

The Influence of Intellectual Capital on Profitability With Firm Size as an Intervening Variable in Companies Listed on The Jakarta Islamic Index (JII) for The 2016-2022 Period

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Keywords

Intellectual Capital, Firm Size, Profitability.

ABSTRACT

The purpose of this study is to analyze the direct influence of intellectual capital on profitability in Companies Listed in the Jakarta Islamic Index (JII) for the 2016 – 2022 Period and to analyze the indirect influence of intellectual capital on profitability through firm size in Companies Listed in the Jakarta Islamic Index (JII) for the 2016 – 2022 Period. The population in this study is companies listed in the Jakarta Islamic Index (JII) for the 2016 – 2022 period. The sample of this study was selected by purposive sampling method. There were 11 companies that were used as research samples. The data was analyzed using path analysis operated using Eviews. The results showed that Intellectual capital has an influence and significant on profitability in companies listed in JII for the 2016 – 2022 period. Intellectual capital has a significant influence on firm size, Firm has an influence and significant on profitability and Firm size mediates intellectual capital on profitability in companies listed in JII for the 2016 – 2022 period.

INTRODUCTION

Increasing competition in the current era of globalization requires companies to continue to carry out various kinds of business strategies to achieve company goals (Sulistyaningsih, 2023)(Haufler, 2013)(Kotabe & Murray, 2004)(Hunt & Morgan, 1994)(Birkinshaw et al., 1995). The right and appropriate strategy is needed by the company to improve the company's performance to achieve its goals. The company's goal is to improve the welfare of owners by optimizing company value (Mappadang, 2021)(Triani & Tarmidi, 2019)(Ferina & Nurcahaya, 2014)(Suryana, 2017)(Triani & Tarmidi, 2019). In reality, there is an agency relationship that occurs, namely the relationship between managers and company owners (Payne & Petrenko, 2019)(Shankman, 1999)(Smaili et al., 2023)(Shankman, 1999)(Clacher et al., 2010)(Moloi et al., 2020)(Patelli & Prencipe, 2007)(Holderness, 2003)(Elsayed & Wahba, 2013)(Amihud & Lev, 1981)(Limpaphayom et al., 2019)(Cullen et al., 2006). Although there are differences in interests between the two parties, they have one common goal, which is to make the maximum profit possible.

Basically, the size of the company is only divided into categories, namely large, medium and small (Papadogonas, 2007). The size of the company is a scale which can be classified according to influencing investor interest in investing so that it will affect the volume of sales of company shares (Hendrani & Septyanto, 2021). To attract investors in investing, management will strive to increase the company's profitability, the company's profitability can be increased by increasing profits in each period. However, if the profit generated is not as expected, it will trigger opportunistic actions taken by management so that the profit generated is as expected.

Profitability is used as a tool to evaluate the performance of management, whether they have worked effectively or not. Ineffective management will result in low profitability, so it is considered a failure in achieving company goals. Management that does not want to be considered a failure, will try to increase the company's profits and profit stability (Oberholzer & Van der Westhuizen, 2004).

In managing its resources in an era with advances in information technology, companies need the right business strategy in order to remain competitive with other companies. With this competition, companies must be able to innovate and realize that the ability to compete does not only lie in tangible assets but more in managing the organization and human resources owned by the company (Jamrog et al., 2006). In order to survive, companies change businesses based on labor-based business to knowledge-based business, this strategy is focused on knowledge and expertise from the workforce that can increase company value compared to relying on the large number of workers in a company (Puspita, 2016).

A knowledge-based business is an intangible asset such as worker skills and knowledge, information technology that supports workers and connects the company with customers and suppliers, and an organizational climate that encourages innovation, problem solving, and development (Volkov & Garanina, 2007). One approach to measuring intangible assets is the intellectual capital (IC) approach.

In order to improve a good corporate image, for this reason, companies listed on JII must try to improve their financial performance. One way is to still gain the trust of funders, both from the company's shareholders themselves and from the community. Therefore, the company's internal parties should try to identify existing problems by measuring the company's financial performance and then making effective and appropriate decisions. So that later it will create optimal company financial performance. If the company's financial performance is reflected well, it is certain that stakeholders and the public at large will increasingly trust the company.

Based on the background that has been described in, the title of the study is "The Effect of Intellectual Capital on Profitability with Firm Size as an Intervening Variable in Companies Listed in the Jakarta Islamic Index (JII) for the 2016 – 2022 Period".

METHODS

A. Sample

In this study, samples were obtained using *the purposive sampling* method so that 11 companies registered in JII during 2016 to 2022 were obtained and who met the criteria determined by the author to be used as research samples.

Sample selection can be seen in table 1 below:

Table 1. Company Criteria

No	Criterion	Sum
1	Shares listed on JII	30
2	Companies that have never delisted during the period 2016 – 2022	(19)
3	Complete data of companies registered in JII	11
Total sample		11

Source: data processed, 2023

The list of names of companies registered in JII that are sampled in this study can be seen at:

Table 2. Sample List

No	Company Sample
1	AKR Corporindo Tbk
2	Aneka Tambang (Persero) Tbk
3	Indofood CBP Sukses Makmur Tbk
4	Indofood Sukses Makmur Tbk
5	Kalbe Farma Tbk
6	Bukit Asam Tbk
7	Herbal and Pharmaceutical Industry Sido Muncul Tbk
8	Telkomunikasi Indonesia (Persero) Tbk
9	United Tractors Tbk
10.	Unilever Indonesia Tbk
11.	Wijaya Karya (Persero) Tbk

Source: data processed, 2023

B. Variable Operational Definition

Here's a breakdown of the formulas for the dependent variable and the independent variable.

Table 3. Operational Definition

No	Variable	Definition	Formula Measurement	Scale
1	<i>VAIC</i>	Instruments to measure the performance of the <i>company's</i> intellectual capital.	$VAIC = VACA + VAHU + STVA$	Ratio
2	<i>Size</i>	Which illustrates the size of the company	$Size = \ln(\text{Total Assets})$	Ratio
3	<i>ROA</i>	Form a profitability ratio to measure a company's ability to generate profits.	$ROA = \frac{\text{laba bersih setelah pajak}}{\text{total aktiva}}$	Ratio

Source: developed in this study, 2023

C. Data Analysis Techniques

This research will use path analysis techniques with the help of the Eviews program with the following equation:

$$Z = \beta X_1 + e_1 \text{ (Structural Equation 1)}$$

$$Y = \beta X_1 + \beta Z + e_1 \text{ (Structural Equation 2).}$$

X: Intellectual Capital

Y: Profitability

Z: Firm Value

RESULTS AND DISCUSSION

A. Classical Assumption Test

**Table 5 Classical Assumption Test Results
Normality Test with Jarque-Fallow Test**

Information	Equation 1	Equation 2
Jarque-Bera Probability	32864	92018
Multicollinearity Test with VIF Test		
	Uncentered VIF	Centered VIF
Intellectual Capital	00000	64545
Firm Size		64545
Autocorrelation Test with Durbin-Watson Stat Test		
Durbin - Watson Stat	0.732256	0.849967
Heteroscedasticity Test with Glacier Test		
Intellectual Capital		405
Firm Size	379	388

Source : Data Processing Results, Eviews (2023)

Based on the output results of the jarque-bera probability value of equation 1 of 0.132864 and in equation 2 of 0.292018, the probability value obtained is greater than 0.05, meaning that the data is normally distributed. The Multicollinearity Test with *Variance Inflation Factor* (VIF), seen in equation 1 and equation 2 VIF values smaller than 10, shows that the model is free of multicollinearity. The autocorrelation test with the *Durbin-Watson* test is known to have a value in equation 1 of 0.732256 and in equation 2 of 0.849967, based on the decision-making criterion that DW values between -2 to +2 there is no autocorrelation. The significant value (*Prob*) of the variables in equation 1 and equation 2 is greater than 0.05 so that it can be concluded that heteroscedasticity does not occur.

B. Estimation of Model Selection in Equation 1

Table 6 Estimation of Model Selection in Equation 1

Test Chow			
Test	Statistics		Prob.
Cross-section F	4.600923	(10,65)	0.0001
Cross-section Chi-square	41.212408	10	0.0000
Hausmant Test			
Test Summary	Chi-sq. Statistics	Chi-sq. d.f	Prob.
Cross-section random	0.271757	1	0.6022

Source : Data Processing Results, Eviews (2023)

Table 6 shows that the probability value in the *cross - section chi square* is $0.0000 < 0.05$ then, based on the results of the chow test using eviews it can be concluded that the model used *fixed effect* is better. P – Value in random *cross-section* of $0.6022 > 0.05$ can mean that the *random* effect model is more appropriate than *the fixed effect* model. Equation 1 can be concluded that using *a random effect* model in interpreting the results of panel data regression.

C. Regression Analysis in Equation 1

Table 7 Regression Analysis Results in Equation 1

Variable	Coefficient	Std.Error	t-Statistic	Prob.
C	2.709049	0.190091	14.25130	0.0000
Intellectual Capital	0.122154	0.050009	2.442626	0.0169
Effect Specification				
Adjusted R-Squared	0.074359	on dependent var		1.401238
Adjusted R-Squared	0.062017	on dependent var		0.207610
F-statistic	0.201069	on squared resid		3.032157
F-statistic	6.024925	on bin-Watson stat		0.625396
Prob(F-Statistic)	0.016424			

Source : Data Processing Results, Eviews (2023)

The intellectual capital variable has a coefficient value of 0.122154 and (t) *p-value* of 0.0169 < 0.05 this proves that intellectual capital has an effect on *firm size*. The results used based on the results of the *random effect model estimation* are the value of the determinant coefficient or *adjusted R Square* (R²) of 0.062017. This indicates that the value of firm size has an attachment or can be explained by intellectual capital of 6.20% and the rest or 93.8% is determined by variables outside the study.

D. Estimation of Model Selection in Equation 2

Table 8 Estimation of Model Selection in Equation 2

Test Chow			
Effect Test	Statistics		Prob.
Cross-section F	8.579373	(10,64)	0.0000
Cross-section Chi-square	65.478964	10	0.0000
Hausmant Test			
Test Summary	Chi-sq. Statistics	Chi-sq. d.f	Prob.
Cross-section random	7.424936	2	0.0244

Source : Data Processing Results, Eviews (2023)

Table 8 shows that the probability value in the *cross - section chi square* is 0.0000 < 0.05 then, based on the results of the chow test using eviews it can be concluded that the model used *fixed effect* is better. P – Value in *random cross-section* of 0.0244 < 0.05 can mean that the fixed effect model is *more appropriate than* the fixed effect model. Equation 2 can be concluded that using a *fixed effect* model in interpreting the results of panel data regression.

D. Regression Analysis in Equation 2

Table 9. Results of Regression Analysis in Equation 2

Variable	Coefficient	Std.Error	t-Statistic	Prob.
C	0.438484	0.565595	0.775261	0.4410
Intellectual Capital	0.370417	0.113882	3.252637	0.0018
Firm Size	0.327511	0.152833	2.142936	0.0359
Effect Specification				
Adjusted R-Squared	0.833452	on dependent var		2.826627
Adjusted R-Squared	0.802224	on dependent var		0.559823
F-statistic	0.248965	on squared resid		66936
F-statistic	26.68945	on bin-Watson stat		0.876519
Prob(F-Statistic)	0.000000			

Source : Data Processing Results, Eviews (2023)

The intellectual capital variable has a coefficient value of 0.370417 and (t) *p-value* of $0.0018 < 0.05$ this proves that intellectual capital has an effect on profitability. The firm size variable has a coefficient value of 0.327511 and (t) *p-value* of $0.0359 < 0.05$ this proves that firm size has an effect on profitability. The results used based on the estimation results of the *fixed effect* model are the value of the determinant coefficient or *adjusted R Square* (R^2) of 0.802224. This indicates that the profitability value has an attachment or can be explained by intellectual capital and firm size of 80.22% and the rest or 19.78% is determined by variables outside the study.

F. Intervening Variable Testing (Causal Step Strategy)

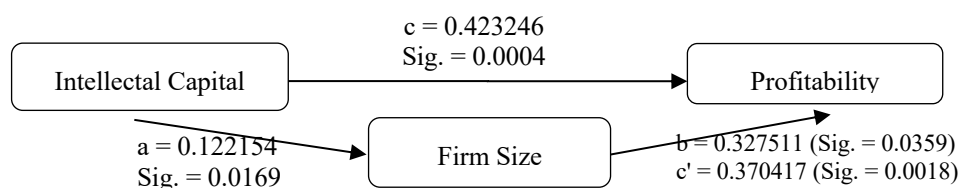


Figure 1 Causal Step Strategy

Source : Data Processing Results, Eviews (2023)

Based on figure 1, it can be concluded that this model is included in the category of *partial Mediation*, where intellectual capital variables are able to directly affect profitability variables or indirectly by involving firm size variables.

G. Discussion of Research Results

1. The Effect of Intellectual Capital on Profitability

Researchers revealed that intellectual capital affects profitability. Intellectual capital is a knowledge resource and has an important role in the creation of competitive advantage and added value in a company. Stakeholders have an interest in influencing management in the process of utilizing all the potential possessed by the organization. Because only with good and maximum management of all this potential will the organization be able to create *added value* for the company. With the use of intellectual capital, companies must be able to process and maximize the use of resources owned efficiently and effectively, so as to increase company profits. The better the company is at utilizing its intellectual capital, the company can increase the company's profitability level and investor confidence level (Sandi and Dewi, 2022). Based on the *Resource Based Theory* approach, it can be concluded that the resources owned by the company affect profitability, so that intellectual capital management is increasingly important to be carried out in the *era of knowledge economy*. Companies that invest in intellectual capital have higher growth than companies that invest only in assets such as equipment, vehicles and machinery. (OECD, 2013).

Intellectual Capital in the research of Agus and Teddy (2022), Basith and Firdaus (2022), Zainal Fadri (2016), Siti Fatimah, et.al (2019), Sabri Nurdin and Suyudi (2019), Chairunnisa and Rosyana (2015), Saudah, Sofian, Mike Tayles and Richard (2015) which shows the positive influence of *intellectual capital* on Probability. This is contrary to the results of research conducted by Dessy Adelin (2021) and Isma Dewi Br Panjaitan (2013) which shows the negative influence between *intellectual capital* on probability.

2. Intellectual Capital to Firm Size

Researchers revealed that intellectual capital affects firm size. Based on *Resorce Based-Theory*, companies manage resources effectively to create a competitive advantage over other competitors. The resources owned by the company include: sufficient natural resources, attractive promotions, and employees and managers who can work professionally (Prasetya and Mutmainah, 2019).

Intellectual capital is considered to have become a crucial resource in creating competitive advantage and improving the company's performance, Pangesti & Sutanto (2020). Therefore, the size of the company determines the intellectual capital of a company. The greater the total assets, sales, log size, stock market value, and market capitalization, the greater the size of the company Rochyawati (2017).

According to Ousama, Fatima and Hafiz-Majdi (2019), large corporations have abundant resources and company management is projected to convey information related to the resources used by companies in carrying out company activities. Based on Purnomosidhi (2020), companies with large sizes have a higher demand for openness than small companies, including agent fees. Companies provide this information by disclosing intellectual capital in an effort to reduce these costs (Setyaningsih & Prabawani, 2016).

3. Firm Size to Profitability

Researchers revealed that firm size affects profitability. Firm size measures the size or size of a company. Firm size can be measured through assets owned. If the company has large assets, it can be said to be a large company. The size of the company can increase company profits, because the company can maximize operational activities supported by its assets resulting in good performance that can have an impact on the company's profitability value (Julietha and Natsir, 2022). Based on the theory of *critical resources*, the larger the size of the company, the company's ability to earn profits also increases, but at a certain amount the size of the company will reduce the company's profits (Ni Luh and I Made, 2019). *Firm size* in the research of Suci and Khairina (2021) and Akram, Farooq, Cikram, Ahad and Numan (2021) which shows a positive influence on probability. This is contrary to the results of research conducted by Nohong, Sobarsyah, Sanusi, Handayani, Otoluwa and Talib Bun (2019) which show a negative influence between firm size on probability.

4. Firm Size Intervening Intellectual Capital On Profitability

Researchers revealed that firm size intervening intellectual capital affects profitability. Intellectual capital is considered to have become a crucial resource in creating competitive advantage and improving the company's performance, Pangesti & Sutanto (2020). Therefore, the size of the company determines the intellectual capital of a company. The greater the total assets, sales, log size, stock market value, and market capitalization, the greater the size of the company Rochyawati (2017).

The larger the size of the company, the greater the level of sales of a company and the profits that will be generated will be even greater so that many large companies are trying to explore the potential that exists to practice *political cost hypothesis*. Bontis (1998) states that intellectual capital is very important in improving organizational capabilities.

Of course, management is needed in managing intellectual capital to create superior resources and be able to compete. According to Arifulsyah & Nurulita (2020), intellectual capital without a good internal control system, the management of its resources will not succeed well. So that it has an impact on the decline in the financial performance of a company. This research is in line with the results of previous research conducted by Widiyaningsih (2018) that the size of the company moderating intellectual capital affects profitability.

Furthermore, on the size of the company as an intervening variable, the results of research conducted by Widiyaningsih (2018) show that the size of the company intervening intellectual capital on financial performance. While the results of research conducted by Arifulsyah & Nurulita (2020); Fardani & Mardani (2017); Joni (2020); Rochyawati (2017) shows that company size does not intervene intellectual capital on financial performance.

CONCLUSION

This study aims to test the results of intellectual capital variable tests on profitability with firm size as an intervening variable. Based on the results of research and analysis that has been done, the following conclusions can be drawn: (1) Intellectual capital has a significant influence on profitability in companies listed in JII for the 2016 – 2022 period. (2) Intellectual capital has a significant influence on firm size in companies listed in JII for the 2016 – 2022 period. (3) The firm has a significant influence on profitability in companies listed in JII for the period 2016 – 2022. (4) Firm size intervening intellectual capital on profitability in companies listed in JII for the period 2016 – 2022

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