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The Effect Of Intellectual Capital Towards Firm's Financial Performance, Moderating Effect Of Firm Reputation

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Abstract: This study aims to analyze the impact of intellectual capital on the financial performance of companies in Indonesia, considering the moderating effects of corporate reputation as presented by Fortune 100 Indonesia list. Intellectual capital, which includes employee capital and structural capital, is considered an important asset that can enhance a company's financial performance. The study uses secondary data from the annual reports of companies listed on the Fortune 100 and Indonesia Stock Exchange for the period of 2020 to 2022. The analysis method employed is data panel regression analysis, and purposive sampling is used in forming the sample. The results of regression analysis shows support for the significant impact of intellectual capital towards financial performance, urging Indonesian firms to maintain their intellectual capital well. On the other hand, firm size may also be inspected as independent variable instead of moderator.

Keyword: Intellectual Capital, Firm's Financial Performance, Firm Reputation.

INTRODUCTION

In which we're talking about a company, especially the performance of a company, there are many things that comes to our mind. Based on previous studies, researchers stated that intellectual capital is one of the most important factors that affects company's financial performance (Chang & Hzieh, 2011, Xu & Liu, 2020, Nazir et al., 2020). Intellectual capital will never be a stagnant topic when it comes to scientific research, since the studies about intellectual capital keeps being developed over years– since its' introduction and rising in the 1990s. Not to mention the role of rapid technology development that happened these years, especially when it comes to COVID-19 pandemic where all activities are forced to be handled online—thus, technology development becomes important.

Now that the competition becoming fierce and the dynamic, rapid changes of technology and market also happened, companies need to implement various strategies, including those that involves their intangible resources to maintain their sustainability, and in order to survive the rapidly changing world (Zhang et al., 2021). Intellectual capital,

specifically, talks about the value of an intangible resources owned by corporate such as knowledge possessed by employees, employee's ability to innovate and master the company's system, the technology embedded inside the firm (such as the systems), and customer relations.

Intellectual capital has emerged as a crucial factor in determining the financial performance of companies (Mohammad & Bujang, 2019), thus it becomes clear that Indonesia's companies should also pay more attention to these particular resources within the firm. The shifting in business from labor-based business to be an activity that puts knowledge on top (knowledge-based business) also happened to be a driver in this rapidly growing number of intellectual capitals research.

However, results of previous research showed that there are inconsistencies in the relationship between intellectual capital and financial performance. Nazir et al (2020), Shaneeb and Sumathy (2021), dan Zhang et al, (2021) research had proved that intellectual capital has a significant relationship while Chowdhury et al. (2018), Dženopoljac et al. (2016), Cindiyasari (2017), and Mollah & Rouf in 2022 has showed otherwise; in which that intellectual capital does not influence financial performance of a firm. This inconsistency indicated that further research is urged to find a link between intellectual capital and financial performance. Moreover, the moderating role of firm reputation in this relationship remains an area that requires further exploration.

In Indonesia, it appears that the country still has a task to improve the quality of their human resources, since within 203 countries, Indonesia placed 67 in the education ranking. It showed that Indonesia's education level still has a long way to go—particularly due to the significant gaps' quality of life between urban and rural areas. With the system education is still developing and social inequality is still occurring quite large, Indonesia has challenges in increasing their education quality and better educational infrastructure, so that it can improve the quality of national workers.

Digging deeper into the topic, Indonesia's accounting standard (PSAK) has been noting but supportive towards intellectual capital, as the phenomenon of intellectual capital has begun

highlighted since the emergence of PSAK No. 19 (revised 2015). The chapter talked regarding intangible assets, and intellectual capital has been mentioned as part of it that plays an important role in maximizing financial performance and profitability of the company. However, due to its' voluntary nature in the disclosure (voluntary disclosure), companies haven't put many special concerns in this area. But as we know, intellectual capital itself, if managed well, will

become a very valuable asset for the firm. Therefore, the author decided to examine the role of intellectual capital in Indonesia.

This study uses an independent variable, namely Intellectual Capital which has been evolved by Public in 2000 using VAIC model, the model that will become the measurement for this variable. The dependent variable, financial performance, will be measured using financial ratios namely ROA (return on assets). This study will also utilize firm reputation as a moderator variable, using Fortune 100 list consisting of 100 Indonesia companies that is proven to be trustworthy and having a good performance within the year.

Departing from resource-based perspective theory (Barney, 1991), companies consist of a combination of many resources; be it tangible or intangible. Barney also mentioned the role of intellectual capital indirectly, where he stated that intangible resources are the most crucial factor that could affect financial performance. Every form of companies' resources can be utilized to boost companies' performance, since they all are form of companies' strategic capital. Firms can gain a competitive advantage and achieve unbeatable performance through acquiring, holding, using and depending on their assets effectively and efficiently (Zeghal & Maaloul, 2010).

More recently, IC-based theory developed by Reed et al. (2006) also stated that intellectual capital plays an important role in improving companies' financial performance. It is because of its characteristics; intellectual capital can not be duplicated by the competitors; thus it could be a value added that would boost company's performance if managed well. Compared to more generic assets like the tangible one, intellectual capital is more difficult to be duplicated, so it is fair to say that intellectual capital could boost company's performance.

OECD (The Organization for Economic Co-operation and Development) in 2000 broke down intellectual capital into two big aspects; Human (Employee) and Structural (Organization). Employee Capital refers to knowledge, experience, abilities and qualifications of employees within the company in carrying out their duties as part of the company. This is also what employees will take out when they leave the company (Zeghal and Maaloul, 2010). Human Capitial (HC) is inherent in the personality of each employee and cannot be passed down as a company's 'legacy', unless transfer of knowledge is being carried out, where this process usually occurs in the handover of positions (carried out in the company when an employee wants to move work and give up their jobs to existing employees is in the company).

On the other hand, SC or structural capital is not inherent in oneself employee. Unlike human capital (HC), which all comes from employee's knowledge and experience, this structural capital can stay with the company even as an employee left the company suddenly. Structural capital includes procedures such as SOPs, patent systems, corporate culture, databases, brand and company reputation, production processes, R&D (product development and trial & error), relationships with suppliers, and others that are still within the scope of the company (Zeghal & Maaloul, 2010; Goh, 2005).

These two factors are believed to be the driven for company's success, and it can not be separated as part of intellectual capital. Thus,

H1. Intellectual Capital has significant impact on Financial Performance of Indonesia's firm.
H2. Human Capital has significant impact on Financial Performance of Indonesia's firm.
H3. Structural Capital has significant impact on Financial Performance of Indonesia's firm.

Over time, previous research has proven that a firm's reputation has a relationship with invisible assets owned by the company. Rindova et al. in 2005 succeeded in proving that knowledge asset is an important attribute in building company's reputation. Cravens and Oliver (2006) in their research, too, providing recognition that invisible assets are difficult to imitate such as Human Capital (employees) have an important role in the company to determine its position in the market and the firm's reputation overall.

Apart from that, firm reputation can also improve company's performance in terms of a sustainable manner. This is due to the firm's reputation, in good quality can increase consumer confidence (Tischer and Hildebrandt, 2014) and is a good signal for other stakeholder interests such as investors (Weng, 2016, Saeidi et al., 2015). As the company's reputation increases, it will be easier for companies to raise their profitability by using trust of stakeholders. The company's success in building a good reputation in the public eye can affect their ability to improve future performance. Therefore, this research aims to test whether company reputation, as measured by Fortune 100 rankings, can strengthen the relationship between intellectual capital and performance company finances. So, the author formulates the hypotheses as following:

H4. Firm Reputation moderated the significant relationship between Intellectual Capital and Financial Performance.
H5. Firm Reputation moderated the significant relationship between Human Capital and Financial Performance.

H6. Firm Reputation moderated the significant relationship between Structural Capital and Financial Performance.
The following is the research model for this paper:

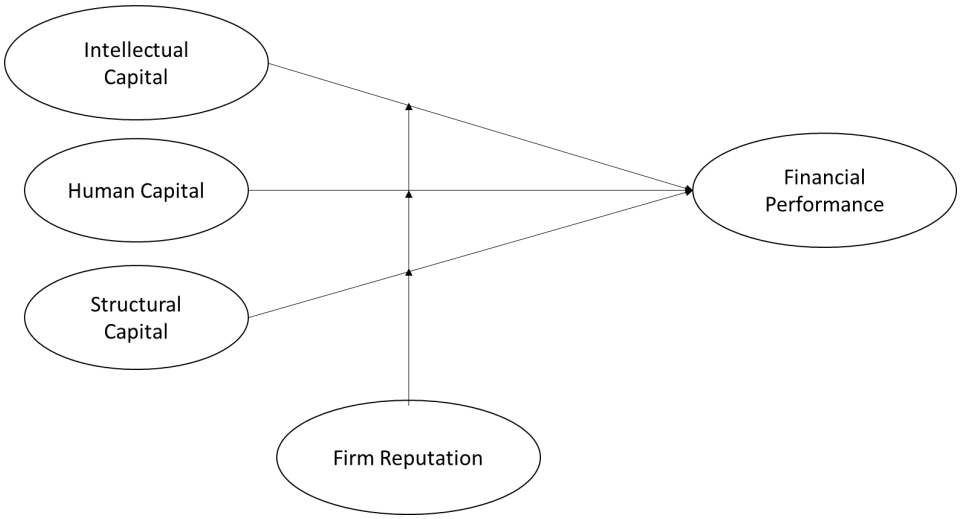

Figure 1. Research Model

METHOD

This study will be done in a quantitative format; by doing hypotheses testing and collecting secondary data from Indonesia's Stock Exchange (www.idx.co.id). Sample will be universal as the author picks all of the public company's annual report, as long as the company is included in the Fortune 100 list in Indonesia. The measurement of the variables will be as follows:

Intellectual Capital will be measured using VAIC Model developed by Public (2000), adapted by Muhammad and Ismail in 2009;

Table 1. Variable and measures

Variable	Measure
Intellectual Capital	Value Added = OUT - IN
	$CEE = \frac{Value\ Added}{Capital\ Employed}$
	$HCE = \frac{Value\ Added}{Human\ Capital}$
	$SCE = \frac{Structural\ Capital}{Value\ Added}$
	VAIC = CEE + HCE + SCE

Whereas CEE = Capital Employed, HCE = Human Capital Employed, and SCE = Structual Capital Employed. As for dependent variable, ROA (return on assets) ratio is utilized to measure the Financial Performance, while Fortune 100 is being used to measure

the moderating variable—Firm Reputation. Hypotheses are being tested using Moderated Multiple Linear Regression, run through STATA 16. The author used the model below to test the research hypotheses:

$$FP = \beta 0 + \beta 1VAICit + \beta 2FRit + \beta 3VAIC.FRit + \varepsilon it$$

Where FP acts as the proxy for financial performance (utilizing ROA as the measurement), VAIC as the proxy for intellectual capital, and FR is the proxy for firm reputation, depicted by Fortune 100 ranking.

After collecting the data through Indonesian Stock Exchange and Fortune 100 websites, the writer has successfully retrieved data from 107 companies with 3 years observation, resulting in the total of 321 years of observation. But due to the missing data in statistical analysis, 41 observations were dropped so the final sample for the study was 280 observations. With these 280 data, several statistical analysis were run and the results are as follows.

RESULTS AND DISCUSSION

After it is found that the data is not being distributed normally, logarithmic transformation were done to help normalize the data. The result of logarithmic transformation is as follows:

Variable	Obs	Mean	Std. dev.	Min	Max
log_roa	280	1.400147	5.88696	-17.33969	19.97935
log_vaic	281	4.310302	3.637298	-2.744975	17.47413
log_fr	281	3.604422	.9350853	0	4.60517

Figure 2. Result of descriptive statistics

The figure shows descriptive statistics from data resulting from logarithmic transformation. From the table below, it can be seen that the data interval becomes more homogeneous.

From the observations, the data used is a combination between cross sectional and time series data or what is usually called panel data. The panel data model selection was carried out using the Chow Test, hereby the result:

```
. xtreg log_roa log_vaic log_fr log_int, fe

Fixed-effects (within) regression               Number of obs      =       280
Group variable: id                              Number of groups   =       100

R-squared:                                      Obs per group:
     Within  = 0.0015                                         min =         2
     Between = 0.3538                                         avg =       2.8
     Overall = 0.1025                                         max =         3

                                                F(3,177)           =      0.09
corr(u_i, Xb) = -0.6602                         Prob > F           =    0.9656

------------------------------------------------------------------------------
     log_roa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    log_vaic |   -.2248538   .8688104    -0.26   0.796    -1.939414    1.489706
      log_fr |   -.8816158   2.460097    -0.36   0.720    -5.736513    3.973281
     log_int |    .0673065   .2145102     0.31   0.754    -.3560201    .4906331
       _cons |    4.445004   9.003729     0.49   0.622    -13.32347    22.21348
-------------+----------------------------------------------------------------
     sigma_u |  3.8268625
     sigma_e |  6.0143092
         rho |  .28818971   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(99, 177) = 0.56                     Prob > F = 0.9993
```

Figure 3. Panel data

From the figure above, the Prob > F value is 0.9993 where the value is > 0.05. Thus, the model used is CEM. After that, the regression model was formed:

Source	SS	df	MS	Number of obs	=	280
				F(3, 276)	=	14.01
Model	1278.17121	3	426.057071	Prob > F	=	0.0000
Residual	8390.93611	276	30.4019424	R-squared	=	0.1322
				Adj R-squared	=	0.1228
Total	9669.10732	279	34.6562986	Root MSE	=	5.5138

log_roa	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
log_vaic	-.4454553	.4811566	-0.93	0.355	-1.392659	.5017479
log_fr	1.968089	.5328362	3.69	0.000	.9191496	3.017028
log_int	.0994425	.1162655	0.86	0.393	-.1294373	.3283223
_cons	-5.405755	2.019281	-2.68	0.008	-9.380903	-1.430607

Figure 4. Regression model

With regression model result:

$$log\ log\ (FP) = -5.405755 - 0.4454553\ log\ log\ (VAIC) + 1.968089\ log\ log\ (FR) + 0.0994425\ log(VAIC).log(FR)$$

Utilizing the classic assumption tests such as normality, multicollinearity, and heteroscedasticity, the model has passed all the statistical test. Since this research is using CEM model, there is no need to test the model's auto-corellation.

Source	SS	df	MS	Number of obs	=	280
				F(3, 276)	=	14.01
Model	1278.17121	3	426.057071	Prob > F	=	0.0000
Residual	8390.93611	276	30.4019424	R-squared	=	0.1322
				Adj R-squared	=	0.1228
Total	9669.10732	279	34.6562986	Root MSE	=	5.5138

Figure 5. Classic assumption tests

Based on the picture below, it is known that the prob value = 0.000 where it is below 5% or 1% significance level, so it can be concluded that the independent variable simultaneously influences the dependent variable. It gives support for hypothesis 1, 2, and 3 sequentially.

On the other hand, the moderating role of Firm Reputation is not supported by the regression model, but it has been brought into the light that Firm Reputation simultaneously influences Financial Performance (prob=0.000). The next study should consider studying Firm Reputation as the dependent variable instead of moderating, as it has no effect in moderating but has significant effect directly toward Financial Performance. Thus, hypothesis 4, 5, and 6 are rejected.

R-squared	=	0.1322
Adj R-squared	=	0.1228
Root MSE	=	5.5138

Figure 6. R-squared

As shown in the picture above, R-squared of the model is 0,1322, meaning that 13,22% Financial Performance (measured by ROA) could be explained by the regression model.

CONCLUSION

The result of this study has brought new implications, such as how Intellectual Capital is crucial in improving Indonesian companies' financial performance, especially from top-list companies that are listed within Fortune 100 Indonesia. Intellectual Capital plays a big role for their financial ability, thus bringing them to the Fortune 100 list. This result is in line with many previous research such as Zeghal & Maaloul (2010), Nazir et al. (2020) and Zhang et al. (2021), also prove both theories mentioned before from Barney in 1991 and Reed et al. in 2006 about resource-based and IC-based view. This study is successful in recognizing the importance of Intellectual Capital in Indonesian firms.

On the other hand, the moderating role of firm size between intellectual capital and financial performance is not proven to be true, unlike what the hypothesis stated. This would spark another question for the future; 'what would it be if the firm size acts as the independent variable?'. Considering this study's result, it is something that is worth studied.

The researcher hoped that this study would introduce Intellectual Capital even more for Indonesian firms, especially the ones that are struggling to have a strong financial capability. With the right resources, companies could gain so much more by maintaining their Intellectual Capital.

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