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Green Education Crisis through Banking Business

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Abstract: The research aims to detect, identify, and measure the green education crisis level in increasing economic stability and growth, through banking sector business activities as an intermediary function in financial circulation. The method used is quantitative with the Ed Waves Index Development Model, based on Bank Indonesia annual report data from 2000 to 2023 in time series using Eviews Version 9 software. The findings show that the high Non Performing Loan due to changes in macroeconomic behavior and increasing green education crisis, makes financial stability and economic growth difficult to achieve. The study results imply the importance of banking activities to be careful in providing credit to the industrial sector, whether oriented towards environmental sustainability or not, because the green education crisis risk has an indirect effect on financial stability and economic growth.

INTRODUCTION

Recently, climate change has caused global economic damage to the affecting financial performance (C. Ma et al., 2023; Falcone & Sica, 2019; El Karfi & Mentagui, 2020). The banking sector business is one of the financial activities that feels the climate change effects. *First,* financial circulation is entirely in the banking sector, which has an intermediary function, therefore the banking sector has a large influence on economic growth (Zhang et al., 2022; Gao et al., 2023; Guerrieri et al., 2022; Ahmed, 2012). And as a financial business, the banking sector acts as an intermediary between the Central Bank and the public through public finance that regulates trade transactions both nationally and internationally (Z. Chen et al., 2022; Wang & Zhi, 2016; Kamran et al., 2020). *Second,* the banking sector business is very sensitive to the financial crises pressure, the pressure can affect financial flows through changes in macroeconomic behavior, resulting in financial turbulence and a domino effect that damages financial stability and economic growth (Sun et al., 2023; Baharudin & Arifin, 2023; Guang-Wen & Siddik, 2023). *Third,* to maintain a sustainable economy, banking sector businesses must be able to increase profits in financial activities, both internally and externally, to anticipate financial pressures that affect the flow of banking sector financial business (Aysan et al., 2017; Samad & Manzoor, 2015; Mohd & Kaushal, 2018; Laeven & Valencia, 2013).

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This green education research aims to improve performance in the banking sector business in order to achieve financial stability and economic growth through understanding national and international financial flows, especially in increasing the banking sector profitability through environmental conservation and overall trade relations. Based on experience, most previous research results found that shifts in financial functions and behavior resulted in high financial pressure which resulted in damage to the financial system (Wang et al., 2023; Nawaz et al. 2021; X. Zhou et al., 2020; Borio et al., 2001; De Bonis & Silvestrini, 2014). In line with the high threat of environmental damage caused by various economic sectors in exploiting natural resources resulting in financial instability and slowing economic growth, which in the long term can cause financial risks and serious pressures in financial fluctuations due to macroeconomic behavioral clashes that have an impact on the banking sector business performance.

However, some studies present conflicting results, that the banking sector business will increase financial circulation through the banking intermediary function utilization, marked by increasing income in the industrial sector, especially the medium industry through maximum utilization of natural resources (Caldara et al., 2016; Nedumaran et al., 2020; Sachs et al., 2019; Zioło et al., 2021). The inconsistency in these findings shows that the banking sector business faces various dilemmas in controlling financial activities. On the other hand, banking is required to achieve the main goal of maintaining financial stability and economic growth effectively and efficiently, but the banking sector business is faced with the macroeconomic pressures threat that result in a decline in banking health and are vulnerable to the financial system. This research also introduces other macroeconomic variables such as inflation, interest rate, domestic investment, foreign investment, export, savings, current accounts, deposits, working capital credit, investment credit and consumption credit. The variable selection in this study is based on the classical theory from Adam Smith and banking intermediary theory (Islam et al., 2014; Md. Shafiqul Islam, 2013; Ullah, 2013). In this context, banking business activities are greatly influenced by the movement of macroeconomic variables, and the multiplier effect will affect the banking health level which is vulnerable to financial instability. Meanwhile, the banking sector business is declining when the banking ability to explore finance to the environmentally based industrial sector is inefficient, which can cause environmental damage and the financial system simultaneously. Therefore, to maintain the financial flows balance in the banking sector, green education is needed.

Crucially, the green education crisis threatens the world economy through the banking sector business inability to create economic growth based on intermediary activities (Basmar et al., 2017; Claessens et al., 2011; Schaefer, 2017; Ngo et al., 2021). The high pressure of Non Performing Loans indicates the banking sector inability to distribute credit (Acharya & Steffen, 2020; Horvath & Baxa, 2011; Markard & Rosenbloom, 2020; Ye et al., 2022). Additionally, the reaction to the slow implementation of financial use in the economy, especially towards environmentally oriented industries, has caused financial pressure in developing countries such as Indonesia to become vulnerable to the financial system damage (Zheng et al., 2021; Yanarella et al., 2009; Shen et al., 2018; Iacoviello, 2015; Charles et al., 2018; Wilson, 2015). In other words, the significant financial stress symptoms in developing countries

are more sensitive than in developed countries, because the financial turnover process is faster in developing countries compared to developed countries (Caggiano et al., 2021; Ivanova et al., 2021; Rasoulinezhad & Taghizadeh-Hesary, 2022). As a result, there is a financial flow obstacle due to negative pressure on the finance use from the banking intermediary function (Hamouda, 2021; Dikau & Volz, 2019; Claudio Borio, 2001; Erdem & Tsatsaronis, 2013). On the other hand, the banking business sector tends to cause turmoil in financial pressure, the dilemma faced by banks in maintaining their health level is caused by the achieving pressure their financial profitability. Therefore, the banking sector must be able to distribute finances maximally in the financial market, to cause reactions to macroeconomic variables that have a positive impact on financial flows (Rochon, 2020; Akomea-Frimpong et al., 2022; Christiano et al., 2014; Adam & Padula, 2011; Fattorini et al., 2018). However, long-term negative pressure can result in chronic symptoms of damage, if not controlled by financial institutions it can result in acute financial depression.

The green education crisis identification is due to the business structure experiencing a decline in financial performance, especially because the belief in financial management towards banking activities has changed, especially when the macroeconomic variables pressure increases (H. Park & Kim, 2020; Nowzohour & Stracca, 2020; Hossain, 2020; Khalatur & Dubovych, 2022; Lindenberg & Volz, 2016; Goetz & Gozzi, 2020). Besides that, public awareness in preserving the environment has also experienced a significant decline, the pressure effect has a positive reaction to financial instability. The main factor of behavioral change is due to understanding lack of green financial education on the environment, economy and society. And it is directly proportional to the banking sector business ability in anticipating the impact of climate change. Therefore, seriousness is needed for every financial sector in preventing economic damage.

The declining green education phenomenon has resulted in increased damage to the financial system through the banking intermediary function, and financial stability and economic growth in developing countries are difficult to achieve (Nolan & Thoenissen, 2009; Ajello, 2016; Caruana, 2011; Dikau & Volz, 2021; Cuciniello & di Iasio, 2021; Wolff-Hamacher, 2007). The gap between green education and banking sector performance has a negative impact on financial stability and economic growth, as a key issue in maintaining the relationship between financial and environmental activities. In the financial economics context, green education will encourage the creation of understanding in implementing finance in improving financial stability and economic growth, therefore, the banking sector plays an important role in distributing finance through intermediary functions, and the industrial sector can improve financial performance and maintain environmental sustainability sustainably, and aims to prevent negative financial impacts in both the short and long term.

Lastly, macroeconomic variables are key factors in increasing green education in anticipating damage to the financial system, therefore, by applying appropriate monetary policies, it stimulates banking sector activities in carrying out its intermediary function as a priority in maintaining environmental sustainability. Therefore, the unpredictable changes dynamics in financial behavior must be well controlled, through increasing green education in the banking business sector, in order to increase synchronization for the

economic ecosystem and the environmental ecosystem simultaneously. Then, the study results will provide benefits to all groups, especially the Central Bank, because environmental sustainability belongs to all of us, and financial circulation is a signal in identifying damage to the financial system, therefore this study is specifically to determine and analyze the green education effects on the banking sector business performance.

Consequently, this study forms a new model, which focuses on improving green education in maintaining financial balance through environmental preservation based on the intermediary function of the banking sector business. Thereby contributing to financial stability and economic growth by increasing green education to maintain optimal financial and environmental balance. Thereby contributing to financial stability and economic growth by increasing green education to maintain optimal financial and environmental balance.

METHODOLOGY

Research Design

In Figure 1, this research refers to the relationship between green education and banking sector business, through the pressure contraction from macroeconomic variables that have an effect on financial flows. Green education is measured through various stages, and each stage of measurement will be connected to each other. The study was conducted to measure the green education effectiveness in finding scientific relationships with the banking sector business.

First, knowing and measuring financial pressure in the economy, the financial movements flow measured in a complex manner through internal and external pressures will become one unit, which influences financial movements in the banking sector. The reaction effect needs to be measured accurately, to determine the magnitude pressure of macroeconomic indicators that affect the intermediary's ability to deal with financial flows in the economy.

Second, analyzing changes in financial activity from financial supply and demand that have an impact on banking performance, the banking sector balance shows that financial flows can support the financial stability and banking growth creation through intermediary functions. However, financial flexibility due to the financial pressures turbulence in the first stage affects the bank’s ability to carry out their intermediary functions, therefore, changes in pressure are measured accurately, in order to determine the change level in green education in the banking sector.

Third, measuring the intermediary functions pressure, which affect environmental changes through financial activities. Changes in financial fluctuations influenced by banking performance show the green education effectiveness, therefore the connectivity between increasing financial performance is directly proportional to increasing green education, and provides a positive relationship to increasing financial stability and economic growth.

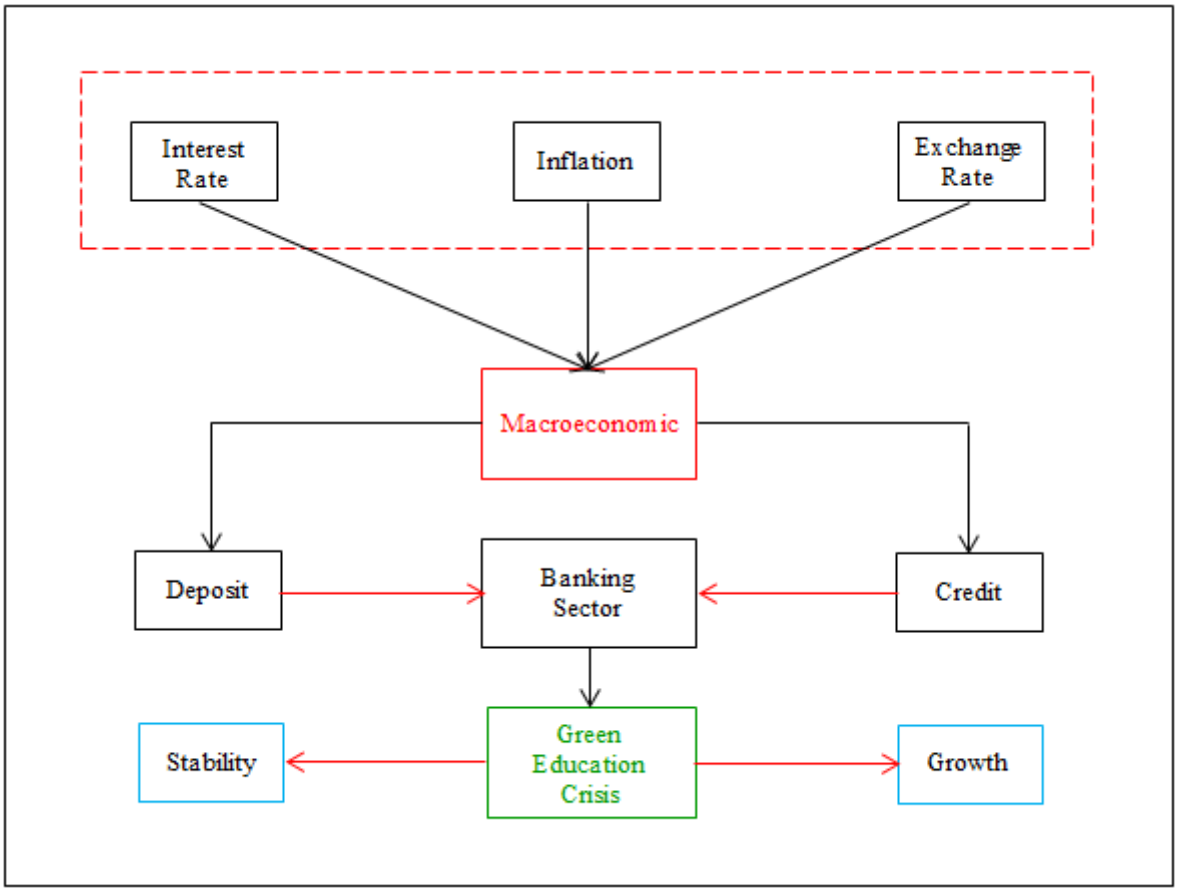

Figure 1. Framework Analysis

The measurement results in the study will show the importance of controlling the green education crisis in maintaining the financial ecosystem and environmental ecosystem. Through this study, it provides a positive influence in determining financial policies in influencing financial stability and economic growth more optimally.

Sample and Data Collection

This research uses secondary data from Bank Indonesia, to measure financial behavior and banking activities through the intermediary function and to determine the financial influence magnitude on financial stability and economic growth.

Based on financial balance theory, this study uses data from 2000 to 2023. In this period there were various economic changes, such as changes in industrial behavior in the millennium era, the effects of the Covid-19 pandemic crisis and economic weakness due to climate change which affected the effectiveness of the banking sector's performance (Drehmann et al., 2012; Irawan, 2018; Datta & Mohajan, 2013; Maslennikov & Larionov, 2020; Masukujjaman & Aktar, 2014).

This study uses several variables in the economy, the analysis process in the first stage is carried out by determining the dominant macroeconomic variables that influence financial stability and economic growth, therefore, the variables of inflation, interest rates and exchange rates become variables that will have a strong effect on financial activities. In the second stage of analysis, the banking activity measurement through the

intermediary functions reaction (deposits and credit) based on macroeconomic financial flows, using savings, current accounts and deposits as the supply of banking finance, while the variables of working capital credit, investment credit and consumer credit are as demand in banking activities. The third stage, the green education measure is carried out by measuring the banking performance ability in maintaining capital growth and banking health levels. From this measurement, changes in financial pressure on financial stability and economic growth can be identified.

Indicators measurement in this study is an important element to know and measure financial behavior, the relationship between performance of one variable and another, and to know the green education implementation in the developing countries economy.

Analyzing of Data

This research refers to the increase in green finance through banking interactions based on financial supply and demand, this intermediary function shows the balance that occurs in the economy as an identification of financial pressure in financial circulation. This research uses the Ed Waves Index development Model (Basmar et al., 2022; Shershneva & Kondyukova, 2020). This model can adopt changes in financial behavior through pressures that affect the of banking intermediary function as a form of measuring financial performance.

This measurement model shows the impact of increasing environmental effectiveness through green education based on the measurement period (Rapi et al., 2021; Nasreen & Anwar, 2019; Hafstead & Smith, 2012; Fathihani et al., 2021; Orellana, 2013; Albulescu et al., 2013). Pressure changes were measured using Eviews Version 9 software, to determine the relationship between variables, both individually and in groups, to show the relationship magnitude between variables that have a direct or indirect relationship.

The final results in this stage indicate a strong relationship between improving the business performance of the banking sector and green education through optimal financial performance management. In addition, the study results provide a comprehensive picture of the environmental sustainability impact in improving financial stability and economic growth.

FINDINGS AND DISCUSSION

Table 1, descriptive statistical analysis shows the relationship between variables used to measure the causes of the green education crisis through behavior that explains the relationship between variables. Based on Figure 1, macroeconomic pressures can affect banking performance, which further shows that the green education crisis affects financial stability and economic growth.

Normally, identification of the variables measurement suitability in Table 1 reveals that all variables show normal behavior, therefore, declared suitable to be continued in further measurements.

Table 1. Descriptive Statistical Analysis

Variable	Mean	Median	Maksimum	Minimum	Sum
Interest Rate	8.167701	7.410000	17.60000	1.690000	710.5900
Exchange Rate	9314.908	9158.000	10348.00	8514.000	810397.0
Inflation	7.127931	7.100000	19.90000	-22.80000	620.1300
Deposit	15165.71	15243.00	16326.00	12218.00	1319417.
Giro	2535.795	14.39600	15756.00	-13.69800	220614.2
Saving	288.1082	110.7700	1720.210	-1877.520	25065.41
Working Capital Credit	34184.39	34384.00	35575.00	32146.00	2974042.
Investment Credit	33022.47	32764.00	34738.00	30765.00	2872955.
Consumption Credit t	31890.21	31549.00	34886.00	28845.00	2774448.
Non Performing Loan	4.160345	2.670000	37.83000	-5.130000	361.9500
Minimum Reserve Requirement	8407.885	8125.000	16005.00	4192.000	731486.0
Stability	2,169655	0.770000	17.80000	-5.130000	188.7600
Growth	9.910345	9.000000	18.30000	5.300000	862.2000

Source: Eviews 9 Processing Results

Next, measure the relationship magnitude between variables using the measurement standard using statistical tests based on parametric approach values ($P_{hit} > P_{lab}$).

The research findings are presented in Table 2, explaining that *first*, all macroeconomic variables provide significant positive pressure on banking sector activities, with their respective values, including interest rate p-value 0.0003, exchange rate p-value 0.0296 and inflation p-value 0.0000. *Second*, the pressure absorption from the banking intermediary function for deposits mostly does not show a significant relationship to green education, including deposits with a p-value of 0.9951 and demand deposits with a p-value of 0.4762, but savings have a significant positive relationship to the green education crisis with a p-value of 0.0000. *Third*, the pressure absorption from the banking intermediary function for credit, including working capital credit with a p-value of 0.0183 and investment credit with a p-value of 0.0158, has a strong significant positive relationship to the green education crisis, while consumption credit with a p-value of 0.3327 does not have a significant effect on the green education crisis. *Fourth*, the pressure effect on the financial performance of the credit sector shows a strong reaction to the occurrence of Non Performing Loans to the green education crisis significantly with a p-value of 0.0000. *Fifth*, the financial performance pressure effect from the savings function does not show a reaction to the increase in minimum reserve requirements to the green education crisis with a p-value of 0.5603. *Sixth*, the financial stability value is greatly influenced by the green education crisis pressure which is significantly positive with a p-value of 0.0002. *Seventh*, the economic growth value is greatly influenced by the green education crisis pressure, which is significantly positive with a p-value of 0.0000.

Table 2. Regression Model Analysis
Dependent Variable: GREENEDU
Method: Least Squares
Date: 12/17/24 Time: 13:32
Sample (adjusted): 2000Q1 2023Q1
Included observations: 87 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-697554.1	379372.0	-1.838707	0.0700
Interest Rate	88.66820	881.1736	0.100625	0.0005
Exchange Rate	17.95319	15.53066	1.155984	0.0296
Inflation	567.4908	380.5608	1.491196	0.0000
Deposito	0.049442	8.056392	0.006137	0.9951
Giro	1.184827	1.654668	0.716051	0.4762
Saving	37.51693	7.471001	5.021674	0.0000
Work Capital Credit	9.781938	7.512507	1.302087	0.0183
Investation Credit	4.785897	9.659188	0.495476	0.0158
Consumtion Credit	1.871448	1.919233	0.975102	0.3327
Non Performing Loan	829.6416	777.0756	1.067646	0.0000
Minimum Reserve Requirement	-2.177939	3.722678	-0.585046	0.5603
Stability	3.106560	352.1638	0.008821	0.0002
Growth	564.2698	845.6037	0.667298	0.0000
R-squared	0.817748	Mean dependent var		31861.91
Adjusted R-squared	0.785292	S.D. dependent var		34250.62
S.E. of regression	15870.57	Akaike info criterion		22.32871
Sum squared resid	1.84E+10	Schwarz criterion		22.72552
Log likelihood	-957.2989	Hannan-Quinn criter.		22.48849
F-statistic	25.19570	Durbin-Watson stat		1.442540
Prob (F-statistic)	0.000000			

Source: Data Processed

In general, the research findings based on Figure 1 and Table 2 describe that changes in macroeconomic behavior affect the banking intermediary function through credit activities. The credit provision in the banking sector has resulted in high Non Performing Loans, which indicates a green education crisis and a contraction in financial stability and economic growth.

Discussion

The study results on banking deposit business activities towards the green education crisis answered the problem gap from previous studies, the significance of macroeconomic behavior towards the green education crisis through the banking intermediary function is valid, this finding is in line with the literature review and consistent with previous studies (Mir & Bhat, 2022; Shakil et al., 2014; Sahinoz & Erdogan Cosar, 2018; Kilinc & Tunc, 2019; Harun Ur Rashid & Uddin, 2018; Rakić & Mitić, 2012; Liu et al., 2011). The intermediary function of the banking sector business is the main basis for preventing the

green education crisis, the significant effect in the intermediary function, especially from the credit granting process, causes an increase in financial flows.

The research results demonstrate that industrial sector credit has a performance towards environmental preservation which has a positive impact on financial stability and economic growth. Overall, the research findings contribute to the banking sector business in increasing profitability through tight control on the credit granting process, and can also improve the environmental ecosystem in preventing the risk of climate change that damages the financial system as a whole. Therefore, providing credit to the industrial sector appropriately and having a commitment to improving the environment will prevent an increase in the green education crisis risk. Based on the research findings, the green education crisis risk can be prevented by implementing policies in carrying out intermediary functions. One of them is by increasing the credit distribution percentage in the industrial sector that concentrates on optimal environmental preservation.

Although, in optimizing the banking intermediary function, especially in providing credit, it must be done carefully, to optimally prevent the Non Performing Loans risk, confirming previous study results (C. Chen et al., 2021; Jermann & Quadrini, 2012; Loayza & Pennings, 2020; Volz, 2018; M. Chen et al., 2023; Dörry & Schulz, 2018; Evgenidis & Malliaris, 2022). Interestingly, the banking credit distribution factor causes the green finance crisis to increase, where banking credit distribution increases financial circulation and has an impact on financial stability and economic growth, but this study indicates that the banking credit distribution proportion is not optimal for the industrial sector that is oriented towards increasing environmental sustainability. Previous findings stated that banking performance experienced a decline in the intermediary function, due to macroeconomic pressures, thus affecting banking profitability. Most of the bank credit provision in all sectors experienced constraints on its repayment, resulting in high Non Performing Loans (Schüler et al. 2021; Pisani-Ferry & Ramos, 2011; Gilchrist & Zakrajšek, 2012; Shleifer & Vishny, 2019; Taghizadeh-Hesary & Yoshino, 2020; J. Chen et al., 2022).

Considering these findings, it indicates that the green education crisis is important to maintain banking's ability to increase profitability, despite pressure and changes in macroeconomic behavior. Not only that, concrete evidence of macroeconomic pressure shows a high level of sensitivity of banking functions in responding to changing economic behavior. Furthermore, this pressure resulted in financial stability and economic growth also experiencing a decline. The intriguing finding from this research suggests that in preventing the green education crisis in the banking business sector, the intermediary function must be balanced, to provide a positive reaction to financial circulation, not only that, the banking sensitivity level must also be maintained, by increasing banking capabilities in distributing credit to industrial sectors that are oriented towards good environmental utilization. Therefore, the study findings provide insights to various groups comprehensively in determining policies regarding the green education crisis, both in terms of economy and environment, therefore this policy collaboration can create a better financial ecosystem.

Additionally, this research is important to be conducted by elaborating the financial and environmental ecosystem in preventing the green education crisis in the banking sector, through the continuity of credit distribution policies in the industrial sector that

are oriented towards environmental sustainability, therefore the intermediary function becomes effective in anticipating macroeconomic pressures, thereby increasing the banking sector's performance sensitivity. Furthermore, synchronization in the financial and natural environment sectors will have positive synergy in reducing the green education crisis, in addition, it will encourage the creation of harmony between financial stability and sustainable economic growth.

CONCLUSION

This study focuses on the green education crisis impact on the banking sector business, the findings reveal that changes in the macroeconomic variables behavior will be positively respected by the banking intermediary function. The response occurs through financial circulation in the intermediary function, and a strong relationship in increasing financial flows in the industrial sector. However, this attachment shows that the negative pressure of macroeconomic variables affects banking on the credit balance in the industrial sector based on environmental sustainability, this results in declining banking profitability, when there is pressure on macroeconomic variables internally and externally. Furthermore, the risks magnitude that arise results in banks needing to maintain and control credit circulation for optimal financial balance, and the Non Performing Loans magnitude can be reduced. Not only that, the effectiveness of policies set by Bank Indonesia and the banking sector, need to be implemented as efficiently as possible, and obstacles to financial flows can be anticipated well, which will also indirectly increase financial stability and sustainable economic growth.

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