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The Influence of Intellectual Capital on Financial Performance

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ABSTRACT

This study examines the impact of intellectual capital components on the financial performance of banking institutions in Indonesia. Using multiple regression analysis on 149 bank-year observations from 2019 to 2023, we investigate the influence of human capital efficiency (HCE), structural capital efficiency (SCE), capital employed efficiency (CEE), and technological capital efficiency (TCE) on bank performance, as measured by return on assets (ROA). The findings reveal that human capital ($\beta = 0.005$, $p < 0.001$) and capital employed ($\beta = 0.012$, $p < 0.05$) significantly enhance financial performance, while structural capital ($\beta = -0.007$, $p < 0.001$) exhibits a significant negative effect. Notably, technological capital shows no significant impact on bank performance ($p > 0.05$). The model explains 79.8% of the variance in financial performance (Adjusted $R^2 = 0.798$). These results suggest that Indonesian banks rely more heavily on tangible capital and human resources than on structural and technological investments for profitability enhancement.

KEYWORDS *Digital Marketing; Consumer Behavior; Retail Sector*

INTRODUCTION

The development of information and communication technology, science, and increasingly fierce global competition has accelerated business growth globally (Soewarno & Tjahjadi, 2020). An organization's success and continued growth depend on the efficient and effective use of tangible and intangible assets amid innovation, upgrades, and the ever-changing business environment. According to Wernerfelt (1984), businesses with strategic resources gain a greater competitive advantage. According to Lee et al. (2020), management in developed countries tends to implicitly assume that companies can acquire essential skills to drive technological change—skills not necessarily present in developing countries. In an increasingly competitive and dynamic business environment, banks face the major challenge of continuously improving their performance (Perumal & Aithal, 2025).

One of the key factors determining a bank's success is the knowledge that provides more value to the company, known as intellectual capital (IC). The emergence of this new knowledge-based economy has led many companies in the modern economy—especially those in the service sector—to prioritize intellectual capital over physical capital. This shift is particularly critical in the post-pandemic banking landscape, where digital transformation and operational efficiency have become paramount for survival and growth. Recent data indicate that banks with higher intellectual capital efficiency demonstrated greater resilience during the COVID-19 crisis, maintaining profitability despite economic uncertainties (Ho et al., 2023). Furthermore, technological disruptions in the financial sector have intensified competition, forcing traditional banks to invest heavily in human capabilities and digital infrastructure to maintain market share. Banks are substantially dependent on intellectual capital, which they

strategically utilize to achieve competitive advantage by optimizing output levels (Al-azizah & Wibowo, 2023). The tangible and intangible resource-based approach states that a company's performance is critically important (Barney, 1991).

According to Ngah (2020), intellectual capital is an organization's internal resource and has been widely promoted as a fundamental strategic approach to help SMEs perform better. Structural capital is one of the main elements of intellectual capital that provides support to organizations. Knowledge flows in the organization from people to structures and relationships with customers. Numerous studies on intellectual capital—including human capital, structural capital, and customer capital—have shown significant effects on organizational performance (Hanifah et al., 2020). However, the structure of structural capital is still rarely discussed. Structural capital involves the utilization and application of knowledge at the organizational level; dimensions such as organizational capital, technology capital, and innovation capital need to be mobilized.

Resource Based Theory (RBT) discusses how companies can effectively manage and utilize their resources to maximize company value and improve reputation. In the topic of the influence of intellectual capital on financial performance, RBT can explain how intellectual capital serves as a unique resource contributing to a bank's competitive advantage. Quality intellectual capital can help banks improve operational efficiency, service quality, and reputation in customers' eyes.

The importance of knowledge-based capital and IC is more significant for knowledge-intensive sectors such as banking, electronics, and pharmaceuticals. As a service-centric and knowledge-driven industry, banking relies heavily on intangible assets (Githaiga, 2023). Modern banks operate in a dynamic and demanding environment shaped by fierce competition, changing consumer preferences, technological advancements, and continuous innovation in systems and processes. Banking operations typically involve close interactions with customers whose expectations evolve over time, requiring banks to innovate and adapt to meet their desires. Thus, the more efficient use of ICs is becoming increasingly important for banking success.

The banking industry of PT Bank Mandiri (Persero) Tbk consistently supports the development of the bank's internal capacity and competencies. Human resource development strategies are essential to face competition and adapt to modern trends, especially in banking. PT Bank Mandiri (Persero) Tbk offers numerous learning programs to employees in all regional and head offices through Mandiri Learning Carnivals (MLC). In 2022, MLC broke the MURI record as the banking training program with the most participants in three months, thanks to activities since 2020 that include digitally packaged learning sessions as well as presentations by hundreds of facilitators and dozens of resource persons (bankmandiri.co.id). The use of intangible resources forms the basis for evaluating organizational effectiveness and efficiency in the modern era (Barak & Sharma, 2024a).

In banking, intellectual capital plays a crucial role in determining performance. Intellectual capital (IC) is a collection of knowledge and expertise possessed by organizational personnel that, when combined with information archives, can generate long-term economic benefits (Joshi et al., 2013). Bank performance results from the interaction of various factors, including intellectual capital. Effective IC management yields sustainable competitive

advantage in a knowledge-based economy. From a strategic viewpoint, this is especially important for service sectors requiring skilled labor, such as banking.

In today's digital economy, information technology is one of the most important tools for businesses seeking to expand marketing and offer new services. Information technology enables companies to connect geographically separated markets, share information at high speed and low cost (Bocconcelli et al., 2017). Among intellectual capital components, information technology capital plays the most important role in a company's future returns, while relational capital contributes a greater share of future profits (Zeinali et al., 2019). Investment in R&D provides organizational members more opportunities to discover and leverage relevant innovations in operations and products to increase profits (Chang & Hsieh, 2011). The more companies invest in R&D, the more support is provided to individuals to enhance knowledge, build human resources, and improve company performance.

The findings of a previous study by Mohapatra et al. (2019) on 40 Indian banks from 2011–2015 show that the three components of intellectual capital affect bank performance: human capital has a significant positive effect, but structural capital and capital employed have negative effects on bank efficiency. Meanwhile, Barak and Sharma (2024) found that financial performance is positively influenced by structural capital, human capital, and invested capital. This indicates inconsistent outcomes in the relationship between intellectual capital and financial performance.

According to Githaiga (2023), income diversification as a moderator strengthens the impact of structural capital efficiency (SCE) on bank performance, reduces the impact of human capital efficiency (HCE), and does not moderate the impact of capital employed efficiency (CEE). According to Soewarno and Tjahjadi (2020), their study on Indonesian public banks shows that SCE and CEE positively and significantly influence ROA, while HCE has a negative but insignificant influence. These findings suggest that Indonesian banks rely more on tangible capital than intangible capital such as human capital.

The novelty of this research lies in its independent variables. Although many studies have examined the relationship between intellectual capital and bank performance, few have used technology capital as an independent variable. In this study, intellectual capital is measured using human capital, structural capital, capital employed, and technology capital as independent variables, with bank productivity as the dependent variable.

Based on the above background, this study raises the following research questions: Does human capital affect bank performance? Does structural capital affect bank performance? Does capital employ affect bank performance? Does technology capital affect bank performance?

The objectives of this study are to obtain empirical evidence regarding the influence of human capital on bank performance, the influence of structural capital on bank performance, the influence of capital employed on bank performance, and the influence of technology capital on bank performance. The theoretical benefit of applying Resource Based Theory (RBT) to the topic of the influence of intellectual capital on financial performance is that it explains how intellectual capital a unique resource can be contributing to a bank's competitive advantage. Quality intellectual capital helps banks improve operational efficiency, service quality, and reputation in customers' eyes. Thus, RBT strengthens understanding of the relationship between intellectual capital and bank performance. Research on how income diversification moderates the impact of intellectual capital on bank performance has practical applications,

such as helping banks better manage human resources to improve employee and overall performance. Banks can enhance operational efficiency and reduce costs by strengthening intellectual capital. Superior human resources enable banks to improve service quality, increasing client satisfaction and market position. Banks can thereby increase company value and shareholder benefits by diversifying income sources and bolstering human resources.

METHOD

This research employed observations to identify empirical evidence on the influence of intellectual capital and technology capital on bank performance. Based on prior theories, intellectual capital was expected to enhance bank performance, with positive investor responses increasing firm value. Data were collected using secondary sources from financial and annual statements of banking companies listed on the Indonesia Stock Exchange (https://www.idx.co.id/id) over five years (2019–2023).

The population comprised banking companies listed on the Indonesia Stock Exchange that reported complete financial data in rupiah for 2019–2023. Purposive sampling yielded 149 observations from 44–47 companies after accounting for data completeness. Data were gathered via documentation of annual reports.

Data analysis involved moderation and multiple linear regression using SPSS 23 to examine direct causal relationships, selected over structural equation modeling due to the straightforward hypotheses and secondary financial data (Ghozali, 2018). Descriptive statistics summarized the variables. Classical assumption tests addressed normality (Kolmogorov-Smirnov and graphical analysis), multicollinearity (VIF and tolerance), heteroscedasticity, and autocorrelation.

Data validation included cross-checking financial statements against audited annual reports and OJK regulatory filings for accuracy and completeness. The regression model incorporated human capital, structural capital, capital employed, technology capital, firm size, firm age, leverage, non-performing loans, capital adequacy ratio, and loan-to-deposit ratio. Model fit was assessed via the coefficient of determination (R^2), and individual effects via t-tests at $\alpha = 0.05$ (rejecting H_0 if $p \leq 0.05$).

RESULT AND DISCUSSION

Classical Assumption Test Results

Normality Test Results

The samples in the study must be distributed normally to provide results of actual conditions by conducting normality tests. This study used the kolmogorov-smirnov parametric to detect normal residual values provided that the asymp value of Sig (2 tailed) is more significant than 0.05.

Table 1. Kolmogorov-Smirnov normality test results

Information	N	Kolmogorov-Smirnov Z	Asymp.Sig. (2-tailed)	Conclusion
Model 1	149	0,049	0,200	Normal

Source: Results by SPSS data (2025)

Based on the results of table 1, it can be seen that the significant value of the normality test is 0.200, so it is concluded that the data used in the study is distributed normally. In model

1: The influence of intellectual capital on financial performance. The results of the kolmogrov-smirnov test in table 1 show that the significance value in the overall model is greater than 0.05 This study has residual data that has been distributed normally.

Multicollinearity Test Results

The multicollinearity test to find out the condition of two or more independent variables in regression has a very high linear relationship. Indicators in detecting multicollinearity are VIF and tolerance.

Table 2. Multicollinearity Test Results

Variable	Model 1	
	Tolerance	VIF
HCE	0,555	1,803
SCE	0,846	1,182
EEC	0,433	2,309
TCE	0,970	1,031
SIZE	0,384	2,603
AGE	0,782	1,279
THE	0,635	1,575
NPL	0,834	1,198
CAR	0,591	1,691
LDR	0,834	1,199

Source: Results of reprocessed SPSS data (2025)

Information:

Model 1: The influence of intellectual capital on financial performance.

Based on table 2, it is shown that the regression model used in this study has no symptoms of multicollinearity. This is shown by a tolerance value of > 0.1 and VIF < 10 for all variables in the model built in this study.

Heteroscedasticity Test

Heteroscedasticity test is a condition in which the variance of the error term or residual of the regression model is not constant for all independent variable predictor values. The Heteroscedasticity test in this study was carried out by the glasjser test, which is the residual absolute value of independent variables. If the results of the glycer test show a probability of significance of more than 0.05, then there is no heteroscedasticity in the research variable (Ghozali, 2018:142). The results of the heteroscedasticity test can be seen in table 3.

Table 3 Heteroscedasticity Test

Variable	Sig.
	Model 1
HCE	0,330
SCE	0,067
EEC	0,078
TCE	0,388

SIZE	0,236
AGE	0,123
THE	0,234
NPL	0,388
CAR	0,288
LDR	0,289

Source: Data processed by researchers, 2025

The results of the heteroscedasticity test in the table show that the regression model does not experience symptoms of heteroscedasticity. So that the regression results can be interpreted more accurately, without distortion due to changes in residual variance. This is shown at a significant value of the heteroscedasticity test of more than 0.05.

Multiple Regression Analysis Model

To test the hypothesis of this study, regression analysis was used to determine the impact of each independent variable on the dependent variable. This study uses regression analysis, namely multiple linear regression analysis. Multiple linear regression analysis to answer hypotheses 1,2,3, and 4. The results of the regression model are seen in table 4.

Table 4. Regression Analysis Model Results

Variable	**Model 1**	
	B	**Sig.**
Constant	**-0,056**	**0,000**
HCE	0,005	0,000
SCE	-0,007	0,000
EEC	0,012	0,013
TCE	-0,008	0,462
SIZE	0,002	0,000
AGE	0,004	0,000
THE	-0,001	0,000
NPL	-0,147	0,000
CAR	-0,004	0,151
LDR	-0,005	0,013
Adjusted R2	0,798	

Source: Data processed by researchers, 2025

Based on the results of data analysis shown in table 4 in model 1, human capital (HCE), capital employed (CEE), company size (SIZE), and company age (AGE) have a positive and significant effect on financial performance. This is shown in the value of the regression coefficient HCE, CEE, SIZE, AGE which is marked positive and has a significant value of < 0.05. Meanwhile, in structural capital (SCE), Debt to equity ratio (DER), Non-Performing Loan (NPL), and loan to deposit (LDR) have a negative and proven significant effect on financial performance. This is shown in the negative and significant regression coefficient values of SCE, DER, NPL and LDR < 0.05. Technological capital (TCE) and capital adequancy ratio (CAR) have no effect on financial performance. This is shown in the negative and insignificant

TCE and CAR regression coefficient values where the > coefficient value is 0.05. An Adjusted R2 of 0.798 indicates that model 1 has a very high level of explanation for financial performance. Independent variables in the model explain about 79.8% of the variation in financial performance, with additional factors outside the model affecting the remaining 20.2%. The model's high predictive ability is indicated by the high Adjusted R2 value, so that the analysis results are more reliable in strategic decision-making.

Hypothesis Test Results

The hypothesis test in this study uses a t-test by looking at the probability of error (P-value). The research hypothesis is accepted if the probability of error (P-value) <the level of error (alpha) is set to be 1% (0.01), 5% (0.05), and 10% (0.1).

Based on static analysis using the t-test, there is a summary of the results of the research hypothesis test as follows:

Table 5. Summary of Hypothesis testing

Hypothesis	Influence Between Variables	*P-value*	Conclusion
Hypothesis 1	Human Capital affects financial performance.	0,000	Supported
Hypothesis 2	Structural Capital has an effect on financial performance.	0,000	Not Supported
Hypothesis 3	Capital Employed affects financial performance.	0,013	Supported
Hypothesis 4	Technological Capital affects financial performance.	0,462	Not supported

Based on table 5, it is found that human capital has a significant effect on financial performance. This is evidenced by a sig value of <0.05 that hypothesis 1 is supported. This indicates that companies that have quality and knowledgeable human resources are able to increase productivity, innovation, and operational efficiency of the company. Structural capital has a negative and significant effect on financial performance. This is evidenced by the sig<0.05 value that structural capital such as systems, procedures, and infrastructure has not been utilized optimally, or even incurring high operational costs without directly contributing to the increase in profit. Capital employed has a positive and significant effect on financial performance. It is shown at a sig value of <0.05 that hypothesis 3 is supported. The effective use of employed capital indicates that managers are able to allocate good resources to improve financial performance. Technological capital has no significant effect on financial performance. This is evidenced by a value of sig>0.05, so hypothesis 4 is not supported. This indicates that banking companies in technology investments have not fully optimized the efficiency of banking operations and services, so the impact on return on assets is not immediately visible in the short term.

Discussion

The Influence of Human Capital on Financial Performance

The result of hypothesis 1 is that there is a positive influence of human capital on financial performance (ROA). This shows that when companies invest funds in training, skill development, and improving employee experience, their capabilities and productivity increase

so that the assets owned by the company can be optimally utilized in generating profits (Kwaku Mensah Mawutor et al., 2023). In other words, well-managed human capital helps companies generate greater revenue. Human capital is considered a strategic asset that can help banks increase profits with labor productivity and optimization of intellectual assets (Barak & Sharma, 2024).

Resource based Theory explains that valuable and scarce resources such as human resources, if managed properly, will be difficult for competitors to imitate and make a significant contribution to the company's performance. According to Castanias and Helfat (1991) it is emphasized that superior human capital such as above-average CEOs is very rare. This makes it difficult for competing companies to assess, imitate, or acquire human capital, especially because of the costs that make it feasible to do so (Coff, 2002). Human capital is the capacity of human resources in creating economic value for the company (Ur Rehman et al., 2022). When companies invest in human resources through training, skill development, and employee experience improvement, the quality of human resources improves. This allows employees to work more efficiently and productively in utilizing the company's assets, resulting in greater profits.

This result is in accordance with the statement Nguyen et al., (2023) which states that effective human resource management improves the company's financial performance through increasing operational efficiency and innovation. According to Bontis N (1998), emphasizing intellectual capital, including human capital, is a key factor in improving organizational performance through increased innovation and efficiency. An effective workforce helps companies improve operational efficiency and asset turnover (Chowdhury et al., 2019). When the workforce is well-skilled and works productively, companies can reduce waste, increase output, and optimize the use of their assets.

The Influence of Structural Capital on Financial Performance.

The results of hypothesis 2 structural capital have a negative and significant effect on the financial performance (ROA) of return on assets. The results can be attributed to the fact that structural capital including systems, procedures, technology and infrastructure has not been utilized optimally or even incurring high operational costs without providing commensurate added value. With this, investment or inefficient management of structural capital can burden the company and reduce financial performance. With costs and investments in structural capital that are not balanced with increased efficiency and revenue, it reduces the net profit on the company's assets. Companies need to ensure that every investment in the system actually provides added value to support healthy financial growth.

Cost efficiency states that investments in systems, technologies, and procedures will only have a positive impact if they are managed effectively and provide greater added value than the cost. So if the company spends a lot of money on infrastructure or technology that is not well integrated, the result will be an operational burden that erodes profits. Resource Based Theory explains that if structural capital is not valuable or is not well organized, then it will not make a positive contribution to financial performance (Barney, 1991). So that less effective structural capital can actually hinder the company's performance because it increases costs without increasing productivity or income.

There was a previous study with the same results that structural capital has a negative and significant effect. According to (Chowdhury et al., 2019) Investments in organizational systems and procedures do not directly improve operational efficiency in generating revenue, so if structural capital investment has not been optimized or is not aligned with key business needs, then structural capital can become a burden for the company. Organizational systems, procedures and innovations have not been optimally used to increase profits (Ousama, 2019). According to Devi. et al. 2017 explained that structural capital reflects organizational processes and values that support performance, but if not managed properly, it can have a negative effect. Banks need to focus on increasing efficiency in human resource management and capital utilization in order to increase profitability. In other words, investments in structural capital must be made strategically and adjusted to business needs to truly provide added value for the company.

The Influence of Employed Capital on Financial Performance

The results of the hypothesis of 3 capital employed have a positive and significant effect. The increase in capital used in the company's operations contributes to an increase in the profitability of assets. With greater capital, the Bank has the flexibility to expand credit, improving the efficiency of asset utilization. Regression results with a value below 0.05 indicate that the larger the capital employed, the higher the bank's ability to generate profits from its assets. So that ROA increases as a reflection of the optimization of capital use in banking business activities. When capital employed is used efficiently through productive credit, net profit increases without having to increase assets proportionately.

Capital employed affects financial performance because greater capital contributes to banks to expand business activities such as distributing more credit and improving asset use efficiency. So in theory, the larger the capital that is effectively managed, the greater the company's ability to generate profits. Resource Based Theory explains that the capital used is an important resource if used properly will provide a competitive advantage and improve financial performance (Barney, 1991). Sufficient capital allows banks to invest in productive assets and technology that support operations, thereby increasing productivity and profitability.

According to Smriti and Das (2018) that Value Added Capital Employed (VACA) has a positive and significant influence on the profitability of banking companies. Good capital management increases the company's ability to generate income from its assets, so that ROA increases along with the increase in capital used. According to (Kweh et al., 2019) The CEE is the only component of capital that has a significant positive relationship with ROA at the conventional rate of 1% in both the government (GOV) and non-government (non-GOV) sectors. These findings show that the capital used plays an important role in improving the performance of companies in the government and non-government sectors.

The Influence of Technological Capital on Financial Performance

The results of hypothesis 4 Technological capital has no effect on financial performance. This is evidenced by the value of a regression coefficient above 0.05 in banking companies, and indicates that investments in banking technology do not have a strong direct impact on the profitability of the company's assets. Although companies incur costs for the development and maintenance of technology, if the technology is not capable of improving

operational efficiency or expanding market share, then the net profit relative to return on assets does not increase. Significant revenue in the short term (Beccalli, 2007).

Technology implemented in the banking sector takes time to be integrated with bank operations optimally. Efficiency in the use of technology also plays an important role in allocating capital in technology development. Its effectiveness depends largely on how the technology is applied. Resource based theory explains that technology capital is one of the company's resources that has the potential to provide a competitive advantage if managed and utilized effectively (Barney, 1991). If technology capital has not been managed or integrated effectively, then it will not be optimal and will not have a significant impact on ROA.

According to Adelia Tazza (2024), technology also plays a role in the aspects of customer satisfaction and competitiveness rather than directly increasing asset profitability. The application of financial technology by large banks in Indonesia does not necessarily increase ROA significantly. The ROA variable showed no effect after working with fintech startups, which shows that the impact of technology on profitability requires time and proper management. According to Beccalli (2007) Although banks have made large investments in technology, they do not necessarily increase profits because IT investments are often used for strategic purposes such as strengthening market positions or deterring new competitors. The use of IT can have different impacts to expand services, improve quality or speed up the transaction process.

CONCLUSION

This study reveals that the components of intellectual capital have differential impacts on the financial performance of Indonesian banks, with human capital and capital employed demonstrating significant positive effects, while structural capital exerts a significant negative influence, and technological capital shows no significant impact. For future research, it is recommended to incorporate longitudinal designs and dynamic panel data analyses to better capture the time-lagged effects of technological capital, explore mediating or moderating variables such as organizational culture, digital maturity, or regulatory environments that may influence these relationships, and expand the scope to include non-financial performance metrics and cross-sectoral comparisons to develop a more holistic understanding of intellectual capital's role in value creation within emerging market contexts.

REFERENCES

Al-azizah, U. S., & Wibowo, B. P. (2023). Impact of intellectual capital on financial performance: Panel evidence from banking. *Jurnal Akuntansi dan Keuangan*, *32*(5), 51–65.

Barak, M., & Sharma, R. K. (2024a). Analyzing the impact of intellectual capital on the financial performance: A comparative study of Indian public and private sector banks. *Journal of the Knowledge Economy*. https://doi.org/10.1007/s13132-024-01901-4

Barak, M., & Sharma, R. K. (2024b). Does intellectual capital impact the financial performance of Indian public sector banks? An empirical analysis using GMM. *Humanities and Social Sciences Communications*, *11*(1), 1–11. https://doi.org/10.1057/s41599-024-02702-5

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99–120.

Beccalli, E. (2007). Does IT investment improve bank performance? Evidence from Europe. *Journal of Banking & Finance*, *31*(7), 2205–2230. https://doi.org/10.1016/j.jbankfin.2006.10.022

Bocconcelli, R., Cioppi, M., & Pagano, A. (2017). Social media as a resource in SMEs' sales process. *Journal of Business & Industrial Marketing*, *32*(5), 693–709. https://doi.org/10.1108/JBIM-11-2014-0244

Bontis, N., Ciambotti, M., Palazzi, F., & Sgro, F. (2018). Intellectual capital and financial performance in social cooperative enterprises. *Journal of Intellectual Capital*, *19*(4), 712–731. https://doi.org/10.1108/JIC-03-2017-0049

Chang, S., & Hsieh, J. (2011). A human capital-driven framework and the role of technological capital in measuring intellectual capital. *SSRN Electronic Journal*, 1–13. https://doi.org/10.2139/ssrn.1182782

Chowdhury, L. A. M., Rana, T., & Azim, M. I. (2019). Intellectual capital efficiency and organisational performance: In the context of the pharmaceutical industry in Bangladesh. *Journal of Intellectual Capital*, *20*(6), 784–806. https://doi.org/10.1108/JIC-10-2018-0171

Coff, R. W. (2002). Human capital, shared expertise, and the likelihood of impasse in corporate acquisitions. *Journal of Management*, *28*(1), 107–128. https://doi.org/10.1016/S0149-2063(01)00127-1

Ghozali, I. (2018). *Aplikasi analisis multivariat dengan program SPSS 25*. Badan Penerbit Universitas Diponegoro.

Githaiga, P. N. (2020). Human capital, income diversification and bank performance: An empirical study of East African banks. *Asian Journal of Accounting Research*, *6*(1), 95–108. https://doi.org/10.1108/AJAR-06-2020-0041

Githaiga, P. N. (2023). Intellectual capital and bank performance: The moderating role of income diversification. *Asia-Pacific Journal of Business Administration*, *15*(4), 509–526. https://doi.org/10.1108/APJBA-06-2021-0259

Hanifah, H., Halim, H. A., Ahmad, N. H., & Vafaei-Zadeh, A. (2020). Can internal factors improve innovation performance via innovation culture in SMEs? *Benchmarking: An International Journal*, 2016–2020. https://doi.org/10.1108/BIJ-06-2018-0174

Ho, T. H., Nguyen, D. T., Luu, T. B., Le, T. D. Q., & Ngo, T. D. (2023). Bank performance during the COVID-19 pandemic: Does income diversification help? *Banks and Bank Systems*. https://doi.org/10.1080/15140326.2023.2222964

Hsu, L. C., & Wang, C. H. (2012). Clarifying the effect of intellectual capital on performance: The mediating role of dynamic capability. *British Journal of Management*, *23*(2), 179–205. https://doi.org/10.1111/j.1467-8551.2010.00718.x

Joshi, M., Cahill, D., Sidhu, J., & Kansal, M. (2013). Intellectual capital and financial performance: An evaluation of the Australian financial sector. *Journal of Intellectual Capital*, *14*(2), 264–285. https://doi.org/10.1108/14691931311323887

Kwaku Mensah Mawutor, J., Boadi, I., Antwi, S., & Buawolor Tetteh, A. (2023). Improving banks' profitability through income diversification and intellectual capital: The sub-Saharan Africa perspective. *Cogent Economics & Finance*, *11*(2). https://doi.org/10.1080/23322039.2023.2271658

Kweh, Q. L., Ting, I. W. K., Hanh, L. T. M., & Zhang, C. (2019). Intellectual capital,

governmental presence, and firm performance of publicly listed companies in Malaysia. *International Journal of Learning and Intellectual Capital*, *16*(2), 193–211. https://doi.org/10.1504/IJLIC.2019.098944

Lee, Y., Cortes, A. F., Zhuang, Y., & Herrmann, P. (2020). Social capital and organizational ambidexterity: The moderating effect of absorptive capacity. *International Journal of Emerging Markets*, *16*(8), 1793–1812. https://doi.org/10.1108/IJOEM-07-2019-0542

Li, X., Feng, H., Zhao, S., & Carter, D. A. (2021). The effect of revenue diversification on bank profitability and risk during the COVID-19 pandemic. *Finance Research Letters*, *43*, 101957. https://doi.org/10.1016/j.frl.2021.101957

Mohapatra, S., Jena, S. K., & Mitra, A. (2019). Intellectual capital and firm performance: Evidence from Indian banking sector. *Applied Economics*, 1–14. https://doi.org/10.1080/00036846.2019.1645283

Ngah, R. (2020). Linking knowledge management to competitive strategies of knowledge-based SMEs. *Business Leadership Review*, *33*(1), 42–59. https://doi.org/10.1108/BL-08-2019-0105

Nguyen, D. T., Le, T. D. Q., & Tran, S. H. (2023). The moderating role of income diversification on the relationship between intellectual capital and bank performance: Evidence from Viet Nam. *Cogent Business & Management*, *10*(1). https://doi.org/10.1080/23311975.2023.2182621

Ousama, A. A. (2019). The association between intellectual capital and financial performance in the Islamic banking industry: An analysis of the GCC banks. *International Journal of Islamic and Middle Eastern Finance and Management*, *13*(1), 75–93. https://doi.org/10.1108/IMEFM-05-2016-0073

Perumal, R., & Aithal, P. S. (2025). The role and impact of human resource management in the banking sector: Challenges and opportunities. *SSRN Electronic Journal*.

Ur Rehman, A., Aslam, E., & Iqbal, A. (2022). Intellectual capital efficiency and bank performance: Evidence from Islamic banks. *Borsa Istanbul Review*, *22*(1), 113–121. https://doi.org/10.1016/j.bir.2021.02.004