

# Analysis the Impact of Macroeconomic on Financial Performance and Stock Returns of State-Owned Banks in Indonesia Stock Exchange 2006-2016

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**Abstract:** *This study aims to analyze the developments of macroeconomic, financial performance and stock returns and to analyze how macroeconomic influence directly and indirectly through the financial performance on the stock return of state-owned banks in the Indonesia Stock Exchange period 2006 to 2016. Macroeconomic variables used are the interest rate (SB), exchange rate (NT) and Gross Domestic Product (GDP). Financial performance variables used are Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), Operating Expenses to Operating Income (BOPO) and Loan to Deposit Ratio (LDR). The analysis technique used in this research is path analysis, using SPSS and Lisrel software. The results found in this study are development of macroeconomic variables, financial performance and stock returns four state-owned banks showed positive value. Directly, interest rate has a significant impact on stock returns of Bank Mandiri and BNI, the exchange rate has a significant impact on stock returns of BTN and GDP has a significant impact on stock returns of BRI. Indirectly, interest rate has a significant impact on stock returns of Bank Mandiri and BNI, the exchange rate has a significant impact on stock returns of all state-owned banks, the GDP has no significant impact on all stock returns the state-owned bank.*

**Keywords:** stock returns, state-owned banks, macroeconomic variables, financial performance, path analysis

## 1. Introduction

Investment is placement of funds at certain period with purpose to make a profit in the future (Halim 2003). Stock is one selected investment instruments that choosed by many investors in the market (Chen, Goldstein and Jiang 2007). Stocks generate the highest returns compared to other investment instruments in the past ten years ([www.idx.co.id](http://www.idx.co.id)). According to Wijaya (2013), the stock defined as a sign of ownership or possession of any person or entity in a company. Issuing shares is one option the company wants to raise capital companies (Gregoriou 2011).

The financial sector is a part of the sector with the largest market capitalization in the Indonesia Stock Exchange until December 2015, which amounted to 25,3% of the total market capitalization ([www.idx.co.id](http://www.idx.co.id)). This showed that the financial sector has an important influence on fluctuations in the stock price index in Indonesia Stock Exchange. The banking subsector is also closely linked to the investment climate which happening in the real sectors (Amperaningrum and Agung 2011). Last several years state-owned bank issuers always dominates and into the 50 companies with the largest capitalization in the Indonesia Stock Exchange ([www.idx.co.id](http://www.idx.co.id)). Improvements of financial performance and stock performance of state-owned bank was very fast after the global economic crisis, it caused four banks is quite attractive for investment shares by the investors. The last few years there is an issue of state-owned banks that will be holding in Indonesia that aims to strengthen capital, to reduce costs and to strengthen the domestic market. The holding plan requires growth performance of state-owned banks more quickly so that

needed depth research regarding the performance of the financial and stock returns state bank.

Macroeconomic variables are crucial in determining the performance of the stock since investor will react a sovereign, when macroeconomic conditions in a country experiencing changes that result in changes in the stock price and its returns. (Riantani and Tambunan 2013). The results of the research that has been done have many differences regarding the affect and the relationship between variabels macro-economy as the BI rate, exchange rate and GDP on the financial performance and stock returns of banking subsector. Some of these studies include conducted by Lina Tu and Li Li (2012) in China, Luthra and Mahajan (2014) at the Bombay Stock Exchange, Khan and Rukh (2012) at the Karachi Stock Exchange Pakistan, Purnama (2013) at the Indonesian Stock Exchange and Osamwonyi and Michael (2014) in Nigeria. The difference results from several studies that have been mentioned suspected to be caused by differences in economic conditions and the banking of the country as well as the period of the study. Based on this background, the purpose of this research is to analyze:

1. Macroeconomic, financial performance and stock returns developments of state-owned banks in the period 2006 to 2016.
2. Impact of macroeconomics to the stock returns of state-owned banks in the period 2006 -2016.
3. Impact of macroeconomics to the financial performance of state-owned banks in the period 2006 -2016.
4. Impact of financial performance to the stock returns state-owned bank in the period 2006 -201 6.

5. Impact of macroeconomics through the financial performance on stock returns of state-owned bank's period 2006 -2016.

The scope of this study was limited a few things, namely:

1. Stock returns of four state-owned bank listed in the Indonesia Stock Exchange from the year 2006-2016, namely BRI, Bank Mandiri, BNI and BTN.
2. Macroeconomic variables used are the BI rate, exchange rate and GDP, while financial performance variables used are CAR, NPL, BOPO and LDR.

## 2. Data

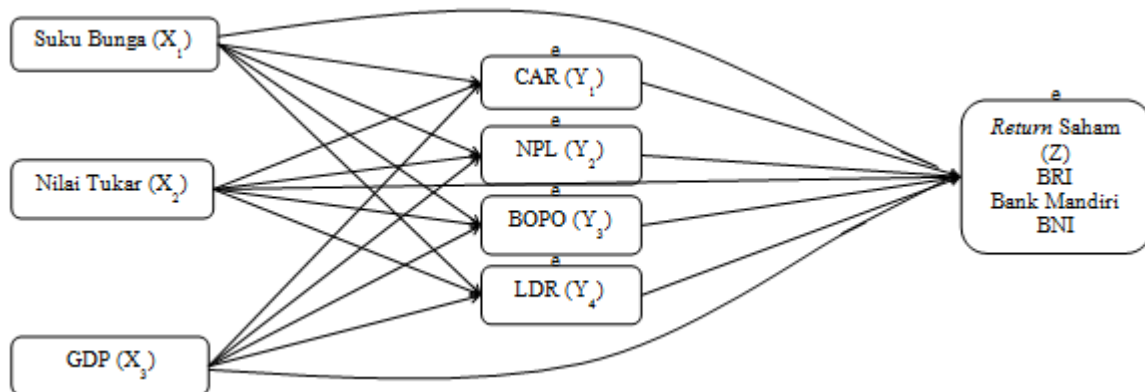
This study use secondary data such as quarterly data BI rate, exchange rate, GDP, CAR, NPL, BOPO, LDR and stock

prices of four state-owned banks listed in the Indonesia Stock Exchange, Bank Rakyat Indonesia Tbk (BRI), Bank Mandiri Persero Tbk, Bank Negara Indonesia Tbk (BNI) and Bank Tabungan Negara (BTN) year period from 2006 to 2016.

## Methodology

Data analysis techniques used for the processing of data in this research is analysis descriptive statistics and path analysis techniques. Path analysis in this study through the stages:

### Step 1: Determine the path diagram.



Picture 1 Path Diagram

### Step 2: Determine the structural equation

#### Direct Effect

The direct effect of this research there are three structural equations. The first equation is the direct influence of macroeconomic variables consisting of BI rate (X<sub>1</sub>), the exchange rate (X<sub>2</sub>) and GDP (X<sub>3</sub>) to *return* stock (Z) state-owned banks on a combine of four state-owned bank and each of state-owned bank. The second equation is the direct influence of macroeconomic variables consisting of BI rate (X<sub>1</sub>), the exchange rate (X<sub>2</sub>) and GDP (X<sub>3</sub>) to the financial performance of state-owned banks in combine and individual each state-owned bank consisting of CAR (Y<sub>1</sub>), NPL (Y<sub>2</sub>), BOPO (Y<sub>3</sub>) and LDR (Y<sub>4</sub>). The third equation is a direct effect of the financial performance variables consisting of CAR (Y<sub>1</sub>), NPL (Y<sub>2</sub>), BOPO (Y<sub>3</sub>) and LDR (Y<sub>4</sub>) to *return* stock (Z) state-owned banks in combine and each state-owned bank.

$$Z_{(Gabungan/BRI/Mandiri/BNI/BTN)} = a + b_1SB + b_2NT + b_3GDP + e \quad \dots\dots(1)$$

$$Y_{(CAR/NPL/BOPO/LDR)} = a + b_1SB + b_2NT + b_3GDP + e \quad \dots\dots(2)$$

$$Z_{(Gabungan/BRI/Mandiri/BNI/BTN)} = a + b_1CAR + b_2NPL + b_3BOPO + b_4LDR + e \quad \dots\dots(3)$$

#### Indirect Effect

The indirect effect in this study is the effect of macroeconomic variables consisting of BI rate (X<sub>1</sub>), the exchange rate (X<sub>2</sub>) and GDP (X<sub>3</sub>) to *return* stock (Z) state-owned banks in combine or individual state-owned bank

through the performance of financial consisted of CAR (Y<sub>1</sub>), NPL (Y<sub>2</sub>), BOPO (Y<sub>3</sub>) and LDR (Y<sub>4</sub>).

$$Z_{(Combined/BRI/Mandiri/ BNI/ BTN)} = a + b_1 SB. (CAR .NPL.BOPO.LDR) + b_2 NT. (CAR, NPL. BOPO.LDR) + b_3 GDP. (CAR.NPL.BOPO.LDR) + e \quad \dots\dots\dots (4)$$

Information:

SB : BI Rate  
 NT : Exchange rate  
 GDP : Economic growth  
 CAR : Capital Adequacy Ratio  
 NPL : Non-Performing Loans  
 LDR : Loan to Deposit Ratio  
 BOPO : Operating Expense to Operating Income

## 3. Empirical Results

### Analysis Descriptive Statistics

Based on the results of descriptive statistics in Table 1 it can be seen that the lowest value of BI rate is 5,75% occurred in 2012 TW II to 2013 TW III, the highest value of BI rate is 12,75% occurred in 2006 TW I. The lowest value of exchange rate is Rp.8.590 occurred in TW II in 2011 and the highest value of exchange rate is Rp.13.868 occurred in 2015 TW III. The lowest value of GDP is 4,14% occurred in 2009 TW II and the highest value of GDP is 6,82% occurred in 2010 TW IV.

The highest value of CAR is 26,31% owned by Bank Mandiri and the lowest CAR is 12,02% owned by BNI. The

highest value of NPL is 27,66% owned by Bank Mandiri and the lowest value of NPL is 1,55% owned by BRI. The highest value of BOPO is 93,25% owned by BNI and the lowest value of BOPO is 57,46% owned by Bank Mandiri. The highest value of LDR is 116,04% owned by BTN and the lowest value of LDR is 48,55% owned by BNI. The highest value of stock return is 0,3625 owned by BNI and the lowest value of stock return 0,1202 owned by BTN.

**Table 1:** Results of a descriptive analysis of the study variables

	N	Min.	Max.	Mean	Std. dev
SB	152	5,75	12,75	7,47	1,60
NT	152	8,590	13,868	10366,24	1651,39
GDP	152	4,14	6,82	5,59	0,70
CAR	152	12,02	26,31	16,96	2,67
NPL	152	1,55	27,66	4,66	4,42
BOPO	152	57,46	93,20	74,62	8,84
LDR	152	48,55	116,04	80,95	16,78
RETURN	152	-0,12	0,36	0,0187	0,07
Valid N	152				

Source: SPSS, the data is processed

### Direct Effect of Macroeconomics to the Stock Return

BI rate directly has significant negative effect on stock returns of Bank Mandiri and BNI. The results of this study support Purnama Purnama, Wiksuana and Mustanda (2013). Rising BI rate led the interest rates on deposits in banks also increased so that investors prefer save funds and invest in the bank in order to get a high return and low risk.

**Table 2:** Results of a direct influence on stock returns macroeconomic

Variable (X)	Variable (Z)	Comb. LF	BRI LF	Mandiri LF	BNI LF	BTN LF
SB	Stock return	-0,05	0,02	-0,93**	-0,76**	-0,02
NT		0,00	0,09	0,12	0,22	-0,42*
GDP		-0,18	-0,44**	-0,29	-0,21	0,04

(LF: Loading Factor, \*significance at the 10% level, \*\*significance at the 5% level)

Variable exchange rates has significant negative effect directly on stock returns of BTN because when the exchange rate depreciates, investors turned in the money market because of the benefits is greater so that the stock price and return decreased. The results of this study support previous research by Amperaningrum and Agung (2011). The variable GDP directly has significant negative effect on stock returns of BRI where these results contradict with previous studies. The negative relationship between GDP with stock returns can be caused due to high of investor confidence in the state-owned bank's stock and found improved performance when economic growth declines.

### Direct Effect of Macroeconomics to the Financial Performance

BI rate has significant positive effect on CAR (combined state-owned bank, BRI, Mandiri). The increase of BI rate will lead savings and loan interest rates increase too, so people prefer to save their money and make the bank's capital increase (Widokartioko, Achsan and Beik 2016),

these results are consistent with research by Wulaningsih (2012). BI rate also has significant positive effect on NPL (combined state-owned bank, BRI, Mandiri, BNI). The results of this study support Diansyah (2016), in which the interest rate of central bank increased, bank's interest rate and lending rate also increase, so the credit risk has increased. BOPO (combined state bank, BRI, Mandiri, BNI) also significantly influenced positively by the BI rate, because when BI rate increased, the cost of funds will increase and so does BOPO. These results are consistent with previous research by Apriyana, Siregar and Hasanah (2015).

BI rate is also give significant negative effect on CAR BTN (discovery of the phenomenon in which the BI rate fell CAR BTN ride), NPL BTN (found circumstances in which the BI rate is derived there are many mortgage jammed in BTN), BOPO BTN (found that when BI rate rises, BTN revenue increased significantly compared to the operating costs due to increased interest income from loans and government bonds). The negative relationship significantly between the BI rate by LDR (state-owned banks combined, BRI, Mandiri, BNI and BTN) can be caused by rising BI rate made rising of savings interest rate so many people who prefer to save their money in banks than borrowed funds, in addition cost of funds will increase due to pay greater interest savings to customers.

The exchange rate has significant positive effect on CAR (combined state bank, BRI, BNI). This positive relationship between the exchange rate with the CAR of banks because capital adequacy level of state-owned banks is quite high and far from the minimum of regulation so that the depreciation of the rupiah will not directly affect the CAR. The exchange rate also has significant positive effect on BTN's NPL. Positive relationship between the exchange rate with BTN's NPL caused by the depreciation of the exchange rate would result in the ability of the company or the debtor that is affected by changes in the exchange rate to pay off debts to banks will fall so that the NPL will increased. The results of this study support previous research by Haifa and Wibowo (2015). Variable LDR (combined state bank, Mandiri, BNI) significantly influenced positively by the exchange rate, it is because it was found when the exchange rate depreciates, the state bank lending increased, due to the people in need of bank loans.

**Table 3:** Results of a direct influence on the financial performance of macroeconomic

Variable (X)	Variable (Y)	Comb. LF	BRI LF	Mandiri LF	BNI LF	BTN LF
SB	CAR	0,43**	0,42**	0,77**	0,13	-0,21**
NT		0,28**	0,68**	0,18	0,43**	-0,75**
GDP		0,21*	0,17	0,34**	0,20	0,01
SB	NPL	0,68**	0,54**	0,87**	0,81**	-0,27**
NT		-0,28**	-0,53**	-0,24**	-0,43**	0,38**
GDP		-0,03	0,00	0,00	-0,07	-0,26**
SB	BOPO	0,33**	0,36**	0,72**	0,56**	-0,32**
NT		-0,08	-0,22	-0,14	-0,24	-0,58**
GDP		-0,08	-0,20	-0,15	-0,09	0,27**
SB	LDR	-0,46**	-0,50**	-0,53**	-0,57**	-0,20**
NT		0,38**	0,15	0,67**	0,61**	-0,58**
GDP		0,04	-0,28	0,13	-0,04	0,28**

(LF: Loading Factor, \*significance at the 10% level,  
 \*\*significance at the 5% level)

The exchange rate is also a significant negative effect on CAR BTN, the results of this study support research Wulaningsih (2012), where the exchange rate depreciated causing debts in the form of dollar increases thus decreasing the amount of capital exchange bank. Exchange rate also has significant negative effect on NPL (state-owned banks combined, BRI, Mandiri, BNI), it is because it was found when the exchange rate depreciates, BRI, bank Mandiri and BNI replenishes losses on bad credit risks and managed to improve their credit quality so that NPL can be reduced. BOPO BTN is influenced negatively significantly by the exchange rate, this is because when the exchange rate depreciates BTN can increase revenue credits so that BOPO decreased. The relationship significantly negative between the exchange rate with the LDR BTN is because when exchange rate depreciated, the level of investment in banks increased so that funds in the bank was increased and LDR decreased, where the results of this study support Winarsih, Adean and Jumiati (2015).

GDP has significant positive effect on CAR (combined state-owned banks and Independent). These results support the research results of Wulaningsih (2012), where economic growth will cause bank earnings rose so that the bank's capital increase. Relations significant positive effect between GDP and BTN's BOPO can be caused due to discovered when economic growth is slowing, BOPO BTN can be lowered due to the success of management to manage interest rate appropriate to customers and success in reducing operating costs so that it can achieve higher margins, but the results this differs from the research Apriyana, Siregar and Hasanah (2015). A significant positive relationship between GDP and BTN's LDR due to increasing economic growth, the more demand for credit to invest. These results support research and Malelak Lie (2015). GDP is also significant negative effect on NPL BTN, this is due to increased economic growth would lead to reduced credit risk because the customer has the ability to pay its debts. This result support previous research conducted by Diansyah (2016).

#### Direct Effect of Financial Performance to the Stock Return

The result of the direct effect of the financial performance to the stock return can be seen in Table 4. CAR has significant negative effect on stock returns combined state banks and BNI. These results support previous research by Priharto and Irama (2012) as well as Indiani and Dewi (2015). This is because it was found that when the BNI's CAR rose, the share price decline not because there are decreasing in the company's performance but because of the impact of the global financial crisis where many foreign investors withdrew their funds from the Indonesia's capital market

**Table 4:** Results of the direct effect of the financial performance of the stock return

Variable (Y)	Variable (Z)	Comb. LF	BRI LF	Mandiri LF	BNI LF	BTN LF
CAR	Stock returns	-0,22**	-0,23	-0,42	-0,48**	-0,20
NPL		0,35**	0,64	1,28**	1,57**	0,06
BOPO		-0,20*	-0,43	-0,07	-0,51**	-0,06
LDR		-0,05	0,03	-0,29	0,36	0,46**

(LF: Loading Factor, \*significance at the 10% level,  
 \*\*significance at the 5% level)

NPL has significant positive effect on stock returns of Bank Mandiri, BNI and the combined state bank. These results support previous research by Gaddafi and Syamni (2011). This positive relationship between the NPL and stock returns can be caused due to the period of the study discovered when the NPL increases, price and stock return bank has just raised. This suggests that investors remain interested in the shares of state-owned banks throughout the bank's earnings and performance is still good.

BOPO has significant negative effect on stock returns and the combined state bank and BNI. These results support previous research by Priharto and Irama (2012). This suggests that investors pay attention to the level of efficiency of banks in investing in bank's stocks. If management of state banks can manage the efficiency of its operations, investors will be more interested in investing in bank's stocks.

LDR has significant negative effect directly on BTN's stock returns and combined state-owned banks. This suggests that investors pay attention to the level of loans made by banks in investing because BTN is a bank that focuses on loans, particularly housing loans, where the distribution and good credit quality will increase the interest of investors to invest in the bank BTN. These results contradict previous studies by Gaddafi and Syamni (2011).

#### Indirect Influence of Macroeconomic toward Stock Return

**Table 5:** Results of indirect macroeconomic effect on stock returns

Var. (X)	Var. (Y)	Var. (Z)	Comb. LF	BRI LF	Mandiri LF	BNI LF	BTN LF
SB	CAR, NPL, BOPO, LDR	Stock returns	0,10	0,08	0,89**	0,72**	-0,05
NT			-0,16**	-0,40	-0,57**	-0,53**	-0,06
GDP			-0,04	0,04	-0,17	-0,17	0,10

(LF: Loading Factor, \* significance at the 10% level, \*\* significance at the 5% level)

The results of the indirect macroeconomic effect on stock returns can be seen in Table 5. BI rate indirectly through the financial performance has significantly positive effect on stock return of Bank Mandiri and BNI. These results differ from the effect of BI rate to the stock returns of Bank Mandiri and BNI which has a negative relationship directly.

The exchange rate effect indirectly through the financial performance of the stock returns of Bank Mandiri, BNI and the combined of four state-owned banks. These results differ from the results of direct effect of the exchange rate to the stock return directly which the results found that the direct



effect of the exchange rate only affect to the BTN's stock returns. This means that if the exchange rate depreciates, the stock return of these banks will fall as investors withdrew their funds and switch to invest in the money market. GDP variable indirectly through the financial performance has no effect on all state-owned banks.

#### 4. Conclusion

Based on the research that has been done, it can be concluded as follows:

- 1) BI rate has negative effect on stock returns of Mandiri and BNI. The exchange rate has negative affect to the stock return of BTN. GDP has negative affect to the stock return of BRI.
- 2) BI rate has positive effect on CAR (state-owned banks combined, BRI, Mandiri), NPL (state-owned banks combined, BRI, Mandiri, BNI), BOPO (state-owned banks combined, BRI, Mandiri, BNI), as well as the negative effect on CAR BTN, NPL BTN, BTN BOPO and LDR (combined state bank, BRI, Mandiri, BNI and BTN). The exchange rate has positively affects to teh CAR (state-owned banks combined, BRI, BNI), NPL BTN, LDR (state-owned banks combined, Mandiri, BNI), as well as the negative effect on CAR BTN, NPL (combined state-owned bank, BRI, Mandiri, BNI), BOPO BTN and BTN LDR. GDP has positive effect on CAR (combined state-owned banks and Mandiri), BOPO and LDR BTN, as well as the negative effect on the NPL BTN.
- 3) Variable CAR has negative effect on stock returns of combined state bank and BNI. Variable NPL has positive effect on stock returns of combined state bank, Mandiri and BNI. Variable BOPO has negative effect to stock returns combined state banks and BNI. Variable LDR has positive effect on BTN's stock return.
- 4) BI rate indirectly through the financial performance has positive effect on stock returns Mandiri and BNI. The exchange rate indirectly through financial performance has negative effect on stock returns combined state bank, Mandiri and BNI. GDP indirectly through the financial performance has no effect on stock returns throughout the state bank.

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## Author Profile



**Citra Putri Septanti** is accepted in Telkom University Bandung, Indonesia at Department of Business Management, Faculty of Business Management, as undergraduate student in year of 2008. After experience as a frontliner in one of state-owned bank of Indonesia for two years, she continue to study in School of Business Bogor Agricultural University, at Postgraduate Program of Business Management and focusing on financial.