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Digital Banking Transactions and Profitability in Indonesia: The Role of Internal and External Factors

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Abstract
The profitability of banks is significantly influenced by financial service providers, who play a crucial role in shaping overall performance. Several factors, both internal and external, as well as technological advancements, contribute to fluctuations in bank profitability. This study aims to analyze, test, and verify the impact of CAR, NPL, LDR, BOPO, company size, inflation, economic growth, internet banking transactions, and mobile banking transactions on the profitability of commercial banks listed on the Indonesia Stock Exchange between 2015 and 2019. Employing a quantitative approach, this research utilizes secondary data sourced from bank financial reports available on the IDX, as well as economic indicators, including inflation and economic growth data provided by the Central Bureau of Statistics (BPS). The sample selection employs a purposive sampling technique, resulting in the inclusion of six commercial banks in the study. Multiple linear regression is applied for technical data analysis. Findings indicate that CAR has a significant positive influence on profitability, while BOPO, economic growth, and mobile banking transactions also exhibit notable effects. However, NPL, LDR, company size, inflation, and Internet banking transactions do not appear to have any significant impact on bank profitability.

Keywords: BOPO, CAR, Economic Growth, Mobile Banking Transactions, Profitability

Introduction

Banks function as financial institutions primarily responsible for gathering public funds, redistributing them within the community, and offering various banking services (Kasmir, 2015) [25]. The banking sector has significantly contributed to economic growth, accounting for a 75.8 % increase, surpassing other financial sectors in its impact (BI, 2013). Given its integral role in society, banking is considered essential, as its services are closely linked to daily life (Pinasti & Mustikawati, 2018) [41]. A key aspect of banking involves assessing financial performance, which serves as a measure of operational efficiency and effectiveness (Hendrawan & Lestari, 2017) [20].

The performance of banks reflects their ability to utilize resources efficiently and effectively (Trihastuti & Dewi, 2016) [61]. Profitability is commonly used as a key indicator of banking performance (Sutrisno, 2017) [60], providing insight into an institution's capacity to generate profit over a given period (Dermawan & Desiana, 2019) [12]. One of the widely accepted metrics for evaluating profitability is Return on Assets (ROA). ROA is particularly relevant in assessing bank profitability, as it considers assets sourced from public deposits, offering a more representative measure of financial success (Avrita & Pangestuti, 2016) [7]. A higher ROA signifies better financial performance, as it corresponds to increased returns (Pramudyani & Hartono, 2018) [42]. However, the profitability trends of commercial banks in Indonesia do not always show continuous growth. As presented in Table 1, the data on the development of ROA for commercial banks is derived from the Banking Industry Profile Report, which is accessible through the official website of the Financial Services Authority (OJK) (www.ojk.go.id).

Table 1: ROA of Commercial Banks for the Period 2015-2019

Year	ROA (%)
2015	2.32
2016	2.17
2017	2.38
2018	2.55
2019	2.47

***Source*:** Banking Industry Profile Report, OJK, processed data, 2021

Based on the data in Table 1, it can be seen that the return on assets (ROA) of commercial banks in Indonesia has fluctuated over the last 5 years. In 2017, the increase was 0.21%, and in 2018, it was 0.17%. Additionally, the ROA value decreased by 0.15% in 2016 and by 0.08% in 2019. The decrease in the ROA value is one of the problems and challenges that banks must face, as it results in a decline in both the bank's financial performance and overall performance (Pertiwi & Susanto, 2019) [40]. Factors that cause changes in bank profitability can be attributed to internal factors, such as bank accounts, capital adequacy, and operational efficiency, or to external factors, including macroeconomic indicators, policies and regulations, laws, and the application of technology (Sorongan, 2017) [54].

In previous studies, bank capital adequacy, as assessed by CAR, has been shown to have an effect on profitability (Ambarawati & Abundanti, 2018; Nugroho *et al*., 2019) [2, 35]. However, several other studies have found that CAR does not affect profitability (Arofany & Tandika, 2019; L. N. Hidayati, 2015) [6, 22]. Additionally, research has been conducted on credit risk, as measured by Non-Performing Loans (NPL), which has been shown to impact profitability (Ambarawati & Abundanti, 2018; Patni & Darma, 2017; Sudaryanti *et al*., 2018) [2, 39, 57]. Meanwhile, other studies related to NPL found that NPL does not affect profitability (Harun, 2016; Matindas *et al*., 2015; Stevani & Sudirgo, 2019) [19, 33, 56]. The Loan to Deposit Ratio (LDR) assessment also impacts profitability (Pertiwi & Susanto, 2019; Soares & Yunanto, 2018) [40, 52]. However, other studies have revealed the opposite, namely that LDR does not affect profitability (Siahaan & Asandimitra, 2018; Stephani *et al*., 2017) [50, 55] Other internal variables that are considered to have an influence on profitability include Operating Expenses, Operating Income (BOPO), and company size. In previous studies, it has been demonstrated that BOPO has an impact on bank profitability (Stephani *et al*., 2017; Stevani & Sudirgo, 2019). In addition, research related to company size also found that company size also affects profitability (Hendrawan & Lestari, 2017; Hirindukawshala & Kushanipanditharathna, 2017) [20, 23]. However, several other studies have revealed that BOPO does not affect profitability (Gunawan *et al*., 2020) [18]. Additionally, studies related to company size have found that company size also does not impact profitability (Oktaviarni *et al*., 2018; Putra, 2015) [37, 43]. External factors that also affect profitability are inflation and economic growth. Previous studies found that inflation affects profitability (Dwi Nurfadillah *et al*., 2019; A. N. Hidayati, 2014) [13, 21]. Then, in other studies, it was found that economic growth affects profitability (Adiyadnya *et al*., 2016; Sorongan, 2017) [1, 54]. However, in other studies related to inflation, no effect of inflation on profitability was found (Adiyadnya *et al*., 2016; Sorongan, 2017) [1, 54]. Similarly, other studies examining economic growth have found no impact on profitability (Cahyani, 2018; Sugito & Winarno, 2019) [10, 58]. Another factor that affects bank profitability is the utilization and application of technology aimed at enhancing business competitiveness and operational efficiency. The application of technology can reduce banking operational costs (Yohani & Dita, 2019) [66]. The banking sector is the largest user of information technology among other sectors (Margaretha, 2015) [31]. The technology used by banks is reflected in the use of Internet banking and mobile banking, which is based on the increase in the value of digital transactions in Indonesia obtained from the Kata data site, which reveals that the value of digital transactions in Indonesia is the largest in Southeast Asia, reaching $21 billion (Kata Data, 2019) [27].

This is also reinforced by research that has found internet banking services have an impact on profitability (Wulandari & Novitasari, 2020) [64]. Additionally, previous research on mobile banking services has found that they also affect profitability (Arofany & Tandika, 2019; Okon & Amaegberi, 2018) [6, 36]. However, in other research results related to internet banking services, no influence of Internet banking services was found on profitability (Arif & Masdupi, 2020; & Tandika, 2019) [5, 6], and in other studies related to mobile banking services, the opposite results were also found, namely that mobile banking services do not affect profitability (Mary Ada *et al*., 2020) [32].

Based on the results of previous studies, several theories have been used to explain the influence of the variables on profitability. Therefore, it is essential to conduct further research using a more comprehensive theory to analyze, test, and verify the impact of internal and external factors, as well as digital transaction services of banks, on the profitability of commercial banks listed on the Indonesia Stock Exchange (IDX) from 2015 to 2019. This research is based on six theories that will be the basis of the study, namely pecking order theory which is used as a basis for thinking to explain how the adequacy of bank capital affects profitability through the Capital Adequacy Ratio (CAR) variable, anticipated income theory which is used as a basis for thinking to explain bank problem loans through the Non-Performing Loan (NPL) variable and bank liquidity through the Loan to Deposit Ratio (LDR) variable to profitability, signalling theory which is used as a basis for thinking to explain bank efficiency through the Operating Expenses Operating Income (BOPO) variable to profitability, critical resource theory which is used as a basis for thinking to explain company size to profitability, Keynesian theory which is used as a basis for thinking to explain the influence of external factors through the variables of inflation and economic growth to profitability, and resource based view theory which is used as a basis for thinking to explain the use of internal resources as a competitive strategy through the variables of internet banking and mobile banking to profitability.

Hypothesis Development

Capital Adequacy Ratio (CAR) is a capital ratio that shows the bank's ability to reserve funds for business development needs and the risk of loss of funds in bank operations (Avrita & Pangestuti, 2016) [7]. CAR will show how much capital the bank itself has against the risks arising from operational activities (Bilian & Purwanto, 2017) [9]. When the CAR owned by the bank is higher, the bank's ability to bear the risk caused by (L. N. Hidayati, 2015) [22] will be better. This will be in accordance with the pecking order theory in explaining CAR as the adequacy of capital owned by the bank where

CAR can show that internal funding will minimize the risks arising from bank operational activities. With a small risk in bank operations, the profitability value will increase as measured by ROA. This theory is also supported by previous research which found that CAR has a significant positive effect on profitability (Ambarawati & Abundanti, 2018; Kossoh *et al*., 2017; Nugroho *et al*., 2019) [2, 28, 35], so that the formulation of the hypothesis:

H1: CAR has a positive effect on profitability.

Non-Performing Loan (NPL) is a ratio that can show the bank's ability to control non-performing loans (Stevani & Sudirgo, 2019) [56]. Increasing NPL will show the increasingly poor quality of credit provided by the bank because the more non-performing loans that then cause losses (Stephani *et al*., 2017) [55]. In accordance with the anticipated income theory, where the return of credit or payment of credit that has been given by the bank that cannot be done on time can give rise to the risk of bad or problematic credit which will cause losses. The large value of NPL will show the amount of non-performing credit which will affect the level of profitability as measured by low ROA. In addition, this theory is also supported by research that found that NPL has a significant negative effect on profitability (Ambarawati & Abundanti, 2018; Patni & Darma, 2017; Sudaryanti *et al*., 2018) [2, 39, 57]. Hypothesis formulation:

H2: NPL has a negative effect on profitability

Loan to Deposit Ratio (LDR) is a ratio that assesses the bank's ability to repay third-party funds to customers by distributing credit as a source of the bank's own liquidity (Stephani *et al*., 2017) [55]. A higher LDR ratio balanced with the bank's ability to provide credit effectively will increase profits which also affect profitability so that the profitability value also increases (Pertiwi & Susanto, 2019) [40]. The theory related to the LDR relationship is the anticipated income theory where banks should be able to maintain their liquidity with the ability to pay third-party funds and provide credit effectively and be able to pay the bank's debts on time so that the bank does not experience losses. A large LDR value balanced with the effectiveness of credit distribution and the ability to repay third-party funds to customers will improve financial performance which ultimately affects profitability so that the profitability value measured by ROA will increase. Previous research also supports the theory that found that LDR has a significant positive effect on profitability (Ambarawati & Abundanti, 2018; Pertiwi & Susanto, 2019) [2, 40]. Hypothesis formulation:

H3: LDR has a positive effect on profitability.

BOPO is a ratio that can assess bank efficiency and the bank's ability to manage its operational activities (Jorjoga & Murdayanti, 2015) [24]. A lower BOPO ratio will indicate better bank performance because bank management uses existing resources in the bank efficiently (Stephani *et al*., 2017) [55]. Related to the relationship between the BOPO ratio, there is a signaling theory where the disclosure of information in the financial statements for calculating the BOPO ratio which describes the management burden will provide a signal whether the bank can manage existing resources efficiently. With efficiency, the management burden will affect the performance assessed by profitability through ROA assessment where the low BOPO ratio will cause the profit due to the burden to be borne by the bank to be lower, thus increasing profitability. Previous research related to BOPO also supports the existing theory, namely that it was found that BOPO has a significant negative effect on profitability (Pinasti & Mustikawati, 2018; Stephani *et al*., 2017) [41, 55], so that the formulation of the hypothesis:

H4: BOPO has a negative effect on profitability.

Company size will show the size of a company (Arif & Masdupi, 2020) [5]. Company size can be measured by the number of assets owned by the bank (N. Setiawan *et al*., 2018) [18]. A large company will also have large assets which will show that if the assets owned by a company are large, the profitability of the company will also be high because it has efficiency in its operational activities (Vernanda & Widyarti, 2016) [63]. Critical resource theory is a theory related to company size, emphasizing factors that will determine the size of the company which is obtained from the control of the company owner over business resources by describing the size of the company through the total assets owned and will be related to profitability. With the large size of a company, it will show that the assets owned by the company are large and will have efficiency in operational activities because of the benefits of reducing production costs when the company produces on a large scale with the same resources because large companies are able to achieve economies of scale so that profitability measured through ROA will also increase. The existence of critical resource theory is also supported by several previous studies which found that company size has a significant positive effect on profitability (Hendrawan & Lestari, 2017; Hirindukawshala & Kushanipanditharathna, 2017) [20, 23], so that the formulation of the Hypothesis:

H5: Company size has a significant positive effect on profitability.

Inflation is a general price increase that tends to continue over a long period of time (Anugrah *et al*., 2020) [3]. Inflation will increase the amount of money circulating in society because spending money on consumption is greater than saving money in the bank (Pramudyani & Hartono, 2018) [42]. Increasing inflation decreases the real value of savings because people only use their assets to cover expenses caused by rising prices of goods which will then affect the profitability of the bank itself (Adiyadnya *et al*., 2016) [1]. The theory that supports the relationship between inflation is the Keynesian theory, where when inflation occurs, the amount of money circulating will increase because inflation itself is a continuous increase in prices over a long period of time so that people with a fixed income will have difficulty affording the price of these goods. Continuous price increases will cause people to only use their wealth to meet their needs due to rising prices so that the real value of savings decreases due to the low number of people saving in banks which ultimately affects bank profitability. Previous studies have also found that inflation has a significant negative effect on profitability (Dwi Nurfadillah *et al*., 2019; Soeharjoto & Hariyanti, 2019) [13, 53], so the formulation of the hypothesis:

H6: Inflation has a negative effect on profitability.

Economic growth is an increase in economic capacity when producing goods and services (Arif & Masdupi, 2020) [5]. A country's economic growth is assessed by Gross Domestic Product (GDP) (Lubis, 2014) [30]. Increasing economic growth will increase people's purchasing power which will increase consumption of goods and services (Anugrah *et al*., 2020) [3]. Assessing economic growth with GDP will affect a person's saving patterns, so that increasing GDP will also increase bank profitability (Adiyadnya *et al*., 2016) [1]. In accordance with Keynesian theory, economic growth will occur if a country does not experience inflation. Without inflation, people's purchasing power will increase and consumption of goods and services will also increase and will increase saving patterns where the assets owned by the community are not only used to buy goods. The community can channel their money to the bank and this will affect the bank's profitability to increase. In addition, this theory is also supported by previous research which found that economic growth as assessed through GDP has a positive effect on profitability (Adiyadnya *et al*., 2016; Sorongan, 2017) [1, 54], so that the formulation of the hypothesis:

H7: Economic growth has a negative effect on profitability.

Internet banking is a service offered by banks with the internet media in transactions or other banking activities (Arofany & Tandika, 2019) [6]. The use of internet banking can increase ROA continuously and significantly (Wulandari & Novitasari, 2020) [64]. The implementation of digital services in banking can expand the bank's market share and product reach, and can reduce bank operational costs which then contribute to improving bank performance related to profitability. (Arofany & Tandika, 2019) [6]. Resource-based view theory is a theory that supports the relationship between internet banking where the use of internet banking is a way for companies to utilize internal resources in facing competition in the banking industry which will then improve performance as measured by bank profitability. Previous studies have also found that internet banking has a significant positive effect on profitability (Wulandari & Novitasari, 2020; Yasin, 2018) [64], so that the formulation of the hypothesis:

H8: Internet banking transactions have a positive effect on profitability

Mobile Banking is one of the digital banking transaction services that can be accessed through an application that has been previously installed on the customer's smartphone (Arofany & Tandika, 2019) [6]. ROA is thought to be able to increase from the use of information technology because banks make it easier for customers to make transactions so that customer transactions also increase and banks are also more efficient in serving customers (Sudaryanti *et al*., 2018) [57]. The implementation of digital services in banking can expand the bank's market share and product reach, and can reduce bank operating costs which then contribute to improving bank performance related to profitability. (Arofany & Tandika, 2019) [6]. The theory related to the use of mobile banking is the resource-based view theory which explains that the use of mobile banking is one way for companies to utilize the company's internal resources to face industrial competition which is ultimately able to improve performance through profitability. This theory is also supported by previous research which found that mobile banking transactions have a significant positive effect on profitability (Arofany & Tandika, 2019; Okon & Amaegberi, 2018) [6, 36], so that the formulation of the hypothesis:

H9: Mobile banking transactions have a significant positive effect on profitability

Research Method

This type of research is quantitative, aiming to test predetermined hypotheses by examining a specific population or sample using quantitative research instruments for data collection and analysis (Sugiyono, 2015) [59]. This study utilizes secondary data obtained from the annual financial reports of commercial banks published on the Indonesia Stock Exchange (IDX), as well as data on the website of the Central Statistics Agency (BPS) related to inflation and economic growth. This study employs two variables: the dependent variable (Y) is profitability, measured by Return on Assets (ROA), and the independent variable (X) is measured using CAR, NPL, LDR, BOPO, company size, inflation, economic growth, internet banking transactions, and mobile banking transactions. See Table 2 for the operational definition and measurement of the variables.

The population refers to all the characteristics of the subject or object that are determined to be studied and analyzed (Sugiyono, 2015) [59]. The population used in this study consisted of commercial banks listed on the Indonesia Stock Exchange (IDX) from 2015 to 2019, comprising 45 banks. According to Sugiyono (2015) [59], the sample is a part of the population in terms of number and characteristics. A purposive sampling technique was employed to select the sample. Purposive sampling is a sampling method in which the selection of the sample is based on specific considerations (Sugiyono, 2015). The criteria for this study included commercial banks listed on the IDX from 2015 to 2019 that utilized Internet banking and mobile banking services, and had complete financial data, including the number of Internet banking transactions and mobile banking transactions. Six public banks meet the criteria for this study. Therefore, the data sample obtained through purposive sampling consists of 30 data samples, which are derived from the financial reports of the six public banks that meet the data sample criteria, multiplied by five years of the research period (2015-2019).

Table 2: Operational Definition and Measurement

Variables	Operational Definition	Measurement
Dependent		
Return on Assets (ROA) – Y	One of the profitability ratios that can be used to see the profits generated from the overall capabilities of a company with all the assets in the company (Yultiara & Nurdin, 2018) [67]	$ROA = \frac{Income\ before\ tax}{Total\ Assets\ Average}\ x\ 100\%$ (Yultiara & Nurdin, 2018) [67]
Independent		
Capital Adequacy Ratio (CAR) – X_1	The ratio shows the total amount of bank assets that contain risks paid from the bank's capital (Ginting, 2019) [17]	$CAR = \frac{Capital}{ATMR}\ x\ 100\%$ (Riyadi, 2015)
Non-Performing Loan (NPL) – X_2	The ratio comparison between bad credit and the amount of credit given is used to calculate the credit risk (Kasmir, 2019) [26].	$NPL = \frac{Total\ non-performing\ loans}{Total\ Credit}\ x\ 100\%$ (Riyadi, 2015)
Loan to Deposit Ratio (LDR) – X_3	The ratio compares the total credit provided by the bank with third-party funds obtained by the bank (Pramudyani & Hartono, 2018) [42]	$LDR = \frac{Total\ Loans}{Total\ Deposits}\ x\ 100\%$ (Riyadi, 2015)
Operating Expenses Operating Income (BOPO) – X_4	The ratio compares the bank's operational costs with its operational income (Kurniasari, 2017) [29].	$BOPO = \frac{Operational\ Expense}{Operational\ Income}\ x\ 100\%$ (Riyadi, 2015)
Company Size – X_5	Company size can be measured by the number of assets owned by the bank (Setiawan *et al*., 2018) [48].	Company $Size = Ln\ Total\ Assets$ (Riyadi, 2015)
Inflation – X_6	It is measured through indicators commonly used to calculate the inflation rate in Indonesia, namely the Consumer Price Index (CPI) (Noor & Komala, 2019) [34].	$IHK = \frac{IHK - IHK(t-1)}{IHK(t-1)}\ x\ 100\%$ (Anugrah *et al*., 2020)
Economic Growth – X_7	It is assessed by Gross Domestic Product (GDP).	$GDP = \frac{GDP - GDP(t-1)}{GDP(t-1)}\ x\ 100\%$ (Anugrah *et al*., 2020)
Mobile Banking Transactions – X_8	using data from the number of Internet banking transactions (Arif & Masdupi, 2020) [5]	Number of Mobile Banking Transactions
Internet Banking Transactions – X_9	using data from the number of mobile banking transactions (Arofany & Tandika, 2019) [6]	Number of Internet Banking Transactions

Data analysis techniques using multiple linear regression analysis. In this study, multiple linear regression analysis was conducted using the SPSS version 23 computer program. The model of the regression equation used in this study is:

$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + e$……. (1)

Description:
Y = Return on Assets (ROA)
α = Constant
X_1 = Capital Adequacy Ratio (CAR)
X_2 = Non-Performing Loan (NPL)
X_3 = Loan to Deposit Ratio (LDR)
X_4 = Operating Expenses Operating Income (BOPO)
X_5 = Company Size
X_6 = Inflation
X_7 = Economic Growth
X_8 = Mobile Banking Transactions
X_9 = Internet Banking Transactions
$\beta_{1\text{-}9}$ = Regression Coefficient
e = Error Variable

Results and Discussion

Descriptive statistical analysis is a description of data that has been collected from the results of the analysis with the aim of not concluding in a generalized manner (Sugiyono, 2015) [59]. This data description was obtained using the SPSS 23 program, which provides the lowest value, highest value, average value, and standard deviation of the variables being tested (see Table 3).

Table 3: Descriptive Statistical Analysis

Variables	N	Minimum	Maximum	Mean	Std. Deviation
ROA	30	.47	4.19	2.8173	.93733
CAR	30	16.28	26.21	21.1427	2.26654
NPL	30	.70	3.96	2.4610	.83942
LDR	30	55.35	98.38	84.5347	11.67270
BOPO	30	58.20	97.38	73.2453	9.51091
Company Size	30	31.85	36.32	33.8937	1.07257
Inflation	30	2.72	3.61	3.1660	.30598
Economic Growth	30	4.79	5.17	5.0140	.12681
Mobile Banking Transactions	30	562826	2500000000	567180611.77	778857564.21
Internet Banking Transactions	30	782862	3800000000	524152008.87	821248614.04

***Source*:** Data processed (2021)

Based on Table 3, the number of research data used is 30, obtained through 6 commercial banks that meet the requirements for determining samples during a 5-year research period (2015-2019). Profitability, measured through

ROA, has an average value of 2.8173% with a standard deviation of 0.93733%. The minimum value of 0.47% was owned by Bank CIMB Niaga in 2015. The maximum ROA value of 4.19% was owned by Bank Rakyat Indonesia in 2015.

In Table 3, for internal factors, the Capital Adequacy Ratio (CAR) has an average value of 21.1427% with a standard deviation of 2.26654%. The minimum CAR value was 16.28%, owned by Bank CIMB Niaga in 2015. The maximum CAR value was 26.21%, owned by Bank Mega in 2016. The Non-Performing Loan (NPL) has an average value of 2.4610% with a standard deviation of 0.83942%. The minimum NPL value is 0.70 % owned by Bank Central Asia in 2015. The maximum NPL value was 3.96%, owned by Bank Mandiri in 2016. The Loan to Deposit Ratio (LDR) has an average value of 84.5347% with a standard deviation of 11.67270%. The minimum LDR value was 55.35%, owned by Bank Mega, in 2016. The maximum LDR value is 98.38% owned by Bank CIMB Niaga in 2016. Operating Expenses Operating Income (BOPO) has an average value of 73.2453% with a standard deviation of 9.51091%. The minimum BOPO value was 58.20%, owned by Bank Central Asia as of 2018. The maximum BOPO value was 97.38%, owned by Bank CIMB Niaga in 2015. Company size has an average value of 33.8937 with a standard deviation of 1.07257. The minimum company size value was 31.85, owned by Bank Mega, as of 2015. The maximum company size value, 36.32, was owned by Bank Central Asia in 2015. Inflation has an average value of 3.1660% with a standard deviation of 0.30598%. The minimum inflation rate was 2.72%, which occurred in 2019. The maximum inflation rate was 3.61%, which occurred in 2017.

For external factors, Table 3 shows that economic growth, as reflected in Gross Domestic Product (GDP), has an average value of 5.0140% with a standard deviation of 0.12681%. The minimum GDP value was 4.79%, which occurred in 2015. The maximum GDP value was 5.17%, which occurred in 2018. Internet banking transactions have an average value of Rp 567,180,611.77 with a standard deviation of 778,857,564.207. The minimum value of Internet banking transactions is IDR 562,826, owned by Bank Mega in 2015. The maximum value of Internet banking transactions in 2019 was IDR 2,500,000,000, owned by Bank Central Asia. Mobile banking transactions have an average value of IDR 524,152,008.87 with a standard deviation of 821,248,614.039. The minimum value of mobile banking transactions is IDR 782,862, owned by Bank Mega in 2015. The maximum value of mobile banking transactions in 2019 was IDR 3,800,000,000, owned by Bank Central Asia.

The normality test in Table 3 is conducted to determine whether the regression model is normally distributed or not (Ramadhayanti, 2019) [44]. In the normality test, a good regression model is one that is normally distributed. In this study, the normality test was conducted using the One-Sample Kolmogorov-Smirnov test, which is based on the significance level of the Kolmogorov-Smirnov results (Ghozali, 2016) [16].

Table 4: Normality Test Results

	Unstandardized Residual
N	30
Test Statistic	.124
Asymp. Sig. (2-tailed)	.200

Source: Data processed (2021)

Based on Table 4. the results of the normality test using Kolmogorov-Smirnov show an asymp.sig value (2-tailed) of 0.200 so that the data in this study is said to be normally distributed because the asymp.sig value (2-tailed) is greater than the predetermined significance level of 0.05.

Table 5: Multicollinearity Test Results

Variables	Tolerance	VIF
CAR	.211	4.750
NPL	.241	4.156
LDR	.191	5.248
BOPO	.114	8.785
Company Size	.204	4.900
Inflation	.668	1.497
Economic Growth	.636	1.572
Mobile Banking Transactions	.529	1.891
Internet Banking Transactions	.442	2.260

***Source*:** Data processed (2021)

Table 6: Autocorrelation Test Results

Variables	Tolerance
Test Valuea	.00334
Cases < Test Value	15
Cases >= Test Value	15
Total Cases	30
Number of Runs	15
Z	-.186
Asymp. Sig. (2-tailed)	.853

***Source*:** Data processed (2021)

Table 7: Heteroscedasticity Test Results

Model	T	Sig.
(Constant)	-.573	.573
CAR	2.050	.054
NPL	-.427	.674
LDR	1.760	.094
BOPO	.265	.793
Company Size	.536	.598
Inflation	1.097	.286
Economic Growth	-1.187	.249
Mobile Banking Transactions	.971	.343
Internet Banking Transactions	.080	.937

***Source*:** Data processed (2021)

A multicollinearity test is conducted to determine if there is a correlation between the independent variables (Ramadhayanti, 2019) [44]. In the multicollinearity test, it can be seen from the tolerance and variance inflation factor (VIF) values (Ghozali, 2016) [16]. Based on Table 5. the tolerance value on the independent variable is greater than 0.10. Additionally, the VIF value for all independent variables is lower than 10. Therefore, the regression model can be considered adequate because it avoids multicollinearity. In autocorrelation testing, the method used is the Run Test, which assesses whether the residual data occur randomly or not (Ghozali, 2016) [16]. Based on Table 6, the value of the autocorrelation test results using the run test shows an asymp.sig (2-tailed) value of 0.853 so that the data in this study is said to be free from autocorrelation because of the asymp.sig (2-tailed) value is greater than 0.05. The heteroscedasticity test is conducted to determine if there is a variation in the residual variance from one observation to another (Ghozali, 2016) [16]. In heteroscedasticity testing, a good regression model must be free of heteroscedasticity (Ramadhayanti, 2019) [44]. Based on Table 7, the value of the heteroscedasticity test results using the Glejser test shows a significant value for all independent variables, greater than the predetermined significance level of 0.05. So, the data in this study is said to be free from heteroscedasticity.

Multiple linear regression analysis is used to examine the influence of several independent variables on the dependent

variable, measuring the strength of the relationship and indicating the direction of the relationship between the independent variables and the dependent variable (Ghozali, 2016) [16].

Table 8: Multiple Regression and Hypothesis Testing Results

Model	Unstandardized Coefficient		Standardized Coefficient	T	Sig.
	B	Std. Error	Beta		
(Constant)	7.871	5.057		1.557	.135
CAR	.144	.045	.349	3.183	.005
NPL	-.213	.115	-.191	-1.859	.078
LDR	.012	.009	.153	1.325	.200
BOPO	-.078	.015	-.793	-5.319	.000
Company Size	.071	.097	.082	.732	.472
Inflation	.056	.189	.018	.299	.768
Economic Growth	-1.068	.466	-.144	-2.288	.033
Mobile Banking Transactions	-2,209E-11	.000	-.018	-.265	.794
Internet Banking Transactions	-2,322E-10	.000	-.203	-2.689	.014

***Source*:** Data processed (2021)

Based on Table 8., the linear regression equation that can be obtained is:

ROA = 7.871 + 0.144CAR - 0.213NPL + 0.012LDR - 0.078BOPO + 0.071CS + 0.056INF - 1.068EG - 2.209E-11MBT - 2.322E-10IBT ……..……..…. (2)

The equation explains that the constant value (α) produced is positive at 7.871, which means that if the independent variables owned by the bank are constant or equal to 0, the profitability value will increase by 7.871. The resulting CAR variable coefficient value is 0.144, indicating that a one-unit increase in the CAR value will result in a 0.144-unit rise in profitability. The resulting NPL variable coefficient value is negative at -0.213, indicating that if the NPL value increases by one unit, then profitability will decrease by 0.213. The resulting LDR variable coefficient value is positive at 0.012, indicating that if the LDR value increases by one unit, then profitability will increase by 0.012. The coefficient value of the BOPO variable produced is negative at -0.078, indicating that if the BOPO value increases by one unit, then profitability will decrease by 0.078. The coefficient value for the company size variable is 0.071, indicating that a one-unit increase in company size results in a 0.071-unit increase in profitability. The coefficient value of the inflation variable produced is positive at 0.056, indicating that a one-unit increase in inflation will result in a 0.056-unit increase in profitability.

The coefficient value of the economic growth variable is negative at -1.068, indicating that for every one-unit increase in economic growth, profitability will decrease by 1.068. The coefficient value of the Internet banking transaction variable is -2.209E-11, suggesting that a one-unit increase in Internet banking transactions results in a decrease in profitability of 2.209E-11. The coefficient value of the mobile banking transaction variable produced is negative at -2.322E-10, indicating that a one-unit increase in mobile banking transactions will result in a decrease in profitability of 2.322E-10. The F test, also known as the model feasibility test, determines whether the regression model is suitable for use in research. A model is considered feasible if the F value meets the specified criteria (Gani & Amalia, 2015) [15].

Table 9: The Goodness of Fit Test Results

Model	Sum of Squares	Df	Mean Square	F
Regression	24.188	9	2.688	41.644
Residual	1.291	20	.065	
Total	25.479	29		

***Source*:** Data processed (2021)

Based on Table 9, it can be seen that the results of this study yield a calculated F-value of 41.644 and a significance value of 0.000. The significance value produced in this study is smaller than the predetermined significance level of 0.05. Therefore, it can be concluded that the regression model is suitable for use as an analysis tool in this study. The determination coefficient test or R" test is carried out to determine how much of the dependent variable can be explained by the independent variable (Ghozali, 2016) [16].

Table 10: Coefficient Determination Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.974[a]	.949	.927	.25404

***Source*:** Data processed (2021)

Based on Table 10. it can be seen that the determination coefficient value produced is 0.949. This indicates that 94.9 percent of the variation in profitability is attributed to CAR, NPL, LDR, BOPO, company size, inflation, economic growth, internet banking transactions, and mobile banking transactions. While variables outside the scope of this study influence the remaining 5.1 percent.

A t-test was conducted to determine whether the independent variables had a significant influence on the dependent variable partially (Ghozali, 2016) [16]. Based on Table 8, the significance value of the t-test for the CAR variable (0.005) is smaller than 0.05, and the regression coefficient has a positive value of 0.144. It can be concluded that the CAR variable has a significant positive influence on profitability, so the first hypothesis is accepted. This indicates that an increase in bank capital adequacy rate, as measured by CAR, will also lead to an increase in profitability, as measured by ROA. The results of this study are also following the pecking order. In addition, this study aligns with previous research that has found a significant positive influence of CAR on bank profitability (Ambarawati & Abundanti, 2018; Kossoh *et al*., 2017; Nugroho *et al*., 2019) [2, 28, 35].

The significance value of the t-test of the NPL variable is 0.078, which is greater than 0.05 and the regression coefficient value with a negative direction is -0.213 (see Table 8). It can be concluded that the NPL variable has no effect on profitability, so the second hypothesis is rejected. The results of this study also do not align with the anticipated income theory. The absence of the effect of NPL on profitability can be caused by the existence of substandard or

bad credit whose value is very high, which will make banks unwilling to distribute credit due to conditions where banks are required to prepare sufficient reserves in financing these problematic credits, which then makes banks careful when distributing their credit (Saputra *et al*., 2018) [46]. In addition, problematic credit, such as substandard or bad credit, can occur every year, so there is no definite condition related to the increase or decrease in NPL, which is accompanied by an increase or decrease in ROA (Apriani & Mansoni, 2019) [4]. This study is also inconsistent with previous studies that found that NPL has a significant negative effect on bank profitability (Ambarawati & Abundanti, 2018; Patni & Darma, 2017; Sudaryanti *et al*., 2018) [42, 39, 57]. However, this study is in line with other studies that found that NPL does not have a significant effect on bank profitability (Harun, 2016; Matindas *et al*., 2015; Stevani & Sudirgo, 2019) [19, 33, 56].

In table 8, the significance value of the t-test of the LDR variable is 0.200, which is greater than 0.05 and the regression coefficient value with a positive direction is 0.012. It can be concluded that the LDR variable has no effect on profitability, so the third hypothesis is rejected. The results of this study are not in accordance with the anticipated income theory. The less-than-optimal distribution of credit by banks to the public is also a factor contributing to the lack of effect of LDR on bank profitability (Saputra *et al*., 2018) [46]. The results of this study do not support previous studies that found that LDR has a significant positive effect on bank profitability (Ambarawati & Abundanti, 2018; Pertiwi & Susanto, 2019) [2, 40]. However, this study is in line with other studies which found that LDR does not have a significant effect on bank profitability (Apriani & Mansoni, 2019; Stevani & Sudirgo, 2019) [4, 56].

Based on Table 8, the significance value of the t-test for the BOPO variable is 0.000, which is smaller than 0.05, and the regression coefficient value has a negative direction of -0.078. It can be concluded that the BOPO variable has a significant adverse impact on profitability, and therefore, the fourth hypothesis is accepted. This indicates that the decrease in management burden, as measured by BOPO, will lead to an increase in profitability, as measured by ROA. In addition, this study aligns with previous studies that have found a significant adverse effect of BOPO on ROA (Pinasti & Mustikawati, 2018; Stephani *et al*., 2017) [41, 55].

Table 8 shows that the significance value of the t-test for the company size variable is 0.472, which is greater than 0.05. The regression coefficient value, with a positive direction, is 0.071. It can be concluded that the company size variable has no effect on profitability, so the fifth hypothesis is rejected. This study does not align with the critical resource theory. The size of the company does not guarantee that it will achieve better profits than small companies (Putra, 2015) [43]. Even large companies tend to require more costs to carry out their operational activities (Sari & Budiasih, 2014) [47]. This study also does not align with previous studies, which found that company size has a significant positive effect on ROA (Hendrawan & Lestari, 2017; Hirindukawshala & Kushanipanditharathna, 2017) [20, 23]. However, this study aligns with other studies that reveal company size does not have a significant influence on ROA (Oktaviarni *et al*., 2018; Putra, 2015) [37].

The significance value of the t-test of the inflation variable is 0.05, greater than 0.05, and the regression coefficient value with a positive direction is 0.056. It can be concluded that the inflation variable has no effect on profitability, so the sixth hypothesis is rejected. This study is not in accordance with Keynesian theory. The absence of inflation is due to inflation having no effect on bank activities in distributing credit because inflation will be overcome by government efforts so that business activities will continue to run normally (Zattira, 2016) [68]. Additionally, the data obtained does not provide certainty regarding whether low or high inflation is accompanied by a decrease or increase in profitability, as measured by ROA. The results of this study are not in line with those of previous studies, which found that inflation has a significant negative impact on bank profitability (Dwi Nurfadillah *et al*., 2019; Soeharjoto & Hariyanti, 2019) [13, 53]. However, this study aligns with other studies that indicate inflation does not affect bank profitability (S. Setiawan & Diansyah, 2018; Zattira, 2016) [49, 68].

The significance value of the t-test for the economic growth variable is 0.033, which is smaller than 0.05. The regression coefficient value, with a negative direction, is -1.068. It can be concluded that the economic growth variable has a significant adverse effect on profitability, so the seventh hypothesis is rejected. This suggests that an increase in economic growth, as measured by Gross Domestic Product (GDP), will lead to a reduction in bank profitability, as measured by Return on Assets (ROA). This study does not follow Keynesian theory. The significant adverse effect of economic growth on bank profitability is due to the tendency for people to invest more in the real sector than to save when economic growth occurs, as assessed by GDP growth (Utu, 2018) [62]. In addition, the global economic crisis in 2008, which then caused several countries, including Indonesia, to also experience a slowdown in economic growth since 2009, and the impact of financial pressure and political uncertainty, which also affected global economic growth, experienced a slowdown to experience the weakest condition in 2019 in the last 10 years ago. Due to these conditions, banks do not fully distribute credit when economic growth occurs, as they are still adjusting to the global economic crisis. Consequently, an increase in community economic activity does not necessarily lead to an increase in bank profitability (Fathunnida *et al*., 2017) [14]. The results of this study are not in line with research that reveals that economic growth has a significant positive effect on bank profitability (Adiyadnya *et al*., 2016; Sorongan, 2017) [1, 54]. However, the results of this study align with other studies that have found a significant adverse effect of economic growth on bank profitability (Combey & Togbenou, 2017; Fathunnida *et al*., 2017) [11, 14].

The significance value of the t-test of the Internet banking transaction variable is 0.794, which is greater than 0.05, and the regression coefficient value with a negative direction is -2.209E-11. It can be concluded that Internet banking transactions do not affect profitability, so the eighth hypothesis is rejected. The results of this study do not align with the resource-based view theory. The lack of effect of Internet banking services on bank profitability is due to the operationalization of Internet banking services, which will incur infrastructure costs, maintenance costs, and human resource costs, which are pretty significant in the operationalization of Internet banking services and bank income obtained through internet banking services still cannot cover the operational costs that have been incurred for the provision of internet banking services (Arif & Masdupi, 2020) [5]. Additionally, internet banking services have not been utilized optimally by bank customers (Sinambela &

Rohani, 2017) [51]. Furthermore, bank customers who previously used Internet banking services have begun to switch to mobile banking services (Arofany & Tandika, 2019) [6]. This study does not support previous studies that have found a significant positive effect of Internet banking on bank profitability (Wulandari & Novitasari, 2020; Yasin, 2018) [64, 65]. However, this study supports other studies that reveal that Internet banking does not affect bank profitability (Arif & Masdupi, 2020; Arofany & Tandika, 2019) [5, 6].

The significance value of the t-test for the mobile banking transaction variable is 0.014, which is smaller than 0.05., The regression coefficient value has a negative direction and is -2.322E-10. It can be concluded that mobile banking transactions have a significant adverse effect on profitability, so the ninth hypothesis is rejected. The increase in the use of mobile banking in digital banking services, as measured by the value of mobile banking transactions, will likely reduce bank profitability, as measured by return on assets (ROA). This study does not align with the resource-based view theory. The significant adverse effect of mobile banking on bank profitability is crucial because most banks struggle to generate sufficient mobile banking transaction volumes. The income generated is still smaller than the investment made in providing mobile banking services, so there is a possibility that the revenue generated from mobile banking services is still below the breakeven point, which causes relatively high costs in investment for providing mobile banking services, which then reduces bank profits and causes a decrease in the ROA value (OwusuAntwi *et al*., 2020) [38]. This study is not in line with research that reveals that mobile banking has a significant positive effect on bank profitability (Arofany & Tandika, 2019; Okon & Amaegberi, 2018) [6, 36]. However, this study aligns with other studies that have found a significant adverse effect of mobile banking on return on assets (ROA) (Owusu-Antwi *et al*., 2020) [38].

Conclusion

Based on the research conducted and the discussion presented, it can be concluded that CAR has a significant positive impact on profitability, while BOPO, economic growth, and mobile banking transactions have a significant negative impact on profitability. However, NPL, LDR, company size, inflation, and Internet banking transactions do not affect profitability. Suggestions based on the results of research and data analysis, bank management is expected to always pay attention to internal and external factors and technological developments to maintain bank performance in improving competitiveness between banking industries. Further research is expected to utilize variables from both internal and external factors, as well as other bank digital services beyond the scope of this study, and profitability assessments beyond ROA, to obtain more varied results and describe the factors that influence bank profitability. It can also employ different methods or include samples with criteria beyond those in this study and extend the research period.

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