






## Covid-19 Pandemic and the Banking Risk Mitigation: A Lesson from the Indonesian Credit Restructuring Policy

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### ABSTRACT

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Countercyclical economic policy has recently been highly demanded to mitigate the risk of the COVID-19 pandemic, such as the credit restructuring in the banking sector. The policy is necessary, considering that the banking credit risk continues to rise due to increasing loan repayment default of debtors affected by the pandemic. The increasing credit risk in the banking sector could elevate the economic condition to a high level of systemic risk. Therefore, this study aims to analyze the impact of the credit restructuring policy from the Indonesian government on the systemic risk from the banks' exposure. We use the Marginal Expected Shortfall (MES) estimation to measure banking systemic risk along with the amount of credit restructuring, loan, asset, and other influential variables. The results revealed that only banks with big assets benefit from the credit-restructuring program because their risk values decrease coincide with the rise of their credit-restructuring amount. However, the benefit is invisible from the banks with small and medium amounts of assets. However, the overall credit restructuring policy succeeded in reducing banking systemic risk during the COVID-19 pandemic. The policy permits the debtors to postpone their maturing credits so that the banking NPL level is still within a reasonable limit. The government response to the COVID-19 pandemic varies from one country to another, while the credit restructuring policy from the Indonesian government is highly rated for the research investigation. The policy should be a global concept for banking risk mitigation during this unprecedented pandemic.

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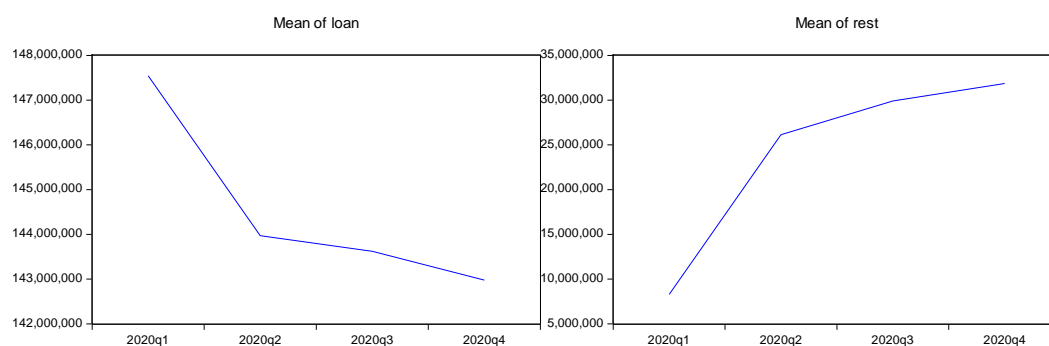
## 1. Introduction

On 31 December 2019, Wuhan confirmed the first pneumonia symptoms and become the beginning of the Covid-19 virus. Then, on 11 of March 2020, the

World Health Organization (WHO) declared the Covid-19 virus as a Global pandemic (Zhang et al., 2020). In July 2021, more than 182 million cases and 3,9 million deaths had been found due to the Covid-19 virus in all over the world. While in Indonesia, the first confirmed cases of Covid-19 virus were on March 2, 2020 and the number continues to increase every day. However, Indonesian people are still struggling against the second wave of the virus spread that becomes the largest of Covid-19 cases in South-East Asia.

In response to the pandemic, the government urges the lockdown policy to mitigate the spread of the virus. Consequently, the pandemic not only become a health issue but also an economic problem. Economic activities are limited, mass unemployment and business failure are undeniable (Zhang et al., 2020). Business failures and decreased revenues have resulted in many companies having trouble in repaying loans. This will have an impact on the banking sector. Banks also experienced a decrease in income from financing activities (Kutlukaya and Yee, 2020; Zamil, 2020).

The Indonesian government through the financial service authority (OJK) set the policy package to boost the economy and business growth. Credit relaxation or credit restructuring is applied to relieve the entrepreneurs and debtors to pay the settlement to the banks. Figure 1 showed that during the pandemic, the average loan of Indonesian banks given to the debtors decreases sharply while the credit-restructuring amount increases significantly as the consequence of the pandemic hit and its policy packages. The policy permits the debtors affected by the pandemic who may become difficult in loan repayment to postpone their maturing credits. The bank then should allocate more resources for credit restructuring to help their impacted debtors. Otherwise, the banks will also be hard to find new debtors, as so many people are in difficult situation to keep their business grows because of the decrease in public demand.



**Figure 1.** Average Loan and Credit Restructuring Amount of Indonesian Banks

**Source:** Research finding.

Balgova et al. (2016) said that lending policies are often 'relaxed' during economic booms and tightened as cycles change. These new rules were made to avoid the impact of the economic downturn on the volume and quality of credit (Kutlukaya and Yee, 2020). Through a credit restructuring policy, companies can focus on sustaining business due to the massive decline of their performance during the Covid-19 pandemic.

Credit restructuring policy allows banks to hold a non-performing loan in several periods later (World Bank, 2020). Nevertheless, the banking sector is suffered due to credit restructuring, and at the same time restructuring increases bank risk (Iwanicz-Drozdowska et al., 2016; Kutlukaya and Yee, 2020; Iwanicz-Drozdowska et al., 2016). Negurita and Ionescu (2017) stated that credit restructuring influences the stability of the banks and raise the systemic risk. While Mostak Ahamed and Mallick (2017) argued that restructured assets influenced bank risk negatively. At the same time, banking sector stocks crush in to respond to the government policy and global pandemic issue (Baker et al., 2020).

The aim of this study to analyse the major issues during Covid-19 the global pandemic. We examine the impact of credit restructuring as government policy and other influential variables on the systemic risk from the banks' exposure. Hence, the marginal expected shortfall (MES) is used to identify the bank systemic risk. Idier et al. (2014) stated that the marginal expected shortfall (MES) is the best systemic risk identifier at the time of crisis. A myriad of the previous study has been conducted related to a marginal expected shortfall on financial crisis event (Acharya and Steffen, 2013; Huang et al., 2012), bank net interest margin (Brunnermeier et al., 2020), financial institutions performance (Lin et al., 2018), and financial fragility (Lee et al., 2013). In contrast, examining bank systemic risk during the Covid-19 global pandemic is limited. Moreover, since the stock market responds to any event and government policy including the global pandemic of Covid-19, its critical to capture deeply the influence of credit restructuring as government policy on bank systemic risk.

We divided the paper into the following sections: section one is the introduction, section two is the literature review, section three is the data and methodology, section four is the results and analysis, and followed by the concluding remarks and recommendations.

## **2. Literature Review**

### **2.1 Marginal Expected Shortfall: Systemic Risk Indicator from Banks' Exposure**

Financial system stability is highly depend on systemic risk (Battaglia and Gallo, 2013; Bats and Houben, 2020). BIS, FSB, & IMF (2009) define systemic risk as disruption to the flow of financial services caused by a decline in the value of the entire or part of the financial system and potentially causing serious negative

consequences for the real economy. Systemic risk is a risk that can affect the stability of the financial system as a whole (Derbali and Hallara, 2015). This 'systemic' view includes not only the banking system at the national level but also at the international level as the global banking sector is increasingly integrated (Huang et al., 2012).

Historical evidence shows that banking health is very important for financial sector stability and economic growth (Huang et al., 2012; Tarchouna, 2019). Banks as financial intermediaries (Huang et al., 2012; Makri, 2014; Brunnermeier et al., 2020) can influence systemic risk because 1- banks are highly leveraged; 2- banks are vulnerable to liquidity and interest rate shocks, especially if there is a large mismatch between assets and liabilities; 3- banks trade with each other through markets, intermediaries, and also payment and settlement systems; 4- banks are systemic because they have services that are important to the real economy and are not substitutes (Bats and Houben, 2020). Research on market monitoring and risk evaluation is needed in times of crisis (Caporin and Magistris, 2012) especially during the current Covid-19 pandemic.

The most common measure of risk used by financial institutions is valued at risk (VaR). However, research has recently begun to limit the use of VaR because it fails to determine potential losses, especially in times of financial crisis (Battaglia and Gallo, 2013). Therefore, this study uses MES as a measure of systemic risk. Idier et al. (2014) suggest that MES is a good predictor of the total decline in equity valuation that firms experienced during the crisis. Kleinow et al. (2017) in their study tested four methods for measuring systemic risk and found that MES most accurately describes the timeline of the global financial crisis by producing consistently high estimates of systemic risk.

Caporin and Magistris (2012) explain that MES comes from the concept of Expected Shortfall (ES). MES is a method used to measure systemic risk which can predict capital losses to banks when the market is falling (Acharya et al., 2017). Cai et al. (2015) state that the purpose of measuring systemic risk for financial institutions is to determine the institution's contribution to the systemic crisis. The MES value of a financial institution is defined as the expected loss of equity per dollar invested in that institution if the market as a whole is in a downturn (Idier et al., 2014).

Previous research tested the determinants of MES using various variables (Qin and Zhu, 2014). Weiss et al. (2014); Jonghe et al. (2015); Bostandzic and Weiss (2018); Brunnermeier et al. (2020); Saunders et al. (2020) examined the effect of non-interest income on total systemic risk using MES. Idier et al. (2014) tested the correlation between Non-Performing Loans (NPL) and profitability against MES. Yun and Moon (2014) examined the relationship between bank characteristics (size and leverage ratio) and MES. Several previous studies conducted by Huang

et al. (2011); Lee et al. (2013); Idier et al. (2014); Derbali and Hallara (2015); Acharya et al. (2017); Song et al. (2017) also measured systemic risk during the crisis in 2007-2008 using MES. Based on previous research, the research focus is on using the MES to measure systemic risk in times of crisis. Also, most studies focus on determinants of systemic risk for banks in developed countries (López-Espinosa et al., 2012; Qin and Zhu, 2014). Therefore, this study analyzes the determinants of MES in developing countries facing crisis threats.

The financial institutions with the highest systemic risk are those that make the biggest contribution to the crisis (Derbali and Hallara, 2016). Lin et al. (2018) stated that the systemic risk measure is a good alternative tool for monitoring early warning signals of the threat of a crisis in the real economy. The results of research conducted by Idier et al. (2014) show that the information conveyed by MES is consistent with characteristics that are intuitively seen as a source of bank vulnerability. This provides important information for banks and regulators to make the right decisions or policies to avoid a worsening crisis and maintain financial system stability.

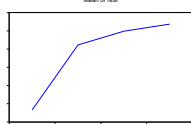
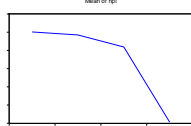
## **2.2 Credit Restructuring: A Policy to Consider during Covid-19 Pandemic**

The crisis due to the Covid-19 pandemic has a major impact on banks (Kutlukaya and Yee, 2020; Zamil, 2020). The crisis decreases the ability of customers to pay their loans (Negurita and Ionescu, 2017). As a result, banks experience the threat of a significant increase in bad debts (Lee, 2007; Ari et al., 2020). As an anticipatory step, regulators make policies to reduce the negative impact of the crisis (Gelpern, 2000). In Indonesia, Bank Indonesia and OJK carried out policy stimulus to support banks by issuing POJK No. 11/POJK.03/2020 then followed by POJK No. 48/POJK.03/2020 concerning the stimulus of the national economy as a countercyclical policy on the impact of the spread of COVID-2019. Based on this policy, banks can conduct credit restructuring to reduce the high number of bad debts. Restructuring can be done by delaying payments, lowering interest rates, and others (World Bank, 2020). The positive impact for banks is that they can avoid a significant increase in the NPLs.

Balgova et al. (2016) suggest that lending standards/policies are often 'relaxed' during economic booms and tightened as cycles change. The new rules were made to avoid the impact of the economic downturn on the volume and quality of credit. Therefore, regulators need to identify the factors that affect credit risk and its impact to maintain stability (Chaibi and Ftiti, 2015). In Indonesia, after BI and OJK issued a credit relaxation policy, banks experienced a significant increase in credit restructuring. Table 1 indicates that the increase could reach for up to 1000%. The purpose of restructuring credit is to reduce the increase in NPL (Negurita and Ionescu, 2017). Table 1 shows that NPL value is still within

reasonable limits. This means that the policy objectives are achieved in the short term.

**Table 1.** Credit Restructuring and the Banking NPL during Covid-19 Pandemic

Average value of	2020	Value	
Credit Restructuring	Q1	IDR 8.29 T	
	Q2	IDR 26.1 T	
	Q3	IDR 29.9 T	
	Q4	IDR 31.9 T	
Non-Performing Loan	Q1	3.50	
	Q2	3.48	
	Q3	3.42	
	Q4	3.01	

**Source:** OJK (2021).

Table 1 shows that the average value of credit restructuring continues to increase while the NPL indicates the opposite. During the pandemic, almost all Indonesian banks increase the amount of credit restructuring. This decision refers to government policy. However, each bank has its rule for accepting or rejecting customer request for credit restructuring, so that the amount of the credit restructuring varies among banks. The significant increase is influenced by the ability of customers to pay loans in the current state of the Covid-19 pandemic. This is reflected in the loan portfolio made by the bank. The loan portfolio consists of a combination of loans that have been given by banks to borrowers for repayment (Scott, 2003). Makri (2014) stated that the business cycle significantly affects the quality of the loan portfolio. Lachowski (1995) suggested that the amount of bad credit depends on the loan portfolio. Several sectors are experiencing potential loss due to the Covid-19 pandemic. Banks with loan portfolios in sectors that experience potential loss will conduct higher credit restructuring. This is because of the impact of Covid-19, most customers experience a decline in financial performance so that they are unable to make installment payments (World Bank, 2020).

The credit restructuring policy in Indonesia is valid for one year at the first step, but then extended for two years due the current situation. It is necessary to analyze the effectiveness of these policies and their impacts in the long term. The high amount of credit restructuring could threatens bank stability (Negurita and Ionescu, 2017) which is reflected in the increase in systemic risk. Banks with a higher probability of default can increase systemic risk (Bats and Houben, 2020). Banks with high systemic risk indicate that the bank is in a condition of lack of capital (Derbali and Hallara, 2016). For financial institutions to survive the crisis, the government needs to provide massive assistance, in the form of new capital in

financial markets (Derbali and Hallara, 2016). This step is necessary if the Covid-19 pandemic lasts for a long time.

Previous research related to credit restructuring is still limited. Angelo et al. (2019) analyze the factors that cause banks to restructure. (Negurita and Ionescu, 2017) and (Didier et al., 2020) analyze the impact of credit restructuring on the global economy and banking system. Ari et al. (2020) and (Kutlukaya and Yee, 2020) analyzed the impact of Covid-19 on NPLs. But these studies do not measure systemic risk. Even though, system stability is highly dependent on systemic risk (Battaglia and Gallo, 2013; Bats and Houben, 2020).

The systemic risk from the banks' exposure reflects its default risk of each bank (Huang et al., 2012). The higher the increase in credit restructuring carried out by the bank, the lower the risk of default, thus lowering the systemic risk. Therefore, it is very important to further understand the credit risk to maintain financial stability (Chaibi and Ftiti, 2015). Banks with a lower default of risk can reduce systemic risk (Bats and Houben, 2020). In addition, Idier et al. (2014) found that banks with a higher portion of bad debts and provide more loans for the corporations have a higher average in MES. Therefore, this study analyzes the impact of credit restructuring on systemic risk as reflected in the MES value.

### **2.3 Banks' Characteristic for Controlling Influential Variable**

Bank characteristics indicate the soundness of the bank. Murthy (2004) and Andesfa and Masdupi (2019) suggest bank characteristics in the form of information regarding assets, total loans, Non-Performing Loans (NPL), Capital Adequacy Ratio (CAR), Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM), and Loan to Deposit Ratio (LDR). These financial ratios are an acceptable tool for analyzing bank performance over time (Stanko & Zeller, 1994). Makri (2014) and Rehman (2017) state that high NPLs can affect bank liquidity and profitability, thereby disrupting banking financial stability. Likewise with CAR, ROA and LDR, the higher the CAR, ROA, and LDR the better the financial condition of the banking sector (Gunadi et al., 2013; Rengasamy, 2014; Riadi, 2018; Andesfa and Masdupi, 2019). On the other hand, high NIM can reduce banking performance (Asmar, 2018).

Duho et al. (2019) stated that the financial crisis originated mainly from banking sector activities. This financial crisis can also affect banking financial ratios (Yeşilova, 2019). As a result of Covid-19, banks face threats of liquidity and profitability. Failure in these financial ratios can encourage systemic risk. Chaibi and Ftiti (2015) suggest that it is important to control the factors that affect the risk to maintain financial stability. Financial ratio analysis provides an overview of the state of the company and can be used as a predictor tool for companies in the future (Andesfa and Masdupi, 2019). Therefore, this study analyzes these financial ratios

to see their impact on banking risk as a variable control along with the amount of credit restructuring, loan, and asset.

### 3. Data And Methodology

This study uses a fixed effect model of panel data regression analysis to examine the impact of credit restructuring policies on banking systemic risk during the Covid-19 pandemic. We employ short-period data to focus on capturing symptoms of banking systemic risk during the Covid-19 pandemic.

The dependent variable in this study is banking systemic risk. Systemic risk was measured using the MES. MES is used as a method to measure systemic risk because MES is a good predictor of the total decline in equity valuation that firms experienced during the crisis (Idier et al., 2014). Kleinow et al. (2017) in their study also tested four methods for measuring systemic risk and found that MES most accurately describes the timeline of the global financial crisis by producing consistently high estimates of systemic risk. The independent variables in this study are the ratio of credit restructuring to total credit, assets, and bank financial ratios such as Non-Performing Loans (NPL), Capital Adequacy Ratio (CAR), Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM), and Loan to Deposit Ratio (LDR). We used 30 Indonesian banks listed on the IDX from 2020Q1 to 2020Q4. The short time of the data is intentionally applied in order to capture the banking systemic risk that lasts at the period of Covid-19.

The calculation of banking systemic risk is measured using the marginal expected shortfall (MES) approach formulated by Acharya (2009) and Acharya et al. (2017). The marginal expected shortfall is the average loss of a bank's stock when it experiences a market failure that is worse than VaR (Value at Risk), which is at the 5% level. The calculation of the MES model is as follows:

$$MES_{5\%}^i = -E \left[ \frac{w_1^i}{w_0^i} - 1 \mid I_{5\%} \right] \quad (1)$$

Where  $I_{5\%}$  is five percent of the days where the stock returns fail the worst. Meanwhile, Value at Risk (VaR) is the value of the  $n$  stock return on  $I_{5\%}$ . Hence, the present paper also tests the impact of credit restructuring as government policy on bank systemic risk. We calculate credit restructuring in the equation below:

$$\text{credit restructuring} = \frac{\text{total restructured credit}}{\text{total credit}} \quad (2)$$

Thus, every single bank has a different amount of restructured credit; therefore, we divide the total of restructured credit to total credit in the equation (Eq.2), to capture the percentage of restructured credit. Furthermore, this study also includes the bank's individual characteristics such as total assets, non-performing loan, return on asset, return on equity, net interest margin and, loan to deposit ratios on bank systemic risk using into the regression model. The following model:



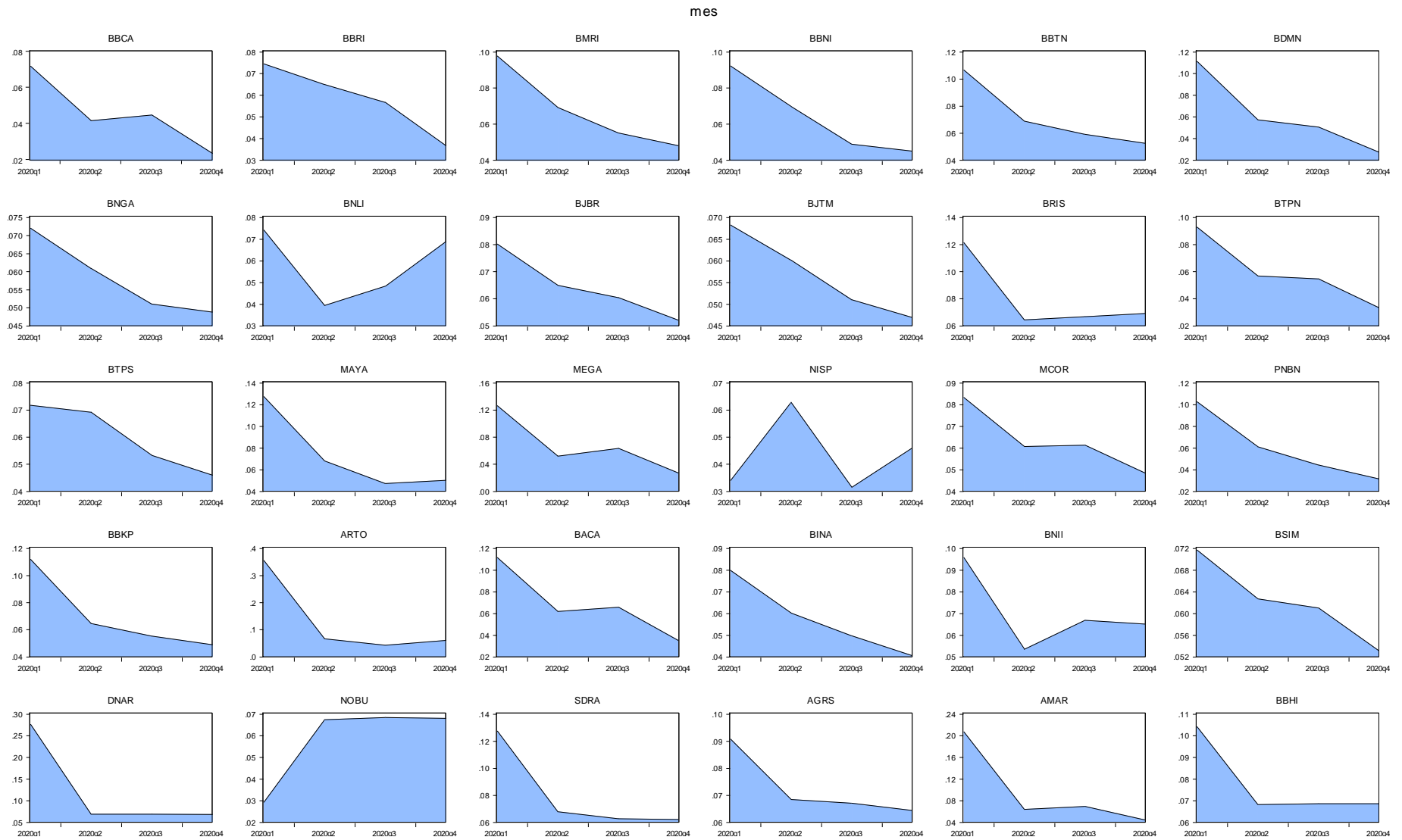
$$MES_{it} = \alpha + \beta_1 RESTLO_{it} + \beta_2 ASSET_{it} + \beta_3 NPL_{it} + \beta_4 CAR_{it} + \beta_5 ROA_{it} + \beta_6 ROE_{it} + \beta_7 NIM_{it} + \beta_8 LDR_{it} + e_{it} \quad (3)$$

where:

<i>MES</i>	: Marginal Expected Shortfall		
<i>RESTLO</i>	: Credit Restructuring / Loan	<i>ROE</i>	: Return on Equity
<i>ASSET</i>	: Total Bank Asset	<i>NIM</i>	: Net Interest Margin
<i>NPL</i>	: Non-Performing Loan	<i>LDR</i>	: Loan to Deposit Ratio
<i>ROA</i>	: Return on Asset	<i>e<sub>it</sub></i>	: Error Term

#### 4. Result and Analysis

Government fast response to mitigate the spread of the virus is undelayable during Covid-19 pandemic. Proper calculation is also needed to better choose between public health risk mitigation and economic recession avoidance. In Indonesia, Bank Indonesia and OJK had issued a stimulus policy to support banks with the POJK No. 11/POJK.03/2020 then followed by the POJK No. 48/POJK.03/2020. The policy highlights the economic stimulus as a countercyclical policy on the economic impact of the spread of the virus. Based on this policy, banks can conduct credit restructuring to reduce the high number of bad debts. The policy is necessary, considering that the banking credit risk continues to rise due to increasing loan repayment default of debtors affected by the pandemic. The increasing credit risk in the banking sector however could elevate the economic condition into a high level of systemic risk. Therefore, the purpose of this study is to analyze the impact of credit restructuring policy toward the systemic risk from the banks' exposure. We use the Marginal Expected Shortfall (MES) estimation to measure banking systemic risk along with the amount of credit restructuring, loan, asset, and other influential variables. Figure 2 indicates how the MES value from 30 Indonesian banks are mostly decreasing during the credit restructuring policy implementation.



**Figure 2. MES Values during the Credit Restructuring Policy Implementation**  
**Source:** Research finding.

The decreasing value of MES descriptively shows that credit restructuring policy implementation from the government has influential impact on the systemic risk from the banks' exposure during the Covid-19 pandemic. We use this estimation because of MES is a good predictor of the total decline in equity valuation during the crisis as suggested by Idier et al. (2014) instead of VaR that Battaglia and Gallo, (2013) consider a failure to determine potential losses. The lower MES value of the firm at a certain period indicates the lower risk of its firm. When we use the average return indicator, it is also generally described that the average return is decreasing quarter by quarter. This condition indicates that the stock return moves less volatile rather than the previous quarter. We suggest that investors did not consider Covid-19 cases as bad sentiment on the stock market of the banking sector but consider more about the government policy package that boosts the economy. For the heterogeneity analysis, we then divided 30 Indonesian banks into Small, Medium, and Big (SMB) regarding their assets position during the pandemic. The proportion for each divisor is 30%, 40% and 30% respectively. Table 2 shows the panel regression results for each part of the banks.

**Table 2.** Panel Regression Results

Banks Asset Classification	100-All		30-Big		40-Medium		30-Small	
	Fixed Effect Model		Fixed Effect Model		Random Effect Model		Fixed Effect Model	
	Coeff	Prob	Coeff	Prob	Coeff	Prob	Coeff	Prob
C	3.008524	0.0003	2.589794	0.1377	0.170391	0.1064	3.959469	0.0259
RESTLO	-0.001344	***0.0011	-0.002103	***0.0003	-0.000179	0.6724	-0.001986	*0.0796
LOG(ASSET)	-0.159792	***0.0005	-0.126914	0.1493	-0.005693	0.3467	-0.234602	**0.0400
CAR	-0.000401	0.3306	0.002912	***0.0443	-0.001253	0.1772	-0.000548	0.4935
NPL	0.000967	0.8119	-0.011605	0.1130	0.003786	0.1915	-0.009183	0.3434
ROA	0.001296	0.8502	0.033871	**0.0150	0.008531	0.4350	-0.004657	0.7962
ROE	0.000372	0.7583	-0.006020	**0.0336	0.000121	0.9305	0.000722	0.8485
NIM	0.001778	0.2505	-0.002128	0.8182	-0.002168	0.3612	0.001876	0.5421
LDR	-0.000599	**0.0181	3.13E-05	0.9268	0.000145	0.3444	-0.001558	*0.0601
R-squared		0.507789		0.815237		0.200587		0.608223
Adjusted R2		0.282952		0.672465		0.032289		0.240932

**Source:** Research finding.

**Notes:** \*\*\*, \*\*, \* indicates 1%, 5%, and 10% significant level.

The results revealed that the only bank with the big asset is beneficial from the credit-restructuring program because their risk values decrease coincide with the raise of their credit-restructuring amount. The probability value of credit restructuring variable is 0.0003 and the coefficient is -0.002103 from the bank with big asset. The value indicates that credit-restructuring program has a negative and significant impact on the banking systemic risk. For every unit increase in the ratio of credit-restructuring to total loan will lessen for up to 0.2 percent of MES value. Other variable such CAR and RoA has a positive and significant impact on the banking systemic risk while the return on equity has the opposite direction. The benefit is invisible from the banks with small and medium amount of asset. We use five percent significant level and find that credit-restructuring program that has been issued by the government fails to influence banking systemic risk during Covid-19 pandemic. The probability values of credit restructuring variable from the bank with small and medium asset are sequentially 0.00796 and 0.6724 above the significant level.

However, the overall analysis from all Indonesian bank included Big, Medium and Small asset found that credit-restructuring policy succeeded in reducing banking systemic risk during the Covid-19 pandemic. The probability value of credit restructuring variable is 0.0011 and the coefficient is -0.001344 from all banks included in this study. The value indicates that credit-restructuring program has a negative and significant impact on the banking systemic risk. For every unit increase in the ratio of credit-restructuring to total loan will lessen for up to 0.1 percent of MES value.

This result is in line with Ahamed and Mallick (2017) who stated that credit restructuring could reduce the systemic risk of the banks. Credit restructuring program allows the bank to hold non-performing loans longer during the crisis. But, holding longer non-performing loans could also in the other hand increase the non-performing asset in the future and then followed by the raise of the systemic risk of the bank (Iwanicz-Drozowska et al., 2016). Although restructured loan not necessarily categorizes as non-performing, a bank shifts the performing exposure (Kutlukaya and Yee, 2020). However, unlike the previous type of crisis, today's faced crisis does not belong to the fragility of financial intermediaries or the moral hazard of financial behavior. instead of the Covid-19 virus, the shock is originated by the nature of the virus (Didier et al., 2020). The economic meltdown, the business failure, and the rise of the non-performing asset of the banks are the consequences of the lockdown policy in several countries including Indonesia (Zhang et al., 2020).

Moreover, Zoller (2020) suggested that government needs to focus on policy package in short-term and medium to long-term initiatives to recover from the

crisis such as helping entrepreneurs with several challenges on operational, financial guidance, and insolvency restructuring. Although, firms need to "hibernate" themselves or using their minimum availability of cash to cover their operational and maintenance to withstand the lockdown and social distancing policy (Didier et al., 2020). In our notion, credit-restructuring policy for entrepreneurs is fit to the condition during the Covid-19 outbreak. It such a breathing space for entrepreneurs to sustain during the pandemic. Even though, the credit restructuring policy faces the trade-off between sustaining the business and increasing bank systemic risk. Furthermore, the issues raised in the mid of the Indonesian society that credit restructuring policy will be continued until the year 2022. This could attract serious attention among researchers and academicians. The Indonesian government should be prudent to make policy to boost the economy during the pandemic. As the result of this paper, credit restructuring could reduce the bank's systemic risk in the short-term period. However, in the long term period, it seems to have a higher risk (Iwanicz-Drozowska et al., 2016). In addition, it is only the loan to deposit ratio that has significant negative influence on the banking systemic risk. The finding indicates that the bank needs to maintain its loan and the deposit to be more selective to choose proper debtor. However, the bank's specific character informs the soundness of the banks, our study finds that capital adequacy ratio, return on asset, return on equity, net interest margin, and non-performing loan have insignificant impact on the banking systemic risk during the Covid-19 pandemic. Bank's financial ratios however are shocked during the financial turbulence (Yeşilova, 2019). The failure of the bank's financial ratios could encourage systemic risk. Therefore, government and policymakers need to consider the soundness of the banks regarding maintaining stability and reduce bank systemic risk (Chaibi and Ftiti, 2015). The government response on the Covid 19 pandemic varies from one country to another, while the credit restructuring policy from Indonesian government is highly rated for the research investigation. The policy should be a global concept for the banking risk mitigation during this unprecedented pandemic.

## **5. Conclusion**

Our study analyzes the impact of credit restructuring policy on the banking systemic risk during Covid-19 pandemic. The results indicates that the credit relaxation policy, which was implemented in March 2020 and still being continued until 2022, is very effective in reducing the systemic risk from the banks' exposure. Nevertheless, with the heterogeneity analysis the policy effectiveness is only found on the bank with big amount of asset, while on the bank with medium and small asset the policy is ineffective. Through credit restructuring, banks could postpone

their maturing loans of the debtors so that the NPL level is still within a reasonable limit. This policy can maintain bank health; especially in the short term because of the credit-restructuring facilitates debtors to postpone payments only for a certain period. It may show the different influences if we use long-term period analysis. Covid-19 has yet to show signs of ending. Therefore, regulators must anticipate long-term risks due to this pandemic, especially for banks to maintain financial system stability. Regulators can consider several policies. Clear references are related to credit restructuring is necessary due to each bank does not have the same reference for easing credit terms. Hence, regulators should consider the credit restructuring policy in long-term period regardless of it could enhance the systemic risk.

Apart from systemic risks, this research provides several contributions. Practically, the results of this study can serve as an evaluation for regulators regarding the impact of credit restructuring policies on banking health. Methodologically, this study uses the MES method to measure systemic risk to show a more accurate risk so that these results show information that is more precise. However, this study also has a limitation. The data used in this study are limited to only four quarters, even though the credit restructuring policy is valid for two years. Therefore, this study should be followed by other researcher to analyze the impact of credit restructuring in the long-term period.

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