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# The Influence of Banking Profitability on Share Price and the Moderating Role of Capital Adequacy Ratio and Foreign Exchange Transaction: Comparative Study of Government and Private Banks in Indonesia

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## ABSTRACT

Bank share prices in Indonesia have the tendency to fluctuate in the last ten years. Reducing Net Interest Margin issue results in some investors' hesitation to invest their funds in bank's shares. Up until now, ten biggest banks in Indonesia like MANDIRI, BNI, BRI, BTN, BCA, DANAMON, PERMATA, PANIN, CIMB NIAGA, and MAYBANK INDONESIA [formerly BII]) have been playing a dominant roles in the banking sector share market. Therefore, this research analyzed and compared the influence of bank's profitability to the share price of these ten biggest government and private banks in Indonesia. There are many previous studies on banking profitability and share price but only a few studies analyze banking profitability and share price using bank's capital adequacy ratio and foreign exchange transaction as moderators. Random Effect model was applied to measure the influence of bank profitability on share price using capital adequacy ratio and foreign exchange transaction as moderators. Results indicated that the profitability of both government and private banks had an influence on the share price. Capital adequacy ratio can moderate the influence of government bank profitability on share price but it

> cannot moderate the influence of private bank profitability on share price. Foreign exchange transactions can enhance the influence of government bank profitability on share price. Nevertheless, it cannot moderate the influence of private banks' profitability on share price.

> *Keywords:* Bank share price, bank profitability, capital adequacy ratio, foreign exchange transaction

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## INTRODUCTION

Reducing net interest margin (NIM) has become one of the issues that may contribute to the declining of share prices. According to Doyran (2013), NIM is an important indicator of bank performance because it directly affect cost of borrowing and lending within the financial system. Moreover, NIM is the most important variable of the financial sector and it is generally explained as the difference between the lending interest rate and the borrowing interest rate of the total assets (Iftikhar, 2016). Currently, the operating cost of the operating revenue ratio of bank in Indonesia is higher than 85%. This ratio shows that Indonesian banking sector still has low efficiency because the higher this ratio, the lower the efficiency will be. As a result, the purpose of decreasing net interest margin is to raise bank's efficiency. Nevertheless, reducing net interest margin is viewed as decreasing banks' profit and it may disappoint market's and bank's shareholders. Hence, this circumstance may also affect the share prices to go down sharply. As a result, shareholders may sell their shares and new investor may be reluctant to invest in these shares. The above notion is supported by Maulana et al. (2015) who found that net interest margin as part of bank's earning that contributed to the changes in bank's share price in Indonesia. Furthermore, the decrease of the interest rates may also have affected net interest margin and profitability of banks in Indonesia. The reduction of this interest rate is in line with the Central bank of Indonesia's single digit rate policy, whose

objective is to decrease the lending rate. The purpose of this policy is to develop the real sector because the high development of financial sector seems unsuccessful to develop real sector at this present time. On the other hand, the single digit interest will potentially reduce the margin and bank's revenue.

Besides lower NIM and single digit interest rate issues, capital adequacy, which is an important indicator of bank businesses, has also become an important banking issue in Indonesia. Olalekan and Adeyinka (2013) showed that capital adequacy ratio was an important determinant of banks profitability. In the last few years, Indonesia has witnessed quite a number of merging and acquisitions among banks in the country due to their capitalization issues which affect their profitability. High non-performing loan and competition to get third party funds make this capitalization issue even worse. Bank capital adequacy which is measured by capital adequacy ratio (CAR), is regulated by the central bank to ensure solvency of banks. Not only it serves as an important measure of the financial soundness of a bank, it also has an important influence on bank performance and profitability. Pranata (2015) revealed that the higher the capital adequacy ratio, the higher the profitability of the bank would be. However, the higher the bank's capital adequacy ratio, the higher banks should keep their fund in capital, thus the fund allocation in earning assets such as loan may decrease. Hence, the interest income from loan may decrease and this circumstance will reduce both banking profitability and investor's dividend. As a result, the share price will go down. Nino et al. (2016), for instance, showed that increasing capital adequacy ratio would decrease the share price of banking institutions in Indonesia.

After the financial crisis in 1997. Rupiah exchange rate has a tendency to depreciate and fluctuate especially against the US dollar. The 2007-2008 global financial crisis caused Rupiah to depreciate even more and eventually affected the Indonesian macroeconomic condition. Rjoub et al. (2009) found that there was a relationship between stock return and some macroeconomics factors which included real exchange rates. This supports the findings by Humala and Rodriguez (2013) that macro financial uncertainty had a relationship with volatility of foreign exchange and stock markets. McPherson (2006) found that the connection between exchange rates and stock market correlations and volatilities extended beyond periods of extreme crisis. Thus, foreign exchange fluctuation may also have contribution to the bank's foreign exchange transaction. Global transactions lead to government banks and private banks in Indonesia to deal with foreign exchange transaction. As a result, these transactions may influence movement on bank profitability. Ghosh (2017) discovered that in the post crisis era, such positive influence of exchange rate derivatives on profits waned out as banks face greater challenge in successfully betting currency movements in a more volatile foreign currencies environment.

Recently, the bank share market trading is dominated by ten biggest banks in terms of their asset size in Indonesia. These banks comprises 4 government banks (Bank Mandiri, BNI, BRI, and BTN) and 6 private banks (BCA, Bank Permata, Bank Panin, Bank Danamon, CIMB NIAGA, and Maybank Indonesia [formerly known as BII]). These banks dominate banking activities in Indonesia such as collecting third party fund and distributing loan. Rosengard and Prasetyantoko (2011) discussed about Indonesia banking oligopoly and showed that these ten banks had a share about 65.4% of the total banking assets, 66% of the total third party funds, and 65.4% of the total outstanding loan in 2009. Moreover, these banks also play major role in the Indonesian financial sector and control more than half of the banking system assets. In fact, these ten biggest banks contribute to 61.64% of the total banking assets in Indonesia (Giri & Weelang, 2016).

Hence, this research analyzed the relationship between bank profitability and share price of these banks in Indonesia. Since-the analysis focused on the traditional activity of banks; banks' profitability was measured by NIM. Heffernan and Fu (2008) argued that NIM was a better measurement of performance compared to the Return on Average Assets (ROAA) and Return on Average Equity (ROAE).

As discussed previously, capital ratio and foreign exchange influence profitability of banks (Al-Kayed et al., 2014; He et al., 2014; Olalekan & Adeyaninka, 2013; Pranata, 2015). These variables not only influence profitability, but also have an impact on banks share price (Kim, 2003; Noman et al., 2012). Hence, this research work will contribute to the literature on banks' profitability and share price by investigating the role of capital adequacy ratio (CAR) and foreign exchange transactions as the moderator of the relationship between banks' profitability and share price.

## **Literature Review**

Studies on banking institutions profitability are aplenty among others (Athanasoglou et al., 2008; Berger, 1995; Bourke, 1989; Molyneux & Thornton, 1992; Pasiouras & Kosmidou, 2007). These studies focused on various measures of profitability such as returns on assets and equity, as well as NIM. The volatility of interest rates which caused financial intermediaries experience financial problems have motivated Ho and Saunders (1981) to analyze the impacts of these rates volatility on banks' interest margin. Allen (1988) extended this study by employing different types of credits and deposits to the model. A different version of this model was also introduced by Angbazo (1997) whereby he included credit risk and interest rate risk to the model. Analyzing data of six countries of the European Union and the USA during the period of 1988-1995 and applying the model introduced by Ho and Saunders (1981), Saunders and Schumacher (2000) found that net interest margins of banks were influenced by various macroeconomic factors and regulations. Using data from Germany, France, the United Kingdom, Italy and Spain, Maudos and Fernandez de Guevara (2004) introduced the influence of operating costs into the model. Most recently, Chen and Liao (2011) empirically tested this model by applying the data of banking sectors of 70 countries, while Lopez-Espinoza et al., (2011) analyzed the determinants of interest margins in the years leading to the 2008 financial crisis and effects of different accounting reporting standards.

Following the above findings, the analysis of net interest margins was extended to include other factors such as share price of banks. Chu and Lim (1998), for example, found that share price performance was influenced by changes in profit. Rachmawati and Kristijanto (2009) showed that there was a positive simultaneous influence between net interest margins and share price of banks in Indonesia. According to Tan and Floros (2012a), there is a positive relationship between bank profitability, cost efficiency, banking sector development, stock market development and inflation in China. Moreover, Tan and Floros (2012b) found a positive relationship between bank performance and stock market volatility in China. Earlier, using a panel of six Singapore-listed banks for the period between 1992-1996, Chu and Lim (1998) found that the share price performance of these banks was influenced by the changes in their profit. Furthermore, Maulana et al. (2015) found a positive relationship between net interest margin and share price of Indonesian banking. On the other hand, Indiani and Dewi (2016) showed the negative and insignificant relationship between net interest margin and share price. They revealed that net interest margin had no influence on the share price of banks' in Indonesia. Their regression analysis showed the insignificant value of the relationship between net interest margin and share price.

In addition to bank's profitability, previous studies have also shown other factors to have influenced banks' share price. A better capitalized bank is believed to be more profitable, resulting in a better performance of its share. Seetharaman and Raj (2011) found that profitability had a strong relationship with share price for banks in Malaysia. Using panel data of banks from various countries, Demirguc-Kunt et al. (2013) found that a stronger capital position was associated with better stock market performance. Ariff and Tunyarputt (2013) found that the market reacts positively to announcements of financing events that led to leverage ratios moving closer to their relative industry median debt equity ratio, and eventually caused increase share price. Al-Kayed et al. (2014) analyzed cross-country bank-level data of 19 countries for the period of 2003-2008, and found that Islamic banks' profitability responded positively to increase in equity (capital ratio). Pranata (2015) investigated the relationship between capital adequacy ratio and profitability of banks in Indonesia Stock Exchange. They revealed that share price responded positively to the banks' profitability. The findings by Rawlin et al. (2015), however, did not support the above results. They included capital adequacy variables in their analysis and found that both profitability and capital adequacy were negatively associated with the sample bank's share price. Similarly to Rawlin et al. (2015), Nino et al. (2016) found that share price responded negatively to the capital adequacy ratio of banking company in Indonesia.

The relationship between stock price and foreign exchange has been well documented. For instance, Kim (2003) investigated the existence of long run equilibrium relationship among stock price, inflation, interest rate, industrial production, and real exchange rate in the United States. Kim (2003) found a negative relationship between stock price and real exchange rate. Noman et al. (2012) investigated the causality between exchange rate and stock price in Bangladesh. However, they did not find any causality running on those variables. Bahmani and Saha (2015) reviewed some articles about exchange rate and stock prices, and found that exchange rate and stock prices could move in the same or opposite direction. Although studies on the stock price and foreign exchange link are abundant, only a few focused on banks' profitability. Recently, He et al. (2014) analyzed the influence of foreign exchange on bank profitability in the United States. Using data of 22 large banks in the USA, they found that banks' profitability was affected by foreign exchange fluctuations. Based on the above discussion, the following hypotheses were proposed:

*H*<sub>1</sub>: *There is a positive influence between banks' profitability and share price.* 

*H*<sub>2</sub>: There is a negative influence of banks' profitability and capital adequacy ratio on share price.

 $H_3$ : Capital adequacy ratio enhances the influence of banks' profitability on share price.

 $H_4$ : There is a positive influence of banks' profitability and foreign exchange transaction on share price.

*H<sub>s</sub>*: Foreign exchange transactions enhance the influence of banks' profitability on share price.

## MATERIALS AND METHODS

This research used one independent variable and one dependent variable. The independent variable was NIM while the dependent variable in this research was bank share price. In addition, Capital Adequacy Ratio (CAR) and Foreign Exchange (FOREX) transaction were employed as the moderating variable for the relationship between banks' profitability and banks' share price.

This research used static panel data and applied random effect model. The quarterly data of bank Net Interest Margin as banks' profitability ratio, Capital Adequacy ratio (CAR), and bank's foreign exchange transaction were extracted from Bank Indonesia's website. The sample consisted of 10 largest banks in Indonesia based on their total asset sizes. They were 4 largest government banks (MANDIRI, BRI, BNI, and BTN) and 6 largest private banks (BCA, DANAMON, PERMATA, PANIN, CIMB NIAGA, and MAYBANK INDONESIA). Meanwhile, the data of government banks share prices and private banks share prices were extracted from Yahoo Finance's website. The sample period of the study was from 2005 until 2014.

The analyses were carried out in three steps, beginning with the analysis by using the regression model below:

Share 
$$price_{it} = \beta_0 + \beta_1 Profitability_{it} + e$$
(1)

Model (1) was the regression model that was applied to measure the influence of banking profitability on share price. Profitability was measured by NIM which was calculated by net interest income over total earning assets (Doyran, 2013). This calculation was also applied by the Central Bank of Indonesia to measure Net Interest Margin (Bank Indonesia, 2001). Meanwhile, the dependent variable was nominal share price (in Rupiah). In the second step, the variable MV is included into equation 1 above. Below is the model:

Share 
$$price_{it} = \beta_0 + \beta_1 Profitability$$
  
 $_{it} + MV_{it} + e$ 
(2)

Where  $MV_{ii}$  was the moderator variables which were measured by Capital Adequacy Ratio (CAR) and Foreign Exchange transaction (FOREX) separately. Therefore, the regression models were formed in two models (2a and 2b). Thus, this regression models were listed below: Share  $price_{it} = \beta_0 + \beta_1 Profitability_{it} + CAR_{it} + e$ 

Share  $price_{it} = \beta_0 + \beta_1 Profitability$  $_{it} + FOREX_{it} + e$ 

(2b)

(2a)

Where Capital Adequacy Ratio (CAR) was measured by Total Regulatory Capital divided by Total Risk Weighted Assets. Meanwhile, foreign exchange transaction was measured by the total bank's foreign exchange transaction (in Rupiah).

Finally, to test the contribution of these moderating variables, they were moderated as given in model (3) below:

Share 
$$price_{it} = \beta_0 + \beta_1 Profitability_{it} +_2$$
  
 $MV_{it} + \beta_3 Profitability.MV_{it} + e$   
(3)

The  $MV_{it}$  was the interaction between moderating variables that consisted of Capital Adequacy Ratio (CAR) and Foreign Exchange Transaction (FOREX), with profitability. Therefore, for model 3, two sub models (3a and 3b) represented the analysis:

Share 
$$price_{it} = \beta_0 + \beta_1 Profitability$$
  
 $_{it}+_2CAR_{it} + \beta_3 Profitability.CAR_{it} + e$   
(3a)

Share  $price_{it} = \beta_0 + \beta_1 Profitability$  $_{it} +_2 Forex_{it} + \beta_3 Profitability.Forex_{it} + e$ (3b)

Some diagnostic tests such as multicollinearity test and heteroscedasticity test were also performed on the sample data. In addition, Lagrange Multiplier test was done in order to find out the better model between Ordinary Least Square (*OLS*) and random effect model. Moreover, Hausman test was also carried out to examine the better model between the random effect and fixed effect. Finally, based on Hausman test result, this research employed the random effect model. A summary of the variables and their measurements used in this research is shown in Table 1.

Table 1Definition and notation of the variables

Variables	Definition	References	Predicted sign
Net Interest Margin (NIM) as profitability measurement	Ratio of net interest income to total earning assets	Ho & Saunders (1981) Allen (1988) Angbazo (1997) Maudos & Solis (2009) Lopez-Espinoza et al. (2011) Rachmawati &Kristijanto (2009) Maulana et al.(2015) Sunyoto & Sam'ani (2014) Indiani & Dewi (2016)	Positive influence of Net Interest Margin on Share Price
Capital Adequacy Ratio (CAR)	Total Regulatory Capital divided by Total Risk Weighted Assets	Olalekan & Adeyinka (2013) Al-Kayed et al. (2014) Ariff & Tunyarputt (2013)	Negative influence of Capital Adequacy Ratio (CAR) on Share Price

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Variables	Definition	References	Predicted sign
Foreign Exchange Transaction (FOREX)	Total bank's foreign exchange transaction	Kim (2003) Noman et al. (2012) He et al. (2014) Bahmani & Saha (2015)	Positive influence of foreign exchange transaction on share price
Share Price	Equilibrium price of demand and supply of share, and this price is in daily, monthly, or quarterly basis	Kim (2003) Rachmawati & Kristijanto (2009) Sunyoto & Sam'ani (2014) Brahmani & Saha (2015) Maulana et al. (2015) Indiani & Dewi (2016) Nino et al. (2016)	Positive influence on Net Interest Margin and Foreign Exchange transactions. Negative influence on capital adequacy ratio (CAR)

Table 1 (continue)

## RESULTS

The section discusses results of this study. Firstly, this section presents the descriptive statistics for the variables employed. Secondly, this section presents results of the regression models. Finally, the last part of this section presents results of the robustness test.

#### **Descriptive Statistics**

Table 2 shows summary statistics of the variables used in this study. The mean of government net interest margin (NIM) was 0.0632 which was higher compared to the private banks mean of 0.0545. This

Table 2Descriptive statistics

finding implied that government banks had higher profitability than private banks. In other words, the government banks could reach net interest margin up to 0.12, while the private banks could only reach up to 0.09. However, both of these banks had the same minimum value of net interest margin, which was 0.03. The mean share price for the government banks was Rp4, 281.94 while this was Rp2, 259.97 for the private banks. Although the mean share price for the government banks was higher than the mean share price for the private banks, its maximum value of share price was still lower than the maximum value of the share price of the private bank (Rp11,

	Government banks			Private banks		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum
Net Interest Margin (NIM)	0.0632	0.03	0.12	0.0545	0.03	0.09
Share Price (in Rupiah)	4281.94	553	11,417	2259.97	1,400	13,092
Capital Adequacy Ratio (CAR)	0.1672	0.12	0.27	0.1708	0.09	0.37
Foreign Exchange Transaction (in million Rupiah)	8,044,553	18,264	46,000,000	7,063,350	3,896	78,063,350

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417 for the government banks and Rp13, 092 for the private banks). Meanwhile, the minimum value of government banks share price was Rp553 and this could reach up to Rp1, 400 for the private banks' share price. Furthermore, the private banks had a better capital adequacy with the mean of 0.17 and maximum value of 0.37, compared to the government banks mean of 0.16 and the maximum value of 0.27. In addition, the government banks had more foreign exchange transaction with mean of Rp8, 044, 553 million, while private banks had a mean of Rp7, 063, 350 million. However, the private banks could reach the maximum value of transactions up to Rp78,063,350 million and government banks could attained up to only Rp46,000,000 million.

#### **Regression Analysis**

Table 3 and Table 4 show that the adjusted R-squared values were ranged from 0.0031 to 0.3719 for all the models. As shown in column 4 of Table 3, capital adequacy ratio could moderate the influence of the government banks profitability on share price. However, this was not true for the private banks, as presented by the result given in column 4 of Table 4. The significant interaction term in column 6 of Table 3 indicated that foreign exchange transactions influenced banks' share price. Meanwhile, for private banks, although foreign exchange transactions influence banks' share price, they did not moderate the relationship between bank profitability and banks' share price. Moreover, the multicollinearity and heteroscedasticity test were also performed

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Variable	Model (1) :	Model (2a) :	Model (3a) :	Model (2b):	Model (3b) :
	Y=α	$Y = \alpha + \beta profit$	$Y = \alpha + \beta profit$	$Y = \alpha +$	$Y = \alpha + \beta profit +$
	+βprofit	$+\beta CAR$	$+\beta CAR +$	βprofit +	$\beta$ Forex + $\beta$ Profit.
			βProfit.CAR	βForex	Forex
С	7.182***	4.055**	16.726***	2.789**	5.359***
	(41.66)	(2.27)	(3.70)	(3.33)	(4.55)
Profit	14.618***	13.903**	20.149***	20.841***	17.365***
	(5.69)	(2.20)	(3.54)	(7.48)	(5.93)
CAR		-0.666**	1.73**		
		(-2.10)	(2.11)		
Profit.CAR			-177.95***		
			(-2.64)		
Forex				0.270***	0.100
				(5.75)	(1.39)
Profit.Forex					5.38e-07**
					(3.01)
Adj R-squared	0.1874	0.1218	0.235	0.3391	0.3719

Table 3				
Government banks	(Dependent	variable:	Share	price)

*Notes:* 1. (\*) indicates significance at 10% level, (\*\*) indicates significance at 5% level, and (\*\*\*) indicates significance at 1% level. 2. Values in parentheses are t-statistics.

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Variable	Model (1): $Y = \alpha + \beta$ profit	Model (2a) : $Y = \alpha + \beta profit$ $+ \beta CAR$	Model (3a) : $Y = \alpha + \beta profit$ $+ \beta CAR +$ $\beta Profit.CAR$	Model (2b) : $Y = \alpha + \beta profit$ $+ \beta Forex$	Model (3b) : $Y=\alpha + \beta profit + \beta Forex + \beta Profit.$ Forex
С	4.502*** (17.58)	6.252*** (13.95)	6.964*** (8.68)	5.331*** (9.67)	4.115*** (6.74)
Profit	47.770*** (10.45)	-7.790** (-2.44)	-1.458 (-0.22)	-8.803*** (-2.75)	1.797 (0.48)
CAR		-0.708*** (-6.34)	-0.322 (-0.860)		
Profit.CAR			-38.509 (-1.08)		
Forex				0.147*** (6.01)	0.190*** (5.21)
Profit.Forex					-2.39e-08 (-0.36)
Adj R-squared	0.3183	0.0645	0.0675	0.0031	0.2174

Table 4				
Private banks	(Dependent	variable:	Share	price)

*Notes:* 1. (\*) indicates significance at 10% level, (\*\*) indicates significance at 5% level, and (\*\*\*) indicates significance at 1% level. 2. Values in parentheses are t-statistics.

on the regression model and the results showed that these issues could be ruled out. The values of the government banks variance inflation factor (VIF) were ranged from 1.56 to 4.93 or lower than 10, while these were 1.01 to 1.59 for the private banks. In addition, values of Breusch-Pagan test were ranged from 0.1447 to 0.4671 or higher than 0.05 for all the models. Indeed, the random effect model was better choice to be employed than the fixed effect model because the probability values of Hausman test were found to be higher than 0.05 for all the models.

#### **Robustness Test Using ROA and ROE**

As a robustness check, the regressions were repeated by using two other measures of profitability that are return on assets (ROA) and return on equity (ROE).

Robustness Test Using ROA. As shown in column 2 of Table 5 and Table 6, bank profitability measured by ROA had a significant and positive relation with share price. This result was also consistent with the previous regression using net interest margin as profitability measurement. Moreover, similar to the analysis using NIM, the capital adequacy ratio was found to enhance the influence between government banks profitability and share price. The government banks foreign exchange transactions also increased the relationship between profitability and share price which was reflected by the results in column 6 of Table 5. On the other hand, capital adequacy ratio and foreign exchange transactions failed to enhance the relationship between private banks profitability and its share price.

The Influence of Banking Profitability on Share Price

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Variable	Model (1) :	Model (2a) :	Model (3a) :	Model (2b):	Model (3b) :
	$Y = \alpha +$	$Y = \alpha + \beta profit$	$Y = \alpha + \beta profit + \beta$	$Y = \alpha +$	$Y = \alpha + \beta profit +$
	βprofit	$+\beta CAR$	$\beta CAR + \beta Profit.$	βprofit +	$\beta$ Forex + $\beta$ Profit.
			CAR	βForex	Forex
С	6.97***	7.82***	6.99**	4.99***	5.56***
	(78.77)	(29.26)	(14.56)	(9.36)	(8.43)
Profit	45.8***	40.65***	82.07***	38.58***	42.21***
	(14.40)	(9.38)	(4.40)	(7.17)	(12.38)
CAR		-4.64***	0.266		
		(-3.92)	(0.11)		
Profit.CAR			-235.3**		
			(-2.40)		
Forex				0.147***	0.097**
				(4.15)	(2.30)
Profit.Forex					4.01e-07**
					(1.97)
Adj R-squared	0.5976	0.5818	0.6328	0.640	0.653

Table 5		
Robustness test (ROA) of government bar	ks (Dependent variable:	Share price)

*Notes:* 1. (\*) indicates significance at 10% level, (\*\*) indicates significance at 5% level, and (\*\*\*) indicates significance at 1% level. 2. Values in parentheses are t-statistics.

Table 6Robustness test (ROA) of private banks (Dependent variable: Share price)

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Variable	Model (1) :	Model (2a) :	Model (3a) :	Model (2b):	Model (3b) :
	Y=α	$Y = \alpha + \beta profit$	$Y = \alpha + \beta profit +$	$Y = \alpha + \beta profit$	$Y = \alpha + \beta profit +$
	+βprofit	$+\beta CAR$	$\beta CAR + \beta Profit.$	$+\beta$ Forex	$\beta$ Forex + $\beta$ Profit.
			CAR		Forex
С	5.76***	7.74***	7.43	4.41***	4.75***
	(45.48)	(27.70)	(32.07)	(9.17)	(5.07)
Profit	71.24***	8.91**	22.96**	6.28	3.10
	(11.94)	(2.25)	(2.13)	(1.56)	(0.34)
CAR		-4.6***	-3.02**		
		(-7.62)	(-2.50)		
Profit.CAR			-74.56		
			(-1.54)		
Forex				0.168	0.116
				(6.47)	(0.7)
Profit.Forex					0.046
					(0.28)
Adj R-squared	0.879	0.080	0.102	0.342	0.323

*Notes:* 1. (\*) indicates significance at 10% level, (\*\*) indicates significance at 5% level, and (\*\*\*) indicates significance at 1% level. 2. Values in parentheses are t-statistics.

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**Robustness Test Using ROE.** Referring to the Table 7 and Table 8, results of the robustness test using return on equity (ROE) were also similar to the net interest margin. The government banks capital adequacy ratio (CAR) could raise the influence of banking profitability on share price. Moreover, the government banks foreign exchange transaction could also increase the relationship between banking profitability and share price. Meanwhile, both the moderating variables (capital adequacy ratio and foreign exchange transactions) could not increase the influence of private banks profitability on share price.

## DISCUSSIONS

The results above showed that both the government banks' and private banks' profitability had positive and significant relationships with their share prices. This indicates that profitability of banks is important for a positive performance of their share price. In other words, the higher of this ratio reflects the good performance of the bank's management. Investors react to this favorable performance and raise their confidence on the banking institutions through higher share price. It is important to note that these results are in line with Rachmawati and Kristijanto (2009), Tan and Floros (2012a), and Maulana et al. (2015).

The results also showed that capital adequacy ratio (CAR) moderated the influence of government banks profitability on share price. These results are consistent with Olalekan and Adeyinka (2013), Demirguc-Kunt et al. (2013), Al Kayed et al. (2014), and Pranata (2015). Meanwhile, as the moderator, capital adequacy ratio

Table 7

Robustness test (ROE) of government be	anks (Dependent variable: Share price)
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Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Variable	Model (1) :	Model (2a) :	Model (3a) :	Model (2b) :	Model (3b) :
	$Y = \alpha +$	$Y = \alpha + \beta profit$	$Y = \alpha + \beta profit +$	$Y = \alpha + \beta profit$	$Y = \alpha + \beta profit$
	βprofit	$+\beta CAR$	$\beta CAR + \beta Profit.CAR$	+ βForex	$+\beta$ Forex +
					βProfit.Forex
С	6.74***	7.12***	5.18***	4.95***	6.08***
	(59.58)	(18.91)	(10.02)	(8.90)	(8.81)
Profit	5.97***	4.95***	12.14***	4.33***	3.56***
	(13.17)	(7.05)	(5.40)	(6.54)	(5.03)
CAR		-1.26	8.68**		
		(-0.84)	(3.08)		
Profit.CAR		× ,	-35.05**		
			(-2.71)		
Forex				0 148***	0.076*
TOTON				(3.99)	(1.71)
Profit Forex				(()))	6 98e-08***
I IOIILI OICA					(2.65)
- 1' D 1	0.400	0.544	0.500	0.5775	(2.05)
Adj K-squared	0.498	0.544	0.589	0.5775	0.5784

*Notes:* 1. (\*) indicates significance at 10% level, (\*\*) indicates significance at 5% level, and (\*\*\*) indicates significance at 1% level. 2. Values in parentheses are t-statistics.

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Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Variable	Model (1) :	Model (2a) :	Model (3a) :	Model (2b):	Model (3b) :
	$Y = \alpha +$	$Y = \alpha + \beta profit$	$Y = \alpha + \beta profit +$	$Y = \alpha + \beta profit$	$Y = \alpha + \beta profit$
	βprofit	$+\beta CAR$	$\beta CAR + \beta Profit.CAR$	$+\beta$ Forex	$+\beta$ Forex +
					βProfit.Forex
С	5.77***	7.84***	8.68***	4.47***	4.41***
	(31.76)	(20.24)	(9.82)	(9.76)	(8.78)
Profit	7.44***	-0.099	-1.08	0.588	0.737
	(7.9)	(-0.20)	(-1.04)	(1.08)	(1.01)
CAR		-4.25***	-5.03***		
		(-7.25)	(-5.35)		
Profit.CAR			0.145		
			(1.06)		
Forex				0.166***	0.185**
				(6.17)	(2.72)
Profit.Forex					-0.019
					(-0.31)
Adj R-squared	0.21	0.0011	0.0009	0.272	0.271

Table 8Robustness test (ROE) of private banks (Dependent variable: Share price)

*Notes:* 1. (\*) indicates significance at 10% level, (\*\*) indicates significance at 5% level, and (\*\*\*) indicates significance at 1% level. 2. Values in parentheses are t-statistics.

has an insignificant value for private banks. This value shows that capital adequacy ratio does not moderate the influence of private banks' profitability on share price. Generally, the government banks capital is supported by the government. Therefore, the government banks in Indonesia seem to not find difficulties to fulfilling the minimum capital requirement. This circumstance can reduce investors' fear about the government bank's solvability problem and make them more confidence to invest in the government banks' shares. Meanwhile, lower capital adequacy ratio also indicates that the government banks can allocate more funds in earning assets than the private banks. As a result, the government banks can generate higher profits or better performance than the private banks, and this situation will influence the government banks share price.

When foreign exchange transactions were included in the regression, it was found to enhance the influence of government banks profitability on share price. This result is consistent with Kim (2003) and He et al. (2014). However, as the moderator, foreign exchange transactions are only significant for the government banks. In other words, it cannot moderate the influence of private banks' profitability on share price. This situation occurred because the government banks had the tendency to have more foreign exchange transactions compared to the private banks. In addition, the government banks tend to have better access to cooperate with many big companies especially government companies compared to private banks. Government banks facilitate foreign exchange transactions and provide hedging activity for those companies. Thus, these activities may affect the government bank's profitability, which will eventually influence their share price.

The robustness test was also employed using the ROA and ROE. As an alternative of profitability ratio, these ratios also generated similar results to net interest margin. Furthermore, these ratios can increase the influence of the government banks' profitability on share price. Nevertheless, these ratios cannot raise the influence of the private banks' profitability on share price. In other words, these robustness test results show that net interest margin is a good indicator to measure banking profitability for both the government banks and private banks.

The results of this study can be used as a guideline for banks in Indonesia in preparing for measures to be taken in anticipation of a declining profitability (NIM) which may influence the banks' share price negatively. Moreover, the results may also serve as a justification for banks to evaluate the importance of Capital Adequacy Ratio (CAR) and the influence of fluctuating foreign exchange s on banks' share price. In addition, this study may provide recommendations for the Government in evaluating their interest rate policy that will affect both banks' NIM and share price. Thus, Indonesia Financial Service Authority should review and consider their future plan on limiting net interest margins, as this policy would harm their share price. More importantly, Indonesia Financial Service Authority must also control capital adequacy ratio (CAR) continuously in order to maintain the

liquidity position of banks. In addition, the central bank of Indonesia should implement some policies that will facilitate private banks to gain more access to corporations or institutions with large foreign exchange transactions. This is to ensure the private banks to be able to raise their profitability through these transactions.

## CONCLUSIONS

Net interest margin has become the most important issue influencing the movement of bank share price in Indonesia. Recently, the bank's share market is dominated by ten biggest banks in Indonesia. The regression results show that there both the government and private banks' profitability have an influence to the share price. In addition, capital adequacy ratio can be a good moderator for the government banks because it enhances the relationship between the government banks' profitability and the share price. However, this ratio cannot moderate the influence of the private banks' profitability on the share price. Although foreign exchange transactions influence the performance of share price of both government and private banks, it fails to enhance the relationship between profitability and share price of private banks. In addition, the robustness tests using ROA and ROE are able to generate similar results to the NIM.

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## REFERENCES

- Al-Kayed, L. T., Zain, S. R. S. M., & Duasa, J. (2014). The relationship between capital structure and performance of Islamic banks. *Journal of Islamic Accounting and Business Research*, 5(2), 158-181. doi:10.1108/JIABR-04-2012-0024.
- Allen, L. (1988). The determinants of bank interest margins: A note. Journal of Financial and Quantitative Analysis, 23(20), 231-235.
- Angbazo, L. (1997). Commercial bank net interest margins, default risk, interest-rate risk and offbalance sheet banking. *Journal of Banking and Finance*, 21(1), 55-87.
- Ariff, M., & Tunyarputt, K. (2013). Share price reactions to relative capital structure. *The International Jurnal of Finance*, 25(3), 7821-7850.
- Athanasoglou, P. P. Brissimis, S. N., & Delis, M. D., (2008). Bank-specific, industry specific and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money*, 18(2), 121-136.
- Bahmani, M., & Saha, O. (2015). On the relation between stock prices and exchange rates: A review article. *Journal of Economic Studies*, 42(4), 707-32. doi:10.1108/JES-03-2015-0043
- Bank Indonesia. (2001). Surat edaran bank indoensia tentang pedoman perhitungan rasio keuangan nomor 3/30/DPNP (Bank Indonesia circular letter concerning guidelines for calculating financial ratios number 3/30/DPNP). Jakarta, Indonesia: Author.
- Berger, A. N. (1995). The relationship between capital and earnings in banking. *Journal of Money*, *Credit, and Banking*, 27(2), 432-456.
- Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America and Australia. *Journal of Banking* and Finance, 13(1), 65-79.

- Chen, S., & Liao, C. (2011). Are foreign banks more profitable than domestic banks? Home- and host-country effects of banking market structure, governance, and supervision. *Journal of Banking* and Finance, 35(4), 819-839.
- Chu, S., & Lim, G. (1998). Share performance and profit efficiency of banks in an oligopolistic market : Evidence from Singapore. *Journal of Multinational Financial Management*, 8(2-3), 155-168.
- Demirguc-Kunt, A., Detragiache, E., & Merrouche, O. (2013). Bank capital: Lessons from the financial crisis. *Journal of Money, Credit and Banking*, 45(6), 1147-1164.
- Doyran, M. A. (2013). Net interest margins and firm performance in developing countries. *Management Research Review*, 36(7), 720-42. doi:10.1108/MRR-05-2012-0100.
- Giri, R. R. W, & Wellang, K. W. (2016). Impact of website design, trust, and internet skill on the behaviour use of site internet banking in Bandung Raya : A modification of the Utaut model. *Pertanika Journal of Social Sciences and Humanities*, 24(S), 35-50.
- Ghosh, A. (2017). How do derivative securities affect bank risk and profitability? *The Journal of Risk Finance*, 18(2), 186-213. doi:10.1108/JRF-09-2016-0116.
- He, L. T., Fayman, A., & Casey, M. K. (2014). Bank profitability : The impact of foreign currency fluctuations. *Journal of Applied Business and Economics*, 16(2), 98-104.
- Heffernan, S., & Fu, M. (2008). The determinants of bank performance in China (Emering markets group working paper series WP-EMG-03-2008). London: Emerging Markets Group.
- Ho, T., & Saunders A. (1981). The determinants of banks interest margins: Theory and empirical evidence. *Journal of Financial and Quantitative Analysis*, 16(4), 581-600

- Humala, A., & Rodriguez, G. (2013). Some stylized facts of return in the foreign exchange and stock markets in Peru. *Studies* in Economics and Finance, 30(2), 139-158. doi:10.1108/10867371311325444.
- Iftikhar, S. F. (2016). The impact of financial reforms on bank's interest margins : A panel data analysis. *Journal of Financial Economic Policy*, 8(1), 120-138. doi:10.1108/JFEP-05-2015-0028.
- Indiani, N. P. L., & Dewi, S. K. S. (2016). Pengaruh variabel tingkat kesehatan bank terhadap harga saham perbankan di bursa efek Indonesia (The effect of bank soundness level on banking stock price in Indonesia Stock Exchange). E-Jurnal Management Universitas Udayana, 5(5), 2756-2785.
- Kim, K. (2003). Dollar exchange rate and stock price : Evidence from multivariate cointegration and error correction model. *Review of Financial Economics*, 12(3), 301-313. doi:10.1016/S1058-3300(03)00026-0.
- Lopez-Espinosa, G., Moreno, A., & Perez de Gracia, F. (2011). Banks' net interest margin in the 2000s: A macro-accounting international perspective. *Journal of International Money and Finance*, 30(6), 1214-1233.
- Maudos, J., & Fernandez de Guevara, F. (2004). Factors explaining the interest margin in the banking sectors of the European Union. *Journal* of Banking and Finance, 28(9), 2259-2281.
- Maulana, P. R., Salim, U., & Aisjah, S. (2015). Determinan harga saham perbankan yang terdaftar (2009-2012) di Bursa Efek Indonesia (Determinant of banking stock price listing (2009-2012) on Indonesia Stock Exchange). Jurnal Akuntansi Multiparadigma, 6(2), 175-340.
- McPherson, M. Q. (2006). Is there a link between foreign exchange market stability and stock market correlations? Evidence from Canada. *Multinational Business*

*Review (St. Louis University)*, *14*(1), 45-57. doi:10.1108/1525383X200600003.

- Molyneux, P., & Thornton, J. (1992). Determinants of European bank profitability: A note. *Journal of Banking and Finance*, 16(6), 1173-1178.
- Nino, Y., Murni, S., & Tumiwa, J. R. (2016). Analisis ukuran perusahaan, struktur modal, non performing loan, Capital Adequacy ratio (CAR), dan Return on Equaity (ROE) terhadap harga saham perusahaan perbankan pada indeks LQ45 [Size analysis of the company, capital structure, Non Performing Loan (NPL), Adequacy Capital Ratio (CAR), and Return Equity on share price of banking company in Index LQ45]. Jurnal Riset Ekonomi, Manajemen, Bisinis, Dan Akuntansi (EMBA), 4(3), 717-28.
- Noman, A. M., Kabir, S. H., & Bashar, O. K. M. R. (2012). Causality between stock and foreign exchange markets in Bangladesh. *Studies* in Economics and Finance, 29(3), 174-186. doi:10.1108/10867371211246849.
- Olalekan, A., & Adeyinka, S. (2013). Capital adequacy and banks' profitability: An empirical evidence from Nigeria. *American International Journal of Contemporary Research*, 3(10), 87-93.
- Pasiouras, F., & Kosmidou, K. (2007). Factors influencing the profitability of domestic and foreign commercial banks in the European Union. *Research in International Business and Finance*, 21(2), 222-237.
- Pranata, A. (2015). Pengaruh capital adequacy ratio, loan to deposit ratio dan ukuran perusahaan pada profitabilitas bank di Bursa Efek Indonesia [The effect of capital adequacy ratio, loan to deposit ratio, and firm size on the profitability of banks in Indonesia Stock Exchange]. *E-Jurnal Akuntansi* Universitas Udayana, 11(1), 235-51.
- Rachmawati, T., & Kristijanto, D. (2009). Pengaruh Return On Assets (ROA), Return On Equity (ROE), Net Interest Margin (NIM) dan Rasio Biaya Operasional Pendapatan Operasional

(BOPO), terhadap harga saham bank [The influence of Return On Assets (ROE), Return on Equaity (ROE), Net Interest Margin (NIM), and BOPO ratios to the banks' shares price in Indonesia Stock Exchange]. *Jurnal Ilmu Ekonomi Dan Manajemen*, *6*(1), 67-94.

- Rawlin, R, Shanmugam, R., & Bhat, V. (2015). A comparison of the effects of key determinants on share prices of India's largest public and private sector banks. *The Great Lakes Herald*, 9(2), 1-12.
- Rjoub, H., Tursoy, T., & Günsel, N. 2009. The effects of macroeconomic factors on stock returns: Istanbul stock market. *Studies in Economics and Finance*, 26(1), 36-45. doi:10.1108/10867370910946315.
- Rosengard, J. K., & Prasetyantoko, A. (2011). If the banks are doing so well, why can't I get a loan ? Regulatory constraints to financial inclusion in Indonesia. *Asian Economic Policy Review*, 6(2), 273-96. doi:10.1111/j.1748-3131.2011.01205.x.
- Saunders, A., & Schumacher, L. (2000). The determinants of bank interest rate margins: An international study. *Journal of International Money and Finance*, 19(6), 813-832.

- Seetharaman, A., & Raj, J. R. (2011). An empirical study on the impactof earnings per share on stock prices of a listed bank in Malaysia. *International Journal of Applied Economics & Finance*, 5(2), 114-126.
- Sunyoto, Y., & Sam'ani. (2014). Pengaruh Capital Adequacy Ratio, Net Interest Margin dan Return on Asset terhadap harga saham pada perbankan di BEI period 2009-2012 [The influence of Capital Adequacy Ratio, Net Interest Margin, and Return On Assets on share price of banking companies in Indonesia Stock Exchange from 2009-2012]. Jurnal Ekonomi Manajemen dan Akuntansi, 21(36), 1-19.
- Tan, Y., & Floros, C. (2012a). Bank profitability and inflation: The case of China. *Journal* of Economic Studies, 39(6), 675-696. doi:10.1108/01443581211274610.
- Tan, Y., & Floros, C. (2012b). Stock market volatility and bank performance in China. *Studies in Economics and Finance*, 29(3), 211-228. doi:10.1108/10867371211246885.