Analysis of Bank Saving Growth Below IDR2 Billion in Indonesia

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Article Information	Abstract
	_____ The COVID-19 pandemic, global economic shocks, and global geopolitical risks have resulted in the banking industry facing global uncertainty that affects both banks and customers. This uncertainty has grown significantly in recent years. This research examines the differences between the periods before and after the COVID-19 pandemic and the long-term and short-term effects of inflation, BI-7DRR, deposit rates, SBN yields, and the COVID-19 pandemic on DPK growth. The research utilizes the Difference Test and the Error Correction Model methodologies. The study reveals differences in DPK, BI-7DRR, deposit rates, and SBN yields before and during the COVID-19 pandemic. The findings indicate that inflation, BI-7DRR, deposit rates, and the COVID-19 pandemic have a long-term impact but do not exhibit a short-term impact. Meanwhile, SBN yield has no long-term or short-term effect on DPK growth. Inflation affects the growth of DPK in the long term because people see the direction of economic conditions. BI-7DRR has a long-term with DPK because banks require a time lag. The level of DPK does change in the long term because banks must adjust interest rates based on economic conditions. Increased savings in banks because people see the COVID-19 pandemic as a shock economy. Disclaimer: All views in this paper are the authors' and do not necessarily reflect the views of Indonesia Deposit Insurance Corporation (Lembaga Penjamin Simpanan).

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INTRODUCTION

The focus on financial markets gradually shifted from the COVID-19 pandemic to inflation in 2021, and market conditions worsened in early 2022 as geopolitical risks increased (Federal Deposit Insurance Corporation, 2022). This is also supported by McCaffre's (2021) statement that the banking industry faces global freedom conditions due to geopolitical risks affecting banks or customers that have grown significantly in recent years.

As global uncertainty persists, the performance of global growth is projected to decline, from 6% in 2021 to 3.2% in 2022 and further to 2.7% in 2023. Despite this being the weakest growth since 2001, it poses a threat of a recession to the world (International Monetary Fund, 2022). Global economic growth in 2023 is predicted to be 3.7% lower than in 2018 or lower than before the COVID-19 pandemic (Bank Indonesia, 2019). According to a survey report from McKinsey & Company (2022), people in Indonesia expect higher income and savings but lower consumption under these conditions. The COVID-19 pandemic also causes people to anticipate a more spartan lifestyle or to consume less and think about the future (Komonen & Seisto, 2022).

During the COVID-19 pandemic, customers shifted their behavior by depositing their funds in banks and opting for the convenience of transactions via digital banking services that can facilitate consumption activities, purchase of goods and services for customers via mobile banking (m-banking) and electronic banking (e-banking). This is supported by the findings of Iskandar et al. (2021) research, which found that activities at home during the COVID-19 pandemic, as well as restrictions on mobilization, had an impact on increasing the use of mobile banking services during the COVID-19 pandemic.

According to Figure 1, the volume of SMS/mobile banking and Internet banking transactions fluctuated yearly from 2017 to 2022. Compared to 2018, the volume of SMS/mobile banking and Internet banking transactions decreased by -17.35% and -48.55%, respectively. Then, during the COVID-19 pandemic, transaction volume and growth in SMS/mobile banking and Internet banking increased by 45.21% and 33.00%, respectively, indicating an increase in the use of digital banking services. It is also proven that the COVID-19 pandemic limited mobilization, thereby changing customer behavior towards SMS/mobile banking and Internet banking, which can be done anywhere and anytime. The volume and growth of SMS/mobile banking and Internet banking experienced a 61.48% and 46.08% increase, respectively 2021. Moreover, in 2022, there was a further rise in the volume and growth of SMS/mobile banking and Internet banking, with an increase of 52.36% and 50.97%, respectively.
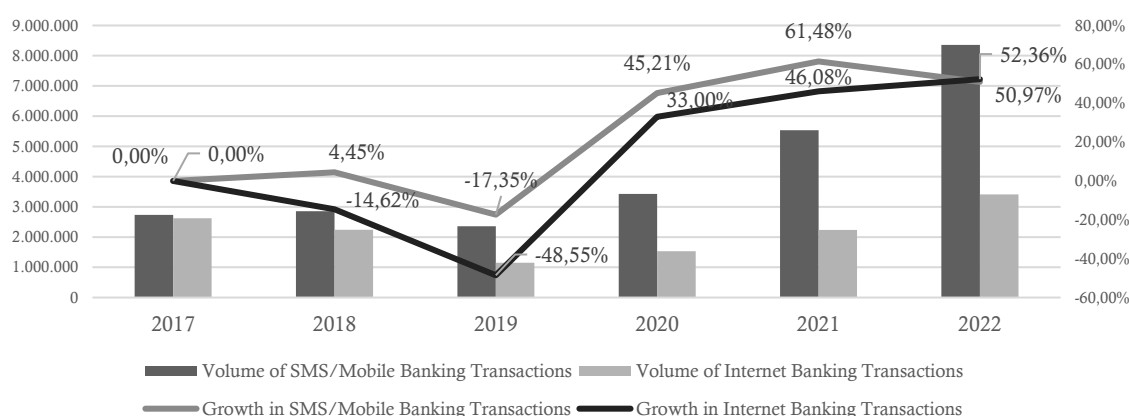

Figure 1. Mobile Banking Transaction Volume and Internet Banking Transaction Volume
Source: Payment System Statistics and Bank Indonesia Financial Market Infrastructure, 2023

Deposits in banks increased steadily during the COVID-19 pandemic (Lembaga Penjamin Simpanan, 2020). This was also supported by the Financial Services Authority's report on banking Third Party Funds (DPK) as of December 2021, which totaled IDR 7,480 trillion, an increase of 12.21% from IDR 6,665 trillion in 2020. The increase in bank deposits during the COVID-19 pandemic was also supported by the findings of Dursun-de Neef & Schandlbauer (2022) research, which found that in response to the COVID-19 pandemic, households engaged in savings activities due to reduced spending and limited mobility, increasing bank deposits.

According to the findings of Deloitte's observations on individuals in Canada, the United States, the United Kingdom, France, Germany, Australia, Japan, and China, anxiety caused by the COVID-19 pandemic caused many to save 26% more for unexpected expenses. Then, according to the findings of a survey conducted by Dossche et al. (2021), published in the European Central Bank's (ECB) Economics Bulletin, the tendency of European households to save has reached extraordinary levels since early 2020. The household savings derived from European Union sectoral accounts increased dramatically in the first half of 2020.

According to the Central Bureau of Statistics (BPS), the average consumption and saving of a country's population can be seen through the average consumption and saving from disposable income that is ready to be spent by the public. According to the August 2022 Bank Indonesia Consumer Survey, the average consumer income-to-consumption ratio increased by 73.6% from the previous 73.4%. Meanwhile, the percentage of consumer income saved has fallen from 16.8% to 17% from the previous month.

In this regard, each individual must choose between saving and consuming. In his theory, Liquidity Preference of Interest (Rate Determination), John Maynard Keynes explains that the determinants of holding money are determined by the demand for money and the supply for money. Individual liquidity or money demand is motivated by three factors: transactions, prevention, and speculation (Sanyal, 2019).
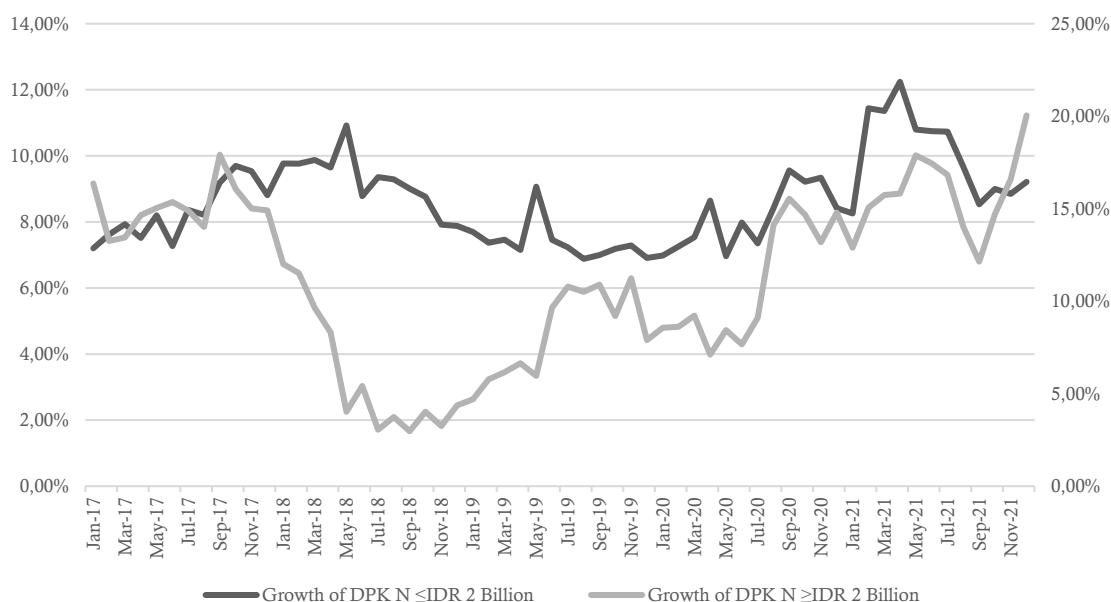

Figure 2. Growth of DPK N ≤ IDR 2 Billion and DPK N ≥ IDR 2 Billion for the 2017-2021 Period
Source: Indonesia Deposit Insurance Corporation, 2023

Figure 2 depicts the growth rate of Third Party Funds (DPK) deposits in Indonesia below and above IDR 2 billion yearly. From 2017 to 2021, DPK below and above IDR 2 billion fluctuated but tended to rise. When the 2018 economic crisis hit, the growth of Third Party Funds (DPK) below and above IDR 2 billion slowed. Still, the decrease in the percentage of DPK above IDR 2 billion was more significant than the decrease in DPK below IDR 2 billion. Then, at the start of the 2020 COVID-19 pandemic, Third Party Funds (DPK) growth below and above IDR 2 billion increased concurrently.

Focusing on the sources of bank funds (deposits) is critical because commercial banks worldwide experiencing operational inefficiency, negatively impacting the economy. High or low deposit growth rates determine the risk of disbursing loans or credit, so banks cannot cover operational costs, even if they cannot pay debts (Alebachew Legass et al., 2021). Deposit growth is directly related to the macroeconomic environment, which can significantly impact bank deposit growth (Yakubu & Abokor, 2020).

Aside from inflation, the BI-7DRR is an indicator that can be viewed as a macro factor influencing the amount of savings (Batubara & Nopiandi, 2020). Bank Indonesia can influence banking, the money market, and real sector interest rates through the BI-7DRR monetary policy instrument.

Furthermore, Yaya & Sofiyana (2018) found that government securities, in this case, Retail State Sukuk, have a significant negative impact on third-party funds, implying that if there is an increase in Retail Sukuk circulating in the community, third-party funds may depreciate, and vice versa. According to the Indonesian Central Securities Depository (KSEI) report, 761,045 people invested in Government Securities (SBN) in Indonesia in August 2022, a 24.53% increase from 611,143 people in December 2021.

According to the description above, the growth of small savings tends to correlate with macroeconomic indicators. This is consistent with previous research, including Kaba (2019), which found that the inflation rate negatively and significantly affects bank deposits.

The research period and variables studied are where the dissimilation occurs between current and previous research. This study takes place between 2017 and 2021. The purpose of this research is to examine the growth of bank deposits below IDR 2 billion, inflation, BI-7DRR, Deposit Interest Rate, SBN Yield, and Dummy COVID-19 before and during the COVID-19 pandemic, as well as the impact of the inflation variable, BI-7DRR, Deposit Interest Rate, SBN Yield, and Dummy COVID-19 on the growth of bank deposits below IDR 2 billion in short and long term relationships. Based on previous research, the Yield for Government Securities (SBN) can affect the amount of savings in banks because individuals have alternative savings or investments in bonds. Investing in State Securities is considered safe because the state guarantees it.

Amaliawiati and Nursjanti (2023), Kusumaningrum et al. (2021), Wilda Cahyani et al. (2022). Three studies found that TPF growth at the national level remained limited and referred to the growth of Islamic third-party funds (DPK) available in the literature related to the variables studied.

As a result, this study encourages more research into the determinants of growth in deposits under IDR 2 billion on a cumulative or national scale . The following is the research hypothesis based on the literature review findings. H1: Inflation positively and significantly impacts the growth of bank deposits in Indonesia. H2: BI-7DRR positively and significantly impacts the growth of bank deposits in Indonesia. H3: Deposit interest rates positively and significantly impact the growth of bank deposits in Indonesia. H4: The yield on government securities (SBN) negatively and significantly impacts Indonesia's bank deposits' growth. H5: The COVID-19 pandemic positively and significantly impacts Indonesia's bank deposits growth.

RESEARCH METHODS

The quantitative approach seeks to identify the factors that influence the growth of bank deposits or Third-Party Funds in Indonesia that are less than IDR 2 billion. Secondary data is obtained from predetermined macroeconomic variables every month from January 2017 to December 2021. This research data processing method uses E-views 10 and IBM SPSS Statistics. The sample for this study includes third-party funds from all Financial Services Authority (OJK) supervisory banks and banks guaranteed by the Deposit Insurance Corporation (LPS), including state-owned banks, joint venture banks, foreign banks, rural banks (BPR), and commercial banks. This study obtains data on deposit growth below IDR 2 billion from the Deposit Insurance Corporation's (LPS) website.

Furthermore, the BI-7DRR data variable and Commercial Bank Interest Rates were obtained from Bank Indonesia's official website, specifically those found in the August 2022 Indonesian Economic and Financial Statistics (SEKI). Meanwhile, Government Securities (SBN) yield data were obtained from the investing website. com. This study compiles information from the Deposit Insurance Corporation, Bank Indonesia, and investing.com websites. This study employs two analysis methods: the Difference Test, which consists of the Paired Sample T-Test and the Wilcoxon Signed Rank Test with IBM SPSS Statistics, and the Error Correction Model (ECM) analysis approach with E-views 10.

In the first analysis method, the Difference Test method compares the means of two paired samples to determine the difference in the data. This study's data is quantitative and has a normal distribution (Prasetyo & Nurkholik, 2019). This study uses the Paired Sample T-Test and the Wilcoxon Signed Rank Test to compare the inflation variable, BI-7DRR, commercial bank interest rates, government securities (SBN) yields, and deposit growth below IDR 2 billion before and after the COVID-19 pandemic.

This study's second stage of data analysis processing used Ordinary Least Square (OLS) and Error Correction Model (ECM). The inflation variable can be tested using the Ordinary Least Squares (OLS) and Error Correction Model (ECM). This study's second stage of data analysis processing used Ordinary Least Square (OLS) and Error Correction Model (ECM). In the long run, the inflation variable, BI-7DRR, commercial bank interest rates, government securities (SBN) yields, and the COVID-19 dummy can be tested using the Ordinary Least Square (OLS) and Error Correction Model (ECM).

According to parametric testing, the Error Correction Model (ECM) method must meet specific requirements. Following that, model feasibility tests such as the F test, T-test, and coefficient of determination are performed. Following that, a stationary test is performed to obtain a stable average value so that the resulting regression model has the correct predictive ability and avoids spurious regression.

The unit root test can be used to determine data stationarity. Testing stationarity with multiple data levels and first differences on time series data. The Johansen method can be used for cointegration testing. Error Correction Model (ECM) testing is the final stage, which includes adjustments to correct short-term imbalances and restore long-term system balance. The model is said to be correct when the Error Correction Model (ECM) coefficient is negative and significant, with a probability of less than or equal to 0.05 (Wahyudi and Nabella, 2020). The long-term and short-term estimation equations are shown below. The model equation, in the long run, is shown below.

$$Y = \beta 0 + \beta 1 Inflation_t + \beta 2 BI\text{-}7DRR_t + \beta 3 DepositInterestRate_t + \beta 4 YieldSBN_t + \beta 5 PandemicCovid\text{-}19_t + \varepsilon_t \quad \dots\dots\dots\dots (1)$$

The short-run model equation is shown below:

$$\Delta Y_t = \beta 0 + \beta 1 \Delta Inflation_{t-1} + \beta 2 BI\text{-}7DRR_{t-1} + \beta 3 \Delta DepositInterestRate_{t-1} + \beta 4 \Delta YieldSBN_{t-1} + \beta 5 \Delta \beta 5 PandemicCovid\text{-}19_{t-1} + ECT \;.. (2)$$

Table 1. Operational Variable Definition

No.	Variable	Definition	References
1.	Third-Party Funds (DPK)	Third party funds are funds that originate with customers and are channelled by banks through loans/credit.	(Oktaviana, 2022)
2.	Inflation	Inflation is defined as a gradual increase in the general price of goods and services.	Central Bank of Indonesia, 2023
3.	BI-7DRR	The BI-7DRR aims to control interest rates in the initial, middle, and final phases of monetary policy.	Central Bank of Indonesia, 2023
4.	Deposit Interest Rate	According to the Financial Services Authority (OJK), interest rates on bank deposits/savings are returns to customers from banks in exchange for customer services that have placed their funds in the bank.	Financial Services Authority, 2023
5.	SBN Yield	According to the Financial Services Authority (OJK), State Securities (SBN) are classified into State Securities and State Sharia Securities. The mission of State Securities (SBN) is to support the shortage of the State Revenue and Expenditure Budget (APBN) in Indonesia, to support the large amount of cash that is less in the short term, and to monitor the size of the national debt.	Financial Services Authority, 2023
6.	Pandemic COVID-19	The COVID-19 pandemic is a worldwide coronavirus outbreak, which causes an infectious disease caused by the SARS-CoV-2. In this study, the COVID-19 pandemic acts as a dummy variable for the Error Correction Model method.	World Health Organization, 2023

Source: Data Processed, 2023

In addition, the following hypotheses are proposed in this study: H1: Inflation has a positive and significant impact on the growth of bank deposits in Indonesia. H2: BI-7DRR positively and significantly impacts the growth of bank deposits in Indonesia. H3: Deposit interest rates have a positive and significant impact on the growth of bank deposits in Indonesia; H4: Government Securities (SBN) yield has a negative and significant impact on the growth of bank deposits in Indonesia. H5: The COVID-19 pandemic has positively and significantly impacted Indonesia's bank deposits growth.

RESULTS AND DISCUSSION

This study used a different test in the first stage of analysis, which was divided into two stages, namely the Paired Sample T Test and the Wilcoxon Signed Rank Test. Descriptive statistics are data processed for analysis using the SPSS tool by explaining the collected data.

Table 2. Results of Descriptive Statistical Tests

Variable	Minimum	Maximum	Mean	Std. Deviation
Third-Party Fund - Before Pandemic COVID-19	6,88	10,92	8,31	1.075,00
Third-Party Fund - During Pandemic COVID-19	6,96	12,24	9,10	1.485,00
Inflation - Before Pandemic COVID-19	2,48	4,37	3,35	.4390
Inflation - During Pandemic COVID-19	1,32	2,98	1,80	.5137
BI-7DRR - Before Pandemic COVID-19	4,25	6,00	5,10	.6608
BI-7DRR - During Pandemic COVID-19	3,50	5,00	3,89	.4661
Deposit Interest Rate -Before Pandemic COVID-19	6,24	7,27	6,79	.3174
Deposit Interest Rate -During Pandemic COVID-19	3,83	6,77	5,45	.9550
Yield SBN - Before Pandemic COVID-19	5,07	7,43	6,14	.6188
Yield SBN - During Pandemic COVID-19	2,98	5,85	4,17	.7297
Dummy COVID - Before Pandemic COVID-19	0,00	0,00	-	-
Dummy COVID - During Pandemic COVID-19	1,00	1,00	-	-

Source: Data Processed, 2023

Based on Table 2, the following describes the descriptive statistical test results for the dependent and independent variables. The minimum value of Third Party Funds (DPK) during the COVID-19 pandemic was 6.96 %, higher than the pre-pandemic value of 6.88%. This corresponds to a 12.24% increase in the maximum score during the COVID-19 pandemic compared to 10.92%. The average DPK rose from 8.31% before the COVID-19 pandemic to 9.10% during it. There were no significant data deviation gaps in the TPF standard deviation before and during the COVID-19 pandemic.

Table 2 shows that the inflation minimum before the COVID-19 pandemic was higher than the post-pandemic minimum, ranging from 2.48% to 1.32%. This corresponds to a drop in the maximum inflation value during the COVID-19 pandemic from 4.37% to 2.98%. During the COVID-19 pandemic, the average inflation rate fell from 3.35% to 1.80%. In contrast, the standard deviation of inflation before and during the COVID-19 pandemic revealed no significant data deviation gap.

Table 2 shows that the minimum BI-7DRR before the COVID-19 pandemic was higher than during the pandemic, which ranged from 4.25% to 3.50%. This is consistent with the reduction in the maximum BI-7DRR score from 6.00% to 5.00% during the Covid-19 Pandemic. During the COVID-19 pandemic, the average BI-7DRR score fell from 5.10% to 3.89%. Following that, there was no visible data deviation gap in the BI-7DRR standard deviation before or during the COVID-19 pandemic.

Table 2 shows that the minimum deposit interest rate was higher before the COVID-19 pandemic than after, ranging from 6.24 % to 3.83%. This is consistent with the maximum deposit interest rate reduction from 7.27% to 6.77% during the COVID-19 pandemic. During the COVID-19 pandemic, the average deposit interest rate fell from 6.79% to 5.45%. The standard deviation of deposit rates before and during the COVID-19 pandemic, on the other hand, did not show a significant data gap.

Table 2 shows that before the COVID-19 pandemic, the minimum value of SBN yields

ranged from 5.07% to 2.98%, higher than after. This is consistent with the effect of the COVID-19 pandemic on SBN, which reduced the maximum yield from 7.43% to 5.85%. During the COVID-19 pandemic, the average SBN yield fell from 6.14% to 4.17%. There was no statistically significant difference in SBN yield

standard deviation before and after the COVID-19 pandemic.

The normality test is a pre-hypothesis test that determines whether the data collected is usually distributed. The Paired Sample T Test can be used if the variables are normally distributed; otherwise, the Wilcoxon Signed Rank Test will be used.

Table 3. Normality Test Results

Variable	Shapiro-Wilk Statistic	df	Sig.	Information	Conclusion
Third-Party Fund - Before Pandemic COVID-19	.963	24	.503	Normal	Parametric Hypothesis Test
DPK - During Pandemic COVID-19	.953	24	.309	Normal	Parametric Hypothesis Test
Inflation - Before Pandemic COVID-19	.917	24	.050	Abnormal	Non-Parametric Hypothesis Test
Inflation - During Pandemic COVID-19	.783	24	.000	Abnormal	Non-Parametric Hypothesis Test
BI-7DRR - Before Pandemic COVID-19	.840	24	.001	Abnormal	Non-Parametric Hypothesis Test
BI-7DRR - During Pandemic COVID-19	.809	24	.000	Abnormal	Non-Parametric Hypothesis Test
Deposit Interest Rate - Before Pandemic COVID-19	.883	24	.010	Abnormal	Non-Parametric Hypothesis Test
Deposit Interest Rate - During Pandemic COVID-19	.932	24	.110	Normal	Non-Parametric Hypothesis Test
Yield SBN - Before Pandemic COVID-19	.967	24	.586	Normal	Parametric Hypothesis Test
Yield SBN - During Pandemic COVID-19	.926	24	.081	Normal	Parametric Hypothesis Test
Dummy COVID - Before Pandemic COVID-19	-	-	-	-	-
Dummy COVID - During Pandemic COVID-19	-	-	-	-	-

Source: Data Processed, 2023

Table 3 shows that the DPK variable and SBN yield have an Asymp Sig (2-tailed) > 0.05, indicating that they are typically distributed. As a result, the Paired Sample T-Test can also be used to test hypotheses. Inflation, BI-7DRR, and interest rates on deposits with an Asymp Sig (2-tailed) value of 0.05 before and during the COVID-19 pandemic indicate that these variables are not normally distributed. The Wilcoxon Signed Rank Test evaluates the BI-7DRR variables, deposit rates, and inflation.

The Paired Sample T-Test is used in the normality test on the DPK variable and SBN

yield. Meanwhile, the Wilcoxon Signed Rank Test was used because the data for inflation, BI-7DRR, and deposit interest rates were not normally distributed.

The Paired Sample T Test and the Wilcoxon Signed Rank Test can compare the mean differences between two paired samples. This study examined two paired samples from before and during the COVID-19 pandemic, from January 2017 to December 2019 and from January 2020 to December 2021.

This study uses the Paired Sample T-Test and the Wilcoxon Signed Rank Test to compare

differences before and during the COVID-19 pandemic 19. Subsequently, to address this study's dual objectives, the ECM method is employed for a more comprehensive exploration of the impact of each independent variable on the dependent variable. Before this step, a difference is confirmed using the Paired Sample T-Test.

Table 4. Wilcoxon Sign Rank Test and Paired Sample T-Test Results

Variable	Asymp Sign (2-tailed)	Method	Conclusion
Third-Party Fund During - Before Pandemic COVID-19	0,136	Paired Sample T Test	Not Significant
Inflation During - Before Pandemic COVID-19	0.000	Wilcoxon Sign Rank Test	Significant
BI-7DRR During - Before Pandemic COVID-19	0.000	Wilcoxon Sign Rank Test	Significant
Deposit Interest Rate During - Before Pandemic COVID-19	0.000	Wilcoxon Sign Rank Test	Significant
Yield SBN During - Before Pandemic COVID-19	0.000	Paired Sample T Test	Significant
Dummy COVID During - Before Pandemic COVID-19	-	-	-

Source: Data Processed, 2023

Table 4 shows the Paired Sample T-Test results with an Asymp Sign (2-tailed) DPK value greater than 0.05, indicating that the TPF variable found no significant differences or dissimilarities before and during the COVID-19 pandemic. The SBN yield variable has an Asymp Sign (2-tailed) value of less than 0.05, indicating a significant difference. The TPF variable has a negative mean value, which indicates that the average TPF increased during the COVID-19 pandemic. Furthermore, the SBN yield variable has a positive mean value, indicating that the yield on SBN before the COVID-19 pandemic was more significant than the yield after the pandemic.

Furthermore, the Wilcoxon Signed Rank Test is a non-parametric test that compares two non-normally distributed paired data sets. Based on the Wilcoxon Signed Rank Test results in Table 3, the Asymp Sign (2-tailed) value for inflation, BI-7DRR, and deposit interest rates is 0.00. This demonstrates a significant difference in inflation, BI -7DRR, and deposit interest rates during the COVID-19 pandemic.

Table 5. T Test Results (Partial)

Variable	Coefficient	Prob.
Inflation	-0,73557	0,0277
BI-7DRR	-1,364766	0,0001
Deposit Interest Rate	-0,60078	0,0136
Yield SBN	0,528373	0,0689
Dummy COVID	-1,772029	0,0022

Source: Data Processed, 2023

According to Table 5 of the T-test results, the yield on SBN has no bearing on the increase in bank deposits in Indonesia. However, inflation, the BI-7DRR, deposit interest rates, and the COVID-19 pandemic all increased bank DPK in Indonesia.

Table 6. F Test Results (Multiple)

R-squared	0,53818	Mean dependent var	8,6285
Adjusted R-squared	0,495419	S.D. dependent var	1,303771
S.E. of regression	0,926119	Akaike info criterion	2,779012
Sum squared resid	46,31564	Schwarz criterion	2,988447
Log-likelihood	-77,37037	Hannan-Quinn criter.	2,860934
F-statistic	12,58573	Durbin-Watson stat	1,015624
Prob(F-statistic)	0,00000		

Source: Data Processed, 2023

According to the results of the F-Test, a significance of 0.000 indicates that all variables simultaneously affect the growth of banking deposits in Indonesia below IDR 2 billion. Table 5 shows that the Adjusted R-squared value is 0.495419. This demonstrates that the variables inflation, BI-7DRR, deposit rates, SBN yields, and the COVID-19 pandemic can explain 49% of Indonesia's bank deposit growth variation. Variables outside the model explain the remaining 51%.

Following the Difference Test in the first stage, the Error Correction Model (ECM) method was implemented in the second stage. The Engle-Granger Error Correction Model (ECM) improves the regression equation by assessing each independent variable's short-term and long-term direct effects on the dependent variable. The Error Correction Model (ECM) includes stationary, cointegration, and long-term tests. The COVID-19 pandemic variable is added to the Error Correction Model (ECM) test to examine the long-term and short-term effects on Third Party Funds (DPK) growth.

Table 7. Stationary Test Results

Variable	Probability	Stationary Level	Conclusion
DPK	0,6889	Level	Not Stationary
	0	First Difference	Stationer
Inflation	0,8124	Level	Not Stationary
	0	First Difference	Stationer
BI7DRR	0,5933	Level	Not Stationary
	0	First Difference	Stationer
Deposit Interest Rate	0,8354	Level	Not Stationary
	0	First Difference	Stationer
Yield SBN	0,4753	Level	Not Stationary
	0	First Difference	Stationer
Dummy COVID-19	0,8126	Level	Not Stationary
	0	First Difference	Stationer

Source: Data Processed, 2023

The Philips-Perron unit root test method must be used to test time series data for stationariness. The Philips-Perron unit root test was performed at the level in the first stage, and it was discovered that all variables were not stationary at the level. Then, a unit root test was performed at the first difference level, yielding stationarity results for the variables DPK, inflation, BI-7DRR, deposit rates, SBN yields, and the COVID-19 dummy. A data set is stationary if the mean and variance are constant and the covariance between two-time series depends only on their lag.

Table 8. Cointegration Test Results

Unrestricted Cointegration Rank Test (Trace)

Hypothesized		**Trace**	**0,05**	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0,584249	122,0743	95,75366	0,0003
At most, 1 *	0,472049	71,16946	69,81889	0,0389
At most 2	0,278127	34,1219	47,85613	0,4952
At most 3	0,197186	15,21931	29,79707	0,7657
At most 4	0,041844	2,480658	15,49471	0,9855
At most 5	0,000026	0,001484	3,841466	0,9675

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized		Max-Eigen	0,05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0,584249	50,90482	40,07757	0,0021
At most, 1 *	0,472049	37,04756	33,87687	0,0202
At most 2	0,278127	18,90259	27,58434	0,4221
At most 3	0,197186	12,73865	21,13162	0,4766
At most 4	0,041844	2,479175	14,2646	0,9752
At most 5	0,000026	0,001484	3,841466	0,9675

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Data Processed, 2023

Furthermore, the degree of integration test can be performed after the data has been tested stationary. The Johansen Test method was used to perform the cointegration test. The results of cointegration statistical tests with trace statistics are shown in Table 8, and the section below discusses max-eigenvalue statistics. According to the cointegration test results, cointegration has a significance level of 0.05. The results of cointegration show that all variables have a long-term relationship.

Table 9. Ordinary Least Square (OLS) Test Results

Long Term (Ordinary Least Square)			Conclusion
Variable	Coefficient	Prob.	
Inflation	-0,73557	0,0277	Significant in the Long Term
BI-7DRR	-1,364766	0,0001	Significant in the Long Term
Deposit Interest Rate	-0,60078	0,0136	Significant in the Long Term
Yield SBN	0,528373	0,0689	Not Significant in the Long Term
Dummy COVID	-1,772029	0,0022	Significant in the Long Term

Source: Data Processed, 2023

According to Table 8, inflation, BI-7DRR, deposit rates, and the COVID-19 pandemic, all have a significant long-term relationship with DPK. DPK, on the other hand, does not affect the SBN yield variable.

Table 10. Error Correction Model (ECM) Test Results

Short Run (Error Correction Model)			Conclusion
Variable	Coefficient	Prob.	
D(Inflation)	-0,218281	0,6243	Not Significant in the Short Term
D(BI-7DRR)	-0,826452	0,2500	Not Significant in the Short Term
D(Deposit Interest Rate)	-0,38347	0,7313	Not Significant in the Short Term
D(*Yield SBN*)	0,284383	0,3633	Not Significant in the Short Term
D(DUMMY_COVID)	-0,669072	0,4106	Not Significant in the Short Term
ECT(-1)	-0,506115	0,0001	Significant

Source: Data Processed, 2023

Furthermore, based on Table 10, it is clear that the inflation variable has no short-term significance for DPK. Furthermore, the BI-7DRR variable does not affect DPK. The deposit interest rate variable is thus unimportant to DPK. The SBN yield variable is then insignificant to DPK. The COVID-19 pandemic was then insignificant for DPK.

The Error Correction Model (ECM) features ECT(-1) with a coefficient value of -0.506115, representing 50.61%. This indicates the correction of the preceding month's imbalance in the subsequent month. The likelihood is then 0.0001 or significant for DPK. As a result, the ECT (-1) value significantly negatively affects TPF. The Error Correction Term (ECT), as described by ECT (-1), has a negative and significant coefficient, indicating that the Error Correction Model (ECM) testing model can be said to be used or valid, according to Lumonang et al. (2018)'s research findings.

Table 11. Classical Assumption Test Results

Classical Assumption	Results	Conclusion
Normality Test	Jarque-Bera: 0.678518; Probability: 0.712298	The data is normally distributed
Multicollinearity Test	All variables with Variation Inflation Factors (VIF) < 10	All variables are free of multicollinearity problems
Heteroscedasticity	Obs*R-squared: 10.39085; The Chi-Square: 0.0649	No heteroscedasticity issue
Autocorrelation	Durbin-Watson (DW): 1.016	Autocorrelation is detected
Autocorrelation (Improved)	Asymp. Sig. (2-tailed): 0.05	No problem in autocorrelation

Source: Data Processed, 2023

According to Table 11, this study used 60 observations. The Jarque-Bera value is 0.678518 with a probability value of 0.712298, greater than α = 5. As a result, it is known that the data is normally distributed. According to Table 11, the Variance Inflation Factor (VIF) value, which determines the multicollinearity test, is less than 10, indicating that all variables are free of multicollinearity problems. According to Table 11, the Obs*R-squared value is 10.39085 with a Prob value. The Chi-Square is 0.0649. This demonstrates that there is no heteroscedasticity issue. The Durbin-Watson (DW) result above is known to be worth 1.016. Autocorrelation is detected using the DW testing method when it is less than the dL and dU values or d < dL < dU. After discovering the autocorrelation results, the first test revealed that the autocorrelation results with Durbin Watson were 1.016, implying that autocorrelation existed. The Run Test with the Asymp value was used to repair the damage. The value of Sig (2-tailed) is 0.05, indicating that there is no problem with autocorrelation.

Table 4 shows Third Party Funds (DPK) had no significance during the COVID-19 pandemic with Sig. (2-tailed) > 0.05, indicating that DPK increased during the COVID-19 pandemic. This is consistent with Neef and Schandlbauer's research (2022) which found that there was an increase in bank deposits during the COVID-19 pandemic because people controlled their expenses. According to data from the Financial Services Authority (OJK) in the Indonesian Banking Statistics (SPI) for December 2021, the amount of funds distributed for banking business activities has increased throughout 2021. During the COVID-19 pandemic, Third Party Funds (DPK)'s growth increased, significantly impacting the economy by increasing credit distribution and encouraging economic growth. Furthermore, during the COVID-19 pandemic, banking liquidity is still considered sufficient for facilitating credit financing and meeting bank obligations without incurring losses on maturing bank obligations.

According to the data analysis findings, there is a long-term relationship between inflation and deposits (0.0277 < 0.05) but no short-term relationship (0.6243 > 0.05). The initial research hypothesis stated that inflation has a positive and significant influence on the growth of banking deposits in Indonesia, which is not supported by the findings of this study. In contrast, the research findings show a negative inflation variable coefficient of -0.73557 on the Ordinary Least Square (OLS) test and -0.218281 on the Error Correction Model (ECM) test results. Customer's ability to place funds in banks occurs when prices for goods and services are low and people's incomes are stable, encouraging customers with a nominal value less than IDR 2 billion or small to middle-class customers to meet their needs and set aside funds to save in the bank over time.

According to Table 4, inflation significantly negatively impacts Indonesian banking DPK growth. This means that inflation has slowed during the COVID-19 pandemic. The COVID-19 pandemic has had a significant negative impact. According to the Central Statistics Agency (BPS), the 2021 Consumer Price Index (CPI) inflation rate of 1.87% (yoy) remains low and far below the 3.01% inflation target. Low inflation in 2021 stems from the lingering weakness in domestic demand due to the COVID-19 pandemic. A policy mix, overseen by Bank Indonesia, the government, and local governments (Pemda), focuses on maintaining price stability for goods and services. The Irish Central Statistics Office defines domestic demand as total household expenditure on goods such as food, rent, and travel, as well as all government spending on public services and all investment capital. Thus, the COVID-19 pandemic affected the inflation rate, which has decreased because people are still delaying consumption activities, requiring a policy mix to control the inflation rate, particularly the inflation rate for the volatile foods group, which is the most significant contributor to inflation and is directly related to food ingredients. Natural disasters, changes in commodity prices at home and abroad.

The low inflation rate boosted long-term growth in Third Party Funds (DPK). Meanwhile, when inflation rates are low, individuals tend to carry out consumption activities by holding cash, demonstrating a prerequisite for economic growth that can provide welfare for the community. Between 2017 and 2021, inflation is expected to be lower than the target. Meanwhile, the growth of Third Party Funds (TPF) from 2017 to 2021 has outpaced both the target and actual inflation.
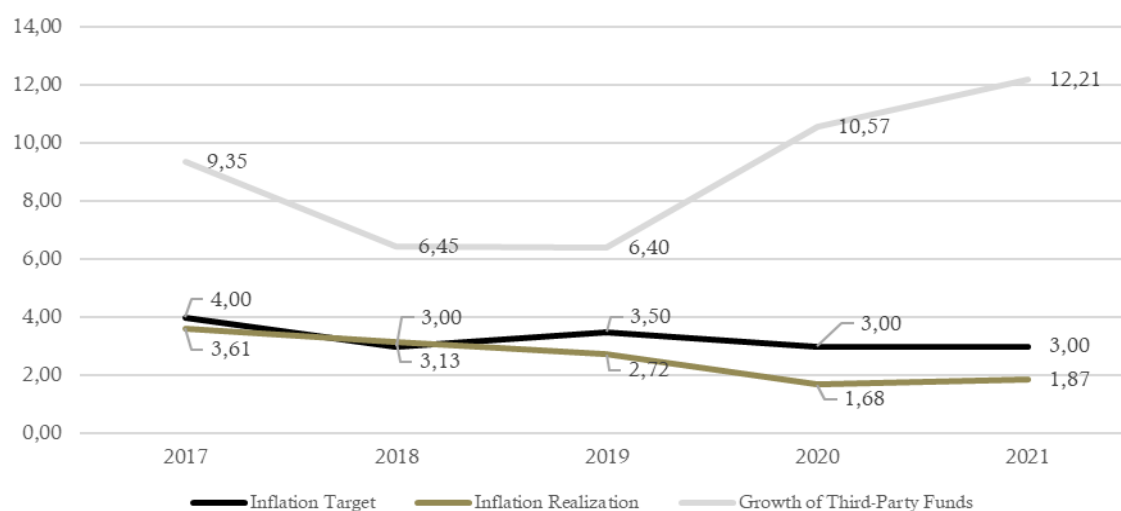

Figure 3. Growth of Inflation and Growth of Third-Party Funds for the 2017-2022 Period
Source: Bank Indonesia dan Indonesia Deposit Insurance Corporation, 2023

People's expectations of the economy are influenced by their purchasing power and ability to purchase goods and services. When there is low inflation or uncertainty, the incentive to hold cash as a liquid asset, also known as cash is king, grows. Furthermore, Bank Indonesia's inflation control policy has no short-term impact on the growth of bank deposits in Indonesia. Thus, low inflation during the COVID-19 pandemic encourages greater use of cash because cash does not suffer from a sudden drop in asset values and is considered a liquid asset. Inflation does not affect the growth of Third Party Funds (DPK) in the short term because people prefer to use cash for transaction activities. Still, it does have an effect in the long term because people see the direction of economic conditions and follow suit by depositing savings in banks.

According to Table 4, the BI-7DRR variable significantly affects the growth of bank deposits in Indonesia. The BI-7DRR rate has decreased during the COVID-19 pandemic. The decrease in the BI-7DRR may encourage a decrease in loan interest rates, aiming to increase credit/financing for business actors and encourage economic recovery following the COVID-19 pandemic. According to Bank Indonesia, the decrease in the BI-7DRR was not accompanied by a rapid decrease in lending rates or was limited due to the continued high banking prime lending rate (SBDK). During the COVID-19 pandemic, the BI-7DRR rate fell without being followed by a drop in effective lending and deposit rates. Suppose banks immediately reduce lending and deposit rates. In that case, it can encourage financing for business actors during the COVID-19 pandemic and make it more appealing for customers to place their funds in banks. As a result of the banks' slow response to lowering their benchmark interest rate, the BI7DRR policy was deemed less effective in lowering lending and deposit rates.

According to previous data analysis, the BI-7DRR variable has an insignificant relationship in the short term, as the resulting probability value is 0.4313 > 0.05. Still, the relationship is significant to Third Party Funds in the long term, with a probability value of 0.0014

0.05. Because the coefficient value of the BI-7DRR in this study is negative -1.112539 on the Ordinary Least Square (OLS) test results and is -0.593403 on the Error Correction Model (ECM) test results, the findings of this study contradict the research hypothesis that the BI-7DRR has a positive effect on the growth of banking deposits in Indonesia. The lower the Third Party Funds (DPK) level, the higher the level of BI-7DRR. Banks do not immediately raise deposit and credit interest rates when the BI-7DRR rises. Meanwhile, given economic conditions and internal banking considerations, the bank is poised to react in the long run through interest rate hikes on deposits and loans. This showcases that the monetary policy transmission mechanism entails a time lag, with each transmission having its own distinct delay. Thus, BI-7DRR has a long-term relationship with Third Party Funds (DPK) because it requires a time lag for adjustments made by banks in adjusting lending and deposit rates and does not have a short-term relationship with Third Party Funds (DPK) because a bank, implementer of the policy of changing Bank Indonesia's reference interest rate, must consider current economic conditions as well as the bank's internal conditions.

According to Table 4, deposit interest rates significantly negatively impact the growth of bank deposits in Indonesia. During the COVID-19 pandemic, this decline tends to be flat and follows the downward trend of the BI-7DRR reference rate. Furthermore, the low benchmark interest rate and abundant liquidity generally pushed down bank interest rates. According to the Deposit Insurance Corporation's (LPS) November 2021 liquidity report, the average rupiah deposit interest rate (22 moving daily average) at the end of October 2021 was 3.14% higher than in September 2021. Deposit rate declines are expected to slow further by the end of the fourth quarter 2021. Most banks are adjusting deposit rates due to the reduction in the Guarantee Interest Rate (TBP) for the September 2021 period. According to the Bank of England, lower deposit rates influence people's decisions to deposit funds in banks because lower interest rates tend to increase spending. Thus, the deposit

interest rate has decreased during the COVID-19 pandemic. Similar to the BI-7DRR rate and the Guarantee Interest Rate (TBP), a reduction in deposit rates can influence customers' inclination to save with the bank and might lead them to consider other investment options.

Based on data analysis, it is known that the deposit interest rate variable has a statistically insignificant short-term relationship with Third Party Funds (probability value: 0.7053 > 0.05) but a statistically significant long-term relationship (probability value: 0.05). 0097 < 0.05). The study's findings contradict the research hypothesis that deposit rates positively affect the growth of banking deposits in Indonesia. In this study, however, the coefficient on deposit rates is negative, with a value of -0.678907 for the Ordinary Least Square (OLS) test and -0.432191 for the Error Correction Model (ECM) test. If the deposit interest rate increases by one unit, there will be a corresponding decrease of approximately 0.68 units in Third Party Funds (DPK). Previous research has found that deposit interest rates have a negative effect on Third Party Funds (DPK) studied by (Jamaluddin et al., 2020). Furthermore, Haifa and Syofyan's (2021) research shows that conventional bank deposit interest rates have a negative effect on Third Party Funds (DPK). This explains why banks must adjust the BI-7DRR rate, a guideline for banks when adjusting deposit interest rates. Furthermore, banks must consider current economic conditions and the state of banking capital. Thus, when deposit rates rise, the third-party funds (DPK) level does not change in the short term but in the long term because banks must adjust interest rates based on economic conditions and the company's internal conditions.

Based on the Paired Sample T Test results in this study, it shows Sig. (2-tailed) 0.05. This means that during the COVID-19 pandemic, the yield of SBN has decreased. In this case, the yield is inversely proportional to the price. If yields rise, bond prices are falling; if yields fall, it indicates that bond prices are rising. According to the Indonesian Securities Pricing Appraiser, short-tenor bonds (5 years) fell by -20.20 basis

points. Furthermore, from September to December 2021, foreign investors conducted net selling transactions of Government Securities (SBN) with a total accumulated value of IDR 89.10 trillion. According to Investopedia, declining government securities (SBN) yields imply that demand for government securities (SBN) has increased, the public prefers moderate investment risk, and yields that are consistent with the level of investment risk in government securities (SBN). The decrease partly influenced the decline in SBN yields in the BI-7DRR reference rate. Thus, the Yield on Government Securities (SBN) fell during the COVID-19 pandemic due to lower benchmark interest rates and investor expectations of the economy, such as inflation, GDP, and government debt ratios. According to the findings of this study, decreasing economic expectations have limited the growth of Third Party Funds (TPF) during the COVID-19 pandemic, as DPK underwent a non-significant increase.

According to data analysis findings, the relationship between SBN yield and Third Party Funds is insignificant in the long and short term. The findings of this study contradict the research hypothesis that the yield on SBN has a negative effect on the growth of banking deposits in Indonesia because the yield on SBN coefficient in this study is positive, namely 0.528373 on the results of the Ordinary Least Square Test (OLS) and 0.284383 on the results of the Error Correction Test (ECM) models. According to CNBC Indonesia, SBN yields, which fell during the COVID-19 pandemic, tend to indicate unfavorable economic conditions. The trend of people choosing investment instruments other than savings/deposits indicates that this did not occur in the short and long term during the COVID-19 pandemic. During the COVID-19 pandemic, the public prefers to use their funds or money to transact through banking services. In contrast, the public prefers investment instruments other than Government Securities (SBN) in the long term. Consequently, fluctuations in the yield on SBN will not have an impact on the growth of Third Party Funds totaling less than IDR 2 billion.
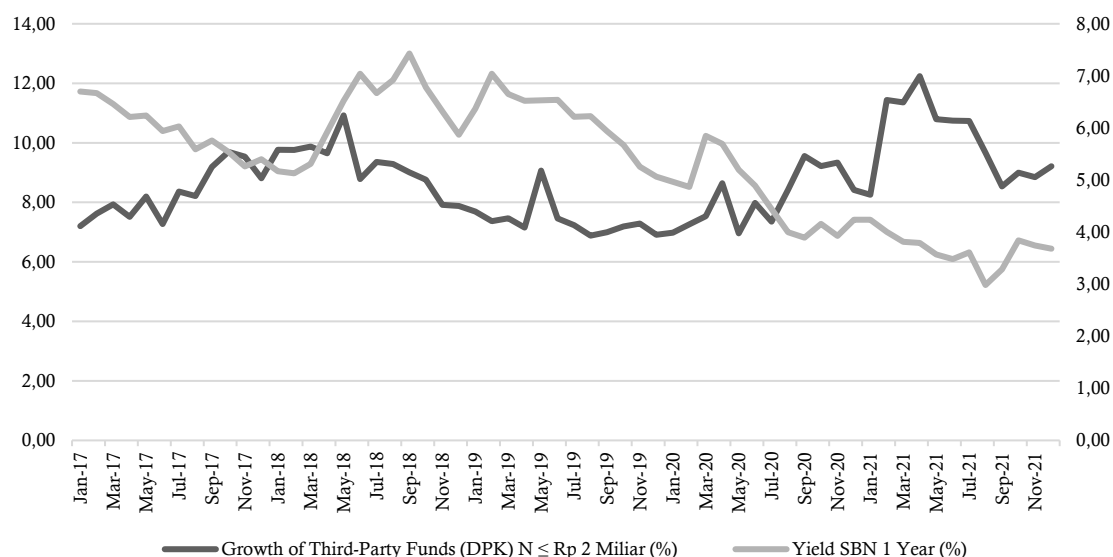

Figure 4. Third-Party Fund Growth and SBN Yield Growth for the 2017-2021 Period
Source: Indonesia Deposit Insurance Corporation dan Investing.com, 2023

Figure 4 shows TPF growth exceeds SBN yield growth annually from 2017 to 2021. The increase in SBN yields since 2018 has slowed until 2021. Because SBN yields are declining, customers may be less interested in shifting to SBN yield investment instruments. As a result, the annual decline in SBN yields affects an interest in investing in Government Securities

(SBN), so SBN yields cannot affect TPF growth in the short or long term.

Based on previous data analysis, it is known that the COVID-19 Pandemic has an insignificant short-term relationship with Third Party Funds, with a probability value of 0.4106 > 0.05, but a significant long-term relationship with a probability value of 0.0022 0.05. Because of the COVID-19 pandemic, customer behavior has changed to reduce consumption activities, increase savings, and make transactions easier. This is supported by the findings of a Deloitte survey, which found that customers will continue to prefer the convenience of digital channels for simple transaction activities like paying bills, transferring funds, and placing funds.

The COVID-19 pandemic has had a long-term impact on the growth of Third Party Funds (DPK) because people see the COVID-19 pandemic as having a long-term impact, thus encouraging an increase in bank savings. After all, the community sees the COVID-19 pandemic as only an economic shock, so it impacts increasing economic activity to encourage an increase in Third Party Funds (DPK) during the COVID-19 pandemic in the short-term conditions. Furthermore, an increase in Third Party Funds (DPK) means an increase in bank liquidity in meeting short-term obligations and an increase in the role of bank intermediaries in collecting and distributing credit or loans in the long run. Indonesia is currently more resilient to the COVID-19 pandemic crisis in terms of banking (Cakranegara, 2020). The COVID-19 pandemic, on the other hand, did not affect Islamic banking in Indonesia (Khoirunnisa & Aliludin, 2021). Thus, the COVID-19 pandemic influenced customer behavior in transactions using digital banking service features because people chose the convenience of digital services during the COVID-19 pandemic. There was a long-term impact as public confidence increased following the COVID-19 pandemic and economic conditions improved.

CONCLUSION

According to the research findings and presentation in the previous section, for the first objective, Third Party Funds (DPK) experienced a minor increase before and during the COVID-19 pandemic. Furthermore, before and during the COVID-19 pandemic, inflation, the BI-7DRR, deposit rates, and SBN yields all fell significantly. Furthermore, for the second objective, the inflation variable has a long-term impact on third-party funds but has no effect in the short term. BI-7DRR has a long-term effect on Third Party Funds (DPK) but no immediate effect. Deposit interest rates have a long-term effect on Third Party Funds (DPK) but have no effect in the short term. Government Securities Yield (SBN) does not impact long-term or short-term Third Party Funds (DPK). The COVID-19 pandemic has had a long-term impact on Third Party Funds (DPK) but has had no immediate impact.

Inflation does not affect the growth of Third Party Funds (DPK) in the short term because people prefer to use cash for transaction activities, but it does have an effect in the long term because people see the direction of economic conditions and follow suit by depositing savings in banks.

BI-7DRR has a long-term relationship with Third Party Funds (DPK) because bank adjustments in adjusting lending and deposit rates require a time lag, and it does not have a short-term relationship with Third Party Funds (DPK) because banks are implementing policies. Changes in Bank Indonesia's benchmark interest rate necessitate consideration of current economic conditions as well as the bank's internal circumstances.

When deposit rates rise, the level of third-party funds (DPK) does not change in the short term, but it does in the long term because banks must adjust interest rates based on economic conditions and the company's internal conditions.

Increased savings in banks because people see the COVID-19 pandemic as a shock economy with an impact on increasing economic activity to encourage an increase in Third Party Funds (DPK), whereas during the COVID-19 pandemic in the short term with conditions of uncertainty, people tend to focus on transaction activity.

According to the findings of this study, Bank Indonesia, as a regulator that determines the transmission of monetary policy, mainly through the BI-7DRR, hopes to be able to issue a policy and conduct supervision to quickly influence bank interest rates in the short term, by the BI-7DRR's original purpose. Furthermore, banks can monitor Government Securities (SBN) yield developments so that interest rates on bank deposits can compete with Government Securities (SBN) yields. Subsequently, banks should contemplate increasing interest rates and enhancing digital services. This is because customers will persist in using digital services from banks that streamline customer transaction activities. Furthermore, to compete with other non-bank financial industries (INKB), banks can improve efficient banking services for customer convenience and encourage digitization, allowing changes in customer behavior towards digital services to be accommodated and customers to continue to place their funds in banking services in the long term.

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