1.135 | −4.018 | −6.171 | 0.688 | 8.442 | 2.128 | −1.333 | −2.436 |
| DA | 1.925 | 2.157 | 1.149 | 1.173** | 2.328 | 0.255*** | 2.179 | 0.498 | 2.443 |
| | 38.280 | 38.971 | 9.645 | 13.694 | 40.168 | 9.734 | 31.019 | 11.782 | 35.710 |
| LEV | −0.170*** | −0.143** | −0.241*** | | | −0.073*** | −0.185*** | −0.184*** | −0.159*** |
| | −6.837 | −3.741 | −6.959 | | | −7.174 | −5.104 | −8.811 | −4.682 |
| SIZE | 0.010*** | 0.007** | 0.035*** | 0.031*** | −0.007* | | | 0.010*** | 0.015** |
| | 2.336 | 1.324 | 4.416 | 5.827 | −1.053 | | | 3.723 | 2.277 |
| OCF | 0.369*** | 0.656 | 0.147 | 0.186 | 0.875*** | 0.271*** | 0.328** | | |
| | 9.423 | 10.322 | 2.709 | 4.431 | 9.643 | 13.351 | 5.993 | | |
| Adj R² | 0.558 | 0.629 | 0.372 | 0.284 | 0.716 | 0.297 | 0.622 | 0.304 | 0.679 |
| F–stat | 411.644*** | 387.182*** | 58.415*** | 86.785*** | 546.944** | 92.409*** | 356.903*** | 95.813*** | 458.844*** |
| DW Stat | 1.814 | 0.772 | 1.882 | 1.089 | 1.276 | 1.166 | 1.880 | 1.346 | 2.013 |

*Note*: *, **, *** sig. at 10%, 5% and 1% respectively (one-tailed).

Next, we also run additional tests by splitting our sample based on: 1) profit and loss condition, 2) leverage, 3) size, 4) operating cash flow by their median value. The results indicate that earnings management positively influences financial performance for high leverage and big size firms. This result shows that profitability in firms with high leverage or big size firms tend to be more sensitive to earnings management done by managers.

The results from Indonesia are shown in Table 4. Indonesia, as a country with high earnings management (Leuz et al., 2003), shows the opposite result of Singapore, whose earnings management has a significant impact on ROA. After dividing samples, a different result is only shown for low operating cash flow firms. In other words, almost nothing can change the effect of earnings management, except for firms that have low operating cashflow. Earnings management will not improve a firm with low operating cashflow profitability. This can also indicate that OCF is more impactful than earnings management.

In addition, this study also analyzes data by sector (untabulated) for Singapore and Indonesia. The re-

**Table 4.** H1 regression result – Data for Indonesia

| | Dependent variable: ROA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Variables** | **All sample** Coeff. t-value | **ROA ≥ 0** Coeff. t-value | **ROA < 0** Coeff. t-value | **Lev ≥ Med** Coeff. t-value | **Lev < Med** Coeff. t-value | **Size ≥ Med** Coeff. t-value | **Size < Med** Coeff. t-value | **OCF ≥ Med** Coeff. t-value | **OCF< Med** Coeff. t-value |
| Constant | 0.093** | 0.139*** | −0.343* | −0.144* | −0.024 | 0.124*** | 0.109*** | 0.070* | 0.212*** |
| | 2.218 | 3.652 | −1.401 | −1.621 | −0.426 | 20.036 | 8.653 | 1.606 | 3.126 |
| DA | 0.029*** | 0.025*** | 0.198* | 0.101*** | 0.017** | 0.061*** | 1.606*** | 0.035*** | 0.002 |
| | 5.520 | 5.354 | 1.444 | 10.383 | 2.155 | 4.785 | 3.720 | 6.555 | 0.354 |
| LEV | −0.065*** | 0.036*** | −0.051*** | | | −0.144*** | −0.067*** | −0.067*** | 0.036*** |
| | −36.385 | 3.818 | −4.769 | | | −12.182 | −29.415 | −48.235 | 2.690 |
| Size | 0.000 | −0.003*** | 0.010 | 0.006** | 0.003** | | | 0.001 | −0.007*** |
| | −0.235 | −2.392 | 1.190 | 1.972 | 1.678 | | | 0.858 | −2.905 |
| OCF | 0.015*** | 0.013*** | 0.197* | 0.041*** | 0.024*** | 0.026*** | 0.001*** | | |
| | 5.361 | 5.386 | 1.452 | 8.333 | 3.824 | 4.973 | 2.860 | | |
| Adj R² | 0.434 | 0.026 | 0.863 | 0.097 | 0.015 | 0.148 | 0.498 | 0.740 | 0.011 |
| F–stat | 384.220*** | 13.641* | 208.438*** | 36.779*** | 6.236** | 58.936*** | 332.194*** | 950.019*** | 4.855*** |
| DW Stat | 0.865 | 0.784 | 1.276 | 0.521 | 0.559 | 0.533 | 0.981 | 0.547 | 0.599 |

Note: *, **, and *** mean sig. at 10%, 5%, and 1%, respectively (one-tailed).

sults indicate that earnings management positively influences financial performance for firms in basic materials, consumer cyclical, and consumer defensive sectors in Singapore. These three sectors are not Singapore's main sector (Metroverse, Harvard). Besides, these sectors have more stable growth and value as seen through their price to earnings ratio. People pay less attention to their activities, and managers do earnings management in order to maintain their positions and market. In Indonesia, in all sectors except real estate and technology, earnings management has a positive effect on the performance of companies. The effect of earnings management on financial performance is not the same across all industries. Economically, this analysis is important for investors who want to carry out a portfolio strategy for their investments. The combination of real estate and technology stocks will not have an impact on financial performance from an earnings management point of view

**Table 5.** H2 regression result

| Dependent variable: ROA | | |
|---|---|---|
| **Variables** | **Singapore Coeff. t-value** | **Indonesia Coeff. t-value** |
| Constant | −0.170** | 0.163*** |
| | −2.103 | 4.178 |
| DA | 1.168*** | 0.043*** |
| | 11.745 | 3.976 |
| DVAIC | 0.010 | 0.082*** |
| | 0.603 | 16.922 |
| DVAIC * DA | 0.988*** | −0.023** |
| | 8.726 | −1.936 |
| LEV | −0.205*** | −0.063*** |
| | −8.359 | −34.480 |
| SIZE | 0.012*** | −0.004*** |
| | 2.772 | −3.109 |
| OCF | 0.342*** | 0.019*** |
| | 8.852 | 4.223 |
| Adj R² | 0.582 | 0.507 |
| F−stat | 302.921*** | 188.263*** |
| DW Stat | 1.710 | 0.954 |

*Note:* *, **, and *** mean sig. at 10%, 5%, and 1%, respectively (two-tailed).

Table 5 indicates that VAIC moderates the relationship between earnings management and financial performance. $H_2$ is accepted. In Singapore, VAIC positively moderates the relationship between earnings management and financial performance, while in Indonesia, the result is the op-

posite. Singapore has a high level of research and development activities and high quality of life. With that situation, firms with higher value-added intellectual capital could boost their profitability. Indonesia has the opposite character of Singapore. Less attention to the quality of life makes Indonesia a low R&D country. This condition leads to the fact that the value-added intellectual capital has a negative impact on the relationship.

In Indonesia, there are three sectors that show the moderating effect of VAIC. Communication service and consumer defensive have a positive impact, while consumer cyclical is the opposite. Communication service and consumer defensive continue to develop new innovation through human ideas and ability. A firm's intellectual capital in these sectors highly determines the future value of the firm. To sum up, consumer defensive is the only sector showing that VAIC strengthens the relationship of earnings management and financial performance in both countries, while other sectors show different results in both countries. Different characteristics of the two countries can influence these results.

Leverage shows a negative effect on financial performance due to higher financial risk. Operating cash flow increases financial performance. Size has a different effect on financial performance. In Singapore, bigger size affects financial performance positively, since they have a bigger market and sales compared to smaller firms. But, in Indonesia, bigger firms do not guarantee that it can make higher profitability or better financial performance.

The regression model in Table 6 shows whether the moderating effect of VAIC is stronger in a developing (Indonesia) or developed (Singapore) country. A dummy variable represents a country: 1 for firms listed in IDX (Indonesia), and 0 for firms listed in SGX (Singapore). Earnings management has a positive and significant effect on financial performance in general. In addition, Table 7 indicates that VAIC negatively moderates the relationship between EM and financial performance for companies in Indonesia. This finding supports the results of $H_2$. To conclude, value-added intellectual capital plays an important role because it can moderate the relationship between earnings

management and financial performance, but the effect depends on other factors such as quality of human capital and level of research and development in the area.

**Table 6.** Regression of firms in Singapore and Indonesia

| Dependent variable: ROA | |
| --- | --- |
| **Variables** | **Coeff.**<br>**t-value** |
| C | −0.055 |
| | −1.470 |
| DA | 1.187*** |
| | 17.118 |
| DVAIC | 0.043*** |
| | 3.825 |
| DVAIC x DA | 0.925*** |
| | 11.540 |
| DCountry | 0.037* |
| | 1.820 |
| DCountry*DA | −1.100*** |
| | −15.522 |
| DCountry*DVAIC | 0.036** |
| | 2.565 |
| DCountry*DVAIC*DA | −0.989*** |
| | −12.014 |
| LEV | −0.063*** |
| | −19.321 |
| SIZE | 0.002 |
| | 1.087 |
| OCF | 0.040*** |
| | 5.094 |
| Adjusted R$^2$ | 0.545 |
| F-statistic | 396.130*** |
| Durbin-Watson stat | 1.574 |
| N | 3303 |

*Note:* *, **, and *** mean sig. at 10%, 5%, and 1%, respectively (one-tailed).

## 4. DISCUSSION

The findings show that earnings management does not significantly affect firm performance in Singapore. These results align with the findings of Cyril et al. (2020), which show no significant relationship between earnings management and the financial performance of firms in Nigeria. Moreover, the findings show that earnings management in Singapore improves financial performance in high-leverage and big firms.

High-leverage companies typically engage in earnings management to offset their substantial liabilities and improve their financial performance. This outcome is consistent with the debt covenant hypothesis (Watts & Zimmerman, 1986). Big-size firms engage in earnings management, since they need to maintain their reputation. This evidence supports Barton and Simko's (2002) study that big firms must manage their earnings to satisfy the growing pressure from investors and analysts.

Empirical evidence from Indonesian data suggests that earnings management improves financial performance. This outcome corresponds with Abbas and Ayub (2019), Ado et al. (2020), Humeedat (2018), and Lee et al. (2005). The findings of the current study also show similar results to those of Mostafa (2020) for companies listed on the Karachi Stock Exchange, Pakistan and Khuong et al. (2019) for firms listed on the Vietnam Stock Exchange. It seems that firms in developing countries have more incentives to carry out earnings management (Mostafa, 2020). So, H$_1$ is supported by the Indonesian sample. These empirical results support Leuz et al. (2003) that Singapore has better earnings quality.

Interesting results are obtained by looking at the moderating effect of VAIC between the two countries. In Singapore, VAIC positively moderates the relationship between earnings management and financial performance. This means that for firms with high VAIC, earnings management contains positive signals about company performance. On the other hand, VAIC negatively moderates the relationship between earnings management and financial performance for firms in Indonesia. This may be because a manager performs earnings management that does not provide information about company performance. These results may stem from the bonus plan or political cost hypothesis (Watts & Zimmerman, 1986) or earnings informativeness differences between countries (Fan & Wong, 2002). However, it needs to be further investigated. The results stimulate an opportunity to future research.

## CONCLUSION

This study measures the role of value-added intellectual capital in the relationship between earnings management and financial performance. The research is done with Singapore as representation of a developed market and Indonesia as representation of an emerging market. This study concludes that (1) earnings management has a positive influence on financial performance in Indonesia, and (2) intellectual capital moderates the relationship between earnings management and financial performance in both countries, Indonesia and Singapore. However, the moderating effect of intellectual capital in the two countries is different. Earnings management has a significant positive influence on a firm's financial performance in a developing country (Indonesia), but has no significant influence in a developed country (Singapore). This study shows that managers in a developing country manage earnings to increase a firm's financial performance to satisfy their stakeholders. Intellectual capital moderates the relationship between earnings management and financial performance. The moderating effect of intellectual capital is different across stock exchanges and industries. Finally, when comparing both data, it can be seen that Value-Added Intellectual Capital in Indonesia moderates the relationship between earnings management and financial performance negatively rather than in Singapore.

## STUDY LIMITATIONS AND FUTURE RESEARCH

This study does not only answers the research gap based on previous inconsistent studies, but gives insight for financial statement users and firms analyzing financial performance. However, there are some limitations of this study. First, financial performance is not fully described because it is only proxied by Return on Assets, whereas financial performance can be assessed from various variables that can lead to different conclusions. Second, the role of intellectual capital is only tested using one variable, which is the overall value of the intellectual capital component, and it cannot be known which specific factor of intellectual capital is the strongest in influencing the relationship between earnings management and financial performance. However, this study has several opportunities to be developed. First, the study can be developed into a comparative study between countries because the level of earnings management behavior in each country and the assessment of intellectual value can be different. Second, using other variables to proxy financial performance can produce different findings.

## AUTHOR CONTRIBUTIONS

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