

LETTER OF ACCEPTANCE

The 11th International Conference, Bulletin of Monetary Economics and Banking – 2017
SYNERGY ON THE VUCA WORLD
MAINTAINING THE RESILIENCE AND THE MOMENTUM OF THE ECONOMIC GROWTH
Jakarta – Indonesia, Thursday, August 24, 2017

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Gema Qori'ah, SE, M.Sc
Paper Title: Credit Cycle, Capital Flow and Effectiveness of The
Macroeprudential Policy in Indonesia: Markov-Switching
Vector Autoregressive Approach
Decision: Accepted for Oral Presentation

Dear Author(s),

Congratulations on the acceptance of your paper. On behalf of the Conference Advisory Committee, we would like to formally invite you to attend the 11th Bulletin of Monetary Economics and Banking International Conference to present your paper.

The aim of this international conference is to provide the researchers, academicians, practitioners, and policy makers a forum for sharing experience and expertise in exploring the space for optimal intervention and pushing economy to reach deal capacity.

As the presenters, the attendees will include researchers, academicians, practitioners, and policy makers. We welcome as many attendees as possible.

Please also provide us a 'brief' biographical note for use as introductory material for your session chair at the conference.

We look forward to meeting you on August 24, 2017.

HEAD OF BANK INDONESIA INSTITUTE



Soikin M. Juhro
Director



No. 19/113/BINS/Srt/B

Jakarta, August 9, 2017

To :

Achmad Fawaid Hasan, SE, Adhitya Wardhono, Ph.D, M. Abdul Nasir, SE, M.Sc
University of Jember

JEMBER

Re: 11th International Conference on Bulletin of Monetary Economics and Banking

Dear Achmad Fawaid Hasan, SE, Adhitya Wardhono, Ph.D, M. Abdul Nasir, SE, M.Sc,

On behalf of the Scientific Committee of the Bulletin of Monetary Economics and Banking, we are delighted to invite you to participate in the 11th International Conference 2017. This event will be held on:

Date: Thursday, August 24, 2017
Time: 08.00 AM – 05.30 PM
Place: Function Room, Thamrin Building, 4th Floor
Bank Indonesia Head Office
Jalan M.H. Thamrin No. 2, Jakarta, Indonesia

Along with this letter, we are attaching the Letter of Acceptance and Agenda of the event. We provide transportation for domestic airflight ticket (economic class) and 2 night (August 23–25, 2017) hotel accomodation in Milenium Hotel (Address: Jalan Haji Fachrudin No.3, Jakarta) for one presenter during the conference. Should you have further inquiries about the conference please do not hesitate to contact V. Setyawan Santoso (mssantoso@bi.go.id, phone 62-21 29815480) and Nurnemi (emmy@bi.go.id, phone 62-21 2981774).

We look forward to meeting you on August 24, 2017.

HEAD OF BANK INDONESIA INSTITUTE

Solikin M. Juhro
Director

Credit Cycle, Capital flow and Effectiveness of The Macroprudential Policy in Indonesia

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ABSTRACT

Macroprudential policy is the policy implemented to minimize systemic risk over financial system. Procyclical credit development flow offers systemic risk potential over banking system. The research aims at exploring the effectiveness of macroprudential policy to mitigate fluctuates impact of capital flow and business cycle over credit cycle flow of private sectors. Macroprudential policy consists of Loan to Value (LTV), statutory reserve requirement (GWM), and GWM + Loan to Deposit Ratio (GWM+LDR). The analysis method deployed is Vector Error Correction Model (VECM) to identify the effectiveness of macroprudential policy to mitigate the impact of capital flow and business cycles over fluctuates credit cycles of private sectors with additional surprising variables such as BI (Bank of Indonesia) rate, real Gross Domestic Product (GDP) and real exchange rate. The data used was time series data starting from 1998.Q1 to 2016.Q. Empirical test result shows that macroprudential policy such as LTV and GWM+LDR are remarkably effective to mitigate capital flow impact over credit cycle flow while GWM policy did not indicate the same effectiveness to mitigate capital flow impact over credit cycles. Similarly, LTV, GWM and GWM+LDR policy are not effective to mitigate the impact of business cycle flow over credit cycles.

Keywords: Macroprudential policy, Cycle Credit, Capital flow, Business Cycles, VECM

JEL Classification: E58, E51, F30, E32, G21

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1. INTRODUCTION

Macroprudential policy was first introduced by Basel Committee on Banking Supervision. Macroprudential policy is the policy used to minimize systemic risks in financial systems (Baskaya, Giovanni, Kalemli-ozcan, Peydro, & Ulu, 2015; Claessens, Ghosh, & Mihet, 2013; Fendoğlu, 2015). Systemic risks arise due to the interconnectedness between financial institutions and the tendency of financial cycles to follow economic cycle (procyclical). The rate of growth of procyclical credit potentially has systemic risks toward banking systems. Arnold, Borio, Ellis, & Moshirian (2012); Bianchi, Liu, & Mendoza (2016) and Lopez, Tenjo, & Zarate (2014) conducted a study on the importance of early warning systems; that is, credit growth which is procyclical to the systemic risks. The significance of prudential action against systemic risks on procyclical credit becomes an important part of the Central Bank to maintain financial system stability (FSS).

Rubio & Carrasco-Gallego (2014) and Gomez-Gonzalez, Jose Eduardo et al. (2015) argue that credit growth indicators are an important part in understanding the financial cycle and its impacts on financial system stability (FSS). This is confirmed by studies conducted by Karfakis (2013) and Bahadir & Gumus (2016) finding that credit growth tends to be procyclical toward economic growth. The linkage of credit cycle and economic growth is an important part as an indicator of the occurrences of a systemic risk in financial systems. Arnold et al. (2012) and Tomuleasa (2015) emphasize the importance of macroprudential policy to mitigate systemic risks occurred interconnectedly or procyclically. Studies by Tovar, Garcia - escribano, & Martin (2012) and Shi, Jou, & Tripe (2014) mention that macroprudential policy is used to mitigate the occurrence of systemic risks through a number of sources such as procyclical credit growth, liquidity risk and rate of capital inflows. Each macroprudential policy instrument has its own direction and pattern to mitigate the sources of systemic risks. Several macroprudential policy instruments being developed by Bank Indonesia, especially to prevent the occurrence of systemic risks of procyclical credit growth, are countercyclical capital buffer (CCB), loan to value (LTV), minimum reserve requirement (GWM), and GWM + loan to deposit Ratio (GWM + LDR).

LTV macroprudential policy instrument is used to curb credit growth in the property and motor vehicle sectors (Kiley & Sim, 2015; Cronin & McQuinn, 2016). Reserve requirement (GWM) is the minimum amount of fund obligatorily kept by the amount set by Bank Indonesia as much as percentage of third party funds. Afterwards, Bank Indonesia improves macroprudential policy instrument of GWM into GWM+LDR. Loan to Deposit Ratio (LDR) is an addition to the improvement of macroprudential policy instruments that direct to credit ratio given to third parties in Rupiah and foreign currency. Furthermore, GWM+LDR is the minimum deposit that must be maintained by bank in the form of balance in Giro Account at Bank Indonesia as much as DPK calculated based on LDR (Ginting et al., 2013). GWM+LDR policy is a macroprudential policy instrument aimed at reducing the rate of procyclical credit growth. Currently, Bank Indonesia is developing macroprudential policy instruments in the form of CCB to reduce the movement of procyclical credit cycles (Auer & Ongena, 2016; Basten & Koch, 2015). CCB is a macroprudential policy instrument intended to lessen procyclical credit cycle by tightening credit flow when economy increases and to loosen credit growth when economy experiences a recession.

Figure 1 describes the movement of Credit to GDP Gap, Net Portfolio Investment and Economic Growth from 2000.Q1 until 2016.Q1. The movement of economic growth fluctuates from 2000. Q1 through 2016. Q1. Economic growth experiences a relative correction in 2001. Q4 is 1.56% and increases again in 2002. Q3 is 5.55% with average economic growth from 2000. Q1 through 2016. Q1 is 5.30%. The decline in economic growth in 2001. Q4 is due to the impact of crisis recovery in 1997/1998. Economic growth again declines in 2009. Q2 is 4.14% caused by the monetary crisis in 2008. The financial crisis of 2008 is followed by a decline in portfolio investment in 2008. Q4 is -72.09%. Portfolio investment moves to fluctuate from 2001. Q1 through 2016. Q1 with an average value of -0.24%. The credit growth cycle begins in 2000. Q1 through 2016. Q1 tends to follow economic growth cycle (procyclical) and portfolio investment cycle. This is seen from the growing trend of credit to GDP from year to year. Procyclical credit growth has the potential of systemic risks to the financial systems.

2. THEORY

2.1 Macroprudential policy: Instruments and Target

Macroprudential is policy implemented to mitigate the systemic risk of financial system both in terms of time series and in terms of cross sections. Macroprudential policy includes macro supervision of financial system. The ultimate target of macroprudential policy is financial system stability (SSK) and financial system preventive acts against systemic risk. The instruments of macroprudential policy comprise of systemic risk cause such as procyclicality (time series) and interconnected (cross sections) (Corrado & Schuler, 2015; Rubio & Carrasco-Gallego, 2016). Financial system procyclicality is financial sector act over the movement of economy development phase. Whereas, interconnected is such an interconnection of one financial sector to another with the same exposure. Galati & Moessner (2014) group the instruments of macroprudential policy based on instruments and dimension illustrated in Table 1 into systemic risk source.

Table 1.
Macroprudential policy: Instruments and Risk Dimensions

Risk Types	Risk Dimension: Time Series or Cross-Sections	
	Time Series:	Cross-Sections
Liquidity Risk	<ul style="list-style-type: none"> - Time Varying systemic liquidity surcharges - Levy on non-core liabilities - Time varying limit - Stressed VaR to build additional capital buffer against market risk during a boom 	<ul style="list-style-type: none"> - Capital Charges on derivative payables - Levy on non-core liabilities
Leverage/ credit/ asset price booms	<ul style="list-style-type: none"> - Countercyclical capital buffer - Time Varying LTV, Debt to Income (DTI) and loan to income (LTI) - Dynamic Provisioning - Rescaling risk- Weight by incorporating recessionary conditions in the probability of default assumptions (PDs) 	

Source: (Galati & Moessner, 2014)

Risk dimension of times series for credit risk type and asset price Countercyclical capital buffer (CCB) instrument, Time Varying LTV, Debt to Income (DTI) and Loan To Income (LTI), Dynamic Provisioning and Rescaling risk- Weight by incorporating recessionary conditions in the probability of default assumptions (PDs) can be applicable. CCB can be used as additional banking capital reserves as capital boosters during poor credit (Drehmann, Borio, Gambacorta, Jiménez, & Trucharte, 2010). For liquidity risk, the macroprudential instrument used is Loan to Deposit ratio (LDR). A number of mathematical model of macroprudential policy is as follows:

a. Loan To Value (LTV) Instrument

LTV is one of macroprudential policies implemented to impede the development of housing credit and property sectors. LTV regulation is lead to reduce number of credit by determining capital amount especially for vehicle credits. Under certain circumstances, the amount of LTV can be mathematically determined as follows:

$$\frac{I}{I+I^P} \leq LTV \tag{1}$$

$$I^P \geq \frac{1-LTV}{LTV} I \ (\lambda^{LTV}), \tag{2}$$

When $LTV < 1$, the amount of LTV, λ^{LTV} requirement is the amount of LaGrange multiplier LTV. I^P Which indicate the amount of loan funds for various investments of unlimited rivalry of banking industry. Thus, $I^P = 0$ and $LTV = 1$. Low level of LTV indicates divider between marginal productivity and loan level. Therefore, optimization should be in line between productivity level and loan level as follows:

$$A_{3g} F' \left[\left(1 + \frac{1-LTV}{LTV} \right) I \right] - (1 + r^I) = \frac{\lambda^{LTV}}{\lambda_{3g}^{P,no-run}} \frac{1-LTV}{LTV} \tag{3}$$

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