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Financial performance mediates the relationship of intellectual capital to firm value in Indonesian banking companies



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ABSTRACT

This study was conducted to seek the consistency of the results of previous studies on the influence of Intellectual Capital, with the mediation of financial performance, on the value of banking firms. The quantitative research method used the PLS-SEM analysis technique by using the Smart PLS 3 application. The research subjects were 45 banks listed on the IDX for the period 2015-2019. The sampling technique used was purposive sampling. The results showed the consistency of the financial performance of banking companies with ROE and ROA indicators as mediating variables between Intellectual Capital as the dependent variable on the value of conventional banking companies using PER indicator as an independent variable. The type of mediation formed in the PLS-SEM equation model is partial mediation.

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Introduction

The financial service sector is increasingly competitive with foreign banks operating in Indonesia and the growth of financial startups using the latest financial technology. Banking companies must adapt to new fierce competition by increasing innovation in financial services to survive. The main source of innovation is the creativity and productivity of employees owned by banking companies. By increasing innovation, banking companies can increase their competitive advantage by relying on intangible assets in the form of knowledge assets.

Knowledge assets and various forms of intangible assets that have developed recently form the concept of Intellectual Capital. The role of Intellectual Capital in determining company performance is increasingly recognized based on decades of researches. However, the role of Intellectual Capital in Indonesia is still not generally recognized, because many companies prefer to use Traditional Capital in their businesses, so they produce low-tech products (Hermawan, 2019).

The banking companies in Indonesia face severe challenges from financial globalization and the digitalization of banking services which makes this sector the most intensive in Intellectual Capital usage (Soewarno and Tjahjadi, 2020). In addition to financial globalization, the development of financial startup companies (fin tech) also poses a threat to banking companies in the competence of lending and financial services (Rahayu, 2021). Many fin tech companies provide moneylending services, bill payments, money transfers, and online gold/share investments. The business activities carried out by fin tech companies have become serious competitors for the core business of banking companies because they can reach more customers widely by utilizing digital technology. To stay ahead in an increasingly competitive market, banking companies need to increase the role of Intellectual Capital in producing more efficient, practical, and attractive financial services.

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Intellectual Capital affects the value of banking companies because the role of Intellectual Capital as part of Intangible Assets can increase the company's competitive advantage through the efficiency of technology-based financial services production (Hermawan, 2018). Based on the Resource-Based View theory, Intellectual Capital is a unique, rare, limited, and valuable source of competitive advantage for banking companies. Therefore, it should integrate human resources into the formulation of corporate strategy to maximize profit.

The selection of banking companies for the intellectual capital research due to its strategic position for investors. The performance of banking companies is always monitored by Bank Indonesia and the Financial Services Authority (OJK) to ensure their performance is following regulations (Purnama and Rikumahu, 2020) so that banking shares are one of the stocks with the largest capitalization on the Indonesian Stock Exchange (IDX).

The performance of banking companies is closely related to financial indicators because the main service is in the financial sector. Company performance evaluation is defined as a broad and multifunctional process. It combines all significant performance indicators from performance evaluation, company management processes, value creation, adjustment, and rapid reaction to improve and increase the growth of the company (Narkunienė and Ulbinaitė, 2018). Thus, the performance of a banking company can be described as a financial condition that is analyzed with financial analysis instruments for financial assessment that reflects work performance in a certain period.

Intellectual Capital is an Intangible Resource that can increase company profits according to the Resource-Based View Theory. Improved financial performance will attract investors to invest in banking companies so that the value of the company will also increase. While according to signaling theory, the publication of financial statements that include company profits will affect the investment decisions of investors (Muasiri and Sulistyowati, 2021). Meanwhile, based on stakeholder theory, the main role of company management is to assess the importance of meeting stakeholder demands to achieve the company's strategic goals (Hermawan, 2020). So, Intellectual Capital affects financial performance and then affects the value of banking companies. In this research, financial performance is a mediating variable between Intellectual Capital and banking value.

Intellectual Capital has been researched intensively in various countries with varying results. Intellectual Capital has a positive effect on financial performance in the manufacturing industry in South Korea (Xu and Wang, 2018; Xu and Liu, 2020), financial institutions in Pakistan (Haris *et al.*, 2019), companies listed on the Italian stock exchange (William, Gaetano and Giuseppe, 2019), companies listed on India's COSPI exchange (Smriti and Das, 2018), companies under Venture Capital Syndication China (Lu *et al.*, 2021), small and medium enterprises (SME) in Spain (Ramírez, Dieguez-Soto and Manzaneque, 2021), and high-tech companies in China (Wang *et al.*, 2021). But, Intellectual Capital does not show any influence on the performance of non-financial sector companies in Oman (Dalwai and Salehi, 2021). While a non-linear relationship between Intellectual Capital investment and firm value is found in the Malaysian energy sector (Asif, Ting and Kweh, 2020). Furthermore, A study in Jordan showed opposite results between the influence of HCE, SCE and CEE on the market to book ratio (M/B) and earnings per share (EPS) (Moh'd Khier Al Momani *et al.*, 2020).

This study aims to seek the consistency of the results of previous studies on the influence of Intellectual Capital, with the mediation of financial performance, on the value of banking firms. The quantitative research method used the PLS-SEM analysis technique by using the Smart PLS 3 application. The research subjects were 45 banks listed on the IDX for the period 2015-2019. The sampling technique used was purposive sampling.

Literature Review

Theoretical and Conceptual Background

Intellectual Capital

Intellectual Capital is part of the competitive advantage for the company based on Resource-Based View Theory. The principle of Resource-Based View is related to the theory of sustainable competitive advantage so that companies can achieve economic rent or returns above average. According to Mahoni and Pandian, Resource-Based View is related to the acquisition of margins and combinations that are not easily imitated or replaced which can come from scarce resources with high value (Barney, 1991).

In general, Intellectual Capital belongs to an Intangible Asset. The role of Intellectual Capital to increase company performance occurs when it has achieved a competitive advantage (Hermawan, 2018). It is an essential element for the survival of companies (Riahi-Belkaoui, 2003).

Resource-Based View on the company shows the need to integrate human resources into the company's strategy formulation stage. Resource-Based View provides a framework for examining the potential of a particular group of human resources to carry out a particular strategy. Thus, a resource-based view can point to the fact that strategies are not universally applicable, but rely on having the necessary human resource base to implement them (Grant, 2009).

There are many definitions of Intellectual Capital that describe different perspectives from various disciplines, namely knowledge management, intellectual property rights management, accounting reporting, financial management, and internal control

management. However, a consensus emerges on the fact that Intellectual Capital is a multidimensional concept, consisting from a combination of human, structural, or organizational and relational corporate resources (MERITUM, 2002).

One of the instruments to measure intellectual capital is the Value-Added Intellectual Coefficient (VAIC) developed by Alen Pulic, professor at the University of Zagreb and Graz. The VAIC indicator is a company performance measurement that is measuring the effectiveness of key resources in the company (Laing, Dunn and Hughes-Lucas, 2010). The VAIC method relies on the concept of added value as a performance measure, relative to Intellectual Capital.

VAIC models using data from traditional financial statements to analyze the efficiency of value creation, thus making this method becomes a better tool for analyzing Intellectual Capital mainly because data is available to the public (Andriessen, 2004). In addition, the data is quantitative and not based on subjective considerations as qualitative data is often used in other performance measurement methods. The data used are verified externally by an independent auditor which gives better credibility to the overall approach, is more objective, verifiable and does not leave much room for the subjectivity that is often accused of many other performance appraisal concepts (Williams, 2001).

Financial Performance

Financial performance can be defined as an analysis carried out to see how far the company has implemented good and correct financial rules (Fahmi, 2011). The role of financial performance measurement is to help keep the organization on the right financial track, optimize the effective use of financial resources, and meet the needs of external capital providers such as investors (Otley, 2010).

Information that is known by the management in the operations of banking companies is not known by external parties such as investors. This causes information asymmetry where different people know different things (Stiglitz, 2004). Because some information is private, information asymmetry arises between those who hold the information and those who could potentially make better decisions if they had it. Signaling theory is concerned with reducing information asymmetry between two parties (Spence, 2002). In theory, financial statement signals are a form of signal from management to outsiders, namely investors. A good signal will be responded well by investors. A bad signal in the form of a company's performance that does not match expectations will get a negative response from investors. This shows the influence of financial performance on firm value.

Financial information as part of the form of accountability for the management of company assets to shareholders and investors is a form of application of stakeholder theory. Not only information about physical assets but also data that supports Intellectual Capital's intangible asset analysis. The main role of company management is to assess the importance of meeting stakeholder demands to achieve the company's strategic goals (Hermawan, 2020).

Financial Ratio

Financial ratios can be seen as a useful tool to serve companies and investors in the process of analyzing and comparing the relationship between various financial information throughout the history of the company. They describe what has happened during a certain time. However, what will happen in the future is more concerned by most users of financial statements (Eric, Brewer and Garrison, 2008).

One of the financial ratios that are often used by investors in predicting future financial conditions is the ratio of profitability and firm value. a profitability ratio is a comparison of quantitative data to measure the level of profit that can be created by the company with its resources. The higher the comparison value, the better the company's ability to benefit from the use of total assets. In measuring the financial performance of banking companies often use Return on Assets (ROA) and Return on Equity (ROE). Meanwhile, the measurement of the value of banking companies uses the company value ratio, which is a comparison of quantitative data to show the value of the company regarding market values such as the Price Earning Ratio (PER).

Research and Methodology

This type of research is causal research, which is one type of conclusive research where the main goal is to find a causal relationship (Hermawan and Amirrullah, 2016). Sources of data used are secondary data sources. The population in this study are all banking companies that are still listed on the Indonesia Stock Exchange (IDX), namely 38 banks. The sample in this study is several companies that are taken based on the purposive sampling technique, which limits the selection of samples using certain criteria, including banking sector companies listed on the Indonesia Stock Exchange for the period 2015 – 2019, the company publishes an annual report containing complete accounts, The company generates profit in each period, the company does not undergo a merger/acquisition process, and the banking company is not based on sharia. The number of research samples is 20 banks.

The independent variable in this study is the company's Intellectual Capital which is measured using the Value Added Intellectual Capital (VAIC) indicator. This approach is relatively easy and very possible to do, because it is constructed from the accounts in the company's financial statements (balance sheet, profit and loss). VAIC is an accumulation of its three components, namely Value Added Capital Employed (VACA), Value Added Human Capital (VAHU), and Structural Capital Value Added (STVA) (Ulum, Ghozali and Purwanto, 2014).

The dependent variable in this study is firm value, namely the market value of the company that provides welfare for shareholders if the stock price increases (Ross *et al.*, 2019). The indicator used to measure the value of banking companies is the Price Earning Ratio (PER) which is a comparison of share price per share to earnings per share. The higher the comparison value, the better the company's financial performance. However, if the comparison value is too high, it can indicate abnormal or overvalued stock prices. In calculating PER, a comparison of Earnings per Share (EPS) is used, which shows the profit that can be given to shareholders per share they have (Kashmir, 2017).

In this study, the mediating variable used is the financial performance of banking companies, which can be measured using the Profitability Ratio, namely Return on Assets (ROA) and Return on Equity (ROE). ROA shows a comparison of the results (return) of the total assets used in the company (Kashmir, 2017), while ROE is a ratio that measures the company's ability to generate profits based on share capital (Hanafi and Halim, 2018).

The data analysis technique in this study is Structural Equation Modeling-Partial Least Square (SEM-PLS) using SmartPLS 3.3.2 software with a Student license (Ringle, Wende and Becker, 2015). The selection of the SEM-PLS method compared to Covariance Based Structural Equation Modeling (CBSEM) is a weak design theory, the measurement indicators do not meet the ideal model, can be applied to all data scales, the number of samples is not too large (Ghozali, 2014). Exogenous latent variable in this study is Intellectual Capital with VAIC indicator, mediating latent variable is company performance with ROA, ROE indicators and endogenous latent variable is firm value with PER indicator.

Result and Discussion

Outer Model Test

The SEM-PLS analysis begins by using an equation model consisting of three constructs, namely Intellectual Capital as an exogenous variable with VAIC indicators, financial performance variables with ROA and ROE indicators, and firm value variables with PER indicators. The results of the PLS Algorithm test on the model show that the outer loading value on all indicators is greater than 0.5 which indicates that the model has met the requirements for use in research.

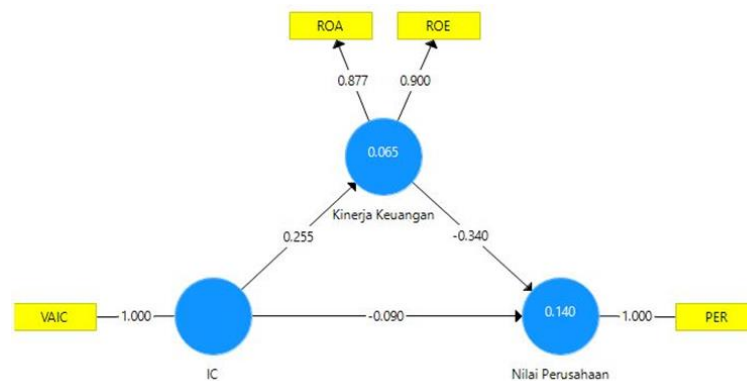


Figure 1: The result of PLS Algorithm test

The output of the Construct Reliability and Validity table shows that each construct has met the reliability and validity requirements. The reliability of the model can be determined by observing the values in Composite Reliability and Cronbach's Alpha, while the validity of the model can be determined by observing the output value of Average Variance Extracted (AVE), which is part of Convergent Validity. All values in the table are above 0.7, which means that each construct has met the minimum requirements for reliability and validity tests.

Table 1: Output of Construct Reliability and Validity

	Cronbach's Alpha	Rho_A	Composite Reliability	Average Variance Extracted (AVE)
IC	1.000	1.000	1.000	1.000
Financial Performance	0.734	0.739	0.882	0.789
Firm Value	1.000	1.000	1.000	1.000

Hypothesis Test

In testing the hypothesis, bootstrapping was calculated with a subsample of 500, one-tailed type, and a significance value of 5%. The choice of one-tailed significance is because the directional hypothesis is in a positive relationship where an increase in the value of

a variable will be followed by an increase in other variables. This is following the Resource-Based View theory which states that an increase in resources will increase the competitiveness of the company so that it will increase the yield and value of the company.

Based on the Output Path Coefficients table, the influence of Intellectual Capital on financial performance is significant (p value $0.003 < 0.05$), the influence of Intellectual Capital on firm value is significant (p value $0.003 < 0.040$) and the effect of financial performance on firm value is also significant (p value $0.003 < 0.05$).

Table 2: Output of Path Coefficients from Bootstrapping

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics Deviation (I0/STDev)	P Values
IC => Financial Performance	0.255	0.265	0.094	2.715	0.003
IC => Firm Value	-0.090	-0.087	0.052	1.757	0.040
Financial Performance => Firm Value	-0.340	-0.427	0.103	3.316	0.000

To find out the significance of the role of financial performance as a mediating variable between Intellectual Capital and firm value, it can be seen from the calculation results of Specific Indirect Effects. Based on the output data of Specific Indirect Effects, the p value is $0.029 < 0.05$ so that financial performance plays a significant role as a mediating variable between Intellectual Capital and firm value. In the bootstrapping calculation, the equation model that does not include the mediating variable shows the t-statistical value of the Intellectual Capital relationship with the firm value of 2.828, while the bootstrapping result of the model with the mediating variable shows the t-statistical value of 1.757. There is a decrease in the value of t-statistic so that the type of mediation that occurs is partial mediation.

Table 3: Output of Specific Indirect Effects

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics Deviation (I0/STDev)	P Values
IC -> Financial Performance -> Firm Value	-0.087	-0.112	0.046	1.902	0.029

Table 4: Comparison of t-statistic values before and after the inclusion of the mediating variable

Before the inclusion of the mediating variable		After the inclusion of the mediating variable	
t-statistik value	p-value	t-statistik value	p-value
2,828	0,002	1,757	0,040

Analysis

Based on the results of the 2015-2019 banking data analysis using the PLS-SEM method, the Intellectual Capital variable affects the performance of banking companies (Xu and Wang, 2018; Nassar, 2018; Nhon, Thong and Phuong, 2018; Smriti and Das, 2018; Haris et al., 2019; William, Gaetano and Giuseppe, 2019; Hermawan et al., 2020; Xu and Liu, 2020; Kurniawati, Rasyid and Setiawan, 2020; Lu et al., 2021; Putri and Miftah, 2021; Ramirez, Dieguez-Soto and Manzanque, 2021; Wang et al., 2021). Intellectual Capital is part of the Intangible Assets of banking companies that play an important role in maintaining and increasing competitive advantage in providing financial services under the theory of Resource-Based View. Intellectual Capital is a resource with a sustainable competitive advantage for banking companies because it is unique, valuable, rare, inimitable, and difficult to replace. The role of Intellectual Capital as a strategic resource is to produce unique financial services, innovation in quality banking services, and employee creativity in solving problems.

Human resources are a valuable asset because they create opportunities to face competition in the financial services industry. Human resources can create innovations in financial products and services that are more effective every year. This is due to the adoption and application of digital technology for mobile banking applications. Banking companies can also create new financial products to compete with startup companies in financial technology. Superior human resources have a limited number so that a bank that can assemble a group of expert workers will have better resources than other banks. A skilled workforce requires a range of education

and training that will shape the workgroup experience. The experience of experts in creating added value for banking companies is difficult for other banks to imitate because it takes a relatively long time. The ability of experts in creating long-term or sustainable competitive advantages cannot be obtained by banking companies in a short time because it requires the creation of a long internal work environment and culture. Thus, human resource in banking companies are the main component of intellectual capital.

The benefits of Intellectual Capital in banking companies are accelerating the implementation of digital banking, mobile banking, changing work structures, and improving efficient financial services. By optimizing Intellectual Capital, banking companies can create added value from the use of better technology to serve customers and help defend their business from the competition with foreign banks and fin tech companies. As an important economic sector in the national economy, banking companies must be able to survive in an increasingly stringent competency climate dominated by digital technology. Therefore, Intellectual Capital can be a valuable asset in addition to tangible assets in banking companies.

Intensive use of intellectual capital by banking companies will provide added value for financial services and profit. Banking companies that can generate profits continuously will gain the trust of the government, investors, and customers. The position and role of banking companies are very important in maintaining the level of confidence of entrepreneurs and other companies in carrying out economic activities. Banking companies need the trust of external stakeholders to gain legitimacy in running their business. So, the role of intellectual capital is not only as a strategic resource, but also a legitimate tool in gaining the trust of external stakeholders.

The financial performance variable has a significant effect on firm value (Widhiastuti, 2018; Mumtazah and Purwanto, 2020; Sianturi, 2020). Financial performance is one of the main indicators that are considered by stakeholders in providing an assessment of banking companies. Based on the Stakeholder Theory, the management of banking companies is trying to improve the company's performance as a form of fulfilling the demands of stakeholders which include employees, customers, shareholders, and the government. The management can provide financial services in accordance with the environment in which the company is located. Management who can meet stakeholder expectations can increase the value of the company because it has gained legitimacy in managing banking companies. So even though the development of Fin tech is very rapid, banking companies that have gained legitimacy from the stakeholders will be able to survive.

Under Agency Theory and Signaling Theory, the management of banking companies publishes financial reports as a form of accountability (signal) to investors. With good corporate financial performance (ROA and ROE), investors will maintain or increase the company's share ownership so that the company's value increases. The company's management (agent) tries to increase the company's profit while the shareholders (principal) expect an increase in company value. With the increase in profits listed in the financial statements, the agent has given a signal to the principal and improved a good principal-agent relationship.

The Intellectual Capital variable affects firm value through financial performance as a mediating variable (Berliana and Bwarleling, 2021; Muasiri and Sulistyowati, 2021; Nabila, Surasni and Husnan, 2021) according to the results of Specific Indirect Effects on bootstrapping. The role of financial performance as a mediating variable has been partially proven in the model used in this study.

The direct influence of intellectual capital on firm value is evidence of the role of intellectual capital as a strategic resource. Intellectual capital is a source of competitive advantage for banks in creating better financial services, especially in digital financial services. This will attract many new customers from the younger generation who spend more of their time using smartphones. With an increase in the number of customers, it will increase profits from using digital financial services. Investors will give appreciation to bank companies that can increase profits by buying shares so that the bank's market value will increase.

Financial performance is closely related to the increase in profits resulting from financial service innovations. So that intellectual capital directly affects financial performance. Then, the financial performance will be reflected in the financial statements of the profitability ratios that can provide information to investors. The role of financial performance as a source of information that determines the decision of investors in buying shares is a direct influence of financial performance on the market value of the bank. Thus, financial performance can be a mediating variable between intellectual capital and firm value.

Conclusions

The conclusion from quantitative data analysis of 20 annual banking financial report data for the 2015-2019 period is that Intellectual Capital affects financial performance, financial performance affects the firm value and Intellectual Capital affects firm value with financial performance as a mediating variable. The type of mediation that occurs is partial mediation. Based on the results of the study, banking companies should improve the management of Intellectual Capital as a strategic resource to meet the challenge of financial globalization and digitalization, because Intellectual Capital has been shown to have an important influence on the value of banking companies mediated by financial performance.

The limitation of this study is the use of the VAIC method which simplifies the assessment of Intellectual Capital based on quantitative financial statement accounts, especially salary expenses and cannot be used in companies with negative profits (losses). This method was chosen due to the limited ability of the researcher to conduct direct observations to measure human resources during the Covid-19 pandemic. In addition, the research sample only uses conventional banking companies without including Islamic banking. This sample selection is in accordance with the research background which aims to test the consistency of the results of previous studies on the conventional bank. However, further research can increase the number of samples to include Islamic banks.

Suggestions for further research are to use the Modified VAIC method (MVAIC, EVAIC, and iB VAIC), the Intellectual Capital qualitative assessment method, and the inclusion of Islamic banking in the study.

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