DIJEMSS:
Dinasti International Journal of Education Management and Social Science
E-ISSN: 2686-6331
P-ISSN: 2686-6358
https://dinastipub.org/DIJEMSS dinasti.info@gmail.com +62 811 7404 455
DINASTI PUBLISHER
DOI: https://doi.org/10.38035/dijemss.v6i5

Analysis of the Influence of Liquidity, Solvency, and Interest Rates on Company's Return on Assets

Mastuti Sabiantoro[1], Mentiana Sibarani[2]
[1]Master of Management Study Program , Harapan Bangsa College of Economics, Bandung, Indonesia, mm-24144@students.ithb.ac.id
[2]Master of Management Study Program , Harapan Bangsa College of Economics, Bandung, Indonesia, mentiana@ithb.ac.id

Corresponding Author: mm-24144@students.ithb.ac.id[1]

Abstract: This study aims to analyze the influence of liquidity, solvency, and interest rates on Return on Assets (ROA) in conventional banks listed in the Infobank15 index during the period 2019–2023. In the context of economic dynamics caused by the COVID-19 pandemic and changes in monetary policy, this research adopts a quantitative approach using panel data regression and the Seemingly Unrelated Regression (SUR) estimation method. The results show that, partially, the Capital Adequacy Ratio (CAR) and interest rates have a positive and significant effect on ROA, while the Current Ratio (CR) has no significant effect. Simultaneously, the three independent variables are proven to significantly influence ROA. These findings provide important implications for bank management, regulators, and investors in formulating strategies to enhance profitability and stability in Indonesia's banking sector.

Keywords: Liquidity, Solvency, Interest Rate, Return on Assets, Conventional Banks, Infobank15, SUR.

INTRODUCTION

The banking sector is one of the main pillars in a country's financial system (Wulandari et al., 2023) because it functions as an intermediary between capital owners (fund suppliers) and fund users. Based on Law Number 10 of 1998 concerning Banking, banking is defined as everything related to banks, including institutions, business activities, and methods and processes in carrying out banking activities. As a financial intermediary institution, banks have an important role in collecting funds from the public in the form of deposits and distributing them back in the form of credit and/or other forms to improve the standard of living of many people (Kasmir, 2014). This shows that banks have an important role in the economic life of the community. The importance of this information will have an impact on the income obtained by the bank.

Currently, the banking industry is experiencing very rapid development. The high level of competition can affect the performance and financial stability of a bank (Aprilia & Subroto, 2020). Therefore, to ensure operational sustainability and maintain public trust, each bank is required to maintain and improve its performance sustainably in each period (Putera, 2020). Assessment of a bank's performance can be done by looking at its financial reports. The results

of the analysis of financial reports will help interpret various trends that can be the basis for consideration regarding the potential success of the bank in the future (Tzenova, 2023) Seeing the urgency of this financial report, banks are required to publish their financial reports periodically.

In the 2019-2023 period, the banking sector faced various economic challenges, including the impact of the COVID-19 pandemic, fluctuating monetary policy, and external pressures such as global inflation and economic uncertainty. During this period, the BI 7-Day Reverse Repo Rate experienced significant fluctuations. In 2019, the benchmark interest rate was at 5.00%, but entering 2020, Bank Indonesia gradually lowered the interest rate to 3.75% by the end of the year. This decrease was a monetary policy step taken to mitigate the economic impact of the COVID-19 pandemic, which caused an economic slowdown and decreased business activity and public consumption.

During the pandemic, the banking sector faced major challenges, especially in maintaining liquidity stability and solvency. Credit demand declined due to economic uncertainty, while credit risk increased as many debtors experienced difficulties in meeting their obligations. In this condition, the reduction in the benchmark interest rate aims to encourage credit growth, maintain financial system stability, and increase the purchasing power of the community and the business world. However, along with the post-pandemic economic recovery, monetary policy has been adjusted again. In 2022 and 2023, Bank Indonesia began to raise the BI 7-Day Reverse Repo Rate in response to global inflationary pressures and the normalization of monetary policy in various countries. Thus, the analysis of solvency, liquidity, and interest rates in relation to the financial performance of conventional banking during the 2019–2023 period is crucial. The interest rate policy implemented by Bank Indonesia plays an important role in maintaining the balance between credit growth and financial system stability, especially in facing dynamic economic challenges due to the pandemic and other external pressures.

To measure financial performance, the profit ratio or profitability ratio is used (Kasmir, 2010). According to research conducted by Hutagalung et al. (2013), profitability is considered the most accurate indicator in assessing a bank's performance. While one of the indicators used in the profitability ratio is Return on Assets (ROA). ROA focuses on the company's ability to generate profits from banking operational activities, especially in investment and credit distribution. ROA is used as a measure of profitability because Bank Indonesia emphasizes the assessment of bank profitability based on assets, most of which are funded from public savings (Dendawijaya, 2009).

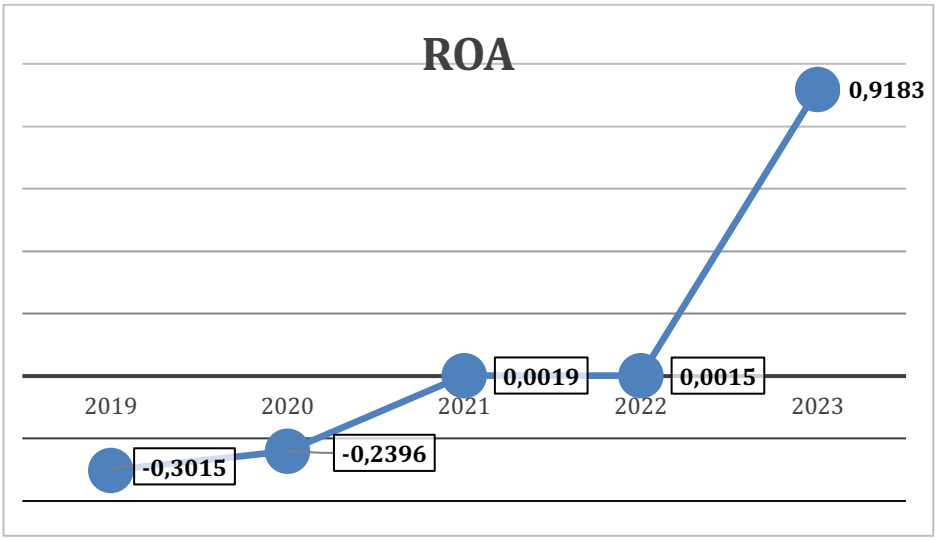
The level of public trust is influenced by the bank's ability to manage liquidity which ultimately supports the continuity of the bank's operations and existence (Prasetyo et al., 2015). Therefore, banks need to maintain an optimal level of liquidity to balance risk and profit. If liquidity is too low, bank operations can be disrupted, while excessive liquidity can reduce bank efficiency, which has an impact on decreasing profitability (Chen et al., 2024). The liquidity ratio is a condition of a company that shows the company's ability to meet obligations in the short term and in a not too long time or is always ready if it is collected at some point (Poerba et al., 2024). Therefore, if a company has current assets greater than current liabilities, the company should be able to meet its financial obligations on time. In other words, its liquidity is good, but on the other hand, if the company is unable to carry out its obligations when collected, it means that its current liabilities are greater than its current assets, meaning that it can also be interpreted as a liquid condition (Fikri & Manda, 2021).

The main function of bank capital is as a buffer to anticipate potential risks of losses that may arise due to the dynamics of bank asset movements in carrying out its role as a financial intermediary institution (Nocoń & Pyka, 2019). In addition, changes in the liability structure that are oriented towards risky assets, as well as increasing the contribution of assets to bank income, also need to be managed optimally in order to maintain the stability and sustainability

of banking operations (Chen et al., 2022). The CAR ratio is a financial ratio related to capital in a bank. Based on the provisions of OJK Regulation (POJK) No. 11/POJK.03/2016, commercial banks in Indonesia are required to have a CAR of at least 8% to 14%, depending on their risk profile. According to Muljono (1999), the adequacy of capital owned by a bank plays a crucial role in absorbing potential losses that cannot be avoided. Thus, banks can manage all their operational activities more efficiently. Efficiency in these operations ultimately has a positive impact on increasing the value of assets and the accumulation of bank wealth.

On the other hand, interest rates have a direct impact on banking operations, both in terms of interest income and cost of funds. The benchmark interest rate set by Bank Indonesia, such as the BI 7-Day Reverse Repo Rate, greatly influences the credit and deposit interest rates applied by banks (Mandeij et al., 2019). Interest rates are predetermined prices for using money for a certain period of time. Interest rates can influence people's decisions to save funds in accounts and make loans (credit). Banks in Indonesia refer to the BI interest rate, which is the interest rate set by Bank Indonesia to reflect the stance of monetary policy (Fikri & Manda, 2021)

Figure 1 , Average ROA of Conventional Banking Sector 2019-2023



Source: IDX (2025)

Figure 1 shows the development of the average *Return on Assets* (ROA) of banking from 2019 to 2023, which experienced significant fluctuations due to the impact of the COVID-19 pandemic and monetary policy, especially changes in the BI Rate which played a role in stabilizing the banking sector and the economy as a whole. In 2019, before the pandemic, banking ROA was still in the negative zone of -0.3015 . Although economic conditions were still relatively stable, banking faced challenges of efficiency and moderate credit growth. The BI Rate at that time ranged from 5.00 % -5.75%, as part of efforts to maintain economic stability. Entering 2020, the COVID-19 pandemic caused major pressure on the banking sector. ROA improved slightly to -0.2396 , but was still negative. To mitigate the economic impact, Bank Indonesia lowered the BI Rate to 3.75%—the lowest level in history—to boost liquidity and support bank credit distribution. However, high uncertainty and increasing non-performing loans continue to burden banking profitability. In 2021, the banking sector began to show signs of recovery with ROA turning into the positive zone at 0.0019 . The BI Rate policy, which remained low at 3.50 % , provided room for banks to drive credit growth and restructure loans affected by the pandemic. Digitalization of services and credit relaxation policies also helped stabilize the financial sector. 2022 showed a slight decline in ROA to 0.0015 , which coincided with changes in monetary policy. Along with rising global inflation and normalization of

interest rate policy, Bank Indonesia began to gradually raise the BI Rate to 5.50 % at the end of the year. This interest rate increase affected banking funding costs and suppressed credit growth, although profitability remained stable. 2023 was a turning point for the banking sector with a spike in ROA to 0.9183 . The controlled increase in the BI Rate helped balance inflation stability and economic growth, while banks became more efficient in distributing high-quality credit. Post-pandemic economic recovery, increased public consumption, and more stable business growth are the main factors driving the surge in banking profitability. Overall, the development of banking ROA in 2019-2023 was greatly influenced by a combination of the pandemic crisis, BI Rate policy, and the financial industry's adaptation strategy. The BI Rate reduction during the pandemic managed to dampen the impact of the crisis, while the BI Rate increase post-pandemic helped balance economic stability and banking sector profitability in 2023.

The selection of conventional banks in this study is based on their dominance in the national banking industry and superior performance as reflected in the large number of conventional banks included in the Infobank 15 list. This shows that these banks have good governance, high operational efficiency, and are able to adapt to changes in the business environment, making them relevant and representative objects for further analysis.

Several conventional banks have managed to maintain their profitability and show positive performance in the post-COVID-19 pandemic recovery. ROA data for 2023 reflects that a number of banks continue to experience growth and improved performance compared to the previous year. These banks also consistently feature in the Infobank15 Index, reflecting their stability and prominence in the banking industry.

METHOD

Types of research

This study uses panel data in a quantitative empirical approach to analyze the influence of liquidity, solvency, and *interest rates* on *return on assets* . This approach was chosen because it is able to evaluate the causal relationship between variables continuously in a period of time. According to Baltagi (2005), panel data includes observations from various units, such as companies, households, or countries, over a certain period of time. Panel data provides a more in-depth analysis of the dynamics of variable changes compared to cross-sectional or time series data alone, so it is more appropriate to use in this study.

The panel data approach has several major advantages. First, it allows control over variables that are difficult to observe but can affect the results of the study. By observing the same variables over multiple periods, the specific effects of the independent variables on the dependent variable can be identified more clearly. Second, panel data increases statistical efficiency because it provides more information, data variation, and higher degrees of freedom compared to cross-sectional or time series data alone. This results in more accurate parameter estimates and stronger hypothesis testing (Wooldridge, 2010). The cross-sectional data in this study are described from 6 conventional bank samples while the time series data are described from the research year sample, namely 2019-2023. In this study, the use of panel data allows for a more comprehensive analysis of the impact of liquidity, solvency, and *interest rates* on *return on assets* thus providing better insight into managerial decision making and public policy.

Population and Sample

Population refers to the entire group or individuals who have certain characteristics related to the topic being studied. This population is the main focus of the study because it is the object that will be analyzed or studied in more depth (Ghozali, 2019). Meanwhile, a sample is a part of the population that is selected to represent the entire population in the study. Sampling is carried out using a specific method so that the research results can be generalized

or applied to the population as a whole. Therefore, selecting a representative sample is very important to ensure that research findings truly reflect population conditions accurately and reliably (Machali, 2021).

The population in this study is all conventional banks listed on the Indonesia Stock Exchange. There are 27 conventional banks as follows:

Table 1, Population

No	Code	Stock Name
1	AGRO	PT Bank Rakyat Indonesia Agroniaga Tbk
2	AGRS	PT Bank IBK Indonesia Tbk.
3	ARTO	Bank Jago Tbk.
4	BBCA	Bank Central Asia Tbk.
5	BBHI	PT Bank Harda Internasional Tbk.
6	BBKP	Bank Bukopin Tbk
7	BBMD	PT Bank Mestika Dharma Tbk.
8	BBNI	PT Bank Negara Indonesia (Persero) Tbk
9	BBRI	PT Bank Rakyat Indonesia (Persero) Tbk
10	BBSI	PT Bank Bisnis Internasional Tbk.
11	BBTN	PT Bank Tabungan Negara (Persero) Tbk
12	BBYB	PT Bank Neo Commerce Tbk.
13	BEKS	PT Bank Pembangunan Daerah Banten Tbk.
14	BJBR	Bank Pembangunan Daerah Jawa Barat dan Banten Tbk
15	BJTM	Bank Pembangunan Daerah Jawa Timur Tbk
16	BKSW	PT Bank QNB Indonesia Tbk
17	BMAS	PT Bank Maspion Indonesia Tbk.
18	BMRI	Bank Mandiri (Persero) Tbk.
19	BNBA	Bank Bumi Arta Tbk
20	BNGA	PT Bank CIMB Niaga Tbk
21	BNII	PT Bank Maybank Indonesia Tbk
22	BNLI	Bank Permata Tbk
23	BSWD	Bank of India Indonesia Tbk
24	BTPN	PT Bank SMBC Indonesia Tbk
25	MEGA	Bank Mega Tbk
26	NISP	PT Bank OCBC NISP Tbk
27	PNBN	Bank Pan Indonesia Tbk

Source: Processed data (2025)

The sampling technique in this study used purposive sampling which has a specific purpose so that the selected data can be representative of the population according to the research objectives (Amin et al., 2023). From the initial population consisting of 27 conventional banking companies, screening was carried out based on the criteria for participation in the Infobank15 index during the 2019–2023 period. A total of 12 companies that had never entered the Infobank15 index during that period were removed from the sample list. Further screening was carried out on companies that were not included in the Infobank15

index consecutively during the period 2019–2023, which eliminated an additional 9 companies. After the selection process based on the established criteria, 6 conventional banking companies were obtained as the final sample of the study. This study uses data for a five-year period, namely from 2019 to 2023, so the number of observations analyzed is 30 observations (6 companies × 5 years).

Data Types and Sources

This study uses secondary data, which is information that has been collected and published by other parties, not obtained directly by the researcher. According to Sugiyono (2019), secondary data includes various sources such as official reports, government publications, statistical databases, and previous research. This method offers efficiency in terms of time and cost compared to primary data collection. Additionally, secondary data can provide a broader perspective and help identify patterns or trends that may be difficult to detect through primary data. However, in its use, researchers need to ensure that the data source is reliable, relevant, and appropriate to the research needs.

Data collection technique

In this study, the data obtained came from financial reports and 10 conventional banks listed on the Indonesia Stock Exchange (IDX) during the period 2019-2023. The financial reports include various performance indicators such as *Current Ratio* (CR), *Capital Adequacy Ratio* (CAR), *Return on Assets* (ROA) and also BI-7DRRR data . The main source of data was obtained from the annual reports of conventional banks available on the official IDX website, as well as the Bank Indonesia *website* . The selection of the 2019-2023 time period aims to ensure that the data used remains relevant and up-to-date in the context of this study and shows the state of banking finances when COVID-19 occurred.

Data Analysis Methods

The approach applied in data analysis in this study is quantitative, with calculations using STATA software. The analysis method used is multiple linear regression with panel data. Panel data integrates *time series* and *cross-sectional data* . Panel data has several advantages over *cross-sectional data* or *time series data* . These advantages include: (a) increasing the sample size, (b) being able to study the dynamics of changes in *cross-sectional units* over time, and (c) studying more complex behavioral models, including studies of variables that are not dependent on time (Gujarati, 2015).

RESULTS AND DISCUSSION

Descriptive Analysis

Descriptive analysis in this study was conducted using observation data for the period 2019 to 2023 with an annual time unit and includes 6 cross-section data from conventional banking companies listed on Infobank15 on the Indonesia Stock Exchange (IDX), resulting in a total of 30 observation data. Descriptive statistics in this study describe the characteristics of the data through the minimum, maximum, average, and standard deviation values of the variables studied. The variables in this study consist of Liquidity (measured by *the Current Ratio*), Solvency (measured by *the Capital Adequacy Ratio*), Interest Rate, and the dependent variable, namely Return on Assets (ROA). Each of these variables will be explained further in the following sections:

Liquidity

Based on the results of descriptive statistics, the overall *Current Ratio for conventional banking sample companies included in the Infobank15 index during the 2019–2023 period shows that the lowest value was recorded at 0.27 percent, while the* highest value reached 0.46 percent.

The weighted average of *the Current Ratio* in all samples is 2.15 percent , with a weighted standard deviation of 0.87 percent. This value reflects the relatively stable level of liquidity of conventional banking companies, but still shows variations between companies in managing their short-term liabilities during the observation period.

Table 2, Descriptive Analysis of Liquidity

Object	Mean	Std. dev.	Min	Max
BBCA	0.2625	0.088431	00.28	00.46
BNI	0.273611	0.041593	00.35	00.46
BBRI	0.254167	0.057271	00.32	00.45
BJBR	0.356944	0.072319	00.43	00.06
BMRI	0.220833	0.051672	00.27	00.04
PNBN	0.331944	0.089275	00.33	00.56

Solvency

Based on the results of descriptive statistics, the overall *Capital Adequacy Ratio for conventional banking sample companies listed in the Infobank15 index during the 2019–2023 period shows that the lowest value was recorded at 1.13 percent, while the highest value reached 1.89 percent. The weighted average CAR in all samples was* 1.61 percent, with a weighted standard deviation of 0.28 percent. This value illustrates the ability of banks to maintain adequate capital to cover the risk of loss, and shows the stability of the banking sector during the period.

Table 3, Descriptive Analysis of Solvency

Object	Mean	Std. dev.	Min	Max
BBCA	1.869444	0.016991	0.170833	0.204167
BNI	0.135417	0.01848	0.116667	00.22
BBRI	0.24576	0.030742	1.398611	1.89375
BJBR	0.18308	0.015147	1.13125	1,400694
BMRI	0.20298	0.01068	1.352778	0.152083
PNBN	0.29064	0.033544	1.625694	0.225

Interest rate

Based on the results of descriptive statistics, the overall *interest rate during the 2019–2023 period had the lowest value of* 3.52 percent and the highest value of 5.81 percent. The weighted average of the interest rate during the period was 4.64 percent , with a weighted standard deviation of 1.02 percent. This value reflects the fluctuations in interest rates that have occurred over the past five years, which have the potential to affect the financing strategy and profitability of conventional banking companies in Indonesia.

Table 4, Descriptive Analysis of Interest Rate

Mean	Std. dev.	Min	Max
0.046417	0.010197	0.035208	0.058125

Return on Assets

Based on the results of descriptive statistics, the overall Return on Assets (ROA) for conventional banking sample companies listed in the Infobank15 index during the 2019–2023

period showed that the lowest value was recorded at -0.12 percent, indicating a period of operational losses at one of the banks. Meanwhile, the highest value reached 34.89 percent , which is an indication of very high asset management efficiency in a certain period. The weighted average of ROA during the period was around 1.83 percent , with a weighted standard deviation of 1.04 percent, reflecting variations in the level of profitability among conventional banking companies that were the samples of this study.

Table 5, Descriptive Analysis of Return on Assets

Object	Mean	Std. dev.	Min	Max
BBCA	100,784	1,433,711	00.03	34,892
BNI	3.234028	0.889503	-0.12	20.185
BBRI	0.79284	1,270,217	00.01	30,242
BJBR	0.35458	0.429948	00.01	10,629
BMRI	4,514583	1,040,819	00.01	24,705
PNBN	0.45376	0.584028	00.01	14,388

Verification Analysis

Panel Data Regression Model Estimation

After conducting descriptive statistical tests, the next step is to conduct panel data regression tests. The first step that must be taken in conducting panel data regression is to choose the best panel data regression model, among the *common effect, fixed effect,* or *random effect models* . The test results for each model are as follows:

Common Effect Model (CEM)

Common Effect Model is the simplest model, where the approach groups time series and cross section data with the panel least square method. Here are the results of the common effect model:

Table 6, Common Effect Model (CEM) Test Results

ROA	Coefficient	Std.err	t	P>|t|
CR	-2.25642	1.4938	-1.51	0.143
CAR	5.616603	2.8517	1.97	0.06
IR	54.3374	14.8939	3.65	0.001
_cons	-2.2787	1.29679	-1.76	0.091

Source: STATA data processing results

Fixed Effect Model (FEM)

The fixed effect model is a technique for estimating panel data using *dummy* variables . to see the difference in intercepts. This model approach assumes that the regression coefficient (slope) remains constant between companies and over time. The following are the results of *the fixed effect model:*

Table 7, Fixed Effect Model (FEM) Test Results

Roa	Coefficient	Std.err	t	P>|t|
CR	-0.161145	2.5583	-0.06	0.95
CAR	19.4584	6.7247	2.89	0.009
IR	60.07235	16.1661	3.72	0.001
_cons	-6.5988	2.5719	-2.57	0.018

Source: STATA data processing results

Random Effect Model (REM)

Random effect model is a method of estimating panel data regression models with the assumption that the regression coefficient (slope) is constant and the intercept differs across

time and between individuals. This modeling approach takes into account that errors may be correlated across cross sections and time series. The following are the results of the random effect model:

Table 8, Results of Random Effect Model (REM) Test

Roa	Coefficient	Std.err	t	P>|t|
CR	-2.25642	1.4938	-1.51	0.131
CAR	5.6166	2.8517	1.97	0.049
IR	54.3374	14.8939	3.65	0.000
_cons	-2.2787	1.29679	-1.76	0.079

Source: STATA data processing results

Selecting the Best Panel Data Model

After conducting tests for each model, the next step is to select a panel data regression model with the following tests:

1. Chow Test

Chow test is used to select a model between *Cammon Effect* or *Fixed Effect* . The criteria used are if the p-value is smaller than α (p-value < 0.05) then the selected model is *Fixed Effect.*

Table 9, Chow Test

Chow Test Table	
F (9,12)	Prob > F
1.25	0.3197

Based on the results of data processing in the table above, it was found that the p-value (Prob>F) = 0.3197, this value is greater than 0.05 (> 0.05) so it can be concluded that the selected model is *the Cammon Effect.*

2. Hausman test

The Hausman test is used to determine the best model between *Fixed Effect* and *Random Effect* . Although the previous *Chow test* obtained results that the appropriate model was *Common Effect* , the researcher continued the stage of selecting the panel data regression model using the Hausman test to ensure the most appropriate model used in this study.

Table 10, Hausman Test

Hausman Test Table	
Prob > Chi ^{2} (χ^2)	0.1581

Based on the results of data processing for the Hasuman test, it was found that the p-value (Prob>chi2) = 0.1581 , this value is greater than 0.05 (> 0.05) so it can be concluded that the selected model is *Random Effect* .

3. Large Multiplier Test

The large multiplier test is used to select a model between *Common Effect* or *Random Effect* . The criteria used are if the p-value < α (0.05) means the *Random Effect model* is more appropriate.

Table 11, Large Multiplier Tests

Large Multiplier Test Table	
Prob > Chi ^{2} (χ^2)	1,000

Based on the results of the data processing above, it was found that the probability value obtained was 1,000, this value is greater than 0.05 (> 0.05) so it is concluded that *the Common Effect Model* (Pooled OLS) is more appropriate to use.

4. Best Model Assumption Testing

In this study, the selected or best panel data regression model is *the Common Effect Model,* so classical assumption testing is carried out for the *Common Effect model.*

Normality Test

The normality test is intended to test whether the *error value* in the regression equation is normally distributed or not. The error value is said to be normally distributed if the error value is mostly close to the average value. The criteria used are if the probability value is > 0.05 then the data is normally distributed.

Table 12, Normality Test

Variables	Probability	Conclusion
ROA	0.0006	Abnormal
CR	0.3075	Normal
CAR	0.0983	Normal
IR	0.0000	Abnormal

Based on the results of the normality test in the table above, it is obtained that the CR and CAR variables have a probability value (Prob > chi2) greater than 0.05, so it can be concluded that both variables are normally distributed. On the other hand, the ROA and IR variables show a probability value smaller than 0.05, which indicates that both variables are not normally distributed. The failure to fulfill the normality assumption is thought to be caused by the presence of outlier data in the ROA and IR variables.

Multicollinearity Test

Multicollinearity test occurs if there is a high correlation between independent variables in the regression, which can cause the coefficient estimate to be unstable. The criteria used are if the VIF value is > 10 or *tolerance* (1 / VIF) is .01 or less, then it indicates multicollinearity.

Table 13, Multicollinearity Test

Variables	VIF	1/VIF
CR	1.15	0.868
CAR	1.14	0.876
IR	1.01	0.990

Based on the output above, it is found that the CR, CAR and IR variables have VIF values that are smaller than 10, so it can be concluded that there is no case of multicollinearity.

Heteroscedasticity Test

The heteroscedasticity test is used to test whether a regression model from a study has inequality of variance from the residuals of one observation to another. The criteria used in this test is that the data does not have symptoms of heteroscedasticity if the significance value is > 0.05.

Table 14, Heteroscedasticity Test

Heteroscedasticity Test Table	
Prob > Chi ^{2} (χ^2)	0.0000

Based on the output above, it was found that the p-value is 0.000, this value is smaller than 0.05, so it is said that a case of heteroscedasticity has occurred.

Autocorrelation Test

In this study, the autocorrelation test used is the Wooldridge test. The criteria used are if the p-value > 0.05, it is concluded that there is no autocorrelation.

Table 15, Autocorrelation Test

Autocorrelation Test Table	
F (1.5)	Prob > F
0.417	0.5470

Based on the output above, it was found that the p-value is 0.5470 , this value is smaller than 0.05, so it was concluded that there was no case of autocorrelation.

Based on the results of the assumption test above, it was found that there was a violation of the assumption in the heteroscedasticity and Normality tests. Based on this, the handling was carried out using the *Seemingly Unrelated Regression* (SUR) method. This method is used in panel data regression when there is heteroscedasticity and normality in the residuals between *cross-sections* (Beck & Katz, 1995) and an outlier is found in the research variables. This method is more suitable for use if the number of *cross-sections* (N) is greater than the number of time periods (T), or called " *large N, small T* ".

Seemingly Unrelated Regression (SUR)

In this study, the panel data regression model with the *Seemingly Unrelated Regression* (SUR) model, a stationarity test is needed to ensure that the data does not contain trends that can cause spurious regression . The stationary test is carried out because in this study, time series data is more than cross-section data, so a stationary test is needed on the data. If the data is stationary, the data will be free from doubtful regression.

In this study, the stationarity test compares the level and 1 st difference through the ADF-Fisher approach. If the test results show a probability value below 0.05, it is concluded that the variable is stationary. The following is a table of the results of the stationarity test for the level and 1 st difference levels.

Table 16, 1SUR Test

Series	Prob. Level	1st difference
ROA	0.0687	0.0000
CR	0.0101	0.0000
CAR	0.3805	0.0000

Based on the results of the stationarity test in the table above, at the level of the ROA and CAR variables are not stationary because they have a Probability value greater than 0.05. Because there are several variables that are not stationary, a first difference transformation is carried out, and the results show that all variables are stationary with a probability below 0.05. Because all variables are stationary after the first difference, the study can be continued and form a panel data regression model with SUR estimation.

CONCLUSION

Based on the results of data analysis referring to the research objectives, hypotheses and analysis models, the following conclusions can be drawn:

1. Based on the results of the t-test calculation, it shows that the variables Current Ratio (CR), Capital Adequacy Ratio (CAR), and Interest Rate (IR) partially each have an effect on Return on Assets (ROA), where the Current Ratio has a negative but insignificant effect, while the Capital Adequacy Ratio and Interest Rate have a significant and positive effect on Return on Assets at a significance level of 5 percent.
2. Based on the results of the F test, it shows that the variables Current Ratio (CR), Capital Adequacy Ratio (CAR), and Interest Rate (IR) simultaneously or together have a significant influence on Return on Assets (ROA) at a significance level of 5 percent.

REFERENCE

Adeyemi, B. (2011). Bank failure in Nigeria: a consequence of capital inadequacy, lack of transparency and non-performing loans? Banks & Bank Systems, 6, Iss. 1, 99–109.

Ahmad, M., Kahwaji, A., Durrah, O., & Allil, K. (2016). The impact of strategic flexibility on the performance of private banks during the crisis in Syria. International Journal of Economic Research, 13(5), 2087–2095.

Ali, A. (2021). Liquidity variations and variability cohesiveness with revenue and profitability: A case of saudi energy sector companies. Accounting, 7(4), 763–770. https://doi.org/10.5267/j.ac.2021.2.008

Amanda, A. L., Efrianti, D., & Marpaung, B. `Sahala. (2019). Analisis Pengaruh Kandungan Informasi Komponen Laba Dan Rugi Terhadap Koefisien Respon Laba (Erc) Studi Empiris Pada Perusahaan Manufaktur Sektor Industri Dasar Dan Kimia Yang Terdaftar Di Bursa Efek Indonesia (Bei). Jurnal Ilmiah Manajemen Kesatuan, 7(1), 188–200. https://doi.org/10.37641/jimkes.v7i1.212

Ansori, M. F., Al Jasir, H., Sihombing, A. H., Putra, S. M., Nurfaizah, D. A., & Nurulita, E. (2024). Assessing the impact of deposit benchmark interest rate on banking loan dynamics. Computer Research and Modeling, 16(4), 1023–1032. https://doi.org/10.20537/2076-7633-2024-16-4-1023-1032

Aprilia, A., & Soebroto, N. W. (2020). Analisis Pengaruh Rasio Likuiditas, Efisiensi Operasi, Dan Rasio Solvabilitas Terhadap Kinerja Keuangan Pada PT Bank Maybank Indonesia Tbk Periode 2010-2018. Keunis, 8(2), 167-186.

Baltagi, B. H. (2005). Econometrics Analysis of Panel Data. In *John Wiley & Sons Ltd* (Vol. 3). https://doi.org/10.3109/00498257509056115

Carolina, V., Marpaung, E. I., & Pratama, D. (2017). Analisis rasio keuangan untuk memprediksi kondisi financial distress (Studi empiris pada perusahaan manufaktur yang terdaftar di Bursa Efek Indonesia periode 2014-2015). Jurnal Akuntansi, 9(2).

Ceylan, I. E. (2021). The impact of firm-specific and macroeconomic factors on financial distress risk: A case study from Turkey. Universal Journal of Accounting and Finance, 9(3), 506–517.

Chen, I. J., Tsai, H., Chen, Y. S., Lin, W. C., & Li, T. Y. (2024). Bank performance and liquidity management. *Review of Quantitative Finance and Accounting*, 1-38.

Chen, X., Liu, G., Liu, Y., & Zhang, Y. (2022). Banks' liability structure and risk taking: Evidence from a quasi-natural experiment in China. Finance Research Letters, 49. https://doi.org/10.1016/j.frl.2022.103100

Chohan, U. (2021). Public value and the digital economy. Routledge.

Choudhury, M. M. (2024). Signaling Theory. Journal of Accounting-Business Dan Management, 31(2), 98.

Cronjé, T., & de Beer, J. (2010). Combining efficiency with ROA: Indicator of future relative performance - South African banking groups. Corporate Ownership and Control, 7(4 C), 287–296. https://doi.org/10.22495/cocv7i4c2p4

Dendawijaya, L. (2009). Manajemen Perbankan. Jakarta: Ghalia Indonesia.

Diyanto, V. (2020). The effect of liquidity, leverage and profitability on financial distress. Indonesian Journal of Economics, Social, and Humanities, 2(2), 127–133.

Ender, M., & Neuhofer, C. (2021). Implications Of Low Interest Rates On Bank Profitability And Risk-Taking. Journal of Financial Management, Markets and Institutions, 9(1). https://doi.org/10.1142/S2282717X21500031

Fikri, P. M., & Manda, G. S. (2021). Pengaruh Risiko Suku Bunga BI, Risiko Inflasi, dan Risiko Nilai Tukar terhadap Profitabilitas pada Bank BNI Syariah periode 2012-2019. *Akuntansi Dewantara*, *5*(2), 122-135.

Hassan, S. U., Sabo, B., & Aliyu, I. A. (2023). Moderating effect of bank size on the relationship between interest rate, liquidity, and profitability of commercial banks in Nigeria. Gusau Journal of Accounting and Finance, 4(1), 96–120.

Herlianto, A., Sofilda, E., Hamzah, M. Z., & Ginting, A. M. (2020). The effect of market intervention policy through capping rate on credit growth | Keberkesanan Dasar Intervensi Pasar Melalui Kadar Penetapan ke atas Pertumbuhan Kredit. Jurnal Ekonomi Malaysia, 54(3). https://doi.org/10.17576/JEM-2020-5403-02

Horngren, C.T., & Harrison, W. T. (2007). Akuntansi Buku II. Edisi 7. Jakarta: Erlangga

Hutagalung, Esther Novelina, Djumahir, Kusuma Ratnawati. 2013. "Analisa Rasio Keuangan Terhadap Kinerja Bank Umum di Indonesia". Jurnal Aplikasi Manajemen. Volume 11, Nomor 1. ISSN 1693-5241.

Indonesia, B. (2024). Memahami Suku Bunga Acuan BI: Kunci Ambil Keputusan Keuangan yang Tepat. Bank Indonesia.

Iyer, R., Puri, M., & Ryan, N. (2016). A Tale of Two Runs: Depositor Responses to Bank Solvency Risk. Journal of Finance, 71(6), 2687–2726. https://doi.org/10.1111/jofi.12424

Jensen, M. C., & Meckling, W. H. (2019). Theory of the firm: Managerial behavior, agency costs and ownership structure. In *Corporate governance* (pp. 77–132). Gower.

Karamoy, H., & Tulung, J. E. (2020). The impact of banking risk on regional development banks in Indonesia. Banks and Bank Systems, 15(2), 130–137. https://doi.org/10.21511/bbs.15(2).2020.12

Kasmir. 2010. Analisis Laporan Keuangan. Jakarta: Rajawali Pers.

Kipkemoi, M. A. (2019). Effect of inventory management practices on liquidity of public technical training institutions in Rift valley region, Kenya. American Journal of Humanities and Social Sciences Research, 81–87.

Lestari, S., & Sudaryono, E. A. (2008). Pengaruh stock split: Analisis likuiditas saham pada perusahaan go public di Bursa Efek Indonesia dengan memperhatikan pertumbuhan dan ukuran perusahaan. Jurnal Bisnis Dan Akuntansi, 10(3), 139–148.

Magdalena, R., Lucian, B., & Maria, D. S. (2021). The Profitability of the Central and Eastern European Banking Systems in Correlation with the Macroeconomic Environment. In Contributions to Economics. https://doi.org/10.1007/978-3-030-82778-6_14

Mandeij, D., Rumate, V. A., & Rompas, W. F. I. (2019). The influence of exchange rate, international interest rate and inflation rate on lending and deposit rate of indonesia banking sector through reference policy rate as intervening variable. International Journal of Engineering and Advanced Technology, 8(5C), 204–213. https://doi.org/10.35940/ijeat.E1030.0585C19

Mohanty, S., & Mahakud, J. (2019). Dynamic Adjustment Towards Target Capital Adequacy Ratio: Evidence from Indian Commercial Banks. Global Business Review, 20(3), 757–768. https://doi.org/10.1177/0972150919837082

Nawawi, A., Disman, Nugraha, & Waspada, I. (2024). THE PRICE TO BOOK VALUE STILL INFLUENCED BY THE MAIN FACTORS ON SDG'S? Journal of Lifestyle and SDG'S Review, 4(1). https://doi.org/10.47172/2965-730X.SDGsReview.v4.n00.pe01629

Nevile, J. W. (2019). The rate of interest. In Post-Keynesian Essays from down under Volume IV: Essays on Theory: Theory and Policy in an Historical Context. https://doi.org/10.1057/978-1-137-47529-9_31

Nguyen, H., Do, D. T., Nguyen, T. H. T., Nguyen, T. T. T., Tran, M. D., Nguyen, T. T., Pham, V. H., & Nguyen, T. T. (2022). The Impact Of Internal Financial Determinants On The Financial Performance Of Listed Mineral Firms On The Vietnam Stock Exchange. Corporate Governance and Organizational Behavior Review, 6(2 Special), 287–299. https://doi.org/10.22495/cgobrv6i2sip13

Nocoń, A., & Pyka, I. (2019). Sectoral analysis of the effectiveness of bank risk capital in the visegrad group countries. Journal of Business Economics and Management, 20(3), 424–445. https://doi.org/10.3846/jbem.2019.9606

Nugraha, N. N. A., & Manda, G. S. (2021). Pengaruh Inflasi, BI 7 Days Reverse Repo Rate, dan Nilai Tukar Terhadap Profitabilitas Perbankan. *Jurnal Riset Manajemen Sains Indonesia (JRMSI)*, *12*(2), 200-216.

O'Leary, D. E. (2020). A Signal Theory Model for Continuous Monitoring and Intelligence Systems. Journal of Emerging Technologies in Accounting, 17(2), 201–213.

Pakhucha, E., Sievidova, I., Siadrysta, I., Mohilevsky, L., Oliynik, T., & Bogdanovych, O. (2021). Financial risks in the conditions of unstable market economy. European Journal of Sustainable Development, 10(1), 432–449. https://doi.org/10.14207/ejsd.2021.v10n1p432

Pepper, A., & Gore, J. (2015). Behavioral agency theory: New foundations for theorizing about executive compensation. *Journal of Management*, *41*(4), 1045–1068.

Pivetti, M. (2024). A Note on the Real Effects of Interest Rate Policy and Its Impact on Inflation. Review of Political Economy, 36(2), 600–609. https://doi.org/10.1080/09538259.2023.2238997

Poerba, R. M., Triana, L., Yuliah, Y., & Febrian, W. D. (2024). Pengaruh Likuiditas Terhadap Profitabilitas pada PT. Mulia Industrindo, Tbk Periode 2011-2022. *Jurnal Neraca Peradaban*, *4*(1), 26-31.

Prasetyo, Dwi Agung, Darmayanti, Ni Putu Ayu. 2015. "Pengaruh Risiko Kredit, Likuiditas, Kecukupan Modal, dan Efisiensi Operasional Terhadap Profitabilitas Pada BT BPD Bali". E-Jurnal Manajemen Unud. Volume 4, Nomor 9. ISSN 2302-8912.

Pražák, T. (2022). Application of Methods of Comprehensive Evaluation of a Company in the Conditions of the Visegrad Group's Countries. Springer Proceedings in Business and Economics, 451–464. https://doi.org/10.1007/978-3-030-98179-2_31

Puspitasari, E., Sudiyatno, B., Aini, N., & Anindiansyah, G. (2021). The relationship between net interest margin and return on asset: empirical study of conventional banking in Indonesia. Academic Journal of Interdisciplinary Studies, 10(3), 362–374. https://doi.org/10.36941/AJIS-2021-0090

Puspitasari, N. D. (2023). Pengaruh kebijakan moneter bank sentral terhadap kinerja keuangan bank umum. *Jurnal Cendekia Keuangan*, *2*(1), 42-54.

Putera, A. P. (2020). Prinsip Kepercayaan Sebagai Fondasi Utama Kegiatan Perbankan. Jurnal Hukum Bisnis Bonum Commune, 3(1), 457294.

Reschiwati, R., Syahdina, A., & Handayani, S. (2020). Effect of liquidity, profitability, and size of companies on firm value. Utopia y Praxis Latinoamericana, 25(6), 325–332.

Rodrigues, R. R., & Guest, D. (2024). Signalling theory (pp. 254–260). Edward Elgar Publishing.

Shi, W., Connelly, B. L., & Hoskisson, R. E. (2017). External corporate governance and financial fraud: Cognitive evaluation theory insights on agency theory prescriptions. Strategic Management Journal, 38(6), 1268–1286.

Siekelová, A., Weissová, I., & Kollár, B. (2015). Default prediction of chosen car manufacturing company. Transport Means - Proceedings of the International Conference, 2015-Janua, 509–512.

Siregar, S., & Nurlaila, N. (2023). BANK EFFICIENCY BEFORE, DURING, AND AFTER COVID-19: A LESSON LEARNED FROM INDONESIA. International Journal of Economics and Finance Studies, 15(4), 43–63. https://doi.org/10.34109/ijefs.202315403

Spence, M. (1973). Job Market Signaling. The Quarterly Journal of Economics, 87(3), 355–374. Studies, 10(3), 362–374. https://doi.org/10.36941/AJIS-2021-0090

Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Alfabeta.

Sunaryo, D., Nafiuddin, Gentari, R. E., & Adiyanto, Y. (2022). Using Current Ratio Indicator and Total Asset Turnover Approach in Solving Return on Assets Problems with Debt-to-Equity Ratio Moderated. Quality - Access to Success, 23(189), 199–209. https://doi.org/10.47750/QAS/23.189.23

Tangngisalu, J., Hasanuddin, R., Hala, Y., Nurlina, N., & Syahrul, S. (2020). Effect of CAR and NPL on ROA: Empirical study in Indonesia Banks. Journal of Asian Finance, Economics and Business, 7(6), 9–18. https://doi.org/10.13106/JAFEB.2020.VOL7.NO6.009

Tzenova, Z. (2023). Analysis of the financial condition of a company. AIP Conference Proceedings, 2939(1). https://doi.org/10.1063/5.0184668

Wahyudi, S., Sari, S. P., Hersugondo, H., & Udin, U. (2019). Capital adequacy ratio, profit-sharing and return on asset: Case study of Indonesian sharia banks. WSEAS Transactions on Business and Economics, 16, 138–144.

Wójcicka, A. (2018). Credit-Risk Decision Process Using Neural Networks in Industrial Sectors. Springer Proceedings in Business and Economics, 71–81. https://doi.org/10.1007/978-3-319-72862-9_6

Wooldridge, J. M. (2010). *Econometric Analysis of Cross Section and Panel Data* (Second Edi, Issue 2). The MIT Press, Cambridge, Massachusetts London, England.