

The Impact of the use of E-money on Interest Rates with the Amount of Money Circulation as an Intervening Variable: A case study of Indonesia

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ABSTRACT

Users of e-money payment instruments in Indonesia continue to experience growth every year. An increase in the need for e-money users to transact, causes an increase in the need for money supply in Indonesia. So that the stability of money circulation needs to be controlled, namely through monetary policy interest rates. The purpose of this study is to examine the impact of the use of e-money on interest rate policies in Indonesia, through the money supply as an intervening variable. The study was conducted at Bank Indonesia, using a statistical test model of path analysis. The test results show that the use of e-money has a significant direct effect on interest rates. While the indirect effect tests, shows that the use of e-money through the variable money supply as an intervening variable has no significant effect.

Keywords: E-money, Money Supply, Interest Rate.

1. INTRODUCTION

The condition of the Indonesian economy has experienced quite a rapid development in the current era of globalization. This growing economy is indicated by a very fast cycle of economic activity, namely the development of production, distribution, and consumption. This development is due to the increasing number of community needs due to population growth. In addition, there is support from the development of information technology which has entered the 4.0 era. Selling products online today, has become a means for most people to promote and sell products, which do not require consumers to go to the store to buy the product. The number of online transaction activities has led to the emergence of payment instruments for these activities. In the field of cashless payment systems, Bank Indonesia regulates the interbank clearing system. However, at this time other non-cash payment instruments are also being introduced, namely Digital Money or Electronic Money (E-money). This increase in community activity using non-cash payment facilities will be able to speed up and simplify transactions, which will affect the speed of money circulation. However, in addition to providing various conveniences above, the widespread use of non-cash payment instruments has created controversy regarding the implementation of monetary policy, particularly in controlling inflation. Inflation that occurs, is the result of the difference in the amount of money in circulation with the amount of money needed in society. This increase in community activity using non-cash payment facilities will be able to speed up and simplify transactions, which will affect the speed of money circulation. However, in addition to providing various conveniences above, the widespread use of non-cash payment instruments has created controversy regarding the implementation of monetary policy, particularly in controlling inflation. Inflation that occurs, is the result of the difference in the amount of money in circulation with the amount of money needed in society. This increase in community activity using non-cash payment facilities will be able to speed up and simplify transactions, which will affect the speed of money circulation. However, in addition to providing various conveniences above, the widespread use of non-cash payment instruments has created controversy regarding the implementation of monetary policy, particularly in controlling inflation. Inflation that occurs, is the result of the difference in the amount of money in circulation with the amount of money needed in society. The development of the widespread use of non-cash payment instruments has created controversy regarding the implementation of monetary policy, particularly in controlling inflation. Inflation that occurs, is the result of the difference in the amount of money in circulation with the amount of money needed in society. The development of the widespread use of non-cash payment instruments has created controversy regarding the implementation of monetary policy, particularly in controlling inflation. Inflation that occurs, is the result of the difference in the amount of money in circulation with the amount of money needed in society.

According to several previous researchers, an increase in non-cash payments has an effect on reducing the demand for currency (Pramono, et al, 2006) [1]. In the research of Abidin (2014), stated that the impact of using e-money is to increase public

consumption and accelerate the circulation of money [2]. Based on the results of the research above, motivated the authors to conduct tests related to the impact of using e-money on interest rates, with the amount of money circulating as an intervening variable. Based on the background of the research above, The question can be formulated, namely Does the use of E-money affect the amount of money in circulation? Can the money supply affect the interest rate? Can the use of E-money affect interest rates? This study aims to examine the effect of using e-money on interest rates, through the mediating variable of the amount of money circulating.

2. THEORY FRAMEWORK AND RESEARCH HYPOTHESES

2.1. E-money

Electronic Money or E-Money is a prepaid electronic payment instrument, where a certain value of money is attached to it, which can be refilled and can be used to finance various transactions at merchants. Electronic Money (E-money) has several criteria, as follows.

- a. Issued on the basis of the value of money that was deposited in advance by the holder to the issuer.
- b. The value of money is stored electronically in a medium such as a server or chip.
- c. Used as a means of payment to merchants who are not the issuers of the electronic money.
- d. The value of electronic money deposited by the holder and managed by the issuer is not a deposit as referred to in the law governing banking.

2.2. Money Circulation

Money Supply can be defined in a narrow sense (M1) and in a broad sense (M2). M1 consists of currency held by the public and demand deposits (current accounts denominated in Rupiah), while M2 consists of M1, quasi-money (covering savings, time deposits in rupiah and foreign currency, and demand deposits denominated in foreign currencies), as well as securities issued by the system. monetary assets owned by the domestic private sector with a remaining term of up to one year. According to Keynes' theory (Sukirno, 2004:302) that interest rates are determined by the demand and supply of money [3]. The quantity of money demanded is determined by the need for money for 3 purposes, namely:

- a. Request For Transaction
- b. Request for Money in Precautions
- c. Money Demand for Speculation

2.3. Inflation

According to Bank Indonesia, inflation is simply defined as a general and continuous increase in prices over a certain period of time. The increase in the price of goods and services causes a decrease in the value of money. Thus, inflation can also be interpreted as a decrease in the value of money against the value of goods and services in general. Factors causing inflation include the following:

- a. Increasing the amount of demand or demand for a certain type of goods.
- b. The cost of producing a good or service increases.
- c. When the amount of money circulating in the community is quite high.

2.4. Interest Rate

Interest rate is the value, rate, price or profit given to investors from the use of investment funds on the basis of calculating economic value within a certain period of time. The BI 7-day (Reverse) Repo Rate instrument is used as the reference interest rate which is a new policy, replacing the BI Rate policy in Indonesia.

BI Rate is an interest rate policy determined by Bank Indonesia, which reflects the stance of monetary policy. The determining factor BI Rate is a condition of inflation, so the rise and fall of the BI Rate depends on the rise and fall of inflation that occurs. The BI 7-Day Repo Rate policy has been in effect since August 19, 2016. This policy is expected to effectively control interest rates, which will result in smoother lending from banks to the public. The BI Rate is also expected to reduce the risk of bad loans, because sudden changes in interest rates can be minimized. The desired economic growth was finally achieved.

2.5. Previous Research

Based on research conducted by Akbar (2012), the test results show that the money supply has a significant negative effect on interest rates, and has a significantly positive correlation with inflation [4]. According to Lintang Sari, Hidayati et al. (2017), the test results conclude that e-money transactions, debit card transactions have a positive effect on the money supply, and e-money transactions have a negative effect on the benchmark interest rate [5]. Furthermore, Donna Anggia Priscylia (2014), stated that the

SBI interest rate had a significant negative effect on the demand for money, while non-cash payments had a significant positive effect on the demand for money in Indonesia [6].

2.6. Conceptual Framework

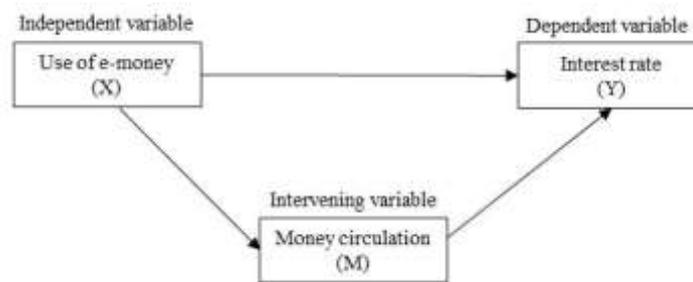


Figure 1: Conceptual Framework

Based on the conceptual framework above, the following hypotheses can be formulated:

1) The Effect of the Use of E-Money on the Amount of Money Circulation.

The issuance of electronic payment instruments (e-money) and the ease of transactions provided to consumers have made consumers switch from using cash as payment instruments. The convenience and price difference that will be obtained by using e-money makes consumers trigger consumer consumptive behavior. This condition raises the need for money in the community, so that it will increase the money supply.

H1 : The use of E-money affects the amount of money circulating.

2) The Influence of the Money Supply on Interest Rates.

The money supply that continues to increase due to increasing consumer needs will lead to inflationary conditions. When the money supply increases, raising interest rates is a way to reduce the amount of money circulating in society, and vice versa.

H2 : The amount of money in circulation affects the interest rate

3) The Effect of E-Money Usage on Interest Rates.

An increase in e-money users means that it will increase the money supply in the community. An increase in the money supply will affect the determination of interest rates. Because the interest rate is one of the tools to control the stability of money circulation in society.

H3 : The use of E-money has an effect on interest rates.

3. RESEARCH METHODS

3.1. Research variable

In this study, there are three variables used, namely the independent variable, the dependent variable, and the intervening variable. The independent variable is the use of e-money (X), the dependent variable is the interest rate (Y), and the intervening variable is the amount of money circulating (M).

3.2. Data Sources and Data Types

The data used in this study is secondary data, which was obtained through the official website of Bank Indonesia on the internet, namely: www.bi.go.id. While the type of data used in this study is the type of quantitative data in the form of:

- The number of transactions using e-money per month from January 2017 - November 2019 obtained through www.bi.go.id.
- Amount of money in circulation (M1) from January 2017 – November 2019 obtained through blogwww.bi.go.id.
- Percentage of the average interest rate (BI 7 Days Repo Rate) per month from January 2017 - November 2019.

The data collection technique is carried out with published Bank Indonesia data documentation, and can be accessed through the website www.bi.go.id. The research location was conducted at Bank Indonesia (BI)

3.3. Variable Operational Definition

The operational definition of each variable in this study is as follows:

a. Use of E-Money

E-money in this study is a non-cash electronic payment instrument. E-money issued by the issuer authorized by Bank Indonesia in the form of a card and can also be in the form of an application. The use of e-money is measured by the total transactions using e-money per month expressed in rupiah from January 2017 to November 2019.

b. Money Circulation

The money circulation in this study is the amount of currency (paper money, coins) and demand deposits (giro deposits) circulating in the community, or the amount of money circulating in a narrow sense (M1). The variable indicator for measuring money circulation in this study is the amount of money circulating in a narrow sense (M1) per month, which is expressed in rupiah units, from January 2017 to November 2019.

c. Interest Rate

Bank Indonesia established a new policy on the benchmark interest rate, namely the BI 7 Days (Reserve) Repo Rate, which took effect on August 19, 2016. The variable indicator used to measure interest rates is the average monthly interest rate from January 2017 to November 2019, expressed as a percentage of interest (%).

3.4. Data analysis method

Analysis of the data used in this study, to test the related variables is to use statistical test tools. The statistical test model chosen is the path analysis model. Test steps with path analysis:

a. Descriptive Statistics Test

Descriptive statistical test aims to test and explain the characteristics of the observed data. The results of the descriptive statistical test are in the form of a table containing the names of the observed variables, the mean, standard deviation, maximum and minimum, which is then followed by an explanation in the form of a narrative explaining the interpretation of the contents of the table.

b. Classic assumption test

Before the analysis technique is carried out, the observed data must be tested and controlled for bias. There are three classical assumption tests used before the model and variable significance test, namely the data normality test, autocorrelation, and heteroscedasticity.

1) Data Normality Test

The normality test aims to test whether in the regression model, the independent and dependent variables have a normal distribution or not. The test equipment used to test the normality of the data in this study was the One Sample Kolmogorov-Smirnov Test. If the test results show a significance value $>$ alpha of 5% (0.05), it can be concluded that the residual data has a normal distribution. On the other hand, if the significance value $<$ alpha is 5% (0.05), then the residual data has an abnormal distribution.

2) Autocorrelation Test

The autocorrelation test aims to test whether there is a correlation (relationship) between time series data. The test tool for autocorrelation test is to use the Durbin Watson test. The Durbin Watson test produces a Durbin Watson (DW) value. In determining whether a variable has autocorrelation, the following conditions apply:

- a) If the test results show the Durbin Watson (DW) value statistically below -2, it means that there is a positive autocorrelation.
- b) If the test results show that the Durbin Watson (DW) value is statistically between -2 to 2, it means that there is no autocorrelation.
- c) If the test results show that the Durbin Watson (DW) value statistically is above 2, it means that there is a negative autocorrelation.

3) Heteroscedasticity Test

The heteroscedasticity test aims to test whether there is a difference in variance from the residuals of one observation to another in the regression model. The test equipment used for heteroscedasticity test is the Glejser test. If the test results show a significance value $>$ alpha of 5% (0.05), it can be concluded that there are no symptoms of heteroscedasticity.

c. Hypothesis testing

Hypothesis testing aims to establish a basis so that it can collect evidence in the form of data in determining the decision whether to reject or accept the truth of the statements or assumptions that have been made. The variables were tested partially, and were carried out through the model accuracy test (F test), the coefficient of determination test (R^2), and the variable significance test (t test).

1) Model Accuracy Test (F Test)

The F test was conducted to test whether the linear regression equation model that was formulated was correct (fit). The results of the F test will show the magnitude of the F value, which will be compared with the F table. If the value of Fcount > Ftable, then the hypothesis is accepted. If the results of the analysis show the value of $p \leq 0,05$ then the regression equation model is significant at the alpha level of 5%, so it can be concluded that the formulated model is correct. Conversely, if the results of the analysis show a value, the regression equation model is not significant at the alpha level of 5%, so it can be concluded that the formulated model is not right. $p > 0,05$

2) Coefficient of Determination Test (R²)

The R2 test was carried out aiming to show the proportion of variation in the independent variable that was able to explain the variation in the dependent variable. The value of R² shows the magnitude of the dependent variable which is influenced by the independent variable in the study, and the rest is influenced by other independent variables that are not in the study.

3) Variable Significance Test (t Test)

The variable significance test aims to test the significance of the effect of the independent variable on the dependent variable. In the t test, so that the test results show the significance value of the variable, there are criteria that must be met, namely as follows:

- a) If the significance value (Sig) < alpha (0.05), it can be concluded that the test results of the independent variable on the dependent variable are significant.
- b) If the test results show that the value of tcount > ttable, it can be concluded that the test results show that the independent variable has a significant effect on the dependent variable.

4) Regression Analysis

In this study, researchers used regression analysis with a path analysis model. This path analysis model can test the significance of the effect of the independent variable on the dependent variable through the intervening variables that have been formulated in the regression analysis model. The following are the steps in hypothesis testing using statistical tests, path analysis models. The following are the steps in hypothesis testing using statistical tests, path analysis models:

- a) Forming a hypothesized model

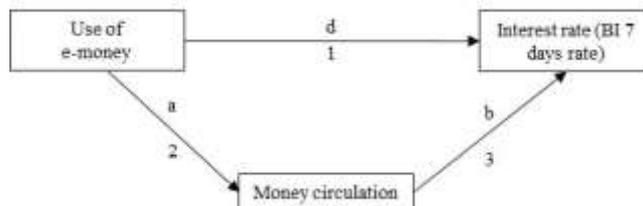


Figure 2: Hypothesis Model

- b) Forming a path analysis model

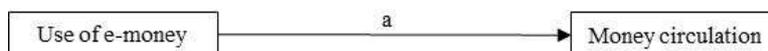


Figure 3: Substructure Path Analysis Model 1

Statistical Equation Model Substructure Path Analysis 1

$$M = \alpha + \beta_1 X + \varepsilon_1 \dots\dots\dots(1)$$

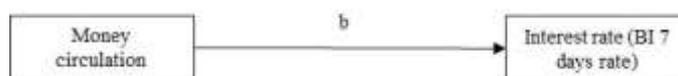


Figure 4: Substructure Path Analysis Model 2

Substructure Path Analysis Statistical Equation Model 2

$$Y = \alpha + \beta_1 M + \varepsilon_2 \dots\dots\dots(2)$$



Figure 5: Substructure Path Analysis Model 3

Substructure Path Analysis Statistical Equation Model 3

$$Y = \alpha + \beta_1 X + \varepsilon_3 \dots\dots\dots(3)$$

Abbreviations

- X* : Use *Electronic Money (E-money)*
- M* : Total Money Circulation
- Y* : Interest Rate (BI 7 Day Repo Rate)
- α : *Intercept*
- β_1 : Regression Coefficient (*Slope*)
- ε : *Error Term*

c) Analyze the results of the path analysis test.

1) Direct Influence

The direct effect of the use of E-Money (X) on the interest rate (Y) which is tested without going through the variable amount of money in circulation (M), and is formulated in substructural path 3 as follows: Substructure path 3: XY (c)

If the test results show a significance value (Sig) < alpha (0.05), it can be concluded that the variable use of e-money (X) has a direct effect on interest rates (Y).

2) Indirect Influence

The indirect effect of X to Y through M is tested by multiplying 2 coefficients, namely (axb) = d which is obtained from:

- a) Substructure Path 1: XM (a)
- b) Substructure Path 2: MY (b)

To test the significance of the effect of the independent variable on the dependent variable through the intervening variable are:

- If the result (axb) = d > XY = c, then the result is significant, which means that there is a mediating effect. So the conclusion is, the use of e-money has an impact on interest rates through the amount of money circulating.
- If the result (axb) = d < XY = c, then the result is not significant, which means that there is no mediation effect.

4. RESEARCH RESULT

4.1. Descriptive Statistics Test

Descriptive statistical test aims to test and explain the characteristics of the observed data. Descriptive statistical tests were carried out on 35 total data, consisting of monthly data on the number of e-money transactions, the money supply (M1), and the average BI 7 Days Repo Rate from January 2017 to November 2019, for a total of 35 months.

Table 1 Descriptive Statistics Test Results

	N	Minimum	Maximum	Sum	mean	Std. Deviation
TEM	35	633561	16370715	187769421	5364840,60	4911066,954
UB	35	1191500	1553134	48313800	1380394.29	93788.077
SB	35	4.25	6.00	178.38	5.0966	0.67242

Source: Data Processed by Researchers.

4.2. Classic assumption test

Data Normality Test

The normality test aims to test whether in the regression model, the independent and dependent variables have a normal distribution or not. The test equipment used to test the normality of the data in this study is the Kolmogorov-Smirnov test. If the test results show a significance value > alpha of 5% (0.05), it can be concluded that the residual data has a normal distribution. On the other hand, if the significance value < alpha is 5% (0.05), then the residual data has an abnormal distribution. The following are the results of the data normality test.

Table 2 Normality Test Results

Variable	N	Kolmogorov-Smirnov Z	Significance
Residual Model (e)	35	0.133	0.125

Source: Data Processed by Researchers.

Based on the output table of the data normality test results using the Kolmogorov-Smirnov test tool, it shows a significance value of 0.125 which is greater than an alpha value of 0.05 so it can be concluded that the data is normally distributed or the assumption of normality is met.

1) Autocorrelation Test

Autocorrelation test was conducted to test the correlation (relationship) of a data in research. This test was carried out using the Durbin Watson test equipment. In determining the decision regarding the results of the autocorrelation test using Durbin Watson, there are several provisions, namely as follows:

- a) If the test results show the Durbin Watson (DW) value statistically below -2, it means that there is a positive autocorrelation.
- b) If the test results show that the Durbin Watson (DW) value is statistically between -2 to 2, it means that there is no autocorrelation.
- c) If the test results show that the Durbin Watson (DW) value statistically is above 2, it means that there is a negative autocorrelation.

Based on the results of the autocorrelation test using the Durbin Watson test equipment, the Durbin Watson significance value is shown as follows:

Table 3 Autocorrelation Test Results (Durbin Watson)

Durbin Watson (d)	k	n
0.122	3	35

Source: Data Processed by Researchers.

Based on the results of the autocorrelation test using Durbin Watson, the Durbin Watson value is 0.122. This value means that DW 0.122 is between -2 and 2. So it can be concluded that the test results show no autocorrelation.

2) Heteroscedasticity Test

The heteroscedasticity test aims to test whether there is a difference in variance from the residuals of one observation to another in the regression model. Heteroscedasticity testing using the Glejser test equipment, with an alpha value of 5% or 0.05. The results of the heteroscedasticity test to test whether the regression model has a difference in variance from the residuals of one observation to another, show the test results as follows:

Table 4 Heteroscedasticity Test Results

Independent Variable	Significance	Information
E-Money Transactions (X)	0.189	Heteroscedasticity does not occur
Total Money Supply (M)	0.470	Heteroscedasticity does not occur

Source: Data Processed by Researchers.

Based on the results of the significance test, it shows that the significance value of the variable E-Money Transactions (X) of 0.189 > 0.05 alpha value, so it can be concluded that there is no symptom of heteroscedasticity in variable X. In the results of the heteroscedasticity test, the variable Total Money Supply (M), the significance value > alpha value is 0.470 > 0.05, so it can be concluded that there is no heteroscedasticity symptom or the classical assumption test is met.

4.3. Hypothesis testing

1) Model Accuracy Test (F Test)

The model accuracy test (F test) aims to test whether the influence of all independent variables, namely variables X and M as intervening variables which can also function as independent variables for the next hypothesis on the dependent variable, as formulated in the linear regression equation model is correct (fit). If the results of the analysis show the value of $p \leq 0,05$ so it can be concluded that the formulated model is correct. Conversely, if the results of the analysis show a value, the regression equation

model is not significant at the alpha level of 5%, so it can be concluded that the formulated model is not right. In addition, if the value of $p > 0,05$ $F_{count} > F_{table}$, it can be concluded that the result is significant.

Table 5
Model Accuracy Test Results (F Test)

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	4.961	2	2.480	7.624	.002b
Residual	10.412	32	0.325		
Total	15.373	34			

Source: Data Processed by Researchers.

Based on the table data from the F test results above, it shows an F value of 7.624, this value is a calculated F value. Meanwhile, the value of F table (2;33) is 3.28, which means that F count > F table so that the result is significant. While the significance value of p on the statistical test results is 0.002 (p value < alpha 0.05), so the results of the model accuracy test are significant. Significant results mean that the model formulated in this study is fit.

2) Coefficient of Determination Test (R²)

The coefficient of determination (R²) test was conducted to show the proportion of variation in the independent variable that was able to explain the variation in the dependent variable.

a) Substructure Path Analysis 1

In path analysis, substructure 1 examines the proportion of variations in the independent variable using e-money (X) on the money supply (M). Based on the results of the tests carried out, the following are the results of the coefficient of determination (R²) test on substructure path 1.

Table 6 Coefficient of Determination Test Results (R²)
Substructure Path 1

Model	R	R Square	Adjusted R Square
1	0.861	0.741	0.734

Source: Data Processed by Researchers.

This value means that 74% of the variable the amount of money in circulation (M) is influenced by the independent variable formulated in this research model, namely the variable use of e-money (X), and 26% of the variable the amount of money in circulation (M) is predicted to be influenced by other independent variables that were not included in this study.

b) Substructure Path Analysis 2

In the analysis of substructure path 2, it examines the proportion of variation in the intervening variable, the money supply (M) which is the independent variable for the dependent variable of interest rates (Y). Based on the results of the tests carried out, the following are the results of the coefficient of determination (R²) test on the substructure path 2.

Table 7 Coefficient of Determination Test Results (R²)
Substructure Path 2

Model	R	R Square	Adjusted R Square
2	0.555	0.308	0.287

Source: Data Processed by Researchers.

This value means that 30% of the interest rate variable (Y) is influenced by the intervening variable in this study, namely the money supply variable (M). Because the intervening variable can be an independent variable for the interest rate variable (Y). So that 70% of the dependent variable interest rate (Y) is predicted to be influenced by other independent variables that are not included in this study.

c) Substructure Path Analysis 3

In path analysis, substructure 3 examines the proportion of the variation of the independent variable using e-money on the dependent variable of interest rates (Y). Based on the results of the tests carried out, the following are the results of the coefficient of determination (R²) test on the substructure path 3.

Table 8 Coefficient of Determination Test Results (R²)
Substructure Path 3

Model	R	R Square	Adjusted R Square
3	0.54	0.292	0.27

Source: Data Processed by Researchers.

This value means that 29.2% of the interest rate variable (M) is influenced by the variable using e-money (X) which is formulated in this research model, and 70.8% of the interest rate variable (M) is predicted to be influenced by the variable. other independents who were not included in this study.

3) Variable Significance Test (t Test)

The variable significance test (t test) was carried out partially on each independent variable on the dependent variable based on the formulated regression analysis model. In determining the significance of the variables, there are test results assessment criteria, which are as follows:

- a. If the significance value (Sig) < alpha (0.05), it can be concluded that the test results of the independent variable on the dependent variable are significant.
- b. If the test results show that the value of tcount ttable, it can be concluded that the test results show that the independent variable has a significant effect on the dependent variable.

The following are the results of the significance test of the independent variable on the dependent variable.

Table 9 Hypothesis 1 t-test results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1292174.950	12214.749		105.788	0.000
TEM	0.016	0.002	0.861	9.728	0.000

Source: Data Processed by Researchers.

Based on the results of statistical tests, the value of Sig < alpha (0.000 < 0.005). Furthermore, the value of t count is 9.728. While the value of t table (2.33) is 1.692. The results show the value of t arithmetic > t table (9.728 > 1.692), so it can be concluded that the results of hypothesis testing the effect of using e-money on the money supply is significant.

H1: The use of e-money has a significant effect on the money supply.

Table 10 Hypothesis 2 t-test results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-0.392	1.437		-0.273	0.787
UB	3.976E-06	0.000	0.555	3.828	0.001

a. Dependent Variable: SB

Source: Data Processed by Researchers.

Based on the results of statistical tests, the significance value (Sig) is 0.001 which means it is smaller than the alpha value of 0.05. The results show the value of Sig < alpha (0.001 < 0.005). Furthermore, the value of t count is 3.828. While the value of t table (2.33) is 1.692. The results show the value of t arithmetic > t table (3.828 > 1.692), so it can be concluded that the results of hypothesis testing the effect of the money supply on interest rates are significant.

H2 : The money supply has a significant effect on interest rates.

4.4. Regression Analysis

Regression analysis used in this study is the regression analysis of the path analysis model. The path analysis model aims to examine the direct and indirect effects of the intervening variable, which relates the effect of the independent variable to the dependent variable. The following are the results of linear regression tests on each substructural path model.

a) Substructural Path Model 1

In Substructure Path 1, examines the effect of the variable use of e-money (X) on the money supply (M).

Table 11 Substructure Path Model Test Results 1

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1292174.950	12214.749		105.788	0.000
	TEM	0.016	0.002	0.861	9.728	0.000

Source: Data Processed by Researchers.

Based on the test results using regression analysis, the substructure path model 1 can be obtained the following equation:

$$M = 1.292.174,95 + 0,861 X + \epsilon$$

So it can be concluded that the results of the analysis of the effect of using e-money (X) on the money supply (M), is a positive constant of 1,292,174.95, at a significance level of 0.05. For every 1% increase in the use of e-money, the money supply will increase by 0.861%.

b) Substructural Path Model 2

In Substructure Path 2, examines the effect of the money supply variable (M) on the interest rate (Y).

Table 12 Substructure Path Model Test Results 2

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-0.392	1.437		-0.273	0.787
	UB	3.976E-06	0.000	0.555	3.828	0.001

a. Dependent Variable: SB

Source: Data Processed by Researchers.

Based on the test results using regression analysis, the substructure path model 2 can be obtained the following equation:

$$Y = -0,392 + 0,555 M + \epsilon$$

So it can be concluded that the results of the analysis of the effect of the amount of money in circulation (M) on the interest rate (Y), has a negative constant value of -0.392, at a significance level of 0.05. For every 1% increase in the money supply, the interest rate will decrease by 0.555.

c) Substructural Path Model 3

In Substructure Path 3, examines the effect of the variable use of e-money (X) on interest rates (Y).

Table 14 Substructure 3 Path Model Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.700	0.145		32.427	0.000
	TEM	7.396E-08	0.000	0.540	3.687	0.001

Source: Data processed by researchers.

Based on the test results using regression analysis, the substructure path model 3 can be obtained the following equation:

$$Y = 4,700 + 0,540 X + \epsilon$$

So it can be concluded that the results of the analysis of the effect of using e-money (X) on the interest rate (Y), is a positive constant of 4.700, at a significance level of 0.05. For every 1% increase in the use of e-money, the interest rate will increase by 0.540%.

d) Indirect Influence

The indirect effect is a test of the effect of the independent variable on the dependent variable through the intervening variable. The indirect effect test is carried out by multiplying the regression results in the form of the beta coefficient value in the substructure path 1 with the substructure path 2. The following are the results of the test of the effect of the independent variable on the dependent variable through the intervening variable (indirect effect).

Table 15 Test Results (Indirect Effect)

Model	Standardized Coefficients	Significance	Information
	Beta		
1 (XM)	0.861	0.000	Significant

2 (MY)	0.555	0.001	Significant		
3 (XY)	0.540	0.001	Significant		
Model	a (XM)	b (MY)	d (axb)	c(XY)	Information
Standardized Coefficients Beta	0.861	0.555	0.478	0.540	Not significant

Source: Data Processed by Researchers.

Based on the results of the variable significance test (t test) to test the indirect effect of the independent variable on the dependent variable, through the intervening variable the results $(axb) < c$, namely $0.478 < 0.540$ which means it is not significant. The conclusion is that the money supply variable (M1) cannot be an intervening variable that functions to mediate the relationship between the effect of using e-money on interest rates. Because based on the results of previous research, it is stated that the amount of money in circulation with the interest rate has a significant two-way relationship (Peggy et.al, 2016). The two-way or reciprocal relationship, will cause not only the money supply that can affect interest rates. Another reason for the insignificance of the test results, when viewed from the results of the coefficient of determination test, it shows that the effect of the variable amount of money in circulation on the interest rate is only 30%, while the remaining 70% is influenced by other variables not included in this study. Because the movement of interest rates can be influenced by many factors.

5. CONCLUSIONS, SUGGESTIONS AND LIMITATIONS OF THE RESEARCH

5.1. Conclusion

Based on the results of the study, it can be concluded that the use of e-money has a significant positive effect on the amount of money circulation, and the amount of money circulation has a significant negative effect on interest rates. Furthermore, the use of e-money through the path analyze test results, directly has a significant effect on interest rates, while the use of e-money on interest rates through the variable amount of money circulation has no significant effect.

5.2. Suggestion

- 1) Future researchers are expected to be able to add other variables that affect changes in interest rates. Based on the results of this study, it shows that the money supply variable cannot be a mediating variable, so it is better if the variable is an independent variable.
- 2) For the government, it is expected to be a consideration in setting policies on the application of non-cash payment instruments. As well as policies on setting interest rates, in order to maintain stability and economic conditions in Indonesia from inflation.

5.3. Research Limitations

This study has limitations that need to be considered for the development of future studies. The limitations of this research include:

- 1) In this study, using only the amount of data taken from January 2017 to November 2019. Due to the new policy regarding bank interest rates, which changed from the BI Rate to the BI 7 Days Repo Rate effective August 19, 2016. So to determine the data to be used is used, then the data is taken after the enactment of the latest regulations concerning bank reference rates.
- 2) In this study, only 3 variables were used, namely the independent variable, the intervening variable, and the dependent variable. In fact, there are several other factors that can affect changes in interest rates, which can be used to support research, which are not included in this study.

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