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An Analysis of the Effect of Debit Card Transaction Nominals, Credit Card Nominals, E-Money Nominals on the Level of the Total Money in Circulation in 2013-2022

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ABSTRACT

This study aimed to investigate the impact of nominal debit card transactions, nominal credit card transactions, and nominal e-money transactions on the level of the money supply from 2013 to 2022. The information used comes from secondary sources, specifically monthly financial report data from 2013 to 2022 that was directly retrieved from Bank Indonesia's official website. With the use of Eviews Statistical Software, multiple linear regression analysis, the coefficient of determination, the classical assumption test, and hypothesis testing were all used in the data analysis for this study. The study of the data reveals that the amount of money in circulation both before and after Covid 19 is impacted simultaneously by variable nominal debit card transactions, credit card transactions, and e-money transactions. In part, the variable nominal debit card transactions, the nominal credit card transactions, and the nominal e-money transactions have no impact on the amount of money in circulation in Covid 19. Since the R2 statistic indicates a 96.41% influence, the remaining 3.59% is influenced by factors that were not studied in this study.

Keywords : Credit Card Nominals, Debit Card Transaction Nominals,, E-Money Nominals

INTRODUCTION

Technology is advancing quickly in the 5.0 era and may already benefit society in a number of ways, one of which is the financial industry. Changes in payment systems or transactions as a result of modifications to technology advancements have emerged as new innovations in banking and finance. People's requirements for speed and convenience are growing, leading to the emergence of businesses that offer technological convenience in the financial industry, more often known as FinTech. Access to financial goods and transactions is made simple by fintech. FinTech transactions in both online and offline learning are growing quickly today as a result of people's changing lives.

The public now has options for the payment instrument they use, including the use of cash (currency) or a more modern, cashless or non-cash payment system that is more effective and efficient in light of recent technological advancements. A non-cash payment system can take the place of cash in terms of transactions due to its advantages.

Non-cash payment instruments are split into two categories, according to Bank Indonesia (2021). The first category includes scripts like demand deposits, checks, bills, debit notes, and credit notes. The second category is non-script, which includes credit cards and debit/ATM cards. Debit/ATM cards, e-money, and credit cards have so far been the non-cash instruments that are often utilized. To improve the value of special non-cash transactions using APMK or card payment instruments, the central bank has put in place work initiatives. In order to lessen the amount of cash that was dispersed and moving about the neighborhood, Bank Indonesia took this action. The National Non-Cash Movement was also expressed by Bank Indonesia (GNNT). As a result, non-cash transactions are becoming more valuable in society and people are beginning to forego cash transactions altogether since, in addition to being effective and efficient, non-cash transactions are also thought to have lower costs.

This is also backed by the rise in businesses, shopping malls, and online stores that accept payments made using ATM cards, debit cards, credit cards, or e-money in Indonesia. The Indonesian people respond well to the non-cash payment system because it is quick, safe, comfortable, and simple, and this encourages both banks and non-banks to compete and innovate in this non-cash payment system. Along with being influenced by current technical breakthroughs, changes in people's lifestyles and the numerous payment instrument innovations made by developers have all contributed to the growth of the cashless payment system year over year. Efficiency is crucial in the globalized world of today. There are many technologies that can be employed for the aim of solving contemporary financial issues, such as e-money. E-money has recently facilitated and supported the community in a variety of ways and activities, including paying tolls and other transactions like buying food and shopping at minimarkets. Transactions made with e-money are not linked to the user or customer account, unlike those made with debit/ATM cards and credit cards, which are directly connected to the account. Instead, they are made as though the user or customer had their own pockets that could be topped up by top-up through an agent or using a card (Nasiti, 2010). other purchases, such purchasing food or minimarkets. Transactions made with e-money are not linked to the user or customer account, unlike those made with debit/ATM cards and credit cards, which are directly connected to the account. Instead, they are made as though the user or customer had their own pockets that could be topped up by top-up through an agent or using a card (Nasiti, 2010). other transactions, including buying food or doing minimarket shopping. Transactions made with e-money are not linked to the user or customer account, unlike those made with debit/ATM cards and credit cards, which

are directly connected to the account. Instead, they are made as though the user or customer had their own pockets that could be topped up by top-up through an agent or using a card (Nasiti, 2010).

The growth of the payment system is inextricably linked to the regulator's responsibility for ensuring fair access to the payment system, in this case played by Bank Indonesia. In order to assist the creation of a supportive business environment that always pays attention to areas of consumer security and protection, Bank Indonesia offers equal chances for banks and non-bank entities to play a part in the payment system (www.bi.go.id).

The banking system has also altered as a result of the quick advancement of technology and the need to provide more value to clients (Waas, 2012). New developments in payment systems have emerged as a result of the growth of electronic-based payment systems, and they are anticipated to make transactions more convenient, flexible, efficient, and simple (Mintarsih, 2013).

The velocity of money, which in this case indicates how many units of rupiah are utilized to make transactions in Indonesia, can be affected by increasing the activity of persons who use non-cash transaction facilities. Simply put, the more transactions someone conducts using an electronic payment object, the quicker the transaction will conclude, and the parties that received payment for the initial transaction may use the funds from that transaction for subsequent transactions. Therefore, increasing the money supply will encourage the trading of more goods and services, improving the economy (Sierra, 2022).

According to a number of studies, non-cash payment practices can boost state financial stability, which will also result in business, pricing, and economic stability. Kumari and Khanna (2017). The requirement or demand for having to maintain a particular amount of liquidity (reserve balance) at the central bank will decrease if payments are not made in cash using an electronic transfer payment system through contemporary financial markets (as a component of base money). According to Azhar's research (2020), the use of debit cards and e-money in Indonesia has a large short-term impact on the amount of currency in circulation while having a dominant long-term impact. The use of electronic money and card-based payment methods has a significant impact on the money supply, prompting the authorities, particularly the monetary policy authority, to take appropriate monetary policy actions and decisions. As is well known, changes in the money supply have a significant impact on the stability of a nation's financial system. According to Ulina's research (2021), the amount of credit card and electronic money transactions has a favorable and considerable impact on the money supply. In reaction to variations in the volume of credit card transactions, the money supply is more elastic. because it is well recognized that changes in the money supply have a significant impact on the stability of a nation's financial system. According to Ulina's research (2021), the amount of credit card and electronic money transactions has a favorable and considerable impact on the money supply. Because it is well established that variations in the money supply have a significant impact on the stability of a nation's financial system, the money supply is more elastic in reaction to changes in the volume of credit card transactions. According to Ulina's research from 2021, the amount of credit card and electronic money transactions has a favorable and considerable influence on the money supply. In reaction to fluctuations in the volume of credit card transactions, the money supply is more elastic.

Based on the above background, this study has purpose to examine the effect of debit card transaction nominal, credit card nominal, e-money nominal on the level of money supply in 2013-2022.

METHOD

This research is classified as quantitative research based on the type of data and analysis methods employed. This approach typically employs a post-positive paradigm in the advancement of science by looking at cause and effect links in addition to demonstrating the put forth hypotheses. Credit card transaction values, ATM/debit card transaction values, and E-Money values were employed as independent variables in this study. The money supply variable was used as the dependent variable. The information utilized in this study is secondary data that was obtained from the Bank Indonesia official website and was collected on a monthly basis from 2013 to 2022.

The model of the Multiple Linear Regression equation in this study is as follow:

$$Y = \alpha + \beta 1(X1) + \beta 2(X2) + \beta 3(X3) + \ldots\ldots \quad (1)$$

Where: Y = total money supply; α = Constant; X1 = Credit Card Transaction Value; X2 = ATM/Debit Card Transaction Value; X3 = E-Money Transaction Value; and β1– β3 = Coefficient of each independent variable.

RESULT AND DISCUSSION

Data for this study were obtained from Bank Indonesia. The information used is monthly time series data for nominal debit card transactions, nominal credit card transactions, nominal e-money transactions, and the amount of the money supply from 2013 to 2022. The classical assumption test was first performed in this study before doing a test utilizing multiple linear regression. The test findings are as follows:

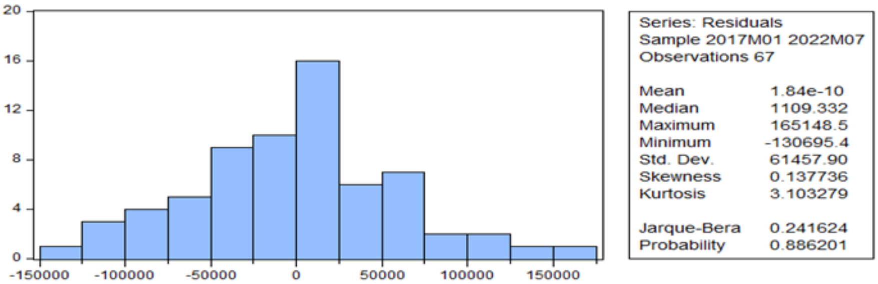

Figure1. Normality test
Source: processed data, 2022

The picture above shows a probability value of 0.88 > 0.05. Thus, the data used in this study is normally distributed.

Table2. Multicollinearity Test

	NKD	NKK	NE
NKD	1.000000	0.489691	0.764655
NKK	0.489691	1.000000	0.060834
NE	0.764655	0.060834	1.000000

Based on the table above, the correlation value of all variables is <10, therefore there is no multicollinearity problem.

Table3. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistics	4.703112	Prob. F(2,57)	0.0129
Obs*R-squared	9.490330	Prob. Chi-Square(2)	0.0087

Based on the table above, the prob. Chi-Square 0.00 <0.05, indicated that there is an autocorrelation problem.

Table 3 . Heteroscedasticity Test

Heteroskedasticity Test: White			
F-statistics	1.567818	Prob. F(19,47)	0.1060
Obs*R-squared	25.99127	Prob. Chi-Square(19)	0.1304
Scaled explained SS	21.19575	Prob. Chi-Square(19)	0.3261

Based on the table above, the prob. Chi-Square 0.32 > 0.05, indicated that there is no Heteroscedasticity problem.

Table 4 .F Test (Simultaneous)

R-squared	0.964146	Mean dependent var	1630657.
Adjusted R-squared	0.959892	SD dependent var	324571.8
SE of regression	65001.54	Akaike info criterion	25.11386
Sum squared residue	2.49E+11	Schwarz criterion	25.37711
Likelihood logs	-833.3143	Hannan-Quinn criter.	25.21803
F-statistics	226.6539	Durbin-Watson stat	1.555169
Prob(F-statistic)	0.000000		

Based on the results of the F test (Simultaneous), it was obtained that the Prob F value = 0.0000 <0.01, so that H0 was rejected. Thus, simultaneously, the variable nominal debit card transactions, credit card nominal, and e-money nominal have a significant effect on the level of money supply (total money circulation) before and after covid.

Table 5 . Multiple Linear Regression Test

Dependent Variable: JUB
Method: Least Squares
Date: 12/13/22 Time: 13:29
Samples: 2017M01 2022M07
Included observations: 67

Variables	**coefficient**	**std. Error**	**t-Statistics**	**Prob.**
C	740326.0	155630.4	4.756950	0.0000
NKD	0.831092	0.435815	1.906984	0.0614
NKK	5.550396	10.17505	0.545491	0.5875
NE	1.527166	0.862559	1.770506	0.0818
COVID	477843.7	220351.4	2.168553	0.0342
COVID*NKD	-1.458427	0.536737	-2.717207	0.0086
COVID*NKK	14.34728	11.60857	1.235921	0.2214
COVID*NE	9.771021	1.552524	6.293636	0.0000
R-squared	0.964146	Mean dependent var		1630657.
Adjusted R-squared	0.959892	SD dependent var		324571.8
SE of regression	65001.54	Akaike info criterion		25.11386
Sum squared residue	2.49E+11	Schwarz criterion		25.37711
Likelihood logs	-833.3143	Hannan-Quinn criter.		25.21803
F-statistics	226.6539	Durbin-Watson stat		1.555169
Prob(F-statistic)	0.000000			

The results of multiple linear regression tests on the variable nominal debit card transactions (NKD) show a Prob value: 0.0614 <0.05, so that H0 is accepted. Thus, the NKD variable has no significant influence on the amount of money in circulation.

The results of multiple linear regression tests on the variable nominal credit card transactions (NKK) obtained a Prob value: 0.58 <0.05, so that H0 is accepted. Thus, NKK has no significant influence on the amount of money in circulation.

The results of multiple linear regression tests on the nominal variable e-money (NE) obtained a Prob value: 0.081 <0.05, so that H0 is accepted. Thus, NE does not have a significant effect on the amount of money in circulation.

The amount of influence shown by the value of R2 is 96.41%, so that the remaining 3.59% is influenced by variables not examined in this study

DISCUSSION

The effect of nominal credit card transactions on the amount of money in circulation

Based on the results of multiple linear regression tests on the variable nominal debit card transactions (NKD) it shows a Prob value of: 0.0614 <0.05, so that H0 is accepted. Thus, the NKD variable has no significant effect on the amount of money in circulation. The results of this study are not in line with Nursari's research (2019) that non-cash payments (debit cards/ATMs) have a positive effect on the economy and demand for cash in Indonesian society. The findings of this study also differ from those of Azhar (2020), who claimed that debit card transactions had a dominant influence on the amount of money in circulation while having a large short-term impact in Indonesia. Additionally, the findings of this study do not exactly match those of studies by Ramadani (2016), Fatmasari et al. (2019), and Runnermark et al (2015). This study's findings differ from those of Saraswati and Mukhlis' (2018) study, which discovered that the usage of debit cards influences the demand for money. Gintting et al(2018) .'s study discovered that the use of a debit card significantly affects the velocity of money. According to research findings (Xu et al., 2019), differences in payment methods between cash payments and electronic payments have an impact on seller behavior when determining prices. According to the findings, cash payments speed up the mental image-creation process, which raises people's need for cash and results in higher selling prices. According to Abidin in (Rahayu & Nugroho, 2020), payment systems that are easier and more sophisticated can maximize people's purchasing power, encourage the usage of electronic money and decrease the need for cash or checks.

The effect of nominal credit card transactions on the amount of money in circulation

Based on the results of multiple linear regression tests on nominal credit card transaction (NKK) variables, the Prob value is obtained: 0.58 <0.05, so that H0 is accepted. Thus, NKK has no significant influence on the amount of money in circulation. These results are not in line with research by Saraswati (2018), Ulina (2021) that credit card transactions have a significant positive effect on the money supply in Indonesia. The money supply is more elastic in response to changes in increases in credit card transactions than changes in e-money transactions. This is corroborated by the growth of credit card transactions, which have risen steadily every year between 2009 and 2016 and point to a growing demand for and confidence in credit cards. The rise in credit card transactions was also brought on by the expansion of credit card companies' offers. The findings of this study are at odds with earlier research by Istanto & Fauzie (2013), which claimed that APMK transactions through credit card transaction proxy transactions had a favorable and significant impact on M1 in the near term but were not significant over the long term. The findings of this investigation,

however, are consistent with those of Braga et al. (2013) and Ginting et al (2018). According to Regi (2016: 2), a credit card is a device that enables cardholders to make purchases, travel, and enjoy meals at hotels without making an immediate payment. In other words, using credit cards has an impact on customers through the development of debt. Since this debt needs to be paid back, a portion of the user's money must be set aside to cover it. According to the study's findings, credit cards did not significantly affect the amount of money in circulation during the COVID-19 virus outbreak.

The effect of nominal e-money transactions on the amount of money in circulation

Based on the results of multiple linear regression tests on the nominal e-money (NE) variable, the Prob value is obtained: 0.081 <0.05, so that H0 is accepted. Thus, NE does not have a significant effect on the money supply. These results are not in line with the research by Saraswati (2018), Ulina (2021), Azhar (2020) that e-money has a significant effect on the amount of money circulating in Indonesia. According to (Kirbrandoko, 2018) the use of smartphone-based electronic money is influenced by perceived benefits and perceived ease of use. It is impossible to dispute the convenience of transactions provided by this advancement in the payment system, which has sparked interest among the general public in moving away from cash and toward electronic money. Technology advancements in payment systems, such as the use of debit and credit cards as payment instruments employing cards (AMPK), have also happened in conjunction to the creation of electronic money. Research by Saraswati and Mukhlis and Ramadani (2016) (2018). Prepaid cards are one example of electronic money, which is digital money (eg BCA Flazz, Indomaret Card, Brizzi). The necessity for this e-money card in social activities is ongoing and sporadic. E-money can be used for both e-travel and in many supermarkets and small marketplaces that accept retail. E-money receives a very high average score, indicating that respondents strongly prefer using it, according to the results of the computation of the e-money variable. It also demonstrates that the rise in e-Money has resulted in a material rise in consumer expenditure, which has increased the money supply.

IMPLICATIONS

This study suggests that e-Money providers, such as franchisees and supermarkets, who have so far offered this service should continue it or, if necessary, expand the e-Money services they have already supplied.

CONCLUSION

Based on the outcomes of the data analysis and interpretation, this study demonstrates how the amount of money in circulation before and after COVID 19 is simultaneously impacted by variable nominal debit card transactions, credit card nominal, and e-money nominal. The amount of money in circulation during COVID 19 was largely unaffected by variable nominal debit card transactions, credit card nominal transactions, and e-money nominal transactions. The increase in the amount of money in circulation was unaffected by the rise in the use of debit cards, credit cards, and electronic wallets. Non-cash transactions, such as those made using credit cards, e-money, or electronic transfers, will lessen the need for and expense of maintaining a specific level of liquidity at the central bank and can lessen the need for currency in the community. The amount of money in circulation is significantly impacted negatively by the rising usage of non-cash transactions. That is, there is less demand for money the more non-cash transactions are used.

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