

Analysis Effect of Cashless Payments in the Digitalization Era on Money Supply in Indonesian**Rohayatun Hasanah^{1*}, Maulidyah Indira Hasmarini¹**¹Universitas Muhammadiyah Surakarta

Jl. A. Yani No.157, Pabelan, Kartasura, Sukoharjo, Central Java, Indonesia

***E-mail:** b300190124@student.ums.ac.id**ABSTRACT**

The purpose of this study is to analyze the impact of non-cash payments in the current digitalization era on the money supply in Indonesia. The independent variables used are e-money transaction volume, ATM/debit card transaction volume, debit card transaction volume, inflation, interest rates, and economic growth. Bank Indonesia and the Central Bureau of Statistics provided monthly time series data from January 2016 to July 2022. The analysis technique used is the Engle-Granger Error Correction Model. The results of the study show that in the short term, the variables of inflation, the volume of ATM and debit card transactions, and gross domestic product have a positive and significant effect on the money supply. Meanwhile, in the long run, e-money variables, credit card transaction volume, ATM/debit card transaction volume, and interest rates have a significant effect on the money supply in Indonesia.

Keywords: Money supply, non-cash payments, inflation, interest rates, gross domestic product, ECM.

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

INTRODUCTION

The emergence of various kinds of advanced technology in the current digitalization era offers various facilities and conveniences, one of which is in the banking sector, namely in terms of payment systems. The payment system is a system used to transfer a sum of money from one party to another (Fatmawati & Yuliana, 2019). The payment system is used to transfer funds from an economic activity using specific payment methods. There are two types of payment systems in Indonesia: cash payment systems and non-cash payment systems. The cash payment system is a method of currency-based cash payment (notes and coins). In contrast, non-cash payment instruments include card-based payment systems like credit cards, ATM/debit cards, and electronic money (e-money).

The influx of digitization affects the joints of the economy, alters the pattern of public interactions for both individuals and businesses, and upsets customary activities such as the banking sector. The payment system is an integral part of the economy, especially for ensuring the public's participation in financial transactions. Bank Indonesia must guarantee that all advancements in the payment system conform to the appropriate rules. The usage of non-cash payment devices such as debit/ATM cards, credit cards, and e-money is steadily altering the economic transaction habits of individuals. The existing potential for the development of non-cash payment instruments in Indonesia is demonstrated by the growth of debit/ATM card transaction volume.

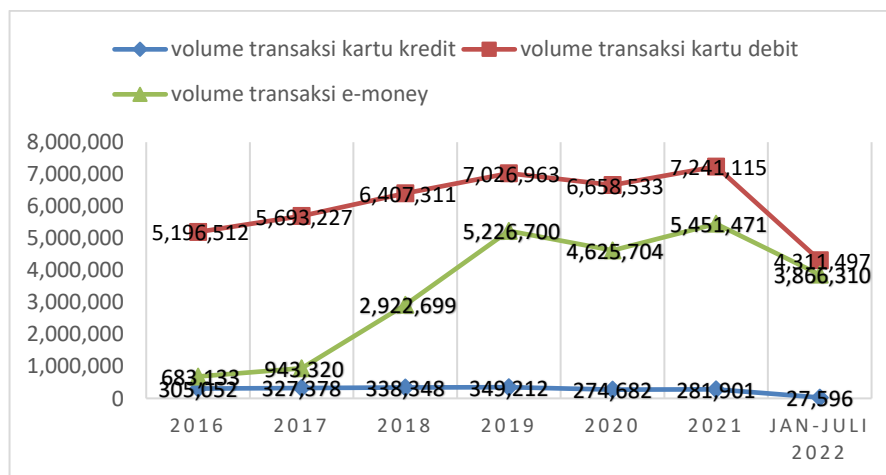


Figure 1. The volume of Non-Cash Transactions Using Debit/ATM Cards, Credit Cards, and E-Money
Source: Bank Indonesia

Figure 1 shows that the amount of non-cash transactions has varied over the previous seven years. The most significant increase each year occurs in the volume of e-money transactions, which in 2016 amounted to 683,133 and became 52,667 in 2019. However, due to the COVID-19 pandemic, the volume of e-money transactions has decreased to 4,625,704 in 2020. In 2020, all electronic transactions experienced a decline. This happened because of the COVID-19 pandemic, which caused the economy to experience a downward trend because all people's economic activities were limited by the Indonesian government. Whereas in 2021, it can be seen from Figure 1 that all electronic transaction volumes have again increased due to government policies that have succeeded in implementing national

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

"Entrepreneurship on Global Economics Development in the Era of Society 5.0"

economic recovery policies. This policy will also have an impact in 2022 when the volume of transactions using non-cash payments will remain stable at 606,961,080 due to the use of e-money.

Non-cash payments are a form of using technology in payment systems that will affect the rate of circulation of money and have a positive relationship where the use of technology such as electronic payment cards and e-money will accelerate the transfer of money from one community to another (Purnawati & Panjawa, 2021). The theory of money demand, sometimes known as the quantity theory of money, was developed by the renowned economist Adam Smith. Changes in the money supply will be proportionate to changes in prices, according to Irving Fischer, assuming that the velocity of money and the number of transactions in the economy remain constant. In this study, "money supply" refers to M1, which comprises cash and demand deposits. By the quantity theory of money, inflation is a price proxy in which changes are proportionate to changes in the money supply (M1), other things being equal. Keynes stated that a person's judgment in holding money is influenced by three motives: the transaction motive, the precautionary motive, and the speculation motive. (Marlina et al., 2019) stated that Indonesia, as a developing country, has fluctuating economic conditions that can influence people to hold money as a form of wealth. (Kristi et al., 2022) also stated that the circulation of money identified fluctuations in doing business; when the economy experienced an expansion, people and business people tended to spend their money so that the velocity of money increased, and when the economy experienced a contraction, people and business people felt hesitant to spend their money so that the velocity of money would decrease. Non-cash transactions, according to the monetary authorities, will increase the transparency of money circulation and potentially reduce the money supply. This implies that the more non-cash transactions are used, the less money is desired. (Bambang et al, 2006; Azka, 2017).

Non-cash payments provide a safe and reliable way to pay during the current pandemic. The current non-cash system allows people to tap and go, namely paying using a credit or debit card. So that it is expected to significantly increase the speed of transactions and reduce the spread of COVID-19. Bank Indonesia, as the monetary authority, determines monetary advice so that the stability of the Indonesian economy is maintained, namely through the money supply. Where the quantity of money flowing in a community requires assistance from the present non-cash payment system so that it does not have a detrimental effect on monetary objectives. In previous research conducted by (Lintangsari et al., 2018) Electronic transactions and ATM/debit had a considerable impact on the money supply, but ATM/credit did not. In contrast, the study undertaken by (Yuli Wijaya et al., 2021) contends that the e-money variable and the volume of electronic transactions have a significant and positive impact on the money supply (M1).

The effect of non-cash transactions on the money supply is a topic that must be revisited in light of the numerous fintech technologies that can affect the Indonesian economy. This research attempts to investigate the impact of non-cash payments in the digitalization era on Indonesia's money supply from January 2016 to July 2022.

METHOD

This study employs quantitative methodology. The secondary data source used contains time series data from January 2016 to July 2022. Official paperwork produced by

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

Bank Indonesia and the Central Statistics Agency is utilized for data gathering (BPS). Credit cards, ATM/debit cards, e-money, inflation, the bi-rate, and economic growth are among the variables examined in this study, with money supply (M1) serving as the dependent variable (M1). The method of data analysis utilized in this study is the Engel-Granger Error Correction model. This model was selected because the ECM is deemed suitable for describing both short- and long-term connections between independent factors and the dependent variable.

The Eviews10 approach for estimating using ECM is as follows: 1) Using the ADF test to determine the stationarity of each variable's data using the unit root test 2) A counteraction test to assess if a short-term link exists via the residual stationarity test Furthermore, the first stage is to estimate the short-term regression equation. The short-run econometric model is as follows:

1. Short term regression

$$\Delta \log(JUB)_t = \beta_0 + \beta_1 \Delta \log(INF)_t + \beta_2 \Delta(EM)_t + \beta_3 \Delta \log(KKD)_t + \beta_4 \Delta \log(ADB)_t + \beta_5 \Delta \log(PDB)_t + \beta_6 \Delta(BIRATE)_t + \lambda ECT_{t-1} + \varepsilon_t \dots \dots \dots (1)$$

JUB= amount of money in circulation (billion Rp); INF=inflation (%); EM=e-money (Thousand Rp); KKD = credit card transaction volume (Thousand IDR); ADB = ATM/debit card transaction volume (Thousand IDR); GDP=gross domestic product (billion IDR); BIRATE=interest rate (%); = previous year's residual; β_0 = constant; β_1 - β_6 =regression coefficient of independent variable; ε_t =error factor. λECT

2. Long Term Regression

$$\log(JUB)_t = \beta_0 + \beta_1 \log(INF)_t + \beta_2 EM_t + \beta_3 \log(KKD)_t + \beta_4 \log(ADB)_t + \beta_5 \log(PDB)_t + \beta_6 BIRATE_t + \varepsilon_t \dots \dots \dots (2)$$

JUB=money in circulation (billions of Rp); INF=inflation (%); EM=e-money (thousands of Rp); KKD = credit card transaction volume (Thousand IDR); ADB = ATM/debit card transaction volume (Thousand IDR); GDP=gross domestic product (billion IDR); BIRATE=interest rate (%); β_0 =constant; β_1 - β_6 =regression coefficient of independent variable; ε_t =error factor.

RESULT AND DISCUSSION

Table 1. Stationarity Test Results

Variable	Levels	1*Difference	2ndDifference
Prob. D(JUB)	0.9957	0.0001	0.0001
Prob.D(INF)	0.0158	0.0000	0.0000
Prob.D(EM)	0.8437	0.0000	0.0000
Prob.D(KKD)	0.0249	0.0001	0.0000
Prob.D(ADB)	0.4772	0.0000	0.0000
Prob.D(GDP)	0.9986	0.9605	0.0001
Prob. D(BIRATE)	0.2914	0.0000	0.0000

Source: Eviews10 (processed)

Table 1 shows that all variables are not stationary at the degree level, with the highest alpha (α) of 10%. Except for one variable, all variables are stationary at the first difference level, which is the GDP variable because the probability value of 0.9605 is greater than alpha

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

(α) 10%. Furthermore, the GDP variable is stationary at the second difference level with an alpha (α) of 5% or below 0.05.

Table 2. OLS Regression Results

Variables	coefficient	std. Error	t-Statistics	Prob.
C	8.578198	1.981700	4.328706	0.0000
INF	0.003688	0.011594	0.318095	0.7513
LOG(EM)	0.088356	0.025312	3.490614	0.0008
LOG(KKD)	-0.240396	0.094749	-2.537201	0.0133
LOG(ADB)	0.495456	0.173555	2.854750	0.0056
LOG(GDP)	0.066767	0.044462	1.501655	0.1376
BIRATE	-0.077919	0.010829	-7.195219	0.0000
R-squared	0.891100			
Adjusted R-squared	0.882025			
Prob(F-statistic)	0.000000			

Source: *Eviews10 (processed)*

Table 3. Cointegration Test Results

Variable	t-Statistics	Prob.
resident01	-7.388743	0.0000

Source: *Eviews10 (processed)*

Following the declaration of all stationary variables in degrees second difference, the next step is to conduct a cointegration test. For the cointegration test, it is necessary to have residual data obtained from the simple ordinary least square (OLS) regression results as shown in Table 2. Then the next step can be carried out with the unit root test using the Augmented Dickey-Fuller (ADF) test type, using degrees at the level. According to Table 3, the stationary residual at the level can be said to have cointegration where the residual probability value is less than alpha (α) 1% or 0.01, the data has cointegration between variables in the long term and can form an Engle-Granger short-term ECM model.

Table 4. ECM Estimation Results

Variables	coefficient	std. Error	t-Statistics	Prob.
C	0.009445	0.002773	3.405581	0.0011
D(INF)	0.017985	0.004275	4.207082	0.0001
DLOG(EM)	-0.021753	0.022867	-0.951244	0.3448
DLOG(KKD)	0.000892	0.046556	0.019156	0.9848
DLOG(ADB)	0.112419	0.046733	2.405562	0.0188
DLOG(GDP)	0.025462	0.008599	2.961257	0.0042
D(BIRATE)	0.009729	0.013118	0.741649	0.4608
ECT(-1)	-5.90E-08	2.33E-08	-2.528974	0.0137
R-squared	0.487525			
Adjusted R-squared	0.436277			
Prob(F-statistic)	0.000000			

Source: *Eviews10 (processed)*

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

"Entrepreneurship on Global Economics Development in the Era of Society 5.0"

Thus the equation obtained from the short-term estimation results:

$$\begin{aligned} \Delta \log(JUB)_t = & 0,009445 + 0,017985INF_t - 0,021753EM_t + 0,000892KKD_t \\ & + 0,112419ADB_t + 0,025462PDB_t + 0,009729BIRATE_t \\ & - 0,000000059ECT_{t-1} \end{aligned}$$

According to Table 4, the prob. (F-statistic) value is 0.000000, which is less than alpha (α) 5% or 0.05, and the value ECT(-1) is significant with a negative coefficient, showing that the ECM model is true and has a significant influence both immediately and over the long run. According to the coefficient of determination (R²) value of 0.487525 (48.75%), 51.25 percent of the total effect on the dependent variable comes from factors that are not included in the model. The short-term money supply is positively and significantly impacted by inflation, ATM/debit card transaction volume, and GDP, as shown by the estimation findings.

Short-Term Classical Assumptions Test
Table 5. Breusch-Godfrey Autocorrelation Test

F-statistics	2.141555	Prob. F(4,66)	0.0854
Obs*R-squared	8.960696	Prob. Chi-Square(4)	0.0621

Source: Eviews10 (processed)

Table 5. In this study, the autocorrelation test with the Breusch-Godfrey model obtained a Prob. Chi-Square value of 0.0621 > (greater) than alpha 0.05. It may be argued that the model exhibited no signs of autocorrelation.

Table 6. Multicollinearity

Variables	Coefficient Variances	Uncentered VIF	Centered VIF
C	7.69E-06	1.142358	NA
D(INF)	1.83E-05	1.365070	1.360093
DLOG(EM)	0.000523	1.643313	1.551105
DLOG(KKD)	0.002167	2.069278	2.067941
DLOG(ADB)	0.002184	1.795538	1.782186
DLOG(GDP)	7.39E-05	1.226160	1.225143
D(BIRATE)	0.000172	1.085486	1.026406
ECT(-1)	5.45E-16	1.055147	1.054863

Source: Eviews10 (processed)

Table 6 shows that the VIF values of all independent variables in this study are less than 10, as determined by the multicollinearity test. The lack of multicollinearity in this model has thus been proven.

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

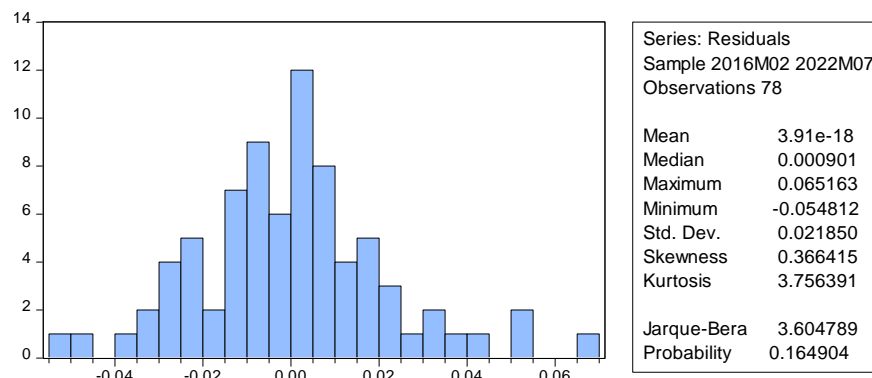


Figure 2. Jarque Bera Residual Normality Test Results

Source: Eviews10 (processed)

Figure 2 shows the results of the Jarque-Bera normality test with a probability value of 0.164904 greater than alpha (α) 10% or 0.10. The data utilized in this analysis were therefore normally distributed.

Table 7. Breusch-Pagan Godfrey Heteroscedasticity Test Results

F-statistics	1.211172	Prob. F(7,70)	0.3083
Obs*R-squared	8.426545	Prob. Chi-Square(7)	0.2965
Scaled explained SS	9.353350	Prob. Chi-Square(7)	0.2283

Source: Eviews10 (processed)

According to Table 7, it is a heteroscedasticity test because of the prob. Chi-Square is greater than alpha (α) 10% or 0.10. Therefore, the model has no heteroscedasticity issue, as seen above.

Statistical Test Results

The existence of an estimated model (Test F) with a null hypothesis (H0) means that there is no correlation between the independent factors and the dependent variable in the near term. While the alternative hypothesis (HA) says that together all the independent variables affect the short-term dependent variable. If the prob value (F-statistic) is, H0 is rejected, and Ha is accepted if the prob value (F-statistic) is >. Table 4 shows that the prob (F-statistic) value is 0.000000, which is lower than the significance level of alpha (α) of 5% or 0.05 so H0 is rejected. So it can be concluded that all the independent variables together affect the short-term dependent variable.

Furthermore, in the statistical test there is an effect validity test (T-test) by partially testing all variables as follows:

Table 8. Influence Validity Test

Variables	coefficient	Prob.
D(INF)	0.017985	0.0001
DLOG(EM)	-0.021753	0.3448
DLOG(KKD)	0.000892	0.9848
DLOG(ADB)	0.112419	0.0188
DLOG(GDP)	0.025462	0.0042

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

Variables	coefficient	Prob.
D(BIRATE)	0.009729	0.4608
INF	0.003688	0.7513
LOG(EM)	0.088356	0.0008
LOG(KKD)	-0.240396	0.0133
LOG(ADB)	0.495456	0.0056
LOG(GDP)	0.066767	0.1376
BIRATE	-0.077919	0.00000

Source: Eviews10 (processed)

According to Table 8's estimation results, inflation has a positive and considerable influence on Indonesia's money supply over the short run. In the near run, inflation influences the money supply with a coefficient value of 0.017985, corresponding to a chance of 0.0001 percent. If inflation in Indonesia were to rise by 1 percent, it would lead to a 0.017985 percent rise in the country's total money supply. However, inflation has zero influence on the money supply in the long run. Since the likelihood value for this scenario is $0.3448 > 0.10$, we may conclude that the usage of E-money in Indonesia has no appreciable impact on the country's money supply soon. In contrast, the long-term result shows that the probability value is 0.0008×103 , yielding a positive and significant influence on the money supply with a coefficient value of 0.088356, which indicates that a 1 percent increase in the value of e-money will have an impact on adding to the value of the money supply by 0.088356%. In the near run, the use of credit cards has no noticeable impact on the money supply. Since the long-term regression results obtained a probability value of 0.0133, the use of credit card transaction volume has a negative and significant effect on the money supply with a coefficient value of -0.240391, such that a 1% increase in the value of credit card transactions affects decreasing the amount of money in circulation by -0.240391%. Because of its positive and statistically significant relationship to Indonesia's money supply, debit card usage has been assigned a coefficient of 0.112419, meaning that a one-percent rise in debit card usage would result in a 0.112419 percent rise in the money supply. In the near run, a 1 percent rise in GDP has a positive and large influence on the money supply, with a coefficient of 0.025462, meaning that when economic growth grows by 1 percent, it will have a positive impact on an increase in the money supply of 0.025462%. The bi-rate is unlikely to have an immediate impact on Indonesia's money supply because the probability (prob.) is $0.4608 > 0.10$. The bi-rate has a significant long-term influence with a coefficient of -0.077919. influence on Indonesia's money supply, causing a decline of 0.077919% for every 1% in the bi-value rate.

Table 9. Determination Coefficient Test (R-squared)

Adjusted R-squared	0.436277
--------------------	----------

Source: Eviews10 (processed)

Table 9's regression results show an adjusted R-squared value of 0.436277, which indicates that the independent variables of inflation, e-money, credit card transaction volume, ATM/debit card transaction volume, economic growth, and interest rates each account for 43.63% of the variation in the money supply in Indonesia, while the remaining 56.37% is influenced by factors that are excluded from the model.

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

"Entrepreneurship on Global Economics Development in the Era of Society 5.0"

DISCUSSION**The Effect of Inflation on the Money Supply in Indonesia**

The short-term impact of inflation on Indonesia's money supply is positive and considerable. Inflation will result from constant price rises. In this study, the short-term connection between inflation and money supply is positive. This implies that if inflation rises, the money supply will likewise rise. The high costs of commodities, which drive consumers to spend a great deal of money on transactions, will increase the money supply and result in inflation. This is consistent with Irving Fisher's quantity theory of money, which asserts that the primary effect of a change in the money supply on the price level is an increase or drop in the price level. This study's findings are consistent with those of a previous study done by (Marlina et al., 2019), Inflation has no influence on the money supply in this analysis for the period of January 2016 to July 2022. These results contradict a previous study by (Setiadi, 2013) and (Widodo, 2015) which asserts that inflation has a positive and considerable influence on the money supply over the short and long term. Nonetheless, the findings of this study are consistent with those of (Purnawati & Panjawa, 2021) It explains why inflation has no meaningful influence on the money supply in the long run. This means that when inflation increases in the long term, people choose to reduce their consumption. Furthermore, so that inflation does not affect the money supply, Bank Indonesia, as the monetary authority, can issue a policy of increasing bank interest rates, so that people are more interested in saving at the bank than in other consumption activities. The following step is open market operations, such as issuing or selling SBI. With this policy, the base money in the community will decrease because cash will move to the bank and SBI will move into the hands of the community. (Wahyudi, 2014).

The Effect of E-Money on the Amount of Money in Indonesia

E-money does not affect the money supply in the short term due to the lack of public understanding of the use of e-money. Must use technological tools such as mobile phones and must have a network that is connected as a means of transaction, so that only some people can use electronic money, for example, teenagers and adults. Another factor is access to the use of technology, which has not been evenly distributed among the public, especially in mountainous and coastal areas where access to technology is still lacking, so the use of currency still dominates compared to e-money. So this finding is consistent with previous studies (Muhammad, 2021), (Novitasari & Nurastuti, 2018). However, at the start of 2018, there was considerable growth in the use of e-money transactions in Indonesia. This can be seen from the movement in Figure 1, which means that in the short term, the impact has not been seen on the money supply. Meanwhile, in the long term, as time goes on, knowledge of technology will spread widely among the public so that e-money transactions will increase; this will be very significant for the demand for money (M1). When many people use e-money, the monetary base will expand. According to David Ricardo's thesis, the value of money is determined by the amount of money in circulation in a given society. The higher the price level of products, the greater the circulation of money in society. (Fardiansyah, 2022). This research is in line with research from (Moelgini et al., 2019) It implies that an increase in e-money will raise money demand (M1) in Indonesia. In the near run, these results contradict the findings (Aristiyowati & Falianty, 2019) that e-money usage has a negative and statistically significant impact on M1.

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

"Entrepreneurship on Global Economics Development in the Era of Society 5.0"

The Effect of Credit Card Transaction Volume on the Amount of Money in Indonesia

These findings by research conducted (Purnawati & Panjawa, 2021) indicated that the effect of credit card transactions on the money supply was negative and negligible. Meanwhile, credit cards have had a substantial influence on the money supply over time. Due to the strong relationship between the demand for money and the velocity of money circulation, non-cash payments will negatively impact the demand for money (Priscilla, 2014). This analysis demonstrates that the changing volume of credit card transactions has a negative and negligible influence on the money supply over the near term. This happens because the use of credit cards tends to encourage people to be extravagant or consumptive in buying the desired goods or products. Since the use of credit cards provides several advantages, such as discounts when buying certain products and points, this of course will lead to a consumptive behavior, so it's rare for people to use them in the long term. According to Fisher's theory, the demand for money comes from the amount of the transaction volume, which is dictated by the type of transaction process, hence the usage of credit cards affects the demand for money (M1) in Indonesia over the long run. According to a study (Saraswati & Mukhlis, 2018), the credit card variable has a negative and substantial influence on the demand for money (M1) in Indonesia over the long term.

Effect of ATM/Debit Card Transaction Volume on the Amount of Money in Indonesia

This research is following research conducted by Muhammad (2021), Novitasari & Nurastuti (2018), and Yuli Wijaya et al.,(2021), which states that APMK transactions through ATM/Debit Card transaction volume proxies have a positive and significant effect on M1 in the long term and short term. Current technological developments have an impact on the payment system through the use of ATMs and debit cards. Most companies also use debit card transactions when providing salaries to employees to be more effective and efficient. The number of ATM or debit transactions has an impact on the money supply (M1). The rise in debit card transactions will significantly expand Indonesia's money supply. Increasing public consumption habits would stimulate the country's real sector, so the usage of ATM and debit card transactions can lower transaction costs and increase the speed with which they are completed.

The Effect of Gross Domestic Product on the Money Supply in Indonesia

In the short term, the constant-price gross domestic product has a positive and considerable influence on the money supply. The money supply will expand proportionally to the gross domestic product since economic activity has increased in both the real sector and the banking sector. This study is consistent with (RS, 2014). But contrary to (Setiadi, 2013) this explains why GDP does not influence the money supply in the near term but has a positive and large effect on the money supply in the long run.

The influence of BI-RATE on the money supply in Indonesia

In the medium term, the bi-rate has no discernible impact on Indonesia's money supply. Bi-rate has a detrimental and large long-term impact on Indonesia's money supply. Bank Indonesia will increase the bi-rate (interest rate) if inflation is too high or does not meet the objective; conversely, BI will decrease interest rates if future inflation falls below the target. Thus, the amount of money in circulation may be adequately regulated. Or, it may be stated that the link between Bank Indonesia's interest rates and the money supply from January 2016 to July 2022 in this study has a negative effect. (I Wenagama & Kadek SS, 2019).

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

"Entrepreneurship on Global Economics Development in the Era of Society 5.0"

IMPLICATIONS

According to the study's findings, the variables utilized as non-cash payments, such as ATM/debit cards, credit cards, and e-money, exhibit the direction of the connection predicted by the classic figure underlying the quantity theory of money. Changes in the money supply will be proportionate to changes in prices, according to Irving Fischer, if the velocity of money and the number of transactions in the economy remain constant. E-money transactions and ATM/debit card transactions have a beneficial influence on the money supply, according to a review of their effects. Consequently, constant growth in the amount of money circulating in a community will affect inflation and, eventually, monetary stability. The worth of money is determined by the amount of money circulating in a community, according to David Ricardo. The greater the price level of products, the greater the circulation of money in a community. Therefore, as the number of money doubles, so will the price, resulting in inflation. If the public continues to expand e-money transactions, this will affect interest rates. Low-interest rates encourage consumers to prefer using their funds for transactions, resulting in a rise in the money supply and inflation. In contrast, as interest rates rise, individuals seek to keep their money in banks to generate a profit. This caused banks to collect more funds from the general population, ultimately decreasing the money supply.

CONCLUSION

In the current era of digitization, the introduction of many types of modern technology offers several benefits and conveniences, one of which is in the banking industry, specifically in terms of payment systems. The payment system is an integral part of the economy, especially for ensuring the public's participation in financial transactions. Based on the data analysis performed, it can be stated that inflation, the amount of ATM and debit card transactions, and economic growth have a positive and substantial link with Indonesia's money supply in the near term.

In the long run, e-money variables have a positive and significant effect on the money supply, credit cards have a negative and significant effect on the money supply, ATM/debit cards have a positive and significant effect, and interest rates (Bi-Rate) have a negative and significant effect on the money supply in Indonesia, according to the estimation results.

ACKNOWLEDGEMENT

The completion of this article cannot be separated from the opportunity that has been given by Allah SWT and the parents, as well as Ms. Maulidyah Indira Hasmarini, the supervising lecturer, who has provided direction, motivation, and support so that this article can be completed.

REFERENCES

- Dianari, RGF (2019). The Effect of E-Commerce on Indonesia's Economic Growth. *Economic Development*, 22(1), 43–62. <https://doi.org/10.26593/be.v22i1.3619.45-64>
- Durgun, Ö., & Timur, MC (2015). The Effects of Electronic Payments on Monetary Policies and Central Banks. *Procedia - Social and Behavioral Sciences*, 195, 680–685. <https://doi.org/10.1016/j.sbspro.2015.06.271>
- Fatmawati, MNR, & Yuliana, I. (2019). The Effect of Non-Cash Transactions on the Money

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

"Entrepreneurship on Global Economics Development in the Era of Society 5.0"

- Supply in Indonesia in 2015-2018 With Inflation as a Moderating Variable. Expansion: Journal of Economics, Finance, Banking and Accounting, 11(2), 269–283. <https://doi.org/10.35313/ekspansi.v11i2.1608>
- Galindo, M. Á. (2010). Monetary policy and economic growth. *Monetary Growth: Trends, Impacts, and Policies*, 67–76. <https://doi.org/10.26163/gief.2022.63.69.029>
- Gnahe, FE, & Huang, F.-M. (2020). The Effect of Monetary Policy on Economy Growth of WAEMU Countries. *Open Journal of Business and Management*, 08(06), 2504–2523. <https://doi.org/10.4236/ojbm.2020.86156>
- Gogoski, R. (2012). Payment Systems in Economy - Present End Future Tendencies. *Procedia - Social and Behavioral Sciences*, 44, 436–445. <https://doi.org/10.1016/j.sbspro.2012.05.048>
- Hamdawati, N. (2015). The Influence of Monetary Variables and Foreign Debt on Inflation in Indonesia. *Student Scientific Journal of FEB Universitas Brawijaya*, 3(2), 1–23.
- Juliprijanto, W., Jalunggono, G., & Rahmawati. (2018). Analysis of the Effect of E-Money on the Circulation of Money in Indonesia. *DYNAMIC: Directory Journal of Economic Volume*, 2(3), 834–848.
- Kristi, A., Rahayu, A., Nur, I., Syariah, JE, Economics, F., & Ali, US (2022). Analysis of the Effect of Electronic Money on the Money Supply and Velocity of Money in Indonesia. *Sayyid Ali Rahmatullah University Tulungagung*, 2(2), 211–224.
- Lintangsari, NN, Hidayati, N., Purnamasari, Y., Carolina, H., & Ramadhan, WF (2018). Analysis of the Effect of Non-Cash Payment Instruments on Financial System Stability in Indonesia. *Journal of Development Economic Dynamics*, 1(1), 47. <https://doi.org/10.14710/jdep.1.1.47-62>
- Marlina, D., Andaiyani, S., & Hartawan, D. (2019). Impact of differential interest rates on money demand: Cases of the United States and Indonesia. *Journal of Development Economics*, 16(2), 56–62. <https://doi.org/10.29259/jep.v16i2.8878>
- Muhammad, M. (2021). Analysis of Non-Cash Payment Transactions on Economic Growth in Indonesia. 9, 1–13.
- Nirmala Tiara, Widodo Tri. (2011). Effect Of Increasing Use Of The Card Payment Equipment On The Indonesian Economy. *Journal of Business and Economics (JBE)*, 18(1), 36-45.
- Novitasari, E., & Nurastuti, P. (2018). The Influence of Epmabayaan Tools Using Cards (Apmk) and E-Money on Abstract Amounts of Money. 1–10.
- Purnamawati, N., & Panjawa, JL (2021). The Impact of E-Money and Transaction Dimensions on the Demand for Money in Indonesia. *Equine: Journal of Economics and Business*, 8(2). <https://doi.org/10.34308/eqien.v8i2.263>
- Purnawan, ME, & Riyanti, R. (2019). Significant Effect of the Central Bank Digital Currency on the Design of Monetary Policy. *Indonesian Journal of Economics*, 8(1), 125–151. <https://doi.org/10.52813/jei.v8i1.15>
- Putri, E., Praswati, AN, Muna, N., & Sari, NP (2022). E-Finance Transformation: A Study of M-Wallet Adoption in Indonesia. *Journal of Development Economics: Study of Economic and Development Issues*, 23(1), 123–134. <https://doi.org/10.23917/jep.v23i1.15496>
- RS, P. Rawidy. daily. (2014). Factors Influencing the Money Supply in Indonesia in the 1990-2010 Period. *Journal of Economists*, 14(2), 28878.

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

"Entrepreneurship on Global Economics Development in the Era of Society 5.0"

- Sari, DK (2020). Analysis of the Effect of Non-Cash Payment Transactions on the Money Supply in Indonesia. *Journal of Economics Development Issues*, 3(2), 361–376. <https://doi.org/10.33005/jedi.v3i2.68>
- Sinaga, G. (2021). 5.+Garry+Linneker+Sinaga+(50-61). 7, 50–61
- Setiadi, IO (2013). Analysis of the factors influencing the demand for money in Indonesia in 1999: Q1 - 2010: Q4 using the error correction models (Ecm) approach. *Economics Development Analysis Journal*, 2(1), 1–9.
- Smets, F. (2014). Financial stability and monetary policy: How closely interlinked? *International Journal of Central Banking*, 10(2 SPEC. ISS.), 263–300.
- Solikin, S. (2002). Money: Definition, Creation and Its Role in the Economy. 58.
- Ulina, E., & Maryatmo, R. (2021). The Effect of Non-Cash Transactions on The Money Supply Indonesia (2009:Q1 – 2019:Q2). *Conference Series*, 3(1), 541–550. <https://adi-journal.org/index.php/conferenceseries/article/view/389>
- Wahyudi, E. (2014). The Effect of Bank Indonesia Interest Rates (Bi Rate) and Gross Domestic Product (GDP) on Inflation Rates in Indonesia in Years. *Scientific journals*.
- Wasiaturrahma, W., Wahyuningtyas, YT, & Ajija, SR (2019). Non-Cash Payment and Demand for Real Money in Indonesia. *Journal of Economics, Business & Accountancy Ventures*, 22(1), 1–8. <https://doi.org/10.14414/jebav.v22i1.1575>
- Workshop, I. (2018). Monetary policy implications of central bank-issued digital currency. *Economic Bulletin, SEP*.
- Yuli Wijaya, A., Mukhlis, I., & Seprillina, L. (2021). Analysis of the effect of E-money, electronic transaction volume, and interest rates on the money supply in Indonesia before and after the COVID-19 pandemic. *Journal of Economics, Business, and Education*, 1(2), 135–145. <https://doi.org/10.17977/um066v1i22021p135-145>