

# Comparative Analysis of the Stock Performance of Digital Banks and Conventional Banks in Indonesia

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## ABSTRACT

Digitalization in the banking sector shows enormous growth, and the rise of digital banks may be a solution to boost financial inclusion in Indonesia. In recent years, digital banks in Indonesia seem to attract the banking sector, which is reflected in the bank transformation. This study aims to compare digital and conventional banks' risk-adjusted stock performance in Indonesia using commonly used performance measure ratios, such as Sharpe, Treynor, Sortino, and Jensen. Panel data regression with performance ratios as the dependent variables was constructed in this study. The main outcome of this study shows that the performance of digital banks tends to be better than conventional banks. Additionally, the size of banks, return on equity (ROE), and non-performing loans (NPL) tend to be positively associated with risk-adjusted performance. One of the limitations of this research is the absence of prior research on the digital bank. As a result, exploratory research on digital banking can be conducted.

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## INTRODUCTION

Digital banks (also referred to as internet-only banks, neobanks, challenger banks, and virtual banks) have increased in prominence over the last decade due to internet applications in the banking industry (Choi, 2020; Lee & Kim, 2020). This type of bank enables banks to operate without

physical branches and deliver services through the internet (Zhang, Chen, Liu, & Zhu, 2018) Digital banks have become a global phenomenon, with operations in developed and developing countries. The advantages of this form of bank include lower operational costs due to the high expense of maintaining physical branches, the system being

considered simple and reliable, and it is suitable for people's modern lifestyles (Kim & Bae, 2020). As a result, digital banks are likely to have a vital role in replacing conventional banks (Yoon & Lim, 2021).

The rise of digital banks in Indonesia began with Jenius (a subsidiary of Bank Tabungan Pensiunan Nasional) in 2016, but Bank Jago was the first fully digital bank in Indonesia in 2021. Based on its experience with Bank Jago, it acquired another bank, Bank Artos (IDX: ARTO), and converted it from a conventional to a digital bank. The soaring stock price of this bank entices many investors to place their funds into the next bank to be digitally transformed. There are currently six digital banks listed on the Indonesia Stock Exchange, and the numbers are expected to grow in the future. Meanwhile, the number of Indonesian investors continues to rise, according to the Indonesia Central Securities Depository. As a possible consequence, it is projected that more investors will be attracted to this type of bank.

Hence, this study compares digital and conventional banks' stock performance in Indonesia using commonly used risk-adjusted return performance measures. By comparing the stock performance of digital and conventional banks, this study assists investors in making investment decisions and academicians in providing insights and conducting preliminary research on digital banks, particularly in Indonesia. To the best of the author's knowledge, no prior study was conducted to evaluate the stock performance of digital and conventional banks.

The rest of this paper is structured as follows. Section 2 briefly explains digital banks and their existence in Indonesia, and this section also provides the concept of performance measures. Section 3 discusses the methodology employed in this study. Section 4 presents the findings of

the analysis. Finally, section 5 summarizes the study and proposes recommendations for further research.

## **LITERATURE REVIEW**

### **Digital Banks**

According to Law no. 10 of 1998 about Banking, bank entities collect public funds in the form of savings and distribute the collected funds in the form of credit, to improve people's prosperity. In Indonesia, banks are divided into four groups based on their minimum capital (Otoritas Jasa Keuangan, 2021). Meanwhile, there is no clear definition of digital banks. However, this type of bank may be defined as a financial institution eligible to collect and guarantee customers' savings and provide banking services through electronic channels (Choi, 2020). Digital banks can also serve other banking services, such as loans which are also served through electronic media such as ATMs and websites without a physical office (Lee & Kim, 2020).

However, it is necessary to distinguish between digital banking and digital bank. Digital banking is an effort by banks to utilize automation and technology to serve customers, while digital banks are business organizations that use digital channels to carry out banking operations (Wijaya, 2021). Although digital banks' business models differ from conventional ones, they still depend on the internet and mobile banking in their operations (Yoon & Lim, 2020). According to the Otoritas Jasa Keuangan (Financial Services Authority) Regulation (POJK) number 12/POJK.03/2021 concerning commercial banks, digital banks are banks that carry out their business activities through digital channels, without any physical office other than the head office. Alternatively, have limited physical offices in terms of number, location, or type of office to support business activities. The establishment of a digital bank in Indonesia can be through the establishment of a new bank as a digital bank, or it can be the result of a transformation from

existing banks (Otoritas Jasa Keuangan, 2021).

### **Risk-adjusted Performance Measures**

The risk-adjusted return is a measure used to evaluate the potential profit from an investment while account for the level of risk that must be accepted; this risk is calculated by comparing it to a risk-free investment (Chen, 2021). Various widely used methods for quantifying investment portfolio performance, such as Sharpe's ratio, Treynor's measure, Jensen's alpha, and information ratios that apply the mean-variance criterion of the Capital Asset Pricing Model (CAPM) implementation (Bodie, Kane, & Marcus, 2021). Sharpe's ratio introduced in (Sharpe, 1966), showed a simple measure of the average stock return and its risks. The stock excess return is divided by the standard deviation to quantify the reward-to-variability.

While Treynor's measure introduced in (Treynor, 1965) has a similar formula, this measure uses beta to represent the systematic risk and is used to determine the amount of excess return generated by an investment for a given level of risk. Beta is obtained from a regression between stock return or fund return against the market return. Sortino's ratio is similar to the Sharpe ratio, which is a commonly used risk-adjusted performance measure, but it differs in that it focuses on downside risk rather than total risk. (Bodie et al., 2021; Sortino & Meer, 1991). Downside deviation obtained from the standard deviation of negative stock returns. While Jensen's alpha is used to evaluate the investment performance and to determine whether it has outperformed a benchmark index, the expected return may be calculated using Capital Asset Pricing Model (CAPM) (Bodie et al., 2021).

A previous study (González, Jareño, & Haddouti, 2019) used data from 1996 to 2015 to compare the stock portfolios performance of Islamic and conventional. This study used those portfolios to compare Jensen's alpha, Treynor's measure,

Sharpe's, and Sortino's ratios. In addition, this study also used modern performance ratios such as the Omega rank ratio and Manipulation Proof Performance Measure. While (Pulungan, Wahyudi, Suharnomo, & Muharam, 2019) attempted to evaluate State-Owned Banks in Indonesia also with those ratios.

### **Commercial Bank Key Metrics**

Bank key metrics may be reflected and influence the bank stock returns. Return on equity (ROE) is a commonly used profitability measure, and this ratio explains the gains of shareholders concerning the firm equity (Ross, Westerfield, Jaffe, & Jordan, 2019). Research conducted by (Arshad, 2021) and (Cordeiro, 2018) stated that ROE might explain the stock return if combined with risk proxies. They also found that this ratio tends to positively and statistically significantly affect the stock return. For the banking sector in Indonesia, (Wibowo, Utami, Rufti, & Dewati, 2020) also found that ROE positively influenced stock returns.

Size generally represents a firm's total asset, and the size may also explain variance in firm stock returns from period to period (Lam, 2002). A study (Wong, 1989) found that a smaller firm tends to gain higher stock returns than a bigger size. The banking sector in Indonesia had a positive and significant association between the total asset and stock return, found by (Wuryani & Handayani, 2021).

Another profitability indicator of the bank, called net interest margin (NIM), reflects a bank's ability to manage its assets and generate profit from interest (Fabozzi, Modigliani, & Jones, 2014). Therefore, the higher the NIM, the better a bank's profitability. For commercial banks in Indonesia, it was found that NIM had a positive influence on stock return and stock pricing (Iskandar, 2020), (Supriatini & Ni Luh Gede Erni Sulindawati, 2021) and (Taslim & Manda, 2021).

Non-performing loans (NPL) depict the asset quality of a bank, NPL is categorized as loans that are in default or nearly default, in which borrowers failed to repay their loans (Hull, 2018). Banks with lower NPL tend to have less vulnerable stock returns in facing distress or crisis such as the pandemic (Demir & Ozturk, 2021). Some researchers (Taslim & Manda, 2021) and (Supriatini & Ni Luh Gede Erni Sulindawati, 2021) found that NPL negatively affects Indonesian banks stock returns.

The operating efficiency ratio, or Biaya Operasional Pendapatan Operasional (BOPO) in Indonesian, reflects how well a bank operates its business by comparing operating expenses and revenue expenses. In EU countries (Liadaki & Gaganis, 2010), operating efficiency did not affect the bank stock returns. While in Indonesia (Wismaryanto, 2013) and (Yudistira & Adiputra, 2020) found that the operating efficiency ratio has a negative influence but is statistically insignificant to the bank stock returns.

Hence, the hypothesis of this study suggests that digital banks will outperform conventional banks in the future due to positive sentiments and positive prospectives. Additionally, the main drivers influencing bank stock prices in general are financial indicators such as total assets, ROE, NIM, NPL, and the operating efficiency ratio. This study aims to highlight the advantages of digital banks and the role of these indicators in determining stock prices. By analyzing these factors, it will provide insights into the future performance and prospects of digital banks compared to conventional banks. Through this study, a more comprehensive understanding of the potential outperformance of digital banks' stock prices can be obtained.

## RESEARCH METHOD

Panel data regression was conducted to explore the relationship between digital banks and their stock performance measures. The regression

method of this study employed the random effects model. This study used the 39 listed banks in Indonesia Stock Exchange as the main objective; six were digital banks. Historical daily stock prices were gathered from July 2021 to June 2022. The study utilized the historical quarterly performance measures, including total assets, return on equity (ROE), net interest margin (NIM), non-performing loans (NPL), and the operating efficiency ratio, to study the stocks performance of both conventional banks and digital banks. These relevant data were obtained from the Thomson Reuters Refinitiv datastream, ensuring the availability of accurate and reliable information for the study.

## Research Variables

This study constructed four commonly used performance measures as the dependent variable. These four performance measures are Sharpe's ratio, Treynor's measure, Jensen's alpha, and Sortino's ratio. The base of all performance measures are stock return and the risk-free rate, and this study refers to the yield of Indonesia Government Bond 1-Year as the risk-free rate. Shown in (Equation 1) is the formula to calculate the stock return, where the return is denoted as  $r$ ,  $P_1$  is the ending price, and  $P_0$  is the initial price.

$$r_i = \ln \frac{P_1}{P_0} \quad (1)$$

Then, all performance measures were calculated with these equations.

$$\text{Sharpe Ratio} = \frac{\bar{r}_i - \bar{r}_f}{\sigma_p} \quad (2)$$

$$\text{Treynor's Measure} = \frac{\bar{r}_i - \bar{r}_f}{\beta_p} \quad (3)$$

$$\alpha_p = \bar{r}_i - \left[ \bar{r}_f + \beta_p (\bar{r}_m - \bar{r}_f) \right] \quad (4)$$

$$\text{Sortino Ratio} = \frac{\bar{r}_i - \bar{r}_f}{\sigma_d} \quad (5)$$

Where  $\alpha_p$  represents Jensen's alpha,  $r_p$  is the return of each stock,  $r_f$  represents the risk-free return,  $r_m$  is the market return,  $\sigma_p$  is the standard deviation of each firm,  $\beta$  is the beta of stock return against market return, and lastly  $\sigma_d$  is the standard deviation of downside or negative stock returns.

Based on four performance measures, quarterly stock performance was calculated using daily stock returns.

This study also deployed a dummy variable as the independent variable, where conventional banks are denoted 1, and digital banks are denoted 0. The controlling variables in this study were also deployed based on the bank's key metrics, such as ROE, the natural logarithm of total assets, NIM, NPL, and operating efficiency ratio (BOPO). These control variables on the regression models were obtained from quarter t-1 of bank *i*. Therefore, the regression models of this study are as follow.

$$Sharpe_{it} = \alpha + \beta_1 CONVENTIONAL_{it} + \beta_2 ROE_{it-1} + \beta_3 ASSET_{it-1} + \beta_4 NIM_{it-1} + \beta_5 NPL_{it-1} + \beta_6 BOPO_{it-1} + \epsilon_{i,t} \tag{6}$$

$$Treyror_{it} = \alpha + \beta_1 CONVENTIONAL_{it} + \beta_2 ROE_{it-1} + \beta_3 ASSET_{it-1} + \beta_4 NIM_{it-1} + \beta_5 NPL_{it-1} + \beta_6 BOPO_{it-1} + \epsilon_{i,t} \tag{7}$$

$$Jensen_{it} = \alpha + \beta_1 CONVENTIONAL_{it} + \beta_2 ROE_{it-1} + \beta_3 ASSET_{it-1} + \beta_4 NIM_{it-1} + \beta_5 NPL_{it-1} + \beta_6 BOPO_{it-1} + \epsilon_{i,t} \tag{8}$$

$$Sortino_{it} = \alpha + \beta_1 CONVENTIONAL_{it} + \beta_2 ROE_{it-1} + \beta_3 ASSET_{it-1} + \beta_4 NIM_{it-1} + \beta_5 NPL_{it-1} + \beta_6 BOPO_{it-1} + \epsilon_{i,t} \tag{9}$$

## RESULT AND DISCUSSION

### Comparison of Total Asset and Total Liabilities of Digital and Conventional Banks

The average value of total assets and total liabilities of conventional and digital banks from Q2 2021 until Q1 2022 are provided in Table 1 below. Banks in Indonesia were classified into four groups based on their core capital Tier 1, and those groups were then named "KBMI". There were only six listed digital banks in Indonesia

during this study; four were in KBMI 1, and the rest were in KBMI 2. The average value of total assets and liabilities of digital banks is still lower than conventional banks. There is a significant gap between assets and liabilities in KBMI 2, which the difference in total banks may cause. The number of net loans given may also contribute to this huge difference.

While Table 2 below shows the differences between net loans from digital and conventional banks. Still, the average net loans given by digital banks are lower than the conventional banks. This may happen because the vast majority of the customers are still more significant in conventional banks. This huge gap in the banks' net loans may also be caused by the age of the banks, where digital banks' operations are remarkably new.

**Table 2.** Average Net Loans of Digital and Conventional Banks

Type of Banks	Avg. of Net Loans (in a million rupiah)
<b>KBMI 1</b>	7,986,118.39
Conventional Bank	8,743,332.51
Digital Bank	5,335,868.97
<b>KBMI 2</b>	42,304,494.15
Conventional Bank	54,898,992.75
Digital Bank	4,520,998.37
<b>KBMI 3</b>	145,918,591.94
Conventional Bank	145,918,591.94
<b>KBMI 4</b>	809,663,959.88
Conventional Bank	809,663,959.88

**Table 1.** Average Asset and Liabilities of Digital and Conventional Banks

Type of Banks	Avg. of Total Assets (in a million rupiah)	Avg. of Total Liabilities (in a million rupiah)
<b>KBMI 1</b>	13,591,062.22	11,218,954.20
Conventional Bank	14,995,361.29	12,463,731.03
Digital Bank	8,676,015.45	6,862,235.28
<b>KBMI 2</b>	71,295,658.63	62,165,835.53
Conventional Bank	92,086,046.00	81,657,345.33
Digital Bank	8,924,496.53	3,691,306.14
<b>KBMI 3</b>	219,594,121.03	186,187,100.83
Conventional Bank	219,594,121.03	186,187,100.83
<b>KBMI 4</b>	1,347,199,947.50	1,154,173,263.06
Conventional Bank	1,347,199,947.50	1,154,173,263.06

### Descriptive Statistics

Table 3 above presents the descriptive statistics of this study, quarterly data of 39 listed banks in Indonesia were observed in this study; thus, 156 number of observation were obtained. The average value of Sharpe's ratio from all banks is -0.0443, while the second lowest was Sortino's ratio at -0.0329. The average value of Jensen's alpha within the period was -0.0007. Meanwhile, the average value of Treynor's measure showed a positive value of 0.0011. Based on this finding, the average ratios from digital banks' stocks tend to perform better than conventional ones during the observed period. However, Treynor's measure showed an opposite result, in which the average value of Treynor's measure of digital banks and conventional banks were -0.0034 and 0.0020, respectively.

The dummy variable "conventional" represents the type of bank, with 1 denoted for conventional banks and 0 for digital banks. The average value of ROE of all observed banks was negative. However, Allo Bank (BBHI), a digital bank, had the highest ROE in Q4 2021, with 8.24%. Although, the lowest ROE is also held by a digital bank, Bank Raya Indonesia (AGRO). The total asset value was in the form of a natural logarithm, the average value of assets was around 46.571 trillion rupiahs in the actual amount. Bank Mandiri (BMRI), in Q1 2022, had the largest total asset, about 1,734 trillion rupiahs. On the opposite side,

a digital bank named Bank Aladin (BANK) held a minor asset with only 1.180 trillion rupiahs in Q3 2021.

Digital bank Amar (AMAR) had the highest NIM ratio with 14.44%, while a conventional bank Bank Capital Indonesia (BACA), had the lowest with -4.29%. Meanwhile, the highest NPL ratio was obtained from Bank KB Bukopin (BBKP) with 4.95%, a conventional bank. In comparison, the highest NPL in digital banks was AMAR, with 3.93%. Lastly, operating efficiency (BOPO) in conventional and digital banks shows a significant gap, where the average BOPO for digital banks was 39.4%, while for conventional banks, it was 0.79%.

### Regression Analysis

The results of the regression are presented in Table 3. The f-statistic values of Model 1 (Sharpe's ratio), Model 3 (Jensen's alpha), and Model 4 (Sortino's ratio) indicate that at least one of the estimator variables is significantly associated with the dependent variables. Consequently, Model 2 (Treynor's measure), with a probability of f-statistic of 0.9067, indicates that none of the estimator variables are statistically significant to Treynor's measure.

The coefficients of the dummy variable from Model 1, Model 3, and Model 4 showed a negative value. All of these values are statistically significant

Table 3. Descriptive Statistics

Variables	Mean	Median	Max.	Min.	Std. Dev.	Number of obs.
Sharpe	-0.0443	-0.0422	0.2968	-0.3684	0.1339	156
Treynor	0.0011	-0.0008	0.2134	-0.0739	0.0231	156
Jensen	-0.0007	-0.0010	0.0172	-0.0141	0.0046	156
Sortino	-0.0329	-0.0631	0.7453	-0.4310	0.2128	156
Conventional	0.8461	1	1	0	0.3620	156
ROE	-0.0025	0.0098	0.0824	-0.5419	0.0771	156
Asset	31.4720	30.9277	35.0892	27.7985	1.8155	156
NIM	0.0399	0.0411	0.1444	-0.0429	0.0238	156
NPL	0.0151	0.0098	0.0495	0	0.0132	156
BOPO	0.9937	0.8996	4.9713	0.0079	0.6205	156

on a confidence level interval of 95%. Since the coefficients of the dummy variable were negative, it can be concluded that digital bank stock performance tends to perform better than conventional ones from July 2021 to June 2022. These three models also showed a positive and statistically significant on ROE.

### Robust Regression

Robust least square regression was also conducted

in this study. The reason for using this type of regression is to strengthen our main findings and to cope with the outliers on the dependent variables, especially on Treynor's measure and Jensen's alpha. This statistical approach can capture the effects of outlier data points. Table 5 below displays the output of robust regression, showing that our four models statistically indicated that digital banks performed better than conventional banks.

**Table 4.** Regression Result

Variables	Model 1 Coefficient (t-stat)	Model 2 Coefficient (t-stat)	Model 3 Coefficient (t-stat)	Model 4 Coefficient (t-stat)
Conventional	-0.0829** (-2.1914)	0.0061 (0.8363)	-0.0031*** (-2.4970)	-0.1543*** (-2.4850)
ROE	0.2781** (1.7155)	-0.0061 (-0.2005)	0.0115*** (2.1267)	0.4086* (1.5771)
Asset	0.0115** (1.7650)	-0.0011 (-0.8807)	0.0001 (0.6576)	0.0125 (1.1629)
NIM	0.3235 (0.6880)	0.0009 (0.0098)	0.0113 (0.7225)	0.5104 (0.6615)
NPL	0.9533 (1.2009)	0.0173 (0.1149)	0.0573** (2.1708)	1.8299* (1.4190)
BOPO	-0.0216 (-0.9834)	-0.0031 (-0.7320)	-0.0010* (-1.4265)	-0.0497* (-1.3886)
Const.	-0.3419** (-1.6840)	0.0335 (0.8585)	-0.0028 (-0.4204)	-0.2945 (-0.8796)
N	156	156	156	156
Adj. R-squared	0.0445	-0.0256	0.0631	0.0473
Prob (F-statistic)	0.0457	0.9067	0.0149	0.0389

\*p<0.10; \*\*p<0.05; \*\*\*p<0.01; one-tailed

**Table 5.** Robust Regression Result

The dependent variables of Model 1 to Model 4 are based on Sharpe's ratio, Treynor's measure, Jensen's alpha, and Sortino's ratio, respectively.

Variables	Model 1 Coefficient (z-stat)	Model 2 Coefficient (z-stat)	Model 3 Coefficient (z-stat)	Model 4 Coefficient (z-stat)
Conventional	-0.12057*** (-2.915)	-0.0043*** (-3.514)	-0.00402*** (-5.2997)	-0.1751*** (-2.9521)
ROE	0.295526*** (1.6678)	0.00565 (1.0714)	0.011328*** (3.4837)	0.44903** (1.7668)
Asset	0.014135*** (1.9803)	0.00057*** (2.6903)	0.00042*** (3.2037)	0.02351** (2.2961)
NIM	0.203638 (0.3961)	-0.0032 (-0.2123)	0.017112** (1.8139)	0.18983 (0.2574)

NIM	0.203638 (0.3961)	-0.0032 (-0.2123)	0.017112** (1.8139)	0.18983 (0.2574)
NPL	1.159807* (1.3364)	0.0394** (1.5261)	0.032411** (2.0352)	1.86026* (1.4944)
BOPO	-0.02286 (-0.9523)	-0.001** (-1.3374)	-0.00064* (-1.4457)	-0.0281 (-0.8164)
Const.	-0.38597*** (-1.7388)	-0.0152*** (-2.303)	-0.01134*** (-2.7828)	-0.6526*** (-2.0497)
N	156	156	156	156
Adj. R-squared	0.0520	0.0077	0.0916	0.0400
Prob(Rn-squared stat)	0.0104	0.0041	0.0000	0.0084

Results from robust regression showed that digital banks performed better than conventional banks. It was evaluated with a dummy variable that negatively affects the performance measures and is statistically significant at a confidence interval of 99% based on four models. Moreover, control variables such as total assets and NPL also positively influenced the stock performance measures. Three out of four models express that ROE statistically influenced the stock performance measures. While only two models show that BOPO influenced performance measures, four models show a negative association between these two variables. Lastly, only Model 3 reveals that NIM influenced performance measures.

### Discussion

Our study found that digital banks' stock performance tends to perform better than conventional banks. The positive sentiments from customers might use this type of bank in the near future, as explained by (Kim & Bae, 2020; Yoon & Lim, 2021). This also might be alluring for investors to invest in conventional banks' stocks, thus increasing the stock return based on prospects and positive sentiments. The average daily stock return of a digital bank, named Allo Bank, had 2,5%, which may be impacted by corporate actions such as M&A activities and restructuring. Allo Bank was the result of a bank transformation after being acquired by another conglomerate, which makes sense because an

M&A activity on a bank may lead to abnormal returns (Hankir, Rauch, & Umber, 2011). On the total assets and liabilities, digital banks had less than conventional banks' average total assets, liabilities, and net loans. Those differences may be explained by the operations of digital banks that are remarkably new, so they had fewer customers, a higher interest rate to acquire new customers, and so on.

Our findings on several deployed control variables align with the prior studies. Although our model uses performance measures based on the risk-adjusted return, it is still comparable with stock returns. The higher the stock return, the performance measures generally will be high. The size of the bank reflected on total assets shows a positive and statistically significant with the stock performance, this result aligns with (Wuryani & Handayani, 2021), which also evaluates based on the Indonesian banking sector. The performance measure of asset quality represented by NPL also found to be significantly influence the performance measure, which is against the theory and prior works of literature (Supriatini & Ni Luh Gede Erni Sulindawati, 2021; Taslim & Manda, 2021) for the banking sector in Indonesia. It is also against the finding from (Demir & Ozturk, 2021), which stated that lower NPL should have better stock returns in the banking industry. However this contradictive finding might be the consequence of COVID



pandemic which rose the NPL for banks globally (Liadaki & Gaganis, 2010; Wismaryanto, 2013; Yudistira & Adiputra, 2020).

A profitability indicator, ROE, was found to positively influence the stock performance, as it was statistically on three Models, except on Model 2. This result is aligned with (Wibowo et al., 2020), who found that ROE positively affected bank stock returns. Another profitability indicator, NIM also found to have a positive influence, however it is found to be statistically insignificant because only Model 3 shows significance. Lastly, operational efficiency (BOPO) had a negative influence and statistically insignificance to the performance measures. This result supports previous studies (Liadaki & Gaganis, 2010; Wismaryanto, 2013; Yudistira & Adiputra, 2020) that also found BOPO does not significantly influence stock returns.

## **CONCLUSION**

This study aimed to compare the stock performance of digital and conventional banks in order to respond to the growth of digital banks in Indonesia through bank transformation. Commonly used performance measures such as Sharpe's ratio, Treynor's measure, Jensen's alpha, and Sortino's ratio were calculated in this study. Based on those quantified performance measures, this study deployed panel data regression. The main finding of this study is that the stock performance of digital banks tends to perform better than the conventional banks, in evidence from Indonesian listed banks. This study also found that factors that may positively influence stock performance were total assets, NPL, and ROE.

This study aims to make a significant contribution to both individual and institutional investors by providing valuable insights into the inclusion of

banks as part of their investment considerations. In the realm of investment decision-making, investors are advised to carefully assess crucial factors such as a bank's total assets, non-performing loans (NPL), and return on equity (ROE). Additionally, the emergence of digital banks has sparked interest among investors, although it is worth noting that the scope of this study is limited to analyzing stocks within a specific time period.

Accordingly, our findings suggest that investing in digital banks' stocks in the Indonesian market can present a highly attractive opportunity for short-term investment purposes. Nevertheless, it is imperative for investors to exercise prudence and take into account various external aspects when considering their investment choices. Specifically, economic factors, industry performance, and investor sentiment should be duly considered in the decision-making process.

This study tried to fill the gap of the absence of digital bank research, particularly in Indonesia. Expected that this study will be the preliminary findings regarding the stock performance of digital banks and inspire further research to deepen the study in the same area. One of the limitations of this study is the relatively short period analyzed to evaluate the stock performance, primarily due to the recent establishment of listed digital banks in Indonesia. Consequently, future studies are recommended to extend the analysis over a longer duration and conduct periodic analysis of stock price performance. Moreover, this study only accounted for several internal bank key metrics as the controlling variables. By incorporating a broader range of variables, a more comprehensive understanding of the factors influencing the performance of digital banks and conventional banks can be obtained.

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