The Effect Of Board Capital On The Efficiency Of Indonesian Commercial Banks In 2020-2022

Steven Sanjaya [1], Luky Patricia Widianingsih [2]
[1,2] Universitas Ciputra
Email: [1] ssanjaya02@student.ciputra.ac.id , [2] luky.patricia@ciputra.ac.id

ABSTRACT

This study aims to examine whether Board Capital factors have an effect on the efficiency of state-owned and private commercial banks in Indonesia. This study uses secondary data from annual reports and LinkedIn for 48 commercial banks in Indonesia for the period 2020-2022. The results of the study show that Education Capital does not have an effect on bank efficiency, Experience Capital has a negative effect, and Networking Capital has a positive effect. The significant control variables are NIM, Bank size, Bank age, and Pandemic year. Board of directors' networking becomes an important factor in improving bank efficiency in Indonesia.

INTRODUCTION

The banking sector plays a crucial role in the Indonesian economy. There are 3 types of banks in Indonesia, namely: central banks, conventional or sharia commercial banks, and rural banks (BPR) or sharia people's financing banks (BPRS) (Financial Services Authority, 2019). Banks play a role in raising funds and providing financing for the community and businesses. The efficiency of bank operations is an important factor in maintaining the competitiveness and sustainability of this sector. In 2020 the banking sector, especially conventional and Islamic commercial banks, experienced operational efficiency constraints due to the covid-19 pandemic which ultimately hampered the Indonesian economy (Aryanti et al, 2022). The hampered operational efficiency of banks will affect the advancement of the Indonesian economy and create welfare for the community. Therefore, bank efficiency is an important aspect in the banking industry, as a result bank efficiency has become a discussion issue for many researchers from various countries. There are previous studies conducted in Indonesia that compare the efficiency between government-owned commercial banks and private commercial banks. In the study, researchers collected data from 27 private commercial banks and 7 government

commercial banks for the period 2016-2019 and the results showed that the two banks did not have significant efficiency differences and not a few banks did not reach the efficiency level (Puspitasari, 2020). The insignificant difference in efficiency can certainly be influenced by something, be it the implementation of strict banking operations, good governance from banks or the government. Seeing the importance of bank efficiency as one of the factors of Indonesia's economic progress, the question arises: what factors can affect banking efficiency? Research conducted by Kontesa et al. (2018) shows that the competence of a director has a significant impact on bank efficiency in Cambodia. The director's ability to lead a team can affect the bank's operational performance, and the director's experience and network are the most influential. For example, directors who understand the dynamics of financial markets and regulations beforehand will be better able to optimize resources and reduce operational costs. Furthermore, the research was continued by Kontesa (2020) who found that only networking capital and experience had a significant influence on bank efficiency in Vietnam. From these two studies, it can be stated that several dimensions of the Board Capital variable have a positive influence and play a role in bank efficiency in 2 developing countries in Asia. This research endeavor is envisaged not only to corroborate prior findings gleaned from analogous investigations conducted in Vietnam and Cambodia but also to enrich the burgeoning literature on bank efficiency within the milieu of developing economies.

The prevailing focus in extant literature on bank efficiency primarily centers on bank-specific characteristics as the principal determinants thereof. However, scant attention has been accorded by researchers to alternative factors such as bad debt risk, loan to deposit ratio, net interest margin, and bank size. Remarkably, within the Indonesian context, there exists a conspicuous dearth of empirical investigations examining bank efficiency through the lens of agency theory factors, particularly pertaining to Board Capital. Furthermore, while research endeavors aimed at gauging bank efficiency have been undertaken across a plethora of both developed and developing nations, the corpus of scholarly work remains disproportionately skewed towards the former. Given the nascent state of banking institutions in countries such as Indonesia, characterized by a proliferation of relatively new entrants, there exists a compelling imperative to scrutinize the efficiency landscape therein, with a view towards enhancing comparability vis-à-vis other developing economies. Consequently, this study seeks to ascertain the influence of Board Capital on the efficiency trajectories of private and government commercial banks in Indonesia, thereby striving to unravel the salient determinants thereof. In the event of discerning statistically significant relationships, a nuanced exploration of the most potent variables driving bank efficiency shall be pursued. Crucially, the overarching aim of this inquiry is to pinpoint the underlying factors impeding the attainment of optimal efficiency levels among select commercial banks in Indonesia, thereby furnishing actionable insights for stakeholders vested in the nation's economic advancement.

LITERATURE REVIEW

Knowlegde Transfer Theory

The banking industry is a complex industry when compared to other industries. Bank management to achieve efficient operations will certainly not be easier than operational management in other industries. Research revealed by Mainelli (2002) said that the bank industry is an industry with great operating risks. This complex industry is the reason banking requires a strict recruitment system and to become top management requires adequate qualifications in accordance with the standards set by the bank. According to Al Zoubi et al (2022) Knowledge Transfer Theory is a theory that believes that the tacit owned by a unit in an organization is important to be disclosed to solve internal problems and advance the organization. The bank's business model that focuses on lending and borrowing capital makes the ability of the bank's core management important, the ability of everyone in management to

manage the bank's operational activities will be considered. In this case, the experience of individuals, especially the board, in managing problems within the bank will be the emphasis. Therefore, it is important for banks to focus on knowledge transfer and start managing the intellectual capital of individuals in the bank's internal management to achieve competitive advantage.

Recent research shows that explicit knowledge, which is easily accessible and shared, is no more valuable than tacit knowledge to organizations (Ranucci & Souder, 2015). This points to the importance of knowledge management that focuses not only on storing information, but also on creating a culture of collaboration and knowledge sharing. The two main ways to achieve effective knowledge transfer are firstly formal systems for explicit knowledge such as manuals, documents, and databases, organizations can utilize formal systems to store and access them easily. The second is social networks for tacit knowledge such as expertise and experience, organizations can facilitate social networks where people can learn from each other and exchange information. Knowledge transfer is a human behavior that is influenced by the organizational environment. Factors such as social and cultural values, motivation, and willingness to share knowledge are critical to creating an environment conducive for knowledge transfer to take effect. It is important for banks to review the social and cultural values of the organization (Al Zoubi et al., 2022) to find out whether individuals within it can share knowledge, organizations that can utilize knowledge assets tend to excel (Su & Daspit., 2022). Therefore, the knowledge transfer theory of intellectual capital is relevant to the discussion presented by the researcher, namely the intellectual ability of one unit can influence other units so that the operational efficiency of the bank can be achieved.

Human Resource Theory

In an organization or company, human resources are needed to support the company's daily activities. An organization certainly has resources, but the most important is human resources. Because without human resources, other resources cannot function, because most other resources are operated by humans. According to Kyllonen (2023) human resource theory describes the knowledge and capabilities of individuals that result in performance value in the workplace. An economist in 1960 named Gary Becker and Theodore Schultz revealed that education and training are investments that can increase productivity. Education is now an important component of the workforce, especially directors in the banking industry. To become a member of the board of directors in a bank, adequate certification and qualification standards are required so that the recruitment system becomes strict. This type of resource is owned by the working employee or director and is not a resource permanently owned by the organization. Therefore, organizations that already have good human resources tend to take steps to support employees or directors to prevent displacement. This theory is relevant for this study because the quality of resources is closely related to the quality of the background of a unit's ability of what has been achieved from the three dimensions.

Board Capital And Bank Efficiency

The operational activities of the company or organization will become more efficient if the organization has board members who have high capabilities and status. This statement is also in line with the theory believed in this study that knowledge shared with others will have an impact on the organization. According to Yousaf et al (2021), the quality of human resources and the social status of board members will have a positive effect on the performance of the company or organization. Research conducted by Berezinets et al (2016) says intellectual expertise should not only be owned by company employees, but it is more important for the board of directors to carry out effective monitoring and decision making. The findings found by Sietas et al (2022) show a positive effect on the ability and intellectual capital of the board of directors' level on company performance. The number of boards of directors in an organization is also found to

influence company performance, because the number of boards of directors will increase the probability of obtaining more resources (Calero, et al., 2016). There are also research findings conducted by Kontesa et al (2020) which found that the higher the education of a board of directors will result in higher quality of income for the organization/company, but on the contrary in the findings of this study the experience of a board of directors will result in poor quality of income, and networking capital does not have any impact on company income. This shows that not all dimensions of board capital affect the dependent variable of a study. Therefore, this study wants to review the dimensions that have the most influence on the efficiency of commercial banks in Indonesia. Research conducted by Saha & Maji (2022) shows that the diversity of the board's educational background also has an impact on the company's financial performance. The variety of research findings on the impact of the three dimensions of Board Capital led to the hypothesis in this study, namely:

1. H1. Educational Capital of the board of directors has a positive effect on the efficiency of commercial banks in Indonesia.
2. H2. Networking Capital of the board of directors has a positive effect on the efficiency of commercial banks in Indonesia.
3. H3. Experience Capital of the board of directors has a positive effect on the efficiency of commercial banks in Indonesia.

Control Variables

This study uses control variables such as NPL, NIM, LDR, bank size, bank age. Research conducted by Li & Wang (2012) revealed that LDR and NPL are important factors of bank efficiency. Net interest margin (NIM) is used in the research because in the research conducted by Wasiuzzaman & Gunasegavan (2013) NIM and high bank size will produce better efficiency due to high operational ratios. For bank age, researchers refer to the control variable used by Kontesa (2020) who believes that the higher the age of the bank will have more development opportunities as well. Therefore, researchers used the five elements of the variable to be used as control variables.

METHODS

Sample

This study uses secondary data. All information related to the board of directors is taken using the company's annual report and LinkedIn. There are 48 commercial and state-owned banks (except Islamic banks) collected through OJK (Financial Services Authority) access. For financial information, all information is taken from the annual report of each bank. The sampling method in this study uses purposive sampling method with the criteria that the company has complete data for the variables to be used in the study such as publishing annual reports, is a Persero or private bank, complete financial statements, and discloses information about the biodata of its board of directors, and the bank is not an Islamic bank. Based on 72 commercial banks registered with OJK, there are 24 companies that do not meet the criteria desired by researchers, so the number of companies obtained for processing is 48 companies.

As in previous studies, this research is divided into two stages of the model. The first, the base model, is constructed with the control variables of this study, namely *non-performing loans* (NPL), *net interest margin (*NIM), *loan to deposit ratio* (LDR), bank size (in the form of total assets), and bank age. Then *Board Capital* will be added to the base model to produce a full model in the second stage (complete model).

Variables and Measurments

Previous research is the basis for using the basic model with the control variables NPL, NIM, LDR, bank size, and bank age. As written in the research conducted by Bella & Radianto

(2020) that bank size is one of the most important factors in determining company performance. Previous research also shows that the selected control variables are relevant measuring tools for calculating bank efficiency. Therefore, the control variables as regressors in this research model will describe the bank efficiency function: Bank Efficiency = f (NPL, NIM, LDR, Bank size, and Bank age) Researchers will *pool data* from samples that have been collected and made into one regression model such as:

$$BE_{i,t} = \beta_0 + \beta_1 EC_{i,t} + \beta_2 EXC_{i,t} + \beta_3 NC_{i,t} + \beta_4 NPL_{i,t} + \beta_5 NIM_{i,t} + \beta_6 LDR_{i,t} + \beta_7 SIZE_{i,t} + \beta_8 AGE_{i,t} + \varepsilon_{i,t}$$

Explanation:
EC = Education *Capital*
EXC = Experience Capital
NC = Networking Capital
BE = Bank Efficiency
NPL = *Non-performing loan*
NIM = *Net interest margin*
LDR = *Loan to deposit ratio*
SIZE = Bank size
AGE = Bank Age
0 = Constant
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$ = parameter for estimation

t = time dimension of the data (t = 1 in 2020)

At a later stage, *Board Capital* (BC) will also be added to the regression model. According to previous research, *Board Capital* is a human capability based on the education, experience, and network of a board of directors. The *Board Capital* section is divided into 4 stages. The first stage is to take all information from each dimension from 2020 - 2022. The *Educational Capital of the board* of directors is taken from the aggregate education level of each board of directors in the organization. Using numbers 1 - 6 to represent each level of education, therefore the higher the education the higher the number obtained as shown in table 1.

Table 1 Measurement Of Director Education Level

Education Level	Number
Undergraduate degree	1
Bachelor's Degree	2
MBA degree	3
Master's Degree	4
Bachelor's degree in Law or Bachelor's degree in Medicine	5
PhD Degree	6

Then the measurement of board network (*Networking Capital) is* measured by calculating the aggregate of several items such as: board size, number of non-executive board members, serving as a member of the board of directors of a non-profit member, serving on the board of directors in government, and serving on the board of directors of other companies. Then, the

last one is *Experience Capital*, just like the previous one, this capital is an aggregate of various items such as: the number of board members who have been partners in law firms or worked in the banking and finance industry, consulting firms, or universities, have professional certifications (CPA, CFA, FRM, CMA), have been part of the company's top management (vice president, director, chairman, etc.), and awards obtained. Here is the first step in taking the *Board Capital* figure*.

The second stage is to rank each item in the dimensions based on quantiles in rank order for each year. The rank is determined from each company's item score. There are 48 banks in this study, the first 24th percentile will be given 1 point and the last 24th percentile will be given 5 points. In essence, the bank with the largest item score will be awarded 5 points, and the one with the smallest item score will be awarded 1 point.

Moving on to the third stage, the total score of the items that have been ranked using points 5 and 1 will be summed up for the three dimensions and an average will be taken.

Measuring Bank Efficiency

In measuring bank efficiency, previous studies have used the DEA (Data Envelopment Analysis) approach. Technical efficiency can be calculated using a general formula, namely: Technical Efficiency = Weighted Output/ Weighted Input .In the DEA Methodology, the constant returns to scale (CRS) approach will be used to measure bank efficiency. The CRS assumption can only be justified if all Decision-Making Units operate at optimal scale. The following is the ratio form of the efficiency formula:

$$Max\theta = \frac{\sum_{r-1}^{s} Ury_{rj}}{\sum_{i-1}^{m} Vix_{ij}}$$

$$\theta = efficiency\ score\ in\ analysis$$

$$\frac{\sum_{r-1}^{s} Ury_{rj}}{\sum_{i-1}^{m} Vix_{ij}} \leq 1j = 1, \dots\dots..n$$

$$Ut \geq 0r = 1,2\dots\dots..s$$

$$Vt \geq 0r = 1,2\dots\dots..m$$

n = unit in analysis
r = total Output
j = total input

This DEA will use the constant returns to scale (CRS) approach, and for this study will use 2 inputs and 1 output in measuring bank efficiency. Total costs and total assets will be used as inputs and total loans will be used as the bank's output. The following are the detailed components/formulas of each input and output in table 2.

Table 2 Formulas For Input And Output

Variables	Input/Output	Formula
Total cost	Input	Interest expense + non-interest expense
Total assets	Input	Current assets + non-current assets
Total loans	Output	Short-term loans + long-term loans

The input and output formulas applied by researchers have modifications from previous studies. In this study, the researcher used total loans as output as done by Mezzi (2018) in using the input and output formula to measure bank efficiency.

Data Analysis Method

Multiple Linear Regression to examine the relationship between independent variables such as education capital, experience capital, networking capital, control variables such as bad debt risk, loan to deposit ratio, net interest margin, and bank size, and the dependent variable, bank efficiency. Multiple Linear Regression allows us to assess the extent to which these independent variables can account for variation in the dependent variable. In addition to Multiple Linear Regression, descriptive analysis can be utilized to provide an overview of the distribution of the observed variables. statistical hypothesis testing, such as t-tests to assess the significance of each regression coefficient, and the F-test to evaluate the overall significance of the regression model, can be conducted. By employing these data analysis methods, we can gain a deeper understanding of the relationship between Board Capital and other factors with bank efficiency in Indonesia, as well as determining which factors most significantly influence bank efficiency.

RESULTS

Descriptive Statistical Analysis

Researchers collected 144 observation data, but due to outliers, 59 observation data were discarded. Based on Table 3, there are 85 samples used in the research model. Bank efficiency has a value range of 0 to 1, meaning that the closer to 1 indicates the more efficient. The average of 0.317 means that out of 48 commercial banks in Indonesia there are 31.7% banks classified as efficient. Education Capital has an average value of 2.90, which means that most board members have a master's degree, Experience Capital has an average value of 2.83, this figure means that most board members have professional certification. The value of networking capital with an average value of 1.75, means that there are several members of the board of directors who are directors in other companies/banks.

NPL (Non-performing loans), known as non-performing loans, has an average value of 0.029. This value indicates that from a sample of 48 commercial banks, non-performing loans have an average of 0.029 with a minimum of 0 and a maximum of 0.08. State-owned commercial banks and national private commercial banks in this study have higher NPLs compared to the results of data on all types of banks in Indonesia from the World Bank (2022), the average NPL has a minimum value of 2.1% and a maximum of 2.6% for the period 2020-2022. Net interest Margin has a minimum value of 0.01 and a maximum of 0.19 with an average value of 0.051, meaning that the greater this ratio, the increase in interest income on productive assets managed by the bank so that the possibility of a bank in problematic conditions is smaller. Loan to Deposit ratio has a minimum value of 0 to a maximum of 2.53 with an average of 0.866, meaning that the average bank in the observation data has good liquidity to fulfill its obligations.

In this study, bank size is calculated using the total assets of commercial banks whose results are logarithmized. Bank size has a minimum value of 12.23 and a maximum of 17.23 with an average of 13.74. Bank Age in this study shows that the oldest commercial bank is 140 years and the youngest is 4 years with an average of 45.49 years. This study also uses pandemic year variables, because according to Olivia et al. (2020), the Covid-19 case has an uncertain impact on Indonesia's economic growth, in which the banking sector plays an important role. Therefore, the researcher included the pandemic year as one of the aspects that could affect the bank efficiency results in 2021.

Table 3 Descriptive Statistics Test Results

	N	Mean	Std. Deviation	Minimum	Maximum
Education Capital	85	2.90	0.92	1.66	5
Experience Capital	85	2.83	1.75	1	5
Networking Capital	85	1.75	1.05	0.6	3
NPM	85	0.029	0.019	0	0.08
NIM	85	0.051	0.029	0.01	0.19
LDR	85	0.866	0.379	0	2.53
Bank Size	85	13.74	1.0471	12.23	17.23
Bank Age	85	45.49	26.93	4	140
Pandemic Year	85	0.188	0.393	0	1
Bank Efficiency	85	0.317	0.468	0	1
N	85				
T	3				

Source: Data processing results, 2024

Data Quality and Test Results

The results of testing the classical assumptions of normality, heteroscedasticity, and multicollinearity show that the numbers meet, so that the observation data of this study can be used for further data analysis processes. The observation data that has been collected as much as 85 data used in regression and hypothesis testing has met the data quality with the results presented in table 4.

Table 4 Classical Assumption Test Results

Classical Assumptions	Methods	Results
Normality	Skewness-Kurtosis	Prob > chi2
		0.0629
Multicollinearity		Average VIF
		1.47
Heteroscedasticity	Breusch-Pagan	0.0836

Model Feasibility Test Results, Hypotheses And Coefficient Of Determination

The F test results show that the research model is feasible because the prob>F number is at 0.0000. The results of hypothesis testing using the t-test show that the education capital variable has no effect on bank efficiency, so the first hypothesis is rejected. The experience capital variable has a negative effect on bank efficiency, so the second hypothesis is rejected

because the results of this study show a significant negative direction. Networking capital has a positive influence so the hypothesis is accepted. The contribution of the three independent variables in this study to explain the dependent variable is high at 83%, while the rest is explained by other variables outside this model. Several control variables show their ability to influence bank efficiency, one of which is NIM, bank size, bank age, and pandemic year.

Table 5 F Test Results And Coefficient Of Determination

Prob > F	R-Squared
0.0000	0.8382

Table 6 T-test Results

Variables	Coef.	t	P>|t|	Results
Education Capital	-.0640094	-1.97	0.053	Hypothesis not accepted
Experience Capital	-.0489322	-2.53	0.014	Hypothesis not accepted
Networking Capital	.0693079	2.49	0.015	Hypothesis accepted

DISCUSSION

The results of this study present significant insights for the banking sector in Indonesia and necessitate careful interpretation. Among the three variables tested, only Experience and Networking were found to significantly impact bank efficiency. Education was found to have no effect, and Experience exhibited a negative significant effect, which contradicts the notion of increasing efficiency. This suggests that Indonesian commercial banks should prioritize networking ability over education and experience when selecting board members. This finding contrasts with previous research by Kontesa et al. (2020), which highlighted the importance of educational capital. Additionally, studies by Lee & Law (2017) and Lopes De Melo (2018) found that educational backgrounds are generally consistent across position levels, supporting the notion that educational capital does not significantly impact bank efficiency.

The negative significant effect of Experience capital implies that greater experience among board members correlates with decreased bank efficiency. This is supported by Ghannam et al. (2018), who suggest that experienced directors are often associated with organizations prone to fraud. Wibisono (2023) further corroborates this by noting that corruption and fraud in banks are frequently perpetrated by experienced directors. Consequently, the ability of board members to navigate the complexities of banking can impede efficiency. These findings align with previous research and observable phenomena.

Networking capital aligns with the research hypothesis and has been validated by prior studies (Watson, 2007; Singh & Delios, 2017). These studies indicate that board networking is crucial for organizational performance growth, both domestically and internationally. Therefore, Indonesian banks should emphasize appointing board members with strong networking capabilities to enhance efficiency. The knowledge transfer theory supports this finding, suggesting that effective networking within the board facilitates efficiency through the transfer of knowledge among board members, thereby improving the quality of human resources.

The NIM control variable exerts a negative control on bank efficiency, corroborating the findings of Pham et al. (2018) and Wahyudin et al. (2021) that higher bank efficiency corresponds to a lower NIM ratio. Bank size, another control variable, positively controls bank efficiency, as confirmed by Otero et al. (2020) and Ruslan et al. (2019). Conversely, bank age was found to

positively influence bank efficiency, contradicting studies by Anto et al. (2021) and Hassan et al. (2009), but aligning with Khaddaj et al. (2010), who posited that older banks, due to their conventional systems, might struggle with modern efficiency practices.

The COVID-19 pandemic also influenced bank efficiency. According to Ikhwan et al. (2023), state-owned commercial banks were the most efficient during the pandemic, underscoring the need for banks to prioritize efficiency amid crisis conditions by focusing on board members with strong networking capital. This approach ensures that loan funds and bank resources are effectively allocated and managed during challenging times.

This research confirms the human resource theory by demonstrating the importance of networking among board members as a means of facilitating tacit knowledge sharing within the bank. The emergence of the knowledge transfer theory is crucial for enhancing bank efficiency, as effective human resources combined with knowledge transfer practices prevent inefficiency. Albino et al. (2004) proposed a model for understanding knowledge transfer in organizations, highlighting the significance of organizational similarity, training, and the balance between autonomous and interactive practices. Consequently, it is vital for banks to foster a culture of training and continuous development.

CONCLUSION

In sum, our study furnishes empirical insights into the multifaceted interplay of board member attributes and bank efficiency, with ramifications for theory and practice alike. While educational capital retains its theoretical salience, our findings underscore the exigencies of networking among board members as a pivotal determinant of bank efficiency, particularly in the exigencies of the pandemic era. Moreover, this study reveals that networking emerges as the most critical factor for companies when selecting their board of directors. Furthermore, the counterintuitive nexus between experience capital and bank efficiency portends a paradigm shift in our understanding of the determinants of organizational effectiveness. Nevertheless, the limitations inherent in data availability necessitate caution in extrapolating our findings, thereby warranting further empirical validation in analogous contexts.

SUGGESTION

The researcher recommends that subsequent investigations should aim to verify existing theoretical frameworks by incorporating additional variables, thereby elucidating the mechanisms that facilitate effective human resource utilization and knowledge transfer within organizational contexts. Moreover, it is essential to emphasize the need for further validation of the current study through comparative research in analogous socio-economic environments, particularly within developing nations similar to Indonesia.

REFERENCES

Albino, V., Garavelli, A. C., & Gorgoglione, M. (2004). Organization and technology in knowledge transfer. *Benchmarking: An International Journal*, *11*(6), 584–600. https://doi.org/10.1108/14635770410566492\

Al-Zoubi, M. O., Masa'deh, R., & Twaissi, N. M. (2022). Exploring the relationship among structured-on-the job training, mentoring, job rotation, work environment factors and tacit knowledge transfer. *VINE Journal of Information and Knowledge Management Systems*. https://doi.org/10.1108/VJIKMS-06-2022-0199

Anto, R., Pangestuti, I. R. D., Wahyudi, S., & Purwandari, E. N. (2021). Determinants of the Commercial Bank's Efficiency in ASEAN. *Research in World Economy*, *12*(2), 77. https://doi.org/10.5430/rwe.v12n2p77

Aryanti, D. R., Dwiyanto, A., & Erlina, R. (2022). Analisis Faktor-Faktor yang Mempengaruhi Efisiensi Bank Umum di Indonesia pada Masa Pandemi Covid-19. *Jurnal Ekonomi Dan Bisnis Universitas Brawijaya*, *28*(1), 1–14.

Bella, F., & Radianto, W. E. (2020). Bankruptcy Prediction of the Banking Sector Using Bankometer: Comparative Study Based On CompanySize (175th ed.). *Proceedings of the 2nd International Conference on Business and Management of Technology (ICONBMT 2020)*.

Berezinets, I., Garanina, T., & Ilina, Y. (2016). Intellectual capital of a board of directors and its elements: introduction to the concepts. *Journal of Intellectual Capital*, *17*(4), 632–653. https://doi.org/10.1108/JIC-01-2016-0003

Ghannam, S., Bugeja, M., Matolcsy, Z. P., & Spiropoulos, H. (2019). Are Qualified and Experienced Outside Directors Willing to Join Fraudulent Firms and If So, Why? *The Accounting Review*, *94*(2), 205–227. https://doi.org/10.2308/accr-52195

Hassan, T., Mohamad, S., & Khaled I. Bader, M. (2009). Efficiency of conventional versus Islamic banks: evidence from the Middle East. *International Journal of Islamic and Middle Eastern Finance and Management*, *2*(1), 46–65. https://doi.org/10.1108/17538390910946267

Ikhwan, I., Thaker, M. A. M. T., & Thaker, H. M. T. (2023). Measuring the efficiency of government-owned banks during the COVID-19 pandemic in the emerging economy. *Corporate Board Role Duties and Composition*, *19*(3), 15–26. https://doi.org/10.22495/cbv19i3art2

Khaddaj, W. W. (2010). Evaluating Banks Efficiency in Syria: An Empirical Study Using Data Envelopment Analysis. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1876475

Kontesa, I. G. N. (2020). The Impact of Board Capital on Bank Efficiency: Evidence from Vietnam. International Journal of Economics and Business Administration. *International Journal of Economics and Business Administration*, *8*(2), 151–162.

Kontesa, I. G. N., & Huong, T. T. T. (2018). The Effect of Board Capital on Bank Efficiency: Evidence from Cambodia. International Journal of Financial Research. *International Journal of Financial Research*, *9*(4), 204–214.

Kontesa, M., Lako, A., & Wendy, W. (2020). Board capital and earnings quality with different controlling shareholders. *Accounting Research Journal*, *33*(4–5), 593–613. https://doi.org/10.1108/ARJ-01-2020-0017

Lee, W. C., & Law, S. H. (2017). Roles of Formal Institutions and Social Capital in Innovation Activities: A Cross-Country Analysis. *Global Economic Review*, *46*(3), 203–231. https://doi.org/10.1080/1226508X.2017.1292859

Li, Y., & Wang, M. (2012). Capital regulation, monetary policy and asymmetric effects of commercial banks' efficiency. *China Finance Review International*, *2*(1), 5–26. https://doi.org/10.1108/20441391211197438

Lopes de Melo, R. (2018). Firm Wage Differentials and Labor Market Sorting: Reconciling Theory and Evidence. *Journal of Political Economy*, *126*(1), 313–346. https://doi.org/10.1086/695505

Mainelli, M. (2002). Industrial strengths: operational risk and banks. *Balance Sheet*, *10*(3), 25–34. https://doi.org/10.1108/09657960210440809

Mezzi, N. (2018). Efficiency of Islamic banks and role of governance: empirical evidence. *Managerial Finance*, *44*(5), 590–603. https://doi.org/10.1108/MF-05-2017-017

Olivia, S., Gibson, J., & Nasrudin, R. (2020). Indonesia in the Time of Covid-19. *Bulletin of Indonesian Economic Studies*, *56*(2), 143–174. https://doi.org/10.1080/00074918.2020.1798581

Otero, L., Razia, A., Cunill, O. M., & Mulet-Forteza, C. (2020). What determines efficiency in MENA banks? *Journal of Business Research*, *112*, 331–341. https://doi.org/10.1016/j.jbusres.2019.11.002

Pérez-Calero, L., Villegas, M. del M., & Barroso, C. (2016). A framework for board capital. *Corporate Governance (Bingley)*, *16*(3), 452–475. https://doi.org/10.1108/CG-10-2015-0146

Pham, A. H., Tran, C. K. Q., & Vo, L. K. T. (2019). *Determinants of Net Interest Margins in Vietnam Banking Industry* (pp. 417–426). https://doi.org/10.1007/978-3-030-04200-4_30

Puspitasari, D. A. (2020). Analisis Perbandingan Efisiensi Bank Umum Milik Pemerintah dan Bank Umum Swasta di Indonesia. *Jurnal Ekonomi Dan Bisnis Universitas Brawijaya*, *26*(2), 204–214.

Ranucci, R. A., & Souder, D. (2015). Facilitating tacit knowledge transfer: Routine compatibility, trustworthiness, and integration in M&As. *Journal of Knowledge Management*, *19*(2), 257–276. https://doi.org/10.1108/JKM-06-2014-0260

Saha, R., & Maji, S. G. (2022). Board human capital diversity and firm performance: evidence from top listed Indian firms. *Journal of Indian Business Research*, *14*(4), 382–402. https://doi.org/10.1108/JIBR-08-2021-0289

Sietas, S. G., Patricia, L., & Ismawati, A. F. (2022). Intellectual Capital, Firm Performance and President Director Level of Education and Specialization. *Jurnal Akuntansi Kontemporer*, *14*(1), 43–55. https://doi.org/10.33508/jako.v14i1.3032

Singh, D., & Delios, A. (2017). Corporate governance, board networks and growth in domestic and international markets: Evidence from India. *Journal of World Business*, *52*(5), 615–627. https://doi.org/10.1016/j.jwb.2017.02.002

Statistik Perbankan Indonesia. (2019). Otoritas Jasa Keuangan.

Su, E., & Daspit, J. (2022). Knowledge management in family firms: a systematic review, integrated insights and future research opportunities. *Journal of Knowledge Management*, *26*(2), 291–325. https://doi.org/10.1108/JKM-08-2020-0658

Wahyudin, A., Kiswanto, K., & Nuhaaya, A. (2021). Net Interest Margin and Capital Adequacy ratio: Mediating influence of Bank Profitability. *Jurnal Dinamika Akuntansi*, *13*(2). https://doi.org/10.15294/jda.v13i2.32404

Wasiuzzaman, S., & Gunasegavan, U. N. (2013). Comparative study of the performance of Islamic and conventional banks: The case of Malaysia. *Humanomics*, *29*(1), 43–60. https://doi.org/10.1108/08288661311299312

Watson, J. (2007). Modeling the relationship between networking and firm performance. *Journal of Business Venturing*, *22*(6), 852–874. https://doi.org/10.1016/j.jbusvent.2006.08.001

Wibisono, W. (2023). Preliminary Study on Corruption Case in the Indonesian Banking Sector: Overview of the Fraudster, Loss, and Fraud Modes. *Asia Pacific Fraud Journal*, *8*(1), 31. https://doi.org/10.21532/apfjournal.v8i1.263

Yousaf, U. bin, Ullah, I., Wang, M., Junyan, L., & Rehman, A. U. (2022). Does board capital increase firm performance in the Chinese tourism industry? *Corporate Governance (Bingley)*, *22*(4), 653–679. https://doi.org/10.1108/CG-04-2021-0165