



# The implication of intellectual capital and profitability on firm value

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## ABSTRACT

This study aims to determine the effect of intellectual capital and profitability on firm value. This research can provide information about factors that can increase firm value in the midst of intense global competition, especially consumption companies that require a good image in the eyes of consumers. Intellectual capital in this study is measured by the VAIC formula, while profitability uses the ROE proxy, and firm value is measured by the TOBINSQ. There were 61 company samples and 305 observational data were obtained with a range of research years from 2017 – 2021. This study used a panel data regression model using stata research tools and the most powerful model, namely Command Effect model. The regression results show that VAIC has effect on TOBINSQ but not significant, and ROE has a significant positive effect on TOBINSQ.

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## INTRODUCTION

In order to meet consumer needs for consumer goods, producers need to provide confidence that their products are suitable for consumption. Therefore, food and beverage producers need to pay attention for the company to be maximizing value so the company's main goals are achieved. Companies that prioritize good market value will be able to hold a business longer than their competitors. Firm value can be considered as the main indicator in evaluating company performance and is a significant element for companies and investors (Ni et al., 2020).

One important component that contributes to increasing value is intellectual capital (IC) (Nadeem et al., 2017). In the face of broad global competition, many studies have recognized that intellectual capital has tremendous power to help companies achieve economic growth (Mehralian et al., 2012). Many studies reveal that intellectual capital is very important and has a positive impact both directly and indirectly on company value, through company reputation and also profitability (Ovechkin et al., 2020). However, Halim & Wijaya (2020) stated that intellectual capital has a negative effect on company performance because investment in intellectual capital can have an impact on decreasing performance.

Resource-based theory (RBT) states that the resources owned by a company can provide competitive quality and direct the company to perform well in the long term (Ulum et al., 2016).

Resources that can be easily obtained in the market or easily imitated by competitors are less able to represent the source of economic benefits (Galbreath, 2005). Chowdhury et al. (2019) stated that intellectual capital can improve a company's financial performance. In Vishnu & Gupta (2014)'s research, which compared the three VAIC models, it was stated that the first model (VAIC Pulic) had better results on company performance assessment parameters.

Indonesia and Singapore entered into an agreement starting in 2017 in compiling food safety standards and food innovations to boost the food and beverage industry in export markets (Kemenperin, 2017). A high level of equity can also be a factor that investors need to consider to see the high value of the company. Komara et al. (2020) stated that profitability can be a factor that positively influences value. However, Jannata & Pertiwi (2022) say that profitability does not affect the value of consumer goods companies in Indonesia due to an increase in assets but not followed by an increase in profits.

Investors need company value to make investment decisions because it can provide maximum wealth if the stock price increases (Purbawangsa et al., 2020). Ni et al. (2020) argue that increasing transparency, accountability, as well as proper risk management will help boost company value. High profitability will also affect company value (Komara et al., 2020). (Nugroho, 2021) states that high profitability proves that the prospects for the company are good and make investors have a positive response to increasing company value. Profitability plays an important role in the corporate structure to measure the success of the company and improve reputation (Tariq Bhutta & Hasan, 2013). Lim & Rokhim (2020) say that there is a positive correlation between profitability and the company's share value, which can be interpreted as profit announcements going in the same direction as the stock price. Therefore researchers want to conduct research on the effect of intellectual capital and profitability on the value of consumer companies in Indonesia. The limitations of this research are that data is only up to 2021, and does not use all manufacturing company data. Subsequent research can add a range of years of research, other variables that affect firm value such as good corporate governance, and can use a sample of all manufacturing companies or use other analytical tools which can be tried. For further research, it might be possible to add profitability as an intervening between intellectual capital and firm value. Besides that, it can also replace other proxies for calculating firm value.

## RESEARCH METHOD

### Hypotheses development

The value creation process in business must be measured and documented in order to be able to optimize potential and maximize value in the market so that the VAIC method is created to help managers exploit the company's potential (Pulic, 2000). VAIC provide a significant positive effect on the performance of Indonesian's banking (Widowati et al., 2017). Tan et al. (2007) agree that VAIC has a positive relationship to firm value. Smriti & Das (2018)'s research shows that intellectual capital has a positive and significant relationship to TOBINS'Q.

H1. Intellectual Capital has a significant positive effect on firm value.

When a company's ROE is high, stock prices also tend to be high, and policies that can affect ROE increases can also increase stock prices and company value (Kurniati, 2019). Tariq Bhutta & Hasan (2013) states that the profitability of food sector companies in Pakistan is influenced by specific factors within the company and not by macroeconomic variables such as food inflation.

H2. Profitability has a significant positive effect on firm value

### Population and Sample

This research uses a population of manufacturing companies in the consumer goods sector with secondary data types, totaling 113 companies listed on the Indonesia Stock Exchange. The research sample consisted of 61 consumer companies that had gone IPO since January 2017 and were listed on the IDX until December 2021, so they obtained 305 observational data.

### Data Processing Techniques

This study uses statistical stata tools for data processing, and panel data regression consists of 3 models, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The classic assumption test on panel data consists of a heteroscedasticity test and a multicollinearity test, and needs to be done before testing the hypothesis.

### Operational Definition and Measurement

**Profitability (ROE)** is a comparison ratio between net income to total shareholder equity, the formula is:

$$\text{ROE} = \frac{\text{Net Profit after Taxes}}{\text{Total Equity}} \times 100\% \quad (1)$$

**Intellectual Capital (VAIC)** is the results of human knowledge that play an important role in strategies to increase competitive advantage (Soewarno & Tjahjadi, 2020) and the formula is:

$$\text{VAIC} = \text{ICE} + \text{CEE} \quad (\text{Pulic, 2004}) \quad (2)$$

$$\text{CEE} = \frac{\text{VA}}{\text{CE}}$$

$$\text{HCE} = \frac{\text{VA}}{\text{HC}} \quad \text{SCE} = \frac{\text{VA} - \text{HC}}{\text{VA}}$$

$$\text{ICE} = \text{HCE} + \text{SCE}$$

$$\text{VA} = \text{OP} + \text{EC} + \text{D} + \text{A}$$

while

OP = Operating Profit

EC = Employee Costs

D = Depreciation

A = Amortization

HC = Total Salaries and wages

CE = book value of net asset

ICE = Intellectual Capital Efficiency

HCE = Human Capital Efficiency

SCE = Structural Capital Efficiency

CEE = Capital Employed Efficiency

**Firm Value (TOBINS'Q)** is asset market value above asset book value (Ni et al., 2020), with the formula:

$$\text{TOBINS'Q} = \frac{(\text{MVE} + \text{DEBT})}{\text{TA}} \quad (\text{Janamrung \& Issarawornrawanich, 2015}) \quad (3)$$

while:

MVE = Market value of Equity

DEBT = Total Liabilities

TA = Total Assets

### Research model

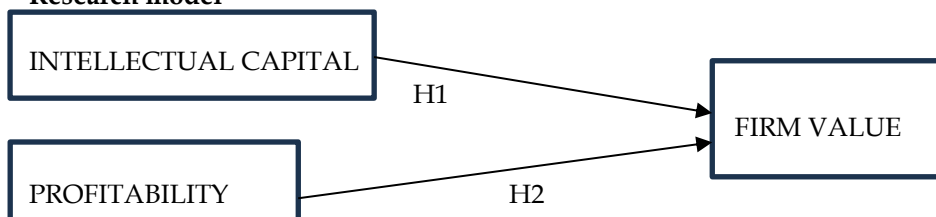


Figure 1. Effects of intellectual capital and profitability on firm value

## RESULTS AND DISCUSSIONS

Table 1 shows the descriptive statistics result for all the variables tested. For the TOBINSQ variable, the minimum value of 0,431 belongs to PT Mustika Ratu (MRAT) in 2019, while the maximum value of 14,415 belongs to PT Unilever Indonesia (UNVR) in 2020. The average value for the TOBINSQ variable is 1,774 or 177,4% with a standard deviation of 1.835. The minimum value for the VAIC variable is -24,005, which belongs to PT Multi Agro Gemilang Plantation (MAGP) in 2020, while the maximum value is 38,759 which belongs to PT Provident Investasi Bersama (PALM). The average value of the VAIC variable is 3,663 with a standard deviation of 5,822. The ROE variable with a minimum value of -219,400 belongs to PT Matahari Putra Prima (MPPA) in 2020 and the maximum value is 271,652 which belongs to PT Central Proteina Prima (CPRO) in 2018. The average value for the ROE variable is 3,176 or 317,6% with a standard deviation of 40.115.

**Table 1.** Descriptive statistics

Variabel	Obs	Mean	Std. Dev.	Min	Max
TOBINSQ	305	1.774	1.835	0.431	14.415
VAIC	305	3.663	5.822	-24.005	38.759
ROE	305	3.176	40.115	-219.400	271.652

**Table 2.** Model comparison

CEM		FEM		REM	
Prob > F	= 0.000	Prob > F	= 0.914	Prob > chi2	= 0.163
R-sq	= 0.125	Rho	= 0.729	rho	= 0.641

Berdasarkan tabel hasil di atas, terlihat bahwa nilai Prob > F yang lebih kecil dari 0,05 adalah model Common Effect sehingga model tersebut yang kita pilih karena paling fit untuk penelitian ini.

**Table 3.** Heteroscedasticity test

Chi2 (1)	=	200.45
Prob > chi2	=	0.000

The Prob > chi2 value is 0.000 which means it is smaller than 0.005, so it can be stated that the data does not pass heteroscedasticity, so the data must be robust.

**Table 4.** Multicollinearity test

Variable	VIF	1/VIF
ROE	1.11	0.903
VAIC	1.11	0.903
Mean VIF	1.11	

The ROE variable has a tolerance value (1/VIF) greater than 0.1, namely 0.903 with a VIF of 1.11 which is less than 10. The tolerance value of the VAIC variable is 0.903 which is greater than 0.1 and the VIF value is 1.11 which smaller than 10 so that it can be said that the data passes the multicollinearity test.

**Table 4.** Hypotheses tests robust

TOBINSQ	Coef.	P >  t
VAIC	0.032	0.120
ROE	0.014	0.010
_cons	1.614	0.000

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R-squared	0.125
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Based on the results table above, it can be seen that the R-squared value is 0.125 or 12.5%, which means that the independent variable can explain the dependent variable by 12.5% and the rest is influenced by other variables outside the regression. These results also show that the VAIC significance value is 0.120 which means it is greater than 0.05 with a coefficient of 0.032. It can be said that VAIC affects TOBINSQ positively but not significantly, which means that this study rejects H1. These results are in contrast to research belonging to Smriti & Das (2018); and Tan et al. (2007). This is probably because investors do not see the intellectual capital factor as the main indicator of whether a company's value is good or bad. Intellectual capital that is managed well by companies has not certainly can make the company's stock price higher. However, it is different from Ni et al. (2020)'s research which explains that employees who have high skills can increase innovation and this innovation can have an impact on increasing sales. Ni et al. (2020) also stated that companies should pay more attention to intellectual capital development in order to expand their business. But it turns out that this study has not been able to show a significant effect of intellectual capital on increasing firm value. This research is different from previous research which revealed companies that have strong intellectual capital can run their business better in the midst of fierce competition and become a key element in increasing firm value. In addition, it may also be more appropriate if the company is developing its intellectual capital to help increase the level of profitability.

The ROE variable shows a significance value of 0.010 with a coefficient of 0.014. This means that ROE can positively and significantly affect TOBINSQ and this research can be said to accept H2. This result is in line with the research of Komara et al. (2020); Kurniati (2019); Lim & Rokhim (2020). Companies that can provide high returns on equity can make stock prices higher and attract investors to invest their shares. Profitability is the dominant factor influencing company value because investors also want to get high dividends. This study also strengthen Rahayu & Saifi (2019)'s results which show that profitability has a significant positive effect on firm value. the higher profitability, can reduce the proportion of debt in the capital structure so that this can be positively correlated with firm value. A high rate of return on equity can be an indication of a positive signal for investors that the company has good prospects in the future. The company's profitability has an important role as a source of funds as well as being an indication for investors to look at the company's operational efficiency to get higher profits and this can trigger an increase in share prices. For example, MLBI company in 2018 had an ROE of 104,905 and had a high TOBINSQ, that is 12,263. The company's ability to generate profits and distribute it to investors in form of dividends can build investor confidence in the company so that its share price will also rise. These results indicate that firm value theory can be applied if the company wants to maximize value by increasing profitability.

The following equation:

$$\text{TOBINSQ} = 1,614 + 0,032 \text{ VAIC} + 0,014 \text{ ROE}$$

## CONCLUSION

This study examines the effect of intellectual capital and profitability on firm value in the consumption sector in Indonesia in 2017-2021. The results of the study rejected H1 and accepted H2. Intellectual capital affects company value but not significantly. Consumptions sector's company that spend costs for innovation and development may not necessarily be able to directly increase stock prices. This study shows the results that profitability has a significant positive effect on firm value. Consumptions sector's company that provide high returns on equity such as dividends can increase firm value. This research can contribute to consumption companies in Indonesia to analyze factors that can increase firm value. Companies that spend large amounts of money to develop their intellectual capital are not significant enough to increase firm value. Meanwhile, companies that have proven a high rate of return on equity can make investors believe that the company's value in

the future is also good. The implication for the management of consumption companies that want to increase share prices can increase their profitability. In addition, it can also implicate for investors to take a deeper look at the accounting information contained in financial reports before making investment decisions.

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