

Analyze Impact of Changes in Reserve Requirement to Banking Performance in Indonesia

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ABSTRACT

Indications of banking performance that have a tendency to be less stable, seen from the profitability of the up and down of net income, it is feared will continue that can cause the growth of the company. CRR (Cash Reserve Ratio) is a macro prudential instrument that can increase or decrease a bank's liquidity level. This study was conducted in conventional banking sector throughout Indonesia, using quarterly data from 2012 to 2017 to determine the effect of CRR changes on bank performance as measured by net income. The research method used is panel data regression analysis which finally concludes that the change of CRR has negative and significant effect on the categories of Book 1, Book 2, and Book 3, while for Book 4 category is not too affected by CRR change.

Keywords: Cash Reserve Ratio, Banking Performance, Net Income, Macro Prudential Instrument

INTRODUCTION

Indonesian banking in carrying out its functions based on prudential principles. The main function of Indonesian banking is as a group of community funders and distributors and aims to support the implementation of national development in order to increase the distribution of development and its results, economic growth and national stability, towards the improvement of the standard of living of the people.

Under the law, the banking structure in Indonesia, comprised of commercial banks and BPRs. The major differences between commercial banks and BPR (Bank Perkreditan Rakyat) are in terms of their operational activities. BPR can not create currencies, and have limited operational coverage and activities. Furthermore, in its business activities, dual bank system, that is, commercial banks can conduct conventional bank business activities and / or based on sharia principles. While the principle of BPR activities is limited to only conducting conventional banking business activities or based on sharia principles.

The banking net income is instability, marked by the rise and fall of banking net income from month to month. In December 2015, the profit of commercial banks experienced a very significant decline with the previous month, but in the following month net profit of commercial banks increased significantly. This indication indicates that many elements can affect the rate of increase in profits in the company. This indication must be minimized by

the bank, in order to keep the desired profit increase. One indication that can be measured is macroeconomics, such as changes in Cash Reserve Ratio, and the reference interest rate issued by Central Bank of Indonesia.

According to Nababan, in the first quarter of 2016, bank's profit declined compared to the first quarter of 2015 which fell by 2.29%, while net interest margin grew 0.25%. Based on data released by Financial Service Authority, banking has decreased profits due to an increase in operational expenses by 37.5%. The number of banks in Indonesia decreased from year to year, in 2012 there were 120 banks operating while in 2016 decreased to 116 due to mergers in some banks, making the competition in this industry quite competitive, every bank must innovate in providing the best services for the customer to stay float.

Total assets, total loans and third party funds managed by banks, are increasing year by year, due to increasing public confidence in Indonesia's banking industry, given that the banking industry is actually monitored by Central Bank of Indonesia and Financial Services Authority. With the guarantee by other institutions such as LPS (Lembaga Penjamin Simpanan) makes people feel safe to save money in the bank. Lending is always increasing from year to year can be seen from industry size of SME (Small Medium Enterprise) development in Indonesia.

Fintech industry (financial technologies) lending began to stretch in Indonesia to have an impact on the banking industry because it has a business segment similar to the bank, namely in lending to customers. Improved macroeconomic stability, particularly controlled inflationary pressure, provides room for monetary policy easing. Challenges from the external side are primarily derived from a possible increase in the Federal Funds Rate. The US economic recovery that has not been solid resulting in an increase in the Federal Funds Rate forecasts shifted backwards with a lower rate of increase. Along with these conditions, the risks that may arise from the diversity of global monetary policy is also weakened considering the global economic recovery is expected to be slow.

LITERATURE REVIEW

Cash Reserve Ratio is the minimum amount required to be maintained by a bank with the amount based by Central Bank regulations of a certain percentage of Third Party Funds of the Bank like savings account, current account and deposit account. Monetary policy based on required reserves has not significant effect to excess liquidity, inflation or control the increase of loan (Pan, 2012). Another research (Bianchi and Rebucci, 2017) examines that monetary policy have significant impact to credit development, the effectiveness of the policy is a real challenge for country.

According to (Ishfaq, 2015) the increasing development of the banking sector and the low volume of non-traditional activities tend to increase the profitability of commercial banks in Pakistan. Inflation has a positive relationship with profitability in banks in Pakistan as measured by ROA and NIM. According to (Uremadu, 2012) LR (Liquidity Ratio) and CRR

(Cash Reserve Ratio) have a significant and positive influence on the profitability of banks in Nigeria, but LR has a higher influence than the CRR, this indicates that banks can already utilize liquidity via investment to increase profits.

Other studies according to (Rao, 2006) regarding the impact of monetary policy on bank profitability, especially in the Indian financial sector by studying the monetary policy industry, interest rates on loans have been found to have a positive relationship with bank profits as indicated by an increase in lending rates. Gunji& Yuan (2010) analyzed the impact of a smaller monetary policy for banks with higher profitability, while for banks that have low profitability will feel a very pronounced impact. Monetary policy regarding the minimum reserves required does not have a significant influence in facing excess reserve, preventing inflation or controlling the increase in loans (Pan, 2012).

(Sehrish Gul, 2011) investigates the impact of bank specific characteristics and macroeconomic indicators on bank profitability in Pakistan during the period 2005-2009. This study investigates the impact on the main profitability indicators namely return on assets (ROA), return on equity (ROE), return on capital employed (ROCE) and net interest margin (NIM), loans, equity, savings, inflation, economic growth, capitalization market and has found strong evidence that internal and external factors have a strong influence on bank profitability. Thus the macro factor also shows a significant positive relationship with bank profits. Bianchi and Rebutti (2017) analyze that the level of interest rate tightness has a different impact on financial stability (defined as the probability that collateral boundaries are binding) depends on signs that can affect economic improvement. Macroprudential policy can have a significant influence on credit development, policy effectiveness and policy tightening (Cerutti et al, 2017).

According to (Abid, 2015) the change in Reserve Requirement has a negative effect on banking profitability, this study has limitations that only uses 17 banks in a 10-year period, using the ROA and ROE variables as variables used to measure banking profitability. Naceur&Omran (2011) found that bank capitalization and credit risk have a positive impact on Net Interest Margin, cost efficiency and profitability. Macroeconomic variables have an insignificant influence on Net Interest Margin, except inflation which has a significant effect.

(Zarafat, 2014) studying macroeconomic variables including inflation, interest rate and GDP (gross domestic product) that affect bank profits and find that for the profitability of the bank and GDP growth is mutually influential because it can help loan activity, while the interest rate has a direct relationship with profitability bank. This study examines the relationship and dynamic linkages between profitability Malaysian commercial bank, which is shown through return on assets (ROA) and macroeconomic variables that include GDP growth, inflation and interest rate.

METHODOLOGY

Data and Sample

The research uses data from quarterly report of commercial banks in Indonesia. Sample data obtained from Financial Service Authority website that is balance sheet and profit and loss. Data to be processed is data with the time series between 2012 to 2017. For newly registered bank in Bank Indonesia in 2012 and above will not be included in this research. In addition to the quarterly financial statements have complete data related to the variables required in the study, reserve requirement ratio, net income, total asset, total credit, interest rate bank central. As the purpose of the study is to evaluate the effect of changes in reserve requirement. The dependent variable is profit after tax, and the independent variable is Reserve Requirement Ratio, bank size describe as total asset, total credit, interest rate bank central describe as BI Rate, and the output is there any affect if requirement reserve ratio changes from bank central.

In this study examines bank category into four category :

- Bank category book 1 (core capital under Rp 1.000.000.000.000) which consists of 25 bank.
- Bank category book 2 (core capital between Rp 1.000.000.000.000,00 and 5.000.000.000.000,00) which consists of 47 bank.
- Bank category book 3 (core capital between Rp 5.000.000.000.000,00 and 30.000.000.000.000) which consists of 25 bank.
- Bank category book 4 (core capital above Rp 30.000.000.000.000) which consists of 5 bank.

Measurement

Dependent Variable

Net income, total net income of the bank is derived from operating income minus operating expenses, in which operating income is derived from interest income and operating income minus interest expense plus operating expenses.

Independent Variable

CRR Ratio, is the minimum percentage required to be maintained by a bank with the amount based by Central Bank regulations of a certain percentage of Third Party Funds of the Bank like savings account, current account and deposit account, following is the changes in the Cash Reserves Ratio by Central Bank of Indonesia from 2012 to 2017:

Table 1 :

Central Bank Regulations	Date	Percentage
No. 15/ 15 /PBI/2013	24 – 12 -2013	8 %
PBI No.17/21/PBI/2015	1 – 12 -2015	7.5 %
No.18/3/PBI/2016	16 – 03 – 2016	6.5 %
No. 19/6/PBI/2017	01 – 07 – 2017	5 %

Reserve

Requirement Changes

Total Asset, consists of loans and receivable, securities, fixed asset, placement to Central Bank, placement to other bank and others. Total loans, based on approval lending or borrowing agreement between bank and debtor (individual or non individual sector), there are many types of loans provided by bank, like available for sale, hold to maturity, loans and receivables, but in this research only uses loans and receivables as independent variables.

Interest rate bank central, is a policy rate reflecting the stance of monetary policy stipulated by Indonesian banks and announced to the public, there are several changes in BI Rate, which are described in the table below :

PERIODE	Rate
2012Q1	5.75
2013Q2	6
2013Q3	7.25
2013Q4	7.5
2014Q4	7.75
2015Q1	7.5
2016Q1	6.75
2016Q2	6.5
2016Q3	5
2016Q4	4.75
2017Q3	4.25

Table 2 : Interest Rate Bank Central Changes

Empirical Model

Research model will be define in this research :

$$PAT = \alpha + \beta_1(GWM_t) + \beta_2(TA_t) + \beta_3(TC_t) + \beta_4(IR_t) + \varepsilon$$

Variable will describe in this research :

- CRR ratio, describe as GWM
- Bank size, describe as TA
- Total loans, describe as TC
- Interest rate bank central, describe as IR
- Profit after tax, describe as PAT

RESULT AND DISCUSSION

Banking Category	Chow Test Cross section Chi Square	Hausmann Test Cross section Chi Square	Model
Book 1	0.0000	0.0036	<i>Fixed Effect</i>
Book 2	0.0000	0.8635	<i>Random Effect</i>
Book 3	0.0000	0.2421	<i>Random Effect</i>
Book 4	0.0000	0.0000	<i>Fixed Effect</i>

Table 3: Model Result

From the Figure above can be concluded that the bank category 1 and bank category 4 using the Fixed Effect model while the bank category 2 and 3 using the Random Effect model. The results of chow test and Hausmann. The bank category 1 has cross section results of chi square = 0 in Chow test, while cross section of chi square = 0.0036 on Hausmann test, due to chi square cross section <0.05 on Hausmann test and chi square cross section on Chow test <0.05 then most appropriate for book bank category 1 is using Fixed Effect model.

The bank category 2 has cross section results chi square = 0 in Chow test, while cross section of chi square = 0.8635 on Hausmann test, due to chi square cross section > 0.05 on Hausmann test then the most appropriate model for book bank category 2 is model Random Effect. The bank category 3 has cross section results chi square = 0 in Chow test, while cross section of chi square = 0.2421 on Hausmann test, due to chi square cross section > 0.05 on Hausmann test then the most appropriate model for book bank category 3 is using model Random Effect.

The bank category 4 has cross section results chi square = 0 in Chow test, while cross section of chi square = 0.0000 in Hausmann test, due to chi square cross section <0.05 on test then the most appropriate model for book bank category 4 is using Random model Effect.

From the results of the research, the hypothesis of this study is as follows:

H0: There is a negative and significant influence between the reserve requirement on corporate profits in book bank 1.

H1: There is a negative and significant influence between the reserve requirement on corporate profits in book bank 2.

H2: There is a negative and significant influence between the reserve requirement on corporate profits in the book bank 3.

H3: There is a positive and insignificant influence on the company's profit in the book bank 4.

CONCLUSION

For the category of bank book 1, book 2 and book 3 have a negative and significant influence on the bank's performance as measured, while for the bank category book 4 has a positive and insignificant effect due to the level of liquidity that is quite good. This is in line with research conducted by Gunji& Yuan (2009) which states that the impact of monetary policy is smaller for banks with a higher level of profitability while for banks that have low profitability will feel a very pronounced impact.

With the increase in Statutory Reserves tends to make bank profits fall, therefore banks must be more careful in collecting deposits (Third Party Funds), because if DPK is too much, but cannot be channeled to customers, it can make an increase in Statutory Reserves that must be kept at Bank Indonesia.

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APPENDIX A

Category	Bank Name	Code
1	PT BANK AMAR INDONESIA	AMAR
	PT BANK ARTOS INDONESIA	ARTOS
	PT BANK BISNIS INTERNASIONAL	BISNIS
	PT BANK DINAR INDONESIA	DINAR
	PT BANK FAMA INTERNASIONAL	FAMA
	PT BANK HARDA INTERNASIONAL	HARDA
	PT BANK MITRANIAGA	MITRANIAGA
	PT BANK OF INDIA INDONESIA, Tbk	INDIA
	PT BANK OKE INDONESIA	OKE
	PT BANK ROYAL INDONESIA	ROYAL
	PT BANK SBI INDONESIA	SBI
	PT BANK YUDHA BHAKTI	YUDHABHAKTI
	PT BPD BENGKULU	BPDBENGKULU
	PT BPD JAMBI-UUS	BPDJAMBI
	PT BPD KALIMANTAN BARAT - UUS	BPDKALBAR
	PT BPD KALTENG	BPDLKALTENG
	PT BPD LAMPUNG	BPDLAMPUNG
	PT BPD MALUKU DAN MALUKU UTARA	BPDMALUKU
	PT BPD NUSA TENGGARA BARAT - UUS	BPDNTB
	PT BPD NUSA TENGGARA TIMUR	BPDNTT
	PT BPD SULAWESI TENGGARA	BPDSULTENGGARA
	PT CENTRATAMA NASIONAL BANK	CENTRATAMA
	PT PRIMA MASTER BANK	PRIMA
	PT. BPD SULAWESI TENGAH	BPDSULTENG

	THE ROYAL BANK OF SCOTLAND N.V.	SCOTLAND
	PT. BANK AGRIS	AGRIS
	PT BANK ANTARDAERAH	ANTARDAERAH
	BANK OF AMERICA, N.A	AMERICA
	DEUTSCHE BANK AG.	DEUTSCHE
	THE HONGKONG AND SHANGHAI BANKING	HONGKONG
	JP. MORGAN CHASE BANK, N.A.	MORGANCHASE
2	PT BANK INDEX SELINDO	INDEX
	PT BANK JASA JAKARTA	JASAJAKARTA
	PT BANK SAHABAT SAMPOERNA	SAMPOERNA
	BPD SUMATERA BARAT - UUS	BPDSUMBAR
	PT BPD DAERAH ISTIMEWA YOGYAKARTA	BPDYOGYA
	PT BPD KALIMANTAN SELATAN - UUS	BPKALSEL
	PT BPD SULAWESI UTARA GORONTALO	BPDSULUT
	PT BANK ARTHA GRAHA INTERNASIONAL, Tbk	ARTHAGRAHA
	PT BANK BNP PARIBAS INDONESIA	PARIBAS
	PT BANK BUMI ARTA, Tbk	BUMIARTA
	PT BANK CAPITAL INDONESIA, Tbk	CAPITAL
	PT BANK CHINA CONSTRUCTION BANK INDONESIA, Tbk	CHINA
	PT BANK COMMONWEALTH	COMMON
	PT BANK CTBC INDONESIA	CTBC

PT BANK GANESHA	GANESHA
PT BANK ICBC INDONESIA	ICBC
PT BANK INA PERDANA	INAPERDANA
PT BANK JTRUST INDONESIA, TBK	JTRUST
PT BANK KESEJAHTERAAN EKONOMI	EKONOMI
PT BANK MANDIRI TASPEN	MANTAP
PT BANK MASPION INDONESIA	MASPION
PT BANK MAYORA	MAYORA
PT BANK MESTIKA DHARMA	MESTIKA
PT BANK MNC INTERNASIONAL, Tbk	MNC
PT BANK MULTIARTA SENTOSA	MULTIARTA
PT BANK NATIONALNOBU	NOBU
PT BANK NUSANTARA PARAHYANGAN, Tbk	NUSANTARA
PT BANK QNB INDONESIA, Tbk	QNB
PT BANK RABOBANK INTERNATIONAL INDONESIA	RABOBANK
PT BANK RESONA PERDANIA	RESONA
PT BANK SHINHAN INDONESIA	SHINHAN
PT BANK SINARMAS - UUS	SINARMAS
PT BANK VICTORIA INTERNATIONAL, Tbk	VICTORIA
PT BANK WOORI SAUDARA INDONESIA 1906, Tbk	WOORI
PT BPD BALI	BPDBALI
PT BPD KALIMANTAN TIMUR DAN KALIMANTAN	
UTARA	BPKDKALTIM
PT BPD PAPUA	BPDPAWUA
PT BPD RIAU DAN KEPULAUAN RIAU	BPDRIAU

	PT BPD SULAWESI SELATAN DAN BARAT - UUS	BPDSULSELBAR
	PT BPD SUMATERA SELATAN DAN BANGKA BELITUNG - UUS	BPDSUMSEL
	PT BRI AGRONIAGA, Tbk	AGRONIAGA
3	PT BANK ANZ INDONESIA	ANZ
	PT BANK KEB HANA INDONESIA	HANA
	PT BANK PEMBANGUNAN DAERAH JAWA TENGAH - UUS	BPDJATENG
	PT BPD SUMATERA UTARA - UUS	BPDSUMUT
	PT BPD DKI - UUS	BPDDKI
	PT BANK BUKOPIN, Tbk	BUKOPIN
	PT BANK DANAMON INDONESIA TBK - UUS	DANAMON
	PT BANK DBS INDONESIA	DBS
	PT BANK HSBC INDONESIA	HSBC
	PT BANK MAYAPADA INTERNATIONAL, Tbk	MAYAPADA
	PT BANK MAYBANK INDONESIA, Tbk	MAYBANK
	PT BANK MEGA, Tbk	MEGA
	PT BANK MIZUHO INDONESIA	MIZUHO
	PT BANK OCBC NISP, TBK - UUS	OCBCNISP
	PT BANK PERMATA, Tbk - UUS	PERMATA
	PT BANK SUMITOMO MITSUI INDONESIA	SUMITOMO
	PT BANK TABUNGAN NEGARA (PERSERO), Tbk - UUS	BTN
	PT BANK TABUNGAN Pensiunan Nasional, Tbk	BTPN
	PT BANK UOB INDONESIA	UOB
	PT BPD JAWA BARAT DAN BANTEN, Tbk	BPDJABAR

	PT BPD JAWA TIMUR - UUS	BPDJATIM
	PT PAN INDONESIA BANK, Tbk	PANIN
	STANDARD CHARTERED BANK	STANCHART
	THE BANGKOK BANK COMP. LTD	BANGKOK
	THE BANK OF TOKYO MITSUBISHI UFJ LTD	TOKYO
4	PT BANK CENTRAL ASIA, Tbk	BCA
	PT BANK CIMB NIAGA, TBK - UUS	CIMB
	PT BANK MANDIRI (PERSERO), Tbk	MANDIRI
	PT BANK NEGARA INDONESIA (PERSERO), Tbk	BNI
	PT BANK RAKYAT INDONESIA (PERSERO), Tbk	BRI