KINERJA Volume 28, No. 1, 2024 Page. 122-142

Revisiting Banks' Performance After the Digitalization Acceleration: The Case of Conventional Banking Industry in Indonesia

Puput Decpa Rachmawati[1*] and Laila Masruro Pimada[2]

[12]Economics, Finance, and Banking Undergraduate Program, Universitas Brawijaya, Indonesia

puputdecpa@student.ub.ac.id

Abstract

Otoritas Jasa Keuangan (OJK) facilitates digital banking acceleration by establishing regulations related to digital banking. After its implementation, banking performance in general has increased, but some banks experienced discrepancies. This study aims to analyze the comparison of banks' fund composition, operational efficiency, and economic rentability before and during the acceleration. This research uses the comparative tests by the Wilcoxon Signed Rank Test and Paired Sample T-Test based on the existing data of nine banks listed on the Indonesia Stock Exchange (IDX) main board. The result indicates that there were significant differences in banks' Current Account Saving Account composition, operational efficiency, and economic rentability variables. In contrast, banks' Time Deposit composition variables did not experience significant differences before and after digitalization acceleration. This study was conducted based on the data from IDX main board banks that have provided online account opening features and experienced a decline in one of the fund composition, operational efficiency, and economic rentability performance.

Keywords: banking funds, banking operational, banking rentability, financial services authority regulations

JEL : G21, G28

DOI : 10.24002/kinerja.v28i1.8109

Received : 10/12/2023 Reviewed: 12/05/2023 Final Version: 03/10/2024

1. INTRODUCTION

In everyday life, people know banks as places to save, borrow, and exchange money and make various payments, such as taxes, electricity, water, tuition, etc. Today, the banking sector is facing a meaningful transformation due to digitalization. According to the Chief Executive of Banking Supervision, the pandemic has succeeded in shifting the cultural mindset of Indonesian people from a physical economy to a virtual economy. The benefits caused as a result of this shift are the

formation of people's all-digital habits, especially when participating in financial transactions.

The use of digital channels in banking transactions certainly faces many challenges, one of which is the security aspect. In addition, several other aspects must be considered, such as innovative, safe, prudent, and sustainable business, adequate risk management aspects, governance and information technology capability standards for digital bank directors, consumer protection of personal data and data leakage risks, and the contribution of digital banks to the development of the digital financial ecosystem (Kornelis, 2022).

According to a survey conducted by McKinsey entitled Personal Financial Services 2021 Survey, as many as 90% of consumers in fifteen Asian market Regions have actively used digital banking. In Indonesia, 78% of them actively use digital banking. This number has increased by 57% when compared to 2017 data. As many as 55% of respondents said that using cash in one week is only 30%. In addition, as many as 80% of respondents intend to maintain and even increase the use of mobile banking after the pandemic. The survey results show that the adoption of digital banking services has taken this industry sector to a new level of maturity (Woetzel et al., 2021).

The increasing level of customer solace in digital banking services has led to a decrease in the number of customer visits to branch offices. In 2017, as many as 81% of customers visited branch offices at least once a month. In 2021, that number was reduced to only 55%. This happened due to the movement of customers to bank digital services. Banks need to consider migrating simple banking services through digital channels so that transactions carried out at branch offices are only complex (Woetzel et al., 2021).

As part of Indonesia's financial services industry, banking carries out its business activities under the supervision of an independent regulator, the Otoritas Jasa Keuangan (OJK). Based on Law Number 21 of 2011 concerning the Otoritas Jasa Keuangan, OJK regulates and supervises bank business activities, ranging from collecting and providing funds to bank health, prudential aspects, and bank examinations. OJK establishes rules and regulations in the financial services sector that aim to support the implementation of good financial services and guarantee consumer protection. During the pandemic, OJK oversees the Implementation of Community Activity Restrictions or Pemberlakuan Pembatasan Kegiatan Masyarakat (PPKM) by establishing operational restrictions in the financial services sector through the implementation of strict health protocols and the use of digital technology.

Although the digitalization of Indonesian banking was widely discussed during the pandemic, the transformation has actually been going on since the 1980s (Fauzi et al., 2023). Previously, during the Dutch colonial period, financial transactions were divided into two methods, which are cash and non-cash, using a clearing system until the development of the Bank Indonesia National Clearing System or Sistem Kliring Nasional Bank Indonesia (SKNBI) in 2005. Around 1984, Bank Dagang Bali and Chase Manhattan Bank initiated the use of Automatic Teller Machines (ATMs) in Indonesia. Meanwhile, mobile banking was first implemented in Indonesia in 2011. Until now, it has experienced many developments and has become a very popular tool because it is easily accessed anywhere and anytime by smartphones.

During the pandemic, banks are required to be able to accommodate people's needs for faster and more efficient banking services without the need to go through branch offices (brick and mortar). According to the Board of Commissioners of OJK, Heru Kristiyana, the results of a survey conducted by OJK in 2020 showed that 42% of prospective customers wanted to open an account online. Therefore, OJK accelerates banking digitalization, which aims to improve banks' ability to adapt to changes in global dynamics and the banking ecosystem and maintain operational quality. Banks are required to adjust business strategies, reduce dependence on people in operational roles, redesign processes, and optimize their digital systems (Jerenz, 2022).

OJK established two Financial Services Authority Regulations or Peraturan Otoritas Jasa Keuangan (POJK) to support the acceleration in October 2021. POJK Number 12/POJK.03/2021 concerning Commercial Banks focuses on strengthening institutional standards, operational aspects, simplification and efficiency of office networks, business process management, and digital services. POJK is useful as a framework in bank settings when carrying out digital transformation and improving the quality of banking services. In addition, POJK Number 13/POJK.03/2021 concerning the Implementation of Commercial Bank Products was also released, which focuses on strengthening the planning, implementation, and licensing of banking products. This POJK aims to facilitate banking transformation, including the innovation of digital products and services and the legalization process.

The acceleration of digitalization, one of which is occurring in mobile banking, is carried out by developing and optimizing existing features and adding new features, one of which is opening an account online. Prospective customers can open an account anywhere and anytime, as long as they have a smartphone connected to the internet. This feature is able to answer the needs of prospective customers. Also, it has an impact on increasing the bank's ability to raise third-party funds (TPF) in terms of cheap funds from the current account and saving accounts (CASA) and expensive funds in the form of time deposits (TD). The use of digital channels leads to operational efficiencies that can be identified from the Ratio of Operating Expenses to Operating Income or Beban Operasional terhadap Pendapatan Operasional (BOPO). The occurrence of such efficiency will maximize the bank's profitability in generating profits that can be observed from the Ratio of Return on Assets (ROA).

In previous studies, the rise and fall of bank profits can be influenced by the main source of funds in banks, namely TPF (Kasmir, 2015). Increasing TPF in the form of current accounts, saving accounts, and time deposits will encourage increased bank profitability. This result is consistent with Kasmiri and Nurjaman's (2021) research. Digital banking can generate greater revenue at lower costs than traditional banking to expand market share (Bick et al., 2021). Increasing the volume and number of low-cost fund accounts through various marketing methods, one of which is digitalization, will reduce the cost of funds and increase profits (Prasetya et al., 2015). The average ROA value of banks that digitize is much greater, almost five hundred percent when compared to banks that have not digitized (Margaretha, 2015).

According to research conducted by Ramadhani (2023), operational expenses are another important factor in affecting bank profitability. Banks that are able to reduce losses through operational cost efficiency will experience an increase in

profits. The smaller the operational expenses, the more efficient the bank is in running its business to optimize profits. According to Dermawan and Desiana (2019), a high BOPO ratio indicates an operational cost inefficiency that has an impact on decreasing revenue. Research conducted by Olanrewaju (2014) showed that digitalization that occurred in banking had an impact on reducing operational costs by 20-25%. When viewed from the value of BOPO, banks that have digitized have proven to be more efficient in carrying out their operations (Margaretha, 2015).

After the regulation, there was a change in the number of TPFs in commercial banks in Indonesia as a whole. OJK data shows that there was an increase in the average of CASA and TD by as much as 1.24% and 0.25%, respectively. Banking operations experienced efficiency of 0.38%, resulting in an increase in profitability of 2.19% (Indonesian Banking Statistics, 2021-2022). The improvement in banking performance within one year is a sign that the establishment of regulations related to accelerating banking digitalization has yielded positive results. However, based on observations on thirteen Indonesia Stock Exchange (IDX) main board banks that have provided online account opening features, there are still some banks that actually experience a decline in performance, which can be seen in the chart below.

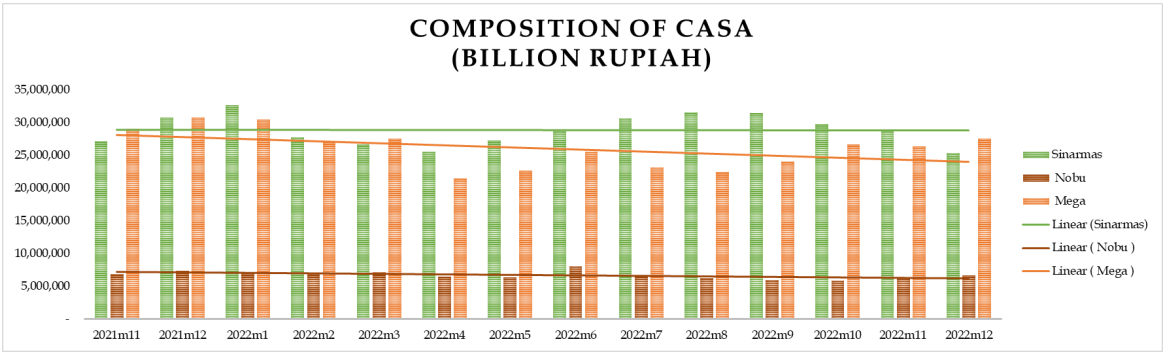

Figure 1. Composition of Current Account and Saving Account in billion Rupiah

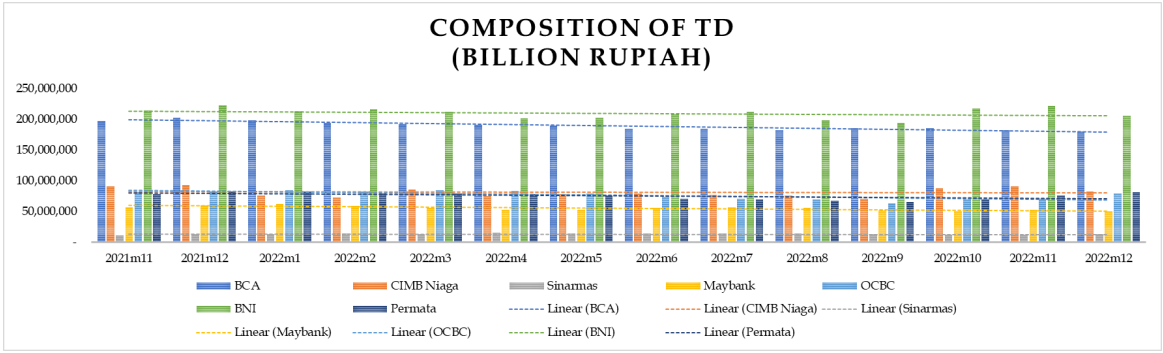

Figure 2. Composition of Time Deposit in billion Rupiah

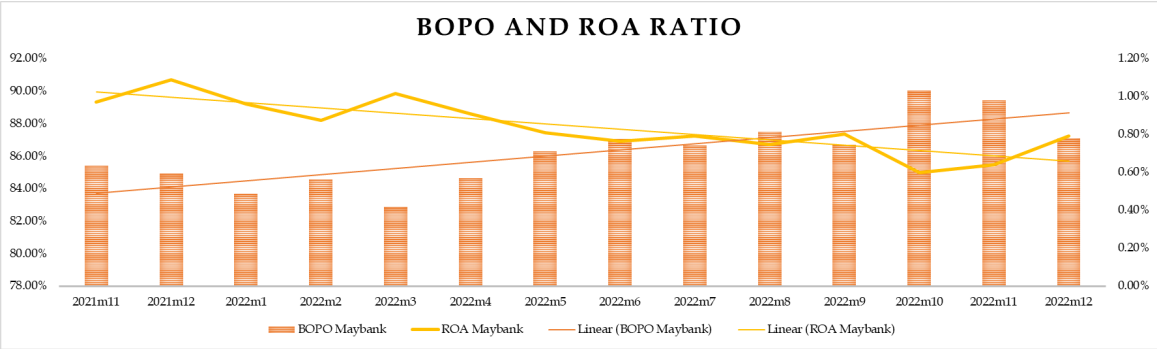

Figure 3. The Decline of Post-Regulatory Banking Performance

The establishment of regulations related to the acceleration of digitalization and its impact on banking performance is a signal to investors. Thus, the decline in performance that is currently occurring is very important to study, considering the existence of the Signalling Theory (Spence, 1973), where the public needs good information about the financial condition of banking companies. Information related to bank performance that can be found in financial statements is a very important component for investors as a review material in making investment decisions, especially for banking companies listed on the main board of the IDX. The companies listed on this board are large-scale companies with a long track record.

Based on the description of the backgrounds, research on this topic is very important to see whether the acceleration of banking digitalization causes a significant difference in the performance of the IDX main board banking, considering that regulations set by the OJK has also supported it. This research is intended to assist the public in making investment decisions in banking companies in Indonesia. It is expected that management can also help evaluate their business processes and determine more suitable policies. This research has several differences and uniqueness when compared to pre-existing research in terms of variables, phenomena that occur, and selected banking companies. To see the difference in company performance, the research period used was before the acceleration of banking digitalization, namely September 2020 to October 2021, and during the acceleration of banking digitalization, namely November 2021 to December 2022.

2. LITERATURE REVIEW

2.1. The Source of Banking Funds

Font Basically, banking companies are the same as other types of companies that need funds to carry out their operational activities. The source of banking funds depends on the purpose for which the funds will be used and how much they will amount. Funds used for daily operations differ in source from funds used for investment and business expansion (Hasan, 2014). Based on the source, bank funds are divided into three categories, namely first, second, and third-party funds.

First-party funds are sourced from the bank itself, which is a composition of primary capital and secondary capital (Sukmayadi, 2020). These funds are used for investment, supporting operational activities, providing protection, and complying with Bank Indonesia regulations. Second-party funds are sourced from the sale of

Money Market Securities or Surat Berharga Pasar Uang (SBPU), interbank call money, Bank Indonesia liquidity loans, and loans from non-bank financial institutions whose turnover occurs in a short time so that they are relatively expensive (Sukmayadi, 2020). The company uses these funds to cover their urgent transactions, such as paying deficits that arise due to risk and making it easier for banks to overcome liquidity difficulties.

Third-party funds (TPF), either in rupiah or foreign currency, are sourced from individual customers, corporations, foundations, government, cooperatives, households, etc (Sukmayadi, 2020). TPF is channelled back to the public in the form of loans, thus causing an interest margin that determines a bank's profitability. Theoretically and empirically, this fund has proven to have a vital role in banking performance and greatly determines the bank's business continuity (Fitri, 2016).

2.2. The Composition of Third-Party Funds in Banking

Based on the amount of return that is given, the composition of TPF is divided into two types, namely CASA and TD. CASA is called cheap funds because the return given to customers from these two deposits is relatively small, usually only around 2%-5% per year. In addition, the cost of funds from these deposits is smaller, resulting in competitive pricing. The greater the CASA, the greater the benefits a bank receives from receiving funds at a lower cost so that CASA can reflect a bank's profitability (Daryanto et al., 2020).

Time deposits, as known, can only be withdrawn by the customer at a certain time that has been agreed upon (maturity date). As a result of the clear and agreed withdrawal time, deposits are considered semi-stable and expensive funds. The greater the time deposit, the greater the composition of TPF, but this will also be followed by greater operational expenses. The return paid by banks to deposit customers is higher when compared to low-cost fund customers. Higher return costs cause the profit margins obtained by banks to be lower (Narayanaswamy, 2016).

Investors who want to invest in the banking sector must be able to understand the "signals" given by companies regarding their fundamental conditions, one of which is through information that can be obtained from financial statements (Muhammad, 2010). Information is used as a consideration to assess whether a banking company is eligible to be an investment destination. Some information that can be obtained through financial statements is the total CASA and TD that have been absorbed by banks in a period. The greater the number, the bank's role as an agent of trust is also good. This is reflected in the level of public trust to deposit their funds in banks. By knowing this, investors can find out the performance of banks and can sort out which companies perform best in raising funds from the public (Saputra, 2021).

2.3. The Composition of Third-Party Funds in Banking

According to Bank Indonesia, the BOPO ratio can assess the efficiency of banking operations by comparing Operational Expenses with Operational Income. The Chief Executive of Banking Supervision of the Otoritas Jasa Keuangan, Dian Ediana Rae, stated that the banking market structure is still experiencing inefficiencies and plans to improve this by reducing operational expenses to make credit interest cheaper. In the third quarter of 2022, BOPO banks experienced

efficiency but have not had a significant impact on credit service costs. This is evidenced by a fairly high net interest margin in November 2022, which was 4.70% from the previous 4.51% in December 2021.

The smaller the BOPO ratio, the more efficient the bank's operational costs, making it less likely that the bank is in a problematic condition (Kusumastuti and Alam, 2019). The bank will be more profitable, productive, and competitive. This is a positive signal for investors to choose a banking company that is worthy of investment purposes. Changes in ratios can illustrate problems that are occurring. If BOPO increases from one period to the next, then operating expenses are inefficient, which amounts to greater than revenue. The banks that are experiencing a rise in BOPO are not suitable for use as an investment destination.

2.4. Economical Rentability of Banking

Economic rentability is a ratio that shows the ability of a bank to create profits sourced from bank-owned and foreign-owned capital. There are two ratios that can be used to assess bank profitability, which are Return on Assets (ROA) and Return on Equity (ROE). Both have different uses and cannot be equated (Riyadi, 2016). ROE is used when company owners want to see how productive or efficient funds are invested in capital instruments, such as bonds or other securities, while ROA indicates the bank's ability to create profits from all its assets, most of which come from TPF.

The percentage of ROA can be used as a parameter to see the development of the bank's profit position during a certain period and evaluate the company's performance in using its funds productively so that it can generate profits. An increase in ROA is a positive signal for investors. The greater the bank's ROA, the greater the benefits that can be obtained and the better the bank's ability to use its assets (Sukmayadi, 2020). Judging from the net buying that always targets shares of Indonesian domestic banks, foreign investors are considered to have a high interest in national banks. This is due to improving macroeconomic conditions accompanied by credit growth, so that the ROA of the four major banks in Indonesia ranges from 1.43% to 3.41% per year in 2021.

2.5. The Concept of Signalling Theory

Signalling Theory was first published by Spence in 1973 through his writings relating to the labor market. In the paper, the process of recruiting workers is a gambling investment because recruiters don't know what kind of workforce they're going to get. In research in economics, this theory assumes that there is asymmetric information between companies and the wider community regarding information about the company's financial health. Companies understand their prospects better than the public at large. According to Kirmani and Rao (2000), this theory can be used by companies to find out how consumer attitudes affect assessing the quality of a product when asymmetric information occurs.

The results of signalling are expected to reduce the information gap between the two parties so that people can determine the quality of services, products, etc., as well as customers' behavior to buy, use, and others (Wells et al., 2011). In making decisions, investors need to get accurate information (Harsono and Hariningsih, 2019). If information is considered important by investors, then the company can use

it as a signal about the value of the company. The level of profitability signals a positive signal for investors when predicting the value of a company (Zare et al., 2013).

3. METHODOLOGY

The data collected to process and analyze numerical data, so this research is classified as quantitative research. This type of research can describe social phenomena with analysis derived from numerical data processed mathematically with certain statistics (Aliaga and Gunderson, 2002). This research is specific because it is based on pre-existing theories, so the results can be used to objectively measure reality (Leedy and Ormrod, 2001).

3.1. The Definition of Operational Variables

The variables used in this research were the composition of low-cost funds (CASA), expensive funds (TD), banking operational efficiency (BOPO), and economic rentability (ROA). The data used is secondary data collected by documentation methods and literature studies from monthly financial statements on each bank's official website.

Table 1. The Definition of Operational Variables

Variable	Definition	Ratio
CASA	CASA is a composition of low-cost funds consisting of total current accounts and saving accounts (monthly) of “go digital” banking on the IDX main board, which experienced a decline in performance.	Rupiah
TD	TD is an expensive fund consisting of total monthly time deposits of “go digital” banks recorded on the IDX main board, which experienced a decline in performance.	Rupiah
BOPO	BOPO is the monthly BOPO ratio of “go digital” banks recorded on the IDX main board, which experienced a decline in performance.	Percent
ROA	ROA is the monthly ROA ratio of “go digital” banks recorded on the IDX main board, which experienced a decline in performance.	Percent

Source: Monthly financial statements of each bank from September 2020 to December 2022.

The definition of an operational variable is a guideline in the form of a limitation of understanding used to do a job (Widjono, 2007). This section contains instructions for measuring a variable in order to make it easier for researchers to describe the observed symptoms validly. In addition, with these clues, research variables have a consistent and unambiguous interpretation of meaning. Tabulating operational definitions makes it easier for researchers to focus on grouping the types of data and information needed.

3.2. Population and Sample

A population is a group of whole components, generally in the form of subjects, objects, and phenomena that are interesting to study in research. All components have certain characteristics and are then used as research objects (Somantri, 2006). The share of the entire population with certain criteria is then sampled. A sample is defined as a small element of a population taken through a process with certain techniques so that the selected sample can represent the population. The samples

used in this study were taken using purposive sampling techniques so that samples were filtered using certain parameters or criteria.

Table 2. Samples of the Research

No.	Bank	Ownership
1	PT Bank Central Asia Tbk.	Private-owned
2	PT Bank CIMB Niaga Tbk.	Private-owned
3	PT Bank Sinarmas Tbk.	Private-owned
4	PT Bank Maybank Indonesia Tbk.	Private-owned
5	PT Bank OCBC NISP Tbk.	Private-owned
6	PT Bank Nationalnobu Tbk.	Private-owned
7	PT Bank Negara Indonesia (Persero) Tbk.	State-owned
8	PT Bank Permata Tbk.	Private-owned
9	PT Bank Mega Tbk.	Private-owned

Source: IDX Channel (2023).

The population in this study is banking companies listed on the main listing board of the IDX, including state-owned, private-owned, regional-owned banks and bank branch offices domiciled abroad. The main listing board was chosen because its members are large-scale companies and have a long track record. It is used by investors to measure the quality of the company. Of the total thirteen banks, there are nine banks that meet the criteria as samples, namely banks that provide online account opening features through mobile banking, have complete financial statements from September 2020 to December 2022, and experience a decline in one of the performances of CASA, TD, BOPO, and ROA post-regulation. The data obtained is then tabulated using the Microsoft Excel program, and then data processing is done through descriptive statistical tests, normality tests, and comparative tests that are carried out using the StataMP 17 program.

3.3. Descriptive Statistical Tests

Descriptive Statistical Test is carried out with the aim of seeing a summary of research variable data in general so that it becomes easier to read and analyze. This test shows the number of observations of research variables used, the size of the minimum and maximum values, the average, and the standard deviation.

3.4. Normality Tests

Before performing the Comparative Test, data distribution will be checked for normality through the Normality Test. According to the Central Limit Theorem, if the amount of data exceeds thirty numbers ($n > 30$), it is called large sample data and is assumed to be normal in distribution. However, in order to get certainty and more valid research results, normality tests would still be carried out on data distribution. The Normality Test conducted in this study is the Shapiro-Wilk W Test.

The hypotheses used in this test are:

- H_0 = Data is normal in distribution.

- H_1 = Data is abnormal in distribution.

The requirements that must be met on the Shapiro-Wilk W Test are:

- Prob>z value is less than 0.05, then H_0 is rejected, and H_1 is accepted.
- Prob>z value is more than 0.05, then H_0 is accepted, and H_1 is rejected.

3.5. Comparative Test

If the distribution of data is normal, then the comparative test carried out is a parametric comparative test using the Paired Sample T-Test, in which both samples must have the same amount of data. This test was carried out by looking at the average difference between the two periods' data sets before and during digitalization acceleration.

The hypotheses used in this test are:

- H_0 = There was no difference in influence on each variable before and during digital acceleration.
- H_1 = There are different influences on each variable before and during digital acceleration.

The comparative test requirements that must be met in the Paired Sample T-Test are:

- Pr(|T|>|t|) value is less than 0.05, then H_0 is rejected and H_1 is accepted.
- Pr(|T|>|t|) value is more than 0.05, then H_0 is accepted and H_1 is rejected.

If the distribution of data is abnormal, then the comparative test carried out is non-parametric using the Wilcoxon Signed Rank Test by comparing the median between two data sets before and after treatment.

The hypotheses used in this test are:

- H_0 = There was no difference in influence on each variable before and during digital acceleration.
- H_1 = There are different influences on each variable before and during digital acceleration.

The comparative test requirements that must be met in the Wilcoxon Signed Rank Test are:

- Prob>z value is less than 0.05, then H_0 is rejected, and H_1 is accepted.
- Prob>z value is more than 0.05, then H_0 is accepted, and H_1 is rejected.

3.6. Framework of the Research

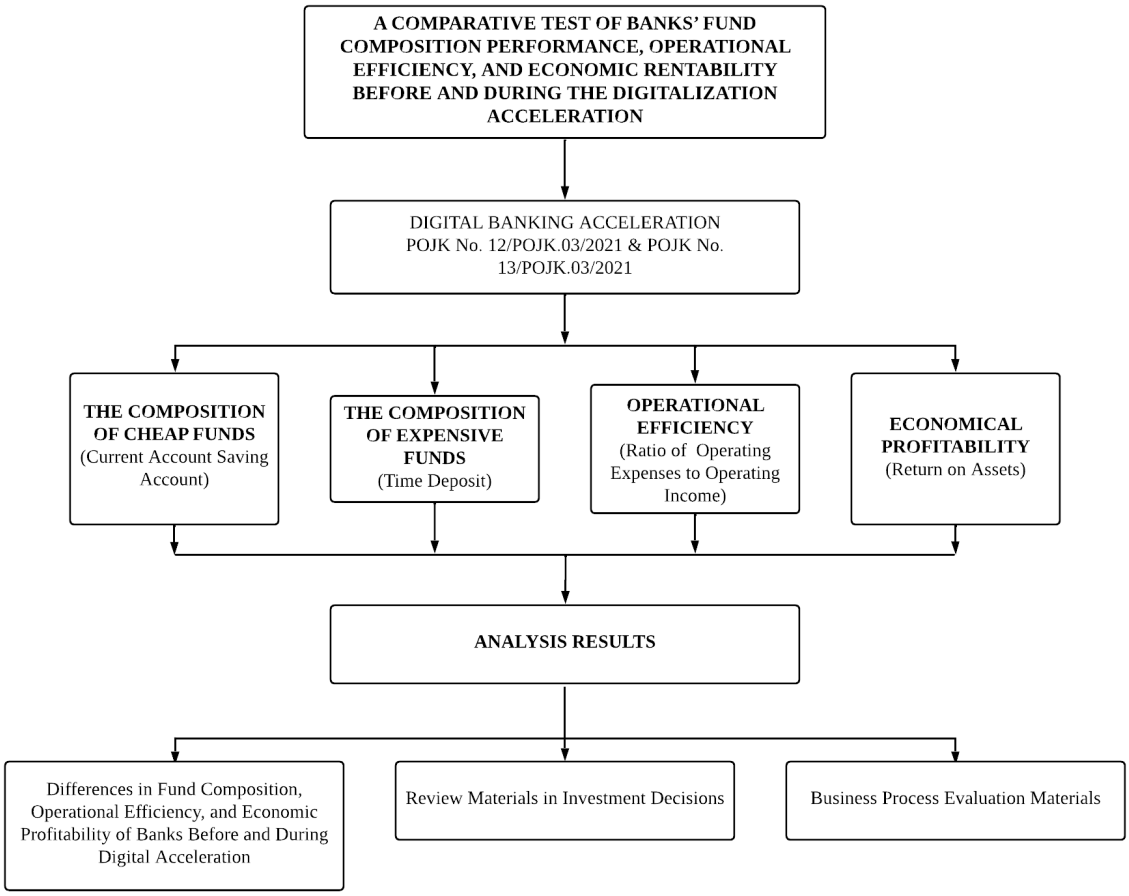

Figure 4. Framework of The Research

4. RESULT AND DISCUSSION

This study aims to see the differences in funds composition, operational efficiency, and banking rentability before and during the digital acceleration era. The banking objects studied are nine banks that provide online open account features through mobile banking, are listed on the main recording board of the IDX, have complete financial statements, and experience a decline in one of the performances of CASA, TD, BOPO, and ROA post-regulation. The data used include the composition of the current CASA, TD, BOPO ratio, and ROA ratio obtained from each bank's monthly financial statements. Data was tabulated using the Microsoft Excel program, and then processed using the StataMP 17 program through Descriptive Statistical Tests, Normality Tests, and Comparative Tests.

4.1. The Results of Descriptive Statistical Tests

Table 3. The Results of Descriptive Statistical Tests

Variable	Obs	Mean	Std. dev.	Min	Max
CASAPRE	126	164000000	218000000	4319940	738000000
CASAPOST	126	195000000	259000000	5885463	842000000

Variable	Obs	Mean	Std. dev.	Min	Max
TDPRE	126	86500000	65500000	3987713	228000000
TDPOST	126	86700000	66300000	7603245	223000000
BOPOPRE	126	0.8127	0.1478	0.4571	1.2009
BOPOPOST	126	0.7517	0.1407	0.3821	0.9711
ROAPRE	126	0.0152	0.0119	-0.0161	0.0460
ROAPOST	126	0.0179	0.0107	0.0022	0.0434

Source: Data processed by StataMP 17 (2023).

Based on the descriptive statistical table, the CASAPRE variable has a minimum value of 4,319,940, a maximum value of 738,000,000, an average of 164,000,000, and a standard deviation of 218,000,000. The CASAPOST variable has a minimum value of 5,885,463, a maximum value of 842,000,000, an average of 195,000,000, and a standard deviation of 259,000,000. The TDPRE variable has a minimum value of 3,987,713, a maximum value of 228,000,000, an average of 86,500,000, and a standard deviation of 65,500,000. The TDPOST variable has a minimum value of 7,603,245, a maximum value of 223,000,000, an average of 86,700,000, and a standard deviation of 66,300,000.

The BOPOPRE variable has a minimum value of 0.4571, a maximum value of 1.2009, an average of 0.8127, and a standard deviation of 0.1478. The BOPOPOST variable has a minimum value of 0.3821, a maximum value of 0.9711, an average of 0.7517, and a standard deviation of 0.1407. The ROAPRE variable has a minimum value of -0.0161, a maximum value of 0.0460, an average of 0.0152, and a standard deviation of 0.0119. The ROAPOST variable has a minimum value of 0.0022, a maximum value of 0.0434, an average of 0.0179, and a standard deviation of 0.0107.

4.2. The Results of Normality Tests

Table 4. The Results of Normality Tests

Variable	Obs	Prob>z
CASA	126	0.0000
TD	126	0.3316
BOPO	126	0.0005
ROA	126	0.0000

Source: Data processed by StataMP 17 (2023).

The Shapiro-Wilk W Normality test, performed on CASA, BOPO, and ROA, shows Prob>z values of less than 0.05, meaning that H_0 is rejected and H_1 is accepted. Due to the abnormal distribution of data, the next Comparative Test on these variables was carried out using the Wilcoxon Signed Rank Test. Meanwhile, the TD shows a Prob>z value that is more than 0.05, meaning that H_0 is accepted and H_1 is rejected. Due to the normal distribution of data, the Comparative Test used in the TD variable is the Paired Sample T-Test.

4.3. The Results of Comparative Tests

Table 5. The Results of Comparative Tests

Variable	Paired Sample t-Test	Wilcoxon Signed Rank Test					
	Pr (T<t)	Positive	Negative	Zero	Prob > z	Sign Test	Result
CASA		8	118	0	0.0000	Median of CASAPRE - CASAPOST < 0	+
TD	0.7304						
BOPO		112	14	0	0.0000	Median of BOPOPRE - BOPOPOST > 0	-
ROA		33	93	0	0.0000	Median of ROAPRE - ROAPOST < 0	+

Source: Data processed by StataMP 17 (2023).

The table above shows the Comparative Test results performed on CASA, TD, BOPO, and ROA. Prob>|z| value of CASA is less than 0.05, indicates that there is a significant difference in CASA before and during acceleration. Based on the sign test, the result shows that the median CASAPRE - CASAPOST < 0, meaning there is an increase in CASA value during acceleration. A total of 8 CASAs decreased, and another 118 increased, and there was no constant value. Meanwhile, the Prob (T<t) value of TD is more than 0.05, indicating that there is no significant difference in the TD variable before and during digital acceleration.

Prob>|z| value of BOPO is less than 0.05, indicating that there is a significant difference in BOPO before and during acceleration. Based on the sign test, the result shows that the median BOPOPRE - BOPOPOST > 0, meaning that there is a decrease in the BOPO value during acceleration. A total of 112 BOPOs decreased 14 others increased, and there was no constant value. The value of CASA's Prob>|z| is less than 0.05, indicating that there is a significant difference in ROA before and during acceleration. Based on the sign test, the result shows the median ROAPRE - ROAPOST < 0, meaning that the ROA value increases during acceleration. A total of 33 ROA decreased, and another 93 increased during acceleration, and there was no constant value.

4.4. The Differences of CASA Before and During the Digital Acceleration Era

Table 6. The Results of Wilcoxon Signed Rank Test ton CASA.

Prob	Sign Test	
	Median	Result
0.0000	CASAPRE - CASAPOST < 0	+

Source: Data processed by StataMP 17 (2023).

The results showed that tests conducted on CASA variables produced a p-value of 0.0000 (<α) and a positive sign. So, it can be concluded that during the era of accelerated digitalization, CASA has proven to experience a significant increase. Limited mobility during the pandemic caused disruption to people's transaction habits

and resulted in an increase in the need for digital transactions. Without the need to go to a branch office, they simply open a bank account online via mobile banking and deposit some money. When the balance on the account has been filled, they can make transactions anywhere and anytime. This feature is able to increase the number of accounts acquisition. Evidently, in December 2021, banks experienced an increase in the number of new accounts, most of which came from online account opening services, such as Bank BCA, which increased by 16% YoY (Bank Central Asia, 2022) and Bank Mandiri by 21% YoY (Sari, 2021). Thus, due to the acceleration of digitalization, in general, there has been an increase in digital transactions through electronic money by 58.60% YoY (Annur, 2022).

The acceleration of digitalization has also led to the emergence of various features that greatly facilitate customers. If previously customers had to use a debit card to make transactions at ATM machines, now they don't need to worry if their debit card is damaged or left behind because ATM transactions such as cash withdrawals and deposits can be done cardless as long as their account is connected to the mobile banking. In addition, people can also enjoy other features such as foreign exchange transfers, mutual fund investments, purchasing trains, plane, and even concert tickets. This convenience causes a lot of cheap funds to enter the bank, causing a significant increase in CASA.

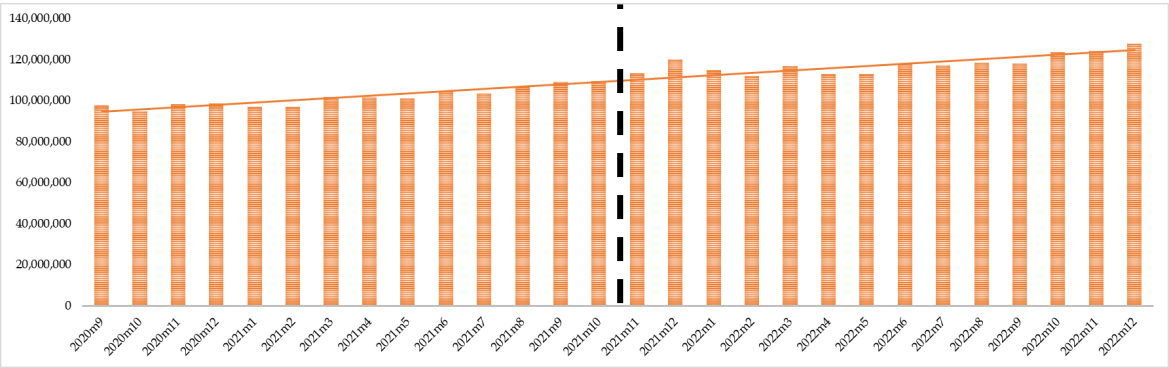

Figure 5. The Average of CASA

The results showed that during the era of accelerated digitalization, the amount of CASA entering banks increased, as shown in Figure 5. The use of digital services led to an increase in the composition of CASA (Wareza, 2020). From the pandemic's beginning until 2022, the number of digital transaction users has increased significantly by 21 million, and 72% of them come from outside big cities (Intan, 2022). This means that not only people in big cities but also people in remote areas are forced to be digitally literate. In addition, due to the pandemic, people also limit their consumption and save more money in the form of CASA. This is an effort to guard and anticipate liquidity difficulties in the future (Setyame, 2020).

The amount of CASA successfully acquired by banks indicates that the greater the amount of credit that can be disbursed at a smaller cost, thus increasing spread-based income and reflecting the profitability of a bank (Daryanto, Akbar, and Perdana, 2020). This is a positive signal for investors because they can know when the right time to buy or sell the shares they own is so as to get the appropriate return and avoid unnecessary risks. Banks that have not been able to maximize CASA through the use of digital channels can use several other strategies. To absorb large amounts of cheap funds, banks can penetrate corporate customers who have large

transaction volumes. They can maximize sales of payroll services and cash management systems. In addition, to be able to reach customers who are located far from branch offices, banks can make acquisitions through branchless banking agents known as Layanan Keuangan Tanpa Kantor (Laku Pandai).

4.5. The Differences of TD Before and During the Digital Acceleration Era

Table 7. The Results of the Paired Sample t Test on TD

Prob	Sign Test	
	Median	Result
0.7304	N/A	N/A

Source: Data processed by StataMP 17 (2023).

The results showed that tests conducted on TD variables produced a p-value of 0.7304 (>α) so it can be concluded that during the era of accelerated digitalization, TD has not proven to experience a significant change. The use of digital channels can lead to an increase in the acquisition of financial products, one of which is deposits (Son et al., 2019). Banks can acquire deposit products more easily through mobile banking, so customers can open deposit accounts instantly without the need to queue at offline branches during working hours. However, as can be seen in Figure 6, the results show that during the acceleration, the majority of banks did not experience significant changes in the amount of TD.

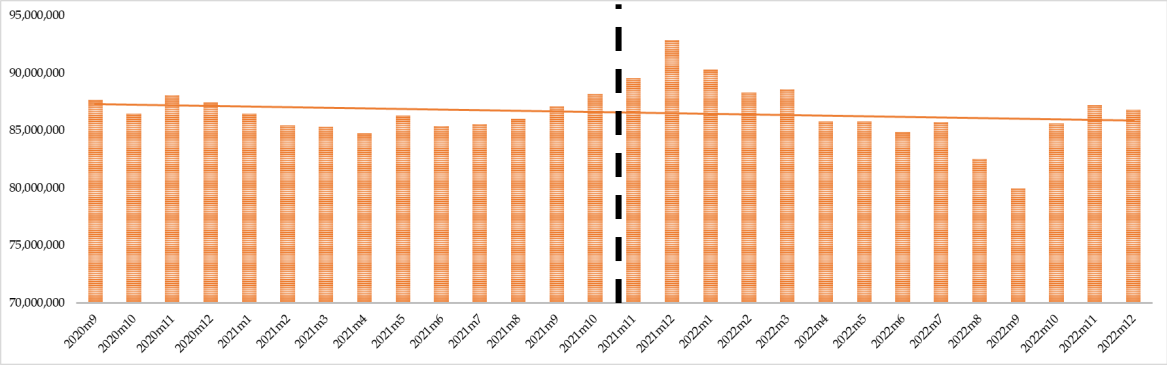

Figure 6. The Average of TD

Currently, deposits are not a top priority for banking funding (Sari, 2022). This is influenced by several factors, such as banking programs in fund cost efficiency by focusing on acquiring low-cost funds with smaller interest expenses (Putra, 2022) and spurring an increase in the total and volume of digital transactions (Irawati, 2022). In addition, the decline in deposit rates in the last ten years has also had a significant impact on people's interest in saving their money in the form of deposits. As a result, many depositors divert their funds to capital market instruments (Marta, 2022). Thus, at the end of 2021, there was an increase in the number of capital market investors by 92.99% YoY to reach 7.49 million investors.

To do deposit marketing, banks need more cost as a result. On the other hand, the pandemic caused an increase in the number of credit restructurings, one of which was through interest rate cuts, even though banks also had to pay returns to depositors of expensive funds, resulting in a reduction in net interest margins received by banks (Elena, 2020). Both led to an increase in the bank's operational

expenses. This can be used as a signal by investors where to see banking performance should not be driven by the size of deposit acquisitions but must pay attention to other factors, such as operational costs and the number of non-performing loans

Nevertheless, banks still try to maintain the composition of the proportion of their deposits by carrying out several business strategies, one of which is continuing to cross-sell deposit products to potential customers. The bank also conducts promotions by "picking up the ball", where the funding or marketing team will directly visit customers who want to open deposits with a certain nominal (Darmawan, 2019). In addition, some banks also provide deposit promos to customers in the form of points, cash rewards, shopping vouchers, and others.

4.6. The Differences of BOPO Before and During the Digital Acceleration Era

Table 8. The Results of Wilcoxon Signed Rank Test ton BOPO.

Prob	Sign Test	
	Median	Result
0.0000	BOPOPRE - BOPOPOST > 0	-

Source: Data processed by StataMP 17 (2023).

The results showed that tests conducted on BOPO variables produced a p-value of 0.0000 (<α) and a negative sign. So, it can be concluded that during the era of accelerated digitalization, BOPO has proven to experience a significant decrease. Due to the use of digital channels, banks experience operational efficiency and are able to accelerate processes and services to customers. This leads to a decrease in the BOPO ratio, as can be seen in Figure 7. This result is consistent with research conducted by Widyandri and Laila (2022), Prasetya et al. (2015), and Margaretha (2015). Banks that have used digital channels have smaller and more efficient operational expenses, with a record of non-performing loans whose composition must be maintained.

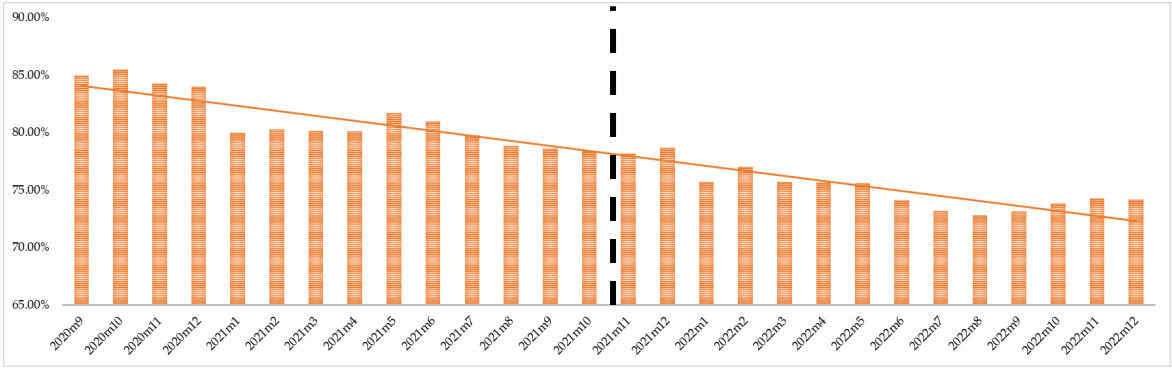

Figure 7. The Average of BOPO Ratio

Digitalization leads to efficiency in the credit process. Some banks already provide unsecured credit application features through mobile banking. So, with the convenience they offer, banks are also obliged to monitor the collectability of credit given to debtors. If there is a bad debt, the bank also needs to incur large additional operational costs, such as security, court, collection, and other costs. So, to maintain the BOPO ratio, banks must be able to control bad loans. If successfully done, it will

be a positive signal for investors because the bank can be said to be productive, profitable, competitive, and worthy of being used as an investment destination.

In addition to digitalization, several other factors that can affect the BOPO ratio are the implementation of business expansion, overhead costs, cost of funds, fee-based income, and others. Hence, the BOPO ratio can describe the fundamental condition of a bank. Amri and Mufti (2021) stated that the fundamental condition of a bank is one of the considerations for investors before investing. If its fundamental condition is bad, then the bank is not suitable to be used as an investment destination, so they are obliged to analyze and make improvements to its business.

4.7. The Differences of ROA Before and During the Digital Acceleration Era

Table 9. The Results of Wilcoxon Signed Rank Test ton ROA

Prob	Sign Test	
	Median	Result
0.0000	ROAPRE - ROAPOST < 0	+

Source: Data processed by StataMP 17 (2023).

The results showed that tests conducted on ROA variables produced a p-value of 0.0000 (<α) and a positive sign. So, it can be concluded that during the era of accelerated digitalization, ROA has proven to experience a significant increase. Efficiency due to the use of digital channels causes banks to be able to optimize the profits they get, resulting in an increase in ROA, as seen in Figure 8. These results are consistent with research conducted by Ashiru et al. (2023), Arofany and Tandika (2019), Okon and Amaegberi (2018), and Margaretha (2015). Banks that adopt digital channels are able to increase profitability by encouraging customer interaction through low-cost digital channels (Son et al., 2019)

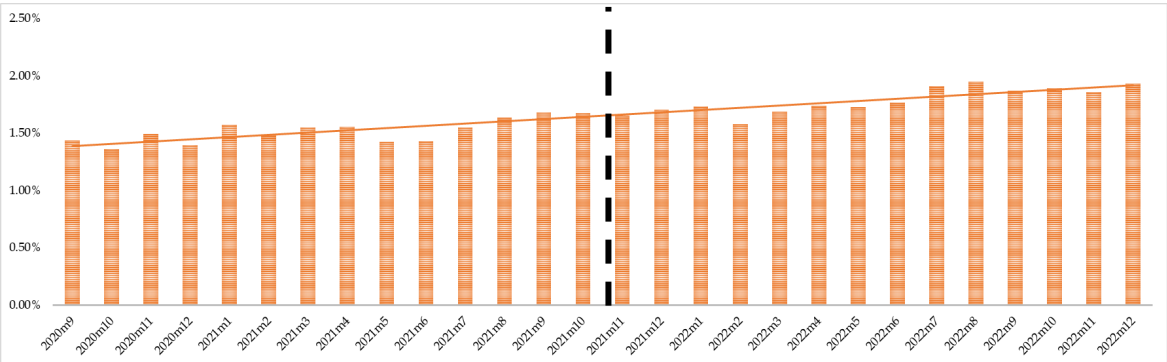

Figure 8. The Average of ROA Ratio

An increase in ROA can illustrate the good fundamental condition of a bank and be a positive signal for investors. They tend to invest in companies with high profits because this indicates that the company is able to maximize its asset management so that it does not experience losses. Companies with a large ROA deserve to be an investment destination because they are able to make profits in every period. However, investors also need to pay attention to whether the increase in ROA is also accompanied by an increase in other ratios such as Earnings per Share (EPS), Price to Earnings Ratio (PER), dividend yield, and others.

To increase their profits and provide positive signals for investors, banks can implement several business strategies, such as increasing fee-based income by increasing the variety of services and collaborating with other payment instruments such as merchants and digital wallets. In addition, banks can maximize spread-based income through the realization of good quality loans and cost of fund efficiency by increasing the acquisition of low-cost funds rather than expensive funds, as well as selectively expanding their business.

5. CONCLUSION

The results of this study showed that between the two periods, before and during digitalization acceleration, there were significant differences in CASA, BOPO, and ROA, while TD variables did not experience significant differences. Due to limited mobility, people tend to do online transaction using mobile banking. It leads to increased number of accounts. Public funds received by banks increased in amount in form of CASA. Banks that have used digital channels experienced a decrease in operational expenses, leads to efficiency of BOPO. Increased CASA and decreased BOPO leads to profit maximization, observable by the increase of ROA.

This research has limitations on the companies that are the object of research, which only includes “go digital” banking contained in the main listing board of the IDX on September 2020 to December 2022. It is expected that further researchers can increase the number of research objects and add other banking financial performance variables. They can also add other banking categories, such as Islamic banks, regional banks, and other banks that digitize in further periods.

REFERENCES

Aliaga, M., and Gunderson, B., 2002*. Interactive Statistics.* Upper Saddle River, N.J.: Prentice Hall/Pearson Education.

Amri, U., and Mufti, D., 2021. Pengaruh analisis fundamental terhadap keputusan investor dalam berinvestasi di Bursa Efek Indonesia (BEI). *Jurnal PERKUSI: Pemasaran, Keuangan dan Sumber Daya Manusia,* 1(3), 362-367.

Annur, C. M., 2022. *Bank Indonesia: Transaksi Uang Elektronik RI Tembus Rp 35 Triliun per Desember 2021.* Databoks. Available at https://databoks.katadata.co.id/datapublish/2022/01/31/bank-indonesia-transaksi-uang-elektronik-ri-tembus-rp-35-triliun-per-desember-2021

Bank Central Asia, 2022. *PT Bank Central Asia Tbk Hasil Kinerja Sepanjang Tahun 2021 - Hybrid Now, Inovasi dan Kolaborasi Untuk Pertumbuhan Berkelanjutan.* Bank Central Asia. Available at https://www.bca.co.id/id/tentang-bca/media-riset/pressroom/siaran-pers/2022/01/28/02/26/hybrid-now-inovasi-dan-kolaborasi-untuk-pertumbuhan-berkelanjutan

Bick, R., Bugrov, D., Gerson, H., McFaull, A., and Pariyskiy, A., 2021. *Joining The Next Generation of Digital Banks in Asia.* McKinsey & Company. Available at https://www.mckinsey.com/industries/financial-services/our-insights/joining-the-next-generation-of-digital-banks-in-asia

Daryanto, W. M., Akbar, F., and Perdana, F. A., 2020. Financial performance analysis in the banking sector: Before and after financial technology regulation in Indonesia (case study of BUKU-IV in Indonesia for period 2013-2019). *International Journal of Business, Economics and Law,* 21(2), 1-9.

Dermawan, W.D. and Desiana, D., 2019. Analisis faktor-faktor yang mempengaruhi profitabilitas (studi pada bank umum konvensional di Indonesia). *Jurnal Akuntansi*, *14*(1), pp.32-39.

Elena, M., 2020. *Jaga Margin di Masa Pandemi, Bank Pangkas Dana Mahal.* Bisnis.com. Available at https://finansial.bisnis.com/read/20200614/90/1252531/jaga-margin-di-masa-pandemi-bank-pangkas-dana-mahal

Fauzi, A., Widayati, E., Sasmitha, M., Maulana, R., Aulia, T. and Herdinov, A., 2023. Peranan Bank Indonesia dalam mengatur dan menjaga kelancaran sistem pembayaran. *Jurnal Akuntansi dan Manajemen Bisnis*, *3*(1), pp.80-89.

Fitri, M., 2016. Peran dana pihak ketiga dalam kinerja lembaga pembiayaan syariah dan faktor-faktor yang memengaruhinya. *Economica: Jurnal Ekonomi Islam*, *7*(1), pp.73-95.

Hariningsih, E. and Harsono, M., 2019. Kajian Kritis Kontribusi Signaling Theory di Area Penelitian Online Commerce. *EKLEKTIK: Jurnal Pendidikan Ekonomi Dan Kewirausahaan*, *2*(2), pp.241-257.

Hasan, N. I., 2014. *Pengantar Perbankan.* Jakarta: Referensi (Gaung Persada Press Group).

Intan, N., 2022. *Bank Indonesia Catat 21 Juta Konsumen Baru Transaksi Digital.* Republika. Available at https://ekonomi.republika.co.id/berita/rgef4w423/bank-indonesia-catat-21-juta-konsumen-baru-transaksi-digital

Irawati, 2022. *Transaksi BRImo Capai Rp2.084 Triliun, BRI Genjot Transformasi Digital.* Infobank. Available at https://infobanknews.com/transaksi-brimo-capai-rp2-084-triliun-bri-genjot-transformasi-digital/

Jerenz, A., 2022. *Winning in Digital Banking. McKensey Digital.* Available at https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/tech-forward/winning-in-digital-banking

Kasmir, S.E., 2015. *Bank dan Lembaga Keuangan Lainnya.* Jakarta: Rajawali Press.

Kasmiri, K. and Nurjaman, K., 2021. Pengaruh dana pihak ketiga dan ekuitas terhadap laba pada Bank Syariah Mandiri periode 2012-2019. *El-Ecosy: Jurnal Ekonomi Dan Keuangan Islam*, *1*(1), pp.102-118.

Khabibah, N.A., Octisari, S.K. and Nugraheni, A.P., 2020. CASA, NIM, dan profitabilitas perbankan di indonesia. *Jurnal Aplikasi Akuntansi,* 5(1), pp.52-71.

Kornelis, Y., 2022. Digital banking consumer protection: Developments & challenges. *Jurnal Komunikasi Hukum (JKH)*, *8*(1), pp.378-394.

Kusumastuti, W.I. and Alam, A., 2019. Analysis of impact of CAR, NPF, BOPO on profitability of Islamic banks (Year 2015-2017). *Journal of Islamic Economic Laws*, *2*(1), pp.30-59.

Leedy, P. D., and Ormrod, J. E. (2001). *Practical Research: Planning and Design.* Seventh edition. New York: Pearson Education.

Margaretha, F., 2015. Dampak electronic banking terhadap kinerja perbankan Indonesia. *Jurnal Keuangan dan Perbankan,* 19(3), pp.514-524.

Marta, M. F., 2022. *Bunga Deposito Tak Indah Lagi. Kompas.* Available at https://www.kompas.id/baca/kolom/2022/02/08/bunga-deposito-tak-indah-lagi?status=sukses_login&status_login=login

Muhammad, 2010. *Prinsip-Prinsip Ekonomi Islam.* Yogyakarta: Graha Ilmu.

Narayanaswamy, R., 2022. *Financial Accounting: A Managerial Perspective*. New Delhi: PHI Learning Private Limited.

Olanrewaju, T., 2014. *The Rise of The Digital Bank.* McKinsey Digital. Available at https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/the-rise-of-the-digital-bank

Prasetya, B., Tan, S. and Delis, A., 2015. Faktor-faktor yang mempengaruhi penghimpunan dana pihak ketiga perbankan syariah di Indonesia. *Jurnal Perspektif Pembiayaan dan Pembangunan Daerah*, *3*(2), pp.91-100.

Putra, D., 2022. *Biaya Dana Murah, Jadi Kunci Pertumbuhan Perbankan.* CNBC Indonesia. Available at https://www.cnbcindonesia.com/news/20221006000152-4-377550/biaya-dana-murah-jadi-kunci-pertumbuhan-perbankan

Riyadi, S., 2006. *Banking Assets And Liability Management.* Fourth edition. Jakarta: Lembaga Penerbit Fakultas Ekonomi & Bisnis Universitas Indonesia.

Riyadi, S., 2016. *Rasio Profitabilitas Bank (ROA dan ROE).* Perbanas Institute. Available at https://dosen.perbanas.id/rasio-profitabilitas-bank-roa-dan-roe/

Suputra, G.A., 2021. Pengaruh Tingkat Perputaran Kas, Capital Adequacy Ratio, Loan to Asset Ratio dan Non Performing Loan Terhadap Profitabilitas Pada BPR di Kota Denpasar Saat Pandemic COVID19. *Jurnal Ilmiah Akuntansi Dan Bisnis*, *6*(2), pp.98-114.

Sari, F., 2021*. Lewat Super App, Bank Mandiri Genjot Pertumbuhan Rekening Baru. Kontan.* Avaialble at https://keuangan.kontan.co.id/news/lewat-super-app-bank-mandiri-genjot-pertumbuhan-rekening-baru-di-2022

Sari, F., 2022. *Deposito Turun, Perbankan Fokus Kejar Dana Murah.* Kontan. Available at https://keuangan.kontan.co.id/news/deposito-turun-perbankan-fokus-kejar-dana-murah#:~:text=Tren%20penurunan%20suku%20bunga%20deposito%20telah%20mengurangi%20minat,atau%20hanya%20tumbuh%203%2C4%25%20yoy%20pada%20Januari%202022

Setyame, R. V., 2020. *Daya Beli Masyarakat Lemah, Akibatnya Permintaan Uang Ikut Turun*. Kumparan. Available at https://kumparan.com/rike-vidyana-setyame/daya-beli-masyarakat-lemah-akibatnya-permintaan-uang-ikut-turun-1uTOAieDFz6

Son, Y., Kwon, H.E., Tayi, G.K. and Oh, W., 2020. Impact of customers' digital banking adoption on hidden defection: A combined analytical–empirical approach. *Journal of Operations Management*, *66*(4), pp.418-440.

Spence, M., 1973. Job Market Signaling. *The Quarterly Journal of Economics*, *87*(3), pp.355-374.

Sukmayadi, 2020. *Manajemen Perbankan untuk Akademisi dan Praktisi.* Bandung: Penerbit Alfabeta.

Wareza, M., 2020. *Bos BCA Sebut Layanan Digital Masa Depan Industri Bank.* CNBC Indonesia. Available at https://www.cnbcindonesia.com/market/20201026161802-17-197215/bos-bca-sebut-layanan-digital-masa-depan-industri-bank

Wells, J.D., Valacich, J.S. and Hess, T.J., 2011. What signal are you sending? How website quality influences perceptions of product quality and purchase intentions. *MIS Quarterly*, pp.373-396.

Woetzel, J., Thomas, R., Barquin, S., & Davesa, T., 2021. *Changes in Asia's Consumer Markets Offer New and Diverse Opportunities for Growth.* McKinsey. Retrieved from https://www.mckinsey.com/industries/financial-services/our-insights/future-of-asia-the-future-of-financial-services

Yusuf, M. Y. (2023). *Inilah Daftar Nama Bank di Indonesia Terlengkap 2023 dan Kode Banknya*. IDX Channel. Available at https://www.idxchannel.com/banking/inilah-daftar-nama-bank-di-indonesia-terlengkap-2023-dan-kode-banknya

Zare, R., Kiafar, H., Kanani, M.A. and Farzanfar, F., 2013. Research article dividend policy from the signaling perspective and its effects on information asymmetry among management and investors. *Research Journal of Applied Sciences, Engineering and Technology*, *6*(21), pp.4090-4097.