

**THE EFFECTIVENESS OF MACROPRUDENTIAL POLICIES IN  
MITIGATING THE SYSTEMIC RISK IN INDONESIA**



**THESIS**

**SUBMITTED TO FACULTY OF ISLAMIC ECONOMICS AND  
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YOGYAKARTA**

**AS PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE  
DEGREE OF BACHELOR OF ISLAMIC ECONOMICS**

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**2020**



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Dengan ini, kami mengharapkan agar skripsi saudara tersebut dapat segera di munaqosyahkan. Atas perhatiannya kami ucapkan terima kasih.

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**PAGE OF MOTTO**

**I told my sadness to the river, so that he taught me the meaning of flowing  
without complaining  
(Fahri Skroepp)**

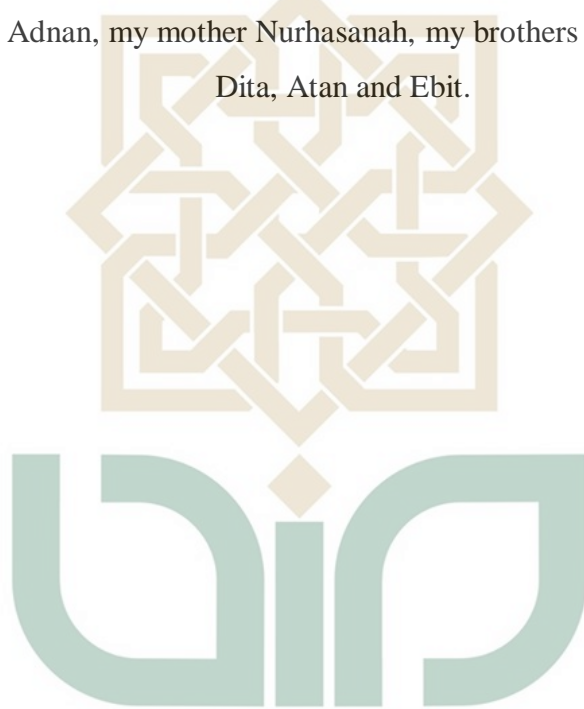


## PAGE OF DEDICATIONS



Thank to Allah SWT who has been giving us Mercies and Blessing, and our prophet Muhammad SAW who has been guided us from the darkness to the brightness.

I dedicate my thesis to all my beloved family, the apples of my eyes, my father M. Adnan, my mother Nurhasanah, my brothers and sister, Dita, Atan and Ebit.



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## LATIN ARABIC TRANSLITERATION GUIDLNESS

Transliteration of Arabic words used is based on the joint decree of the Minister of Religion and the Minister of Education and Culture Republic of Indonesia number 158/1987 and 0543b/U/1987.

### A. Single Consonant

Arabic Words	Name	Latin Letters	Name
ا	Alif	Not Symbolized	Not Symbolized
ب	Ba'	b	Be
ت	Ta'	t	Te
ث	Sa'	ṣ	Es (with the point above)
ج	Jim	j	Je
ح	Ha'	ḥ	Ha (with the point below )
خ	Kha'	kh	Ka dan ha
د	Dal	d	De
ذ	DZal	ẓ	zet (with the point above)
ر	Ra'	r	Er
ز	Zai	z	Zet
س	Sin	s	Es
ش	Syin	sy	Es dan ye

ص	Sad	ṣ	Es (with the point below)
ض	Dad	ḍ	De (with the point below)
ط	Ta'	ṭ	Te (with the point below)
ظ	Za'	ẓ	Zet (with the point below)
ع	'Ain	‘	Converted comma above
غ	Gain	gh	Ge dan ha
ف	Fa'	f	Ef
ق	Qaf	q	Ki
ك	Kaf	k	Ka
ل	Lam	l	El
م	Min	m	Em
ن	Nun	n	En
و	Wawu	w	We
ه	Ha'	h	Ha
ء	Hamzah	‘	Apostref
ي	Ya'	y	Ye

## B. Double Consonants for Shaddah Written in Multiple

متعددة	Written	<i>Muta'addidah</i>
عدة	Written	<i>'iddah</i>

## C. Ta'Marbutah

All ta 'marbutah are written with h, both in a single word or in the middle of a combination of words (words that are followed by the article "al").

حكمة	Written	<i>Hikmah</i>
علة	Written	<i>'illah</i>
كرمة الأولياء	Written	<i>Karamah al auliya'</i>

## D. Short Vowels and their application

--- َ ---	Fathah	Written	A
--- ِ ---	Kasrah	Written	I
--- ُ ---	Dammah	Written	U
فعل	Fathh	Written	<i>Fa'ala</i>
ذكرى	Kasrah	Written	<i>Zukira</i>
يذهب	Dammah	Written	<i>Yazhabu</i>

## E. Long Vowels

1. fathah + alif	Written	A
جاهلية	Written	<i>Jahiliyyah</i>
2. fathah + ya' mati	Written	A
تنسى	Written	<i>Tansa</i>

3. kasrah + ya' mati	Written	I
كريم	Written	<i>Karim</i>
4. dhammah + wawu mati	Written	U
فروض	Written	<i>Furud</i>

#### F. Complete Vowels

1. fathah + ya' mati	Written	<i>Ai</i>
بينكم	Written	<i>Bainakum</i>
2. fathah + wawu mati	Written	<i>Au</i>
قول	Written	<i>Qaul</i>

#### G. Consecutive Short Vowels in One Word Separated with Apostroph

أأنتم	Written	<i>a'antum</i>
أعدت	Written	<i>u'iddat</i>
لئن شكرتم	Written	<i>la'in syakartum</i>

#### H. Said Alif+Lam

1. If followed by the *qamariyyah* letter, it is written using the initial letter "al"

القرآن	Written	<i>Al-Quran</i>
القياس	Written	<i>Al-Qiyas</i>

2. If the *Syamsiyyah* letter is followed, it is written according to the first letter of the *Syamsiyyah*

السماء	Written	<i>As-sama'</i>
--------	---------	-----------------

الشمس	Written	<i>Asy-syams</i>
-------	---------	------------------

# I. Writing Words in Sentences

Written according to the writing

ذوي الفروض	Written	<i>Zawi al-furud</i>
أهل السنة	Written	<i>Ahl as-sunnah</i>



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Finally, I realize that this final project lacks of many things, therefore I hope criticism and suggestion for its perfection. I hope this final project will be useful for the reader.

Yogyakarta, 20 of January 2020  
Author,

**Muh. Imaduddin Akbar**  
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## ABSTRACT

Indonesia experienced two financial crisis, in 1998 and 2008. Mostly, crisis triggered by the imprudent managing in financial sector. The imprudent policy has a bigger potency in speed up the build-up of systemic risk. Thus, the experts collaborated with the policymakers attempts to construct the policy that effectively to minimize the systemic risk, including the macroprudential policy. This instruments have implemented in many countries, while with the different system in each country.

This study aims to investigate the effectiveness of macroprudential policies in mitigating the systemic risk in Indonesia. It used quantitative descriptive analysis with the Vector Error Correction Model (VECM). It emphasize on the impact of two macroprudential instruments applied in Indonesia; Macroprudential Liquidity Buffer (MLB) and Countercyclical Capital Buffer (CCyB) on credit growth for conventional banks and financing growth for Sharia banks. This study used monthly data over the periods M12010-M102019 that obtained from Bank Indonesia's (BI) website ([www.bi.go.id](http://www.bi.go.id)) and data published monthly by Financial Service Authority (FSA); Indonesia Bank Statistic and Sharia Bank Statistic.

The results show that MLB has a positive significant impact on credit growth, while in the financing growth MLB has a negative impact. Otherwise, CCyB shows the opposite results. CCyB has a negative impact on credit growth, while in the Sharia bank, CCyB has a positive impact. Hence, we can conclude that MLB is effective in mitigating the systemic risk in Sharia bank, while CCyB is effective in mitigating the systemic risk on conventional bank.

**Keywords:** *Macroprudential, MLB, CCyB, Systemic Risk.*

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## ABSTRAK

Indonesia telah mengalami dua kali krisis keuangan, pertama pada tahun 1998, dan pada tahun 2008. Terjadinya krisis tersebut disebabkan karena pengelolaan pada sektor keuangan yang tidak *prudent*. Kebijakan yang tidak *prudent* dapat mempercepat terjadinya risiko sistemik ketika terjadi guncangan atau fenomena tertentu. Sehingga para pakar dan pengambil kebijakan mulai merancang kerangka kebijakan yang dapat mengurangi terjadinya risiko sistemik, salah satunya adalah kebijakan makroprudensial. Kebijakan ini sudah banyak diterapkan oleh berbagai negara, walaupun bentuk dan sistemnya berbeda di setiap negaranya.

Pada penelitian ini akan melihat bagaimana keefektifitasan kebijakan makroprudensial dalam memitigasi terjadinya risiko sistemik di Indonesia. Penelitian ini merupakan jenis penelitian kuantitatif deskriptif dengan menggunakan model *Vector Error Correction Model* (VECM). Variabel yang digunakan adalah dua kebijakan makroprudensial yang telah diterapkan di Indonesia, yaitu Penyangga Likuiditas Makroprudensial (PLM) dan *Countercyclical Capital Buffer* (CCyB) serta variabel makroekonomi dan variabel internal perbankan. Adapun untuk variabel endogennya adalah Pertumbuhan kredit untuk bank umum dan pertumbuhan pembiayaan untuk bank syariah. Data yang digunakan adalah data bulanan periode M12010- M102019 yang didapat dari website Bank Indonesia ([www.bi.go.id](http://www.bi.go.id)), serta dari publikasi OJK, Statistik Perbankan Indonesia dan Statistik Perbankan Syariah.

Hasilnya menunjukkan bahwa MLB berdampak positif signifikan pada pertumbuhan kredit, akan tetapi pada pertumbuhan pembiayaan MLB berdampak negatif. Di sisi lain, CCyB menunjukkan hasil yang berlawanan. CCyB berdampak negatif pada bank konvensional, akan tetapi pada bank Syariah memiliki dampak positif. Oleh karena itu, dapat kita simpulkan bahwa kebijakan MLB hanya efektif diterapkan pada bank Syariah, adapun kebijakan CCyB hanya efektif diterapkan pada bank konvensional untuk memitigasi risiko sistemik.

**Kata Kunci:** Makroprudensial, PLM, CCyB, Risiko Sistemik.

## **CHAPTER 1**

### **INTRODUCTION**

#### **A. The Background of the Study**

Historically, Indonesia experienced two financial crises. Asia Financial Crises in 1998, Indonesia, Thailand, and South Korea are the three most fragile countries, and Global Financial Crises in 2008, where Indonesia has a more resilient performance amid the uncertainty of global economics.

The crises provide essential lessons for the government to concern about the prudent aspect of every taken policy. Hahm et al. (2012) explained several lessons in financial crises. The risk build-up has a significant impact on the real economy, very high cost, price and output stability do not ensure financial security. In spite of the high cost needed, financial crises also need long time recovery (Bank Indonesia, 2016).

The financial crises mostly originated from economic instability. The policymakers attempt on their authorities to arrange the most delicate instruments to attain stability. On the other hand, they also admire that there are no fundamentals instruments to intervene in the crises. The existing tools, whether microprudential, monetary, and fiscal instruments, do not always suffice to assure financial stability even it conducted adequately and effectively in their ways (Claessens, 2014).

Claessens & Kose (2013) explain clearly about the main challenge for policymakers to intervene in the financial crises. First, they need to determine

the increases in asset price and credit. Besides that, if the behavior of credit suggests sign risk, the need to decide what the suitable policy in minimizing the risk and mitigating the adverse effect when risk build-up widely.

To deal with such conditions, the government and related authorities attempt to construct the new prudent instrument that assists the policymaker in mitigating the systemic risk. The macroprudential policies get promoted increasingly by regulatory and supervisor, especially from the Bank of International Settlement (BIS). A broader agreement on its relevance has been reached as a result of the late-2000s financial crises.

Several studies showed that macroprudential policies are valid and useful instrument to prevent financial crises. To design and implement the macroprudential systems have been of great interest to both policy institutions and academia after the global financial crises (Kara, 2016). According to IMF (2011), macroprudential policies aimed to maintain financial stability use primarily prudential tools to limit systemic risk or system-wide financial risk. Bank Indonesia (2016) told that macroprudential systems aim to keep financial stability that implemented a system-wide perspective oriented as the preventing of building-up systemic risk.

Shi, Jou, & Tripe (2014) stated that macroprudential policies are an attractive instrument to mitigate excessive credit growth. Macroprudential policies could address the cyclical vulnerabilities in systemic risk by slowing credit growth in good times and boosting the credit in bad times (Jimenez, Ongena, Saurina, & Peydro, 2012).



The macroprudential policies mostly implemented in emerging markets. It was predicated on the fragility of financial institutions and still need to deepen on financial instruments. Macroprudential policies in the emerging market are more relevant and pressing than usual (Hahm et al., 2012). Research conducted by Claessens et al. (2014) in 2800 banks in 48 countries over periods 2000-2010. They found that emerging markets countries using macroprudential policies relatively more than advanced countries and work better. Perhaps as their financial system is less liberalized, allowing combination policies to be used.

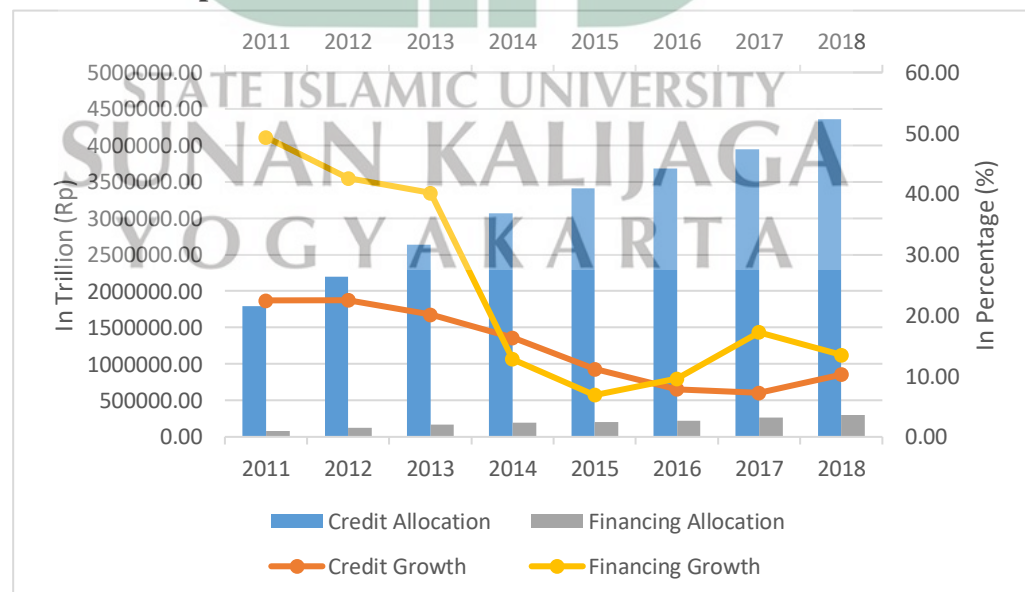
Bank Indonesia has the authority to take control of macroprudential policies in Indonesia. Since the 2000s, Bank Indonesia implicitly applied the macroprudential strategies marked by drafting on the financial stability framework and the establishment of the financial system bureau (Bank Indonesia, 2016). The bureau's main program is to prevent and to handle the financial crises to carry out the interest and resilience of the country in the economic fields.

The members of the bureau consist of the ministry of finance, Bank Indonesia, financial service authority, and deposit insurance agency board. It needs good coordination between those authorities to attain financial stability. Claessens et al. (2014) and Bank Indonesia (2016) explained that the use of macroprudential policies could be also vary depending on the availability of other existing strategies.

In order to formulate the macroprudential policies, the implementation was adjusted by the conditions of each country, and the other was implemented as a response to the mandate of international standards (Bank Indonesia, 2016). Several instruments have been implemented, and it is always improved to better instruments. Bank Indonesia had applied some instruments primarily performed by a conventional bank, sharia bank and sharia business unit, such as Reserve Requirements Finance to Deposit Ratio (RR FDR), Loan to Value or Financing to Value (LTV/FTV), Countercyclical Capital Buffer (CCYB), Month Holding Periods (MHP), Capital Surcharge and Prime Lending Rate. These instruments were implemented with a distinct way and indicators, but they had the same ultimate goals in mitigating excessive credit growth.

This chart below shows annual data of the credit/financing allocation and growth in conventional and Sharia bank in Indonesia over periods 2011-2018.

**Chart 1.1 Bank Credit/Financing Allocation and Credit/Financing Growth on periods 2011-2018**



*Source:* Indonesia Banking Statistic (processed data)

Over the periods 2011-2018, the bank credit and financing allocation tend to increase per year; it showed the success of the dual banking system to run the functions as the intermediation institution. Bank Indonesia has to monitor the increase in credit allocation in order to prevent the occurring of excessive risk-taking behavior. For the growth, data showed it tends to decrease; however, since 2015, the credit growth begins to increase.

Credit distribution conducted by the bank also considers internal bank factors and macroeconomic factors. Internal factor is all instrument considered coming from its bank. Capital adequacy ratio (CAR) as the instrument of a bank's available capital expressed a percentage of a bank's risk-weighted credit exposures, and non-performing loan (NPL) or a sum of borrowed money upon which to the debtor has not made the scheduled payback for the particular periods.

From the external factor, overall, it comes from the economic performance in a specific period; BI 7-Day (reserve) Repo Rate as the bank Indonesia reference interest rate, and the inflation, as a quantitative measure of the average price level of selected goods and service in the economy over a specific period. Several other factors also considered by the bank on credit distribution, but all those factors are not explicitly discussed in this study.

Fendoglu (2017) stated in his research that macroprudential tools help smooth the credit cycles in an economically and statistically significant way. Thus, Bank Indonesia applied the accommodative approach to smooth the credit cycles. Bank Indonesia recently promoted the new instrument, namely the

Macroprudential Liquidity Buffer. It based on countercyclical liquidity and time-varying. Bank Indonesia Assistant Governor, Filianingsih Hendarta stated this is an improvement instrument from previous instruments. It is expected to be able to overcome the bank liquidity issues (Asmara, 2018).

According to Bank Indonesia (2018), MLB is a part of the macroprudential policy to prevent and minimize the systemic risk and the shock on the banking system. This instrument is countercyclical to the economic cycle so that it can be adapted to changing economic and financial conditions.

As a new instrument, the effectiveness of Macroprudential Liquidity Buffer in mitigating systemic risk is untested. As for another device, the study still showed the mix results. Purnawan & Nasir (2015), Sakti et al. (2018), showed that reserve requirement plus fund to deposit ratio is sufficient to increase the credit growth. Dana (2018) concluded the different results that the implementation of reserve requirement plus fund to deposit ratio instruments are capable of countering the credit cyclical and credit mitigation.

A Study by Ubaidillah (2019) concluded that the Loan to Value and Financing to Value (LTV/FTV) instruments are able to address the procyclicality on credit and financing. Research by Puspitasari (2016) showed the opposite result; the impact of LTV and FTV is still small and not effective in overcoming credit and financing procyclicality.

Predicated on the description above, macroprudential plays a significant instrument in mitigating systemic risk. Central Bank and other authorities are kept to maintain financial stability by implements a prudent policy. The existing

research still shows a different result, though. Thus, this study attempts to purpose new evidence on the macroprudential system. It is done by conducting a review on title “The effectiveness of Macroprudential Policies in Mitigating the Systemic Risk in Indonesia.” Hopefully, this study can contribute to the literature by providing some evidence related to the effectiveness of macroprudential policy and offer a new perspective for the policymakers on the policy taken.

## **B. The Formulations of the Problem**

Based on the Background above, this paper attempts to analyze the impact of the macroprudential policy, macroeconomic factors, and internal banking factors on credit and financing growth. The formulation of this study is as follows:

- a. How is the impact of the Macroprudential Liquidity Buffer instrument on credit and financing growth in Indonesia?
- b. How is the impact of the Countercyclical Capital Buffer instrument on credit and financing growth in Indonesia?
- c. How is the impact of the BI 7-day (reserve) repo rate instrument on credit and financing growth in Indonesia?
- d. How is the impact of Inflation instrument on credit and financing growth in Indonesia?
- e. How is the impact of Non-performing loan/financing instruments on credit and financing growth in Indonesia?

- f. How is the impact of the Capital Adequacy ratio instrument on credit and financing growth in Indonesia?

### **C. The Objectives of the Study**

- a. To find out the Impact of Macprudential Liquidity Buffer instrument on the credit and financing growth in Indonesia.
- b. To find out the impact of the Countercyclical Capital Buffer instrument on the credit and financing growth in Indonesia.
- c. To find out the impact of BI 7-day (reserve) repo rate instrument on credit and financing growth in Indonesia.
- d. To find out the impact of Inflation instrument on the credit and financing growth in Indonesia.
- e. To find out the impact of Non-performing loans instrument on the credit and financing growth in Indonesia.
- f. To find out the impact of Capital Adequacy ratio instrument on the credit and financing growth in Indonesia

### **D. The Significance of the Study**

- a. For academics and researchers, the results of this research can provide a new and deeper understanding related to macroprudential policy. This research also expected to cover the research gap on the implementations of the macroprudential system conducted by Bank Indonesia.
- b. For the policymakers, the result of this study hopefully provides insight for Bank Indonesia concerning the suited macroprudential instrument in mitigating the systemic risk in Indonesia. This result also suggests Bank



Indonesia and other policymaker authority to run the prudent policy to attain the financial stability in Indonesia

- c. For the authors, the result can provide an unpriced able experience to revealed an idea in the form of scientific study. The writing of this study hopefully encourages the author to learn more profoundly concerning on macroprudential policy or other economics and finance issues.

#### **E. The Outline**

There are five chapters in this study, and each section contains different topics. In the first chapters, it starts with the background and ends with the conclusion and suggestion in the last chapter. For more details, the study coverage is as follows:

Chapter I presents the introduction comprising background, which enunciates the apex issues of this study comprehensively, problem formulation, objectives, and significance of the study.

Chapter II presents the theoretical base and the explanation of the constructed hypothesis. The theoretical base was taken from various sources; books, journal articles, working papers, conference proceedings, and annual reports.

Chapter III presents a profound explanation related to the research methodology. It contains types of data and research, employed model, data collection method, operational definitions of variables, and data analysis methods, comprehensively.

Chapter IV presents data analyses and the result discussion. This section will answer objectively the background and the problem formulation constructed before.

Chapter V presents the conclusion of the study and the suggestion for the next study.



## CHAPTER 5

### CONCLUSIONS AND SUGGESTIONS

#### A. Conclusions

Refers to several approaches estimated before, the conclusions are mentioned below:

- a. The MLB policy has a negative impact on credit growth in the short-run. While in the long run relationship, MLB provides a positive significant impact on credit growth. In Sharia Bank, MLB shows the opposite result, in the short-run, MLB has a positive impact, while in the long-run relationship MLB has a negative impact. Hence, we can conclude that the implementation of the MLB policy effectively mitigates the build-up of systemic risk only in Sharia bank.
- b. The CCyB policy presents the different impact from MLB. In the short and long-run relationship, CCyB has a negative impact on credit growth. For Sharia bank, CCyB has a negative impact only in the short-run, while in the long-run relationships, CCyB has a positive impact on financing growth. Hence, we can conclude that the implementation of the CCyB policy effectively mitigates the build-up of systemic risk only in conventional bank.
- c. The macroeconomic factors, Inflation has a positive impact in the short-run periods and effectively mitigates the systemic risk in the long-run relationship; the estimating shows a similar result in both conventional and sharia banks. The BI-7DRRR also shows the similar result in both

conventional and Sharia Bank. In the short run, BI-7DRRR has positive and negative impact in first and second lag, while in the long run, BI-7DRRR has a negative impact on credit and financing growth. Hence, we can conclude that the increase of the Inflation and BI-7DRRR are effectively mitigated the build-up of systemic risk in both conventional and Sharia bank.

- d. In the conventional bank, credit growth positively significant affected by the NPL in the short and long-run relationship. While CAR has negative significant impact in the short-run, but in the long-run relationship, CAR has a positive significant impact on credit growth.

For Sharia Bank, the NPF shows a positive significant impact in the short run, while in the long-run, NPF has a negative significant impact on financing growth. While CAR has a negative impact in the short-run, but in the long-run, CAR has positive impact on financing growth.

## **B. Suggestion**

Some and insights that are useful for further study and suggestions for every policy taken are mentioned below.

- a. For the policymakers, especially for Bank Indonesia, the result of this study can be referenced as the scientific reviews on every policy taken. This study is capable of providing a brief framework in making an effective policy, although there are still many improvements and deepening.
- b. Hopefully, further study can examine the other macroprudential policies, especially the Macroprudential Intermediation Ratio instrument that

regulated by Bank Indonesia in July 2018. Besides that, the new approach also needed to analyze the effectiveness of the instruments, such as event analysis.

- c. For the authors, it is expected to keep forward on conducting scientific research and published it on accredited journals.



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