THE EFFECT OF RETURN ON EQUITY, NET INTEREST MARGIN, LOAN TO DEPOSIT RATIO, TOTAL ASSETS TURNOVER, AND ASSETS TO EQUITY ON PRICE EARNINGS RATIO IN TOP FIVE BANKS OF INDONESIA AND KOREA: A MODERATING EFFECT OF INTEREST RATE

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ABSTRACT

This study examined the effects of financial performance on the relative firm values of the five banks each in Indonesia and Korea by conducting a comparison, causal relationship, and moderating effect analysis. The financial performances in this research are Return on Equity (ROE), Net Interest Margin (NIM), Loan to Deposits (LDR), Total Assets Turnover (TATO), and Assets to Equity (A/E). Price Earnings Ratio (PER) is used to represent the relative firm value. Interest Rates are set to test the moderating effect on the causal relationship between financial performances and firm values. This study selected five banks each as the sample from the population of the banks in the Indonesian and Korean Stock Exchange. 40 figures were collected for the past eight years, from 2014 to 2021. The analytical techniques are descriptive statistical analysis, independent sample t-test, hierarchical regression analysis, classical assumption test, and significance test. For processing the data, SPSS version 26 is used. The results showed that ROE and NIM significantly affect PER in both countries. LDR, TATO, and A/E do not significantly affect PER in both countries. Interest rates marginally moderate the effect of LDR on PER in Indonesia. Interest rates have no moderating effect on the relationship between financial performance and relative firm values in Korea. In the research, ROE and NIM dropped in the Indonesian group, but ROE decreased more dramatically. That implies that ROE affected the increasing PER level. Meanwhile, NIM dropped, but ROE dramatically inclined in Korea. That affected the decreasing PER level.

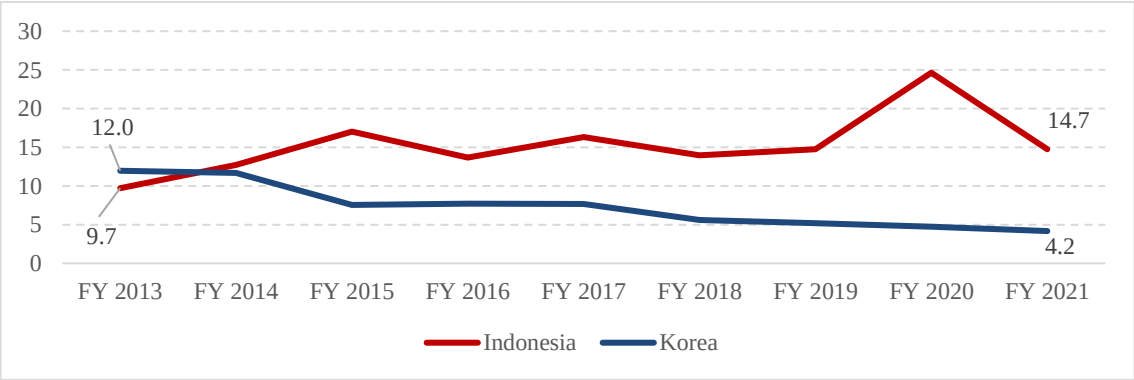
Keywords*:* Return on Equity, Net Interest Margin, Loan to Deposit Ratio, Price-Earnings Ratio, Interest Rates

INTRODUCTION

Hicks (1969) insisted that the industrial revolution was possible because the banking system developed first, which solved the liquidity problem unmatched. Established Indonesian Bank Restructuring Agency (IBRA) and restructured the sector by closing more than 70 banks. IBRA focused on making the industry healthy again, closing and merging the depressed or risky banks but not focusing on the number of banks in the industry. The number of commercial banks was 239 in 1997, and it decreased to 107 at the end of 2020 (Breuer&Kinda 2018). The Korean Government merged many commercial banks by force and encouraged the merged banks to become mega banks. The Government believed that the small number of megabanks could closely monitor and make the sector work efficiently. As a result of the industrial restructuring, the number of commercial banks decreased to 18 in 2021 from 33 in 1997 (Kang&Lee, 2020). The market share of the top 3 banks in Korea increased up to 62.3% in 2021 from 29.6% in 1997.

In the comparison studies of the banking industry between Indonesian and Korean banks, The researcher found out that the average PER of the Indonesian Top 5 Banks is 3.5 times bigger than the Korean Top 5 banks. The PER Gap has been becoming wider and wider during the last 8 years. High PER is usually considered that the stock is overvalued or the company has a high potential for growth. The higher PER that occurred over a long period of time in Indonesia means the stock in the bank sector is overvalued than in Korea. Or are there other factors to affect?

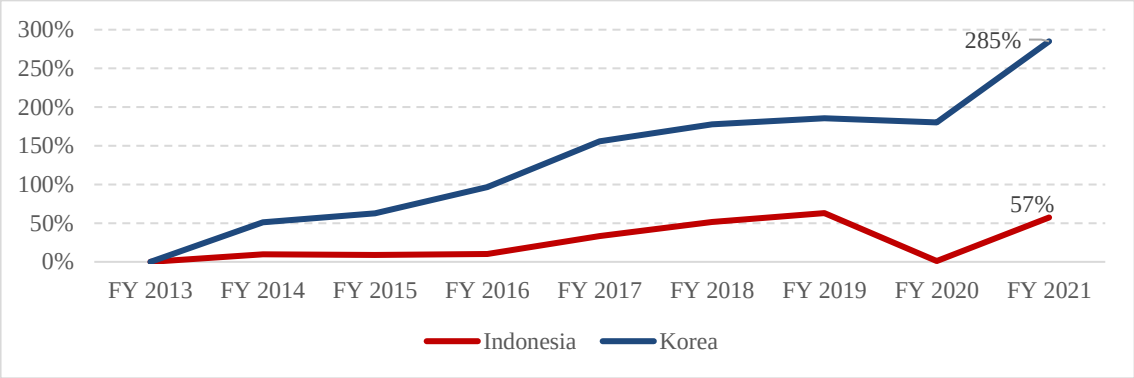
Figure 1: Comparison of Top 5 Banks PER Average (2013 ~ 2021)



Source: Bloomberg

Gill (2003) insisted that the higher price-earnings ratio indicates the market's confidence in the prospects of a company. Investors are willing to buy a company's share at a higher price when they strongly expect that the company's revenue and profits grow faster than its competitors. According to the data obtained from the study, the top 5 banks in Korea showed 285% growth in their summed net profits for the last 8 years. However, the top 5 banks in Indonesia showed only 57% in their summed net profits for the same period. Even though Top5 banks in Korea made larger profit growth than in Indonesia, it didn't lead to high PER based on market confidence.

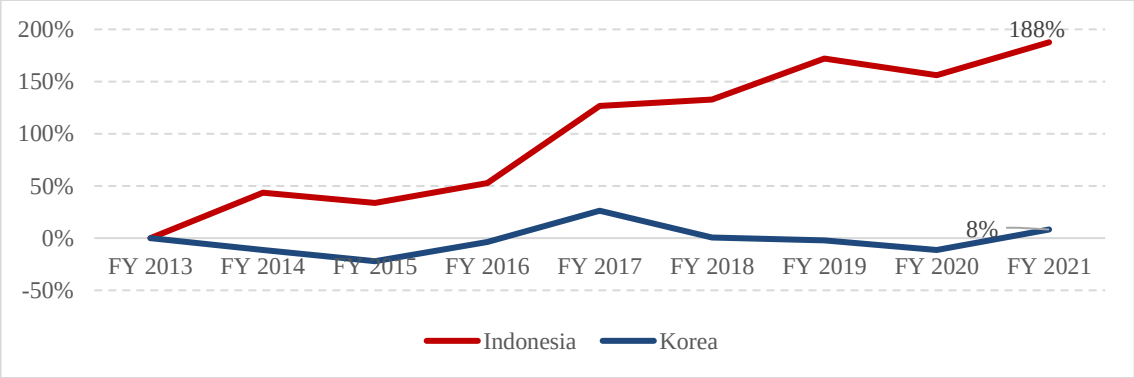
Figure 2: The growth of the summed Net Profits of the top 5 banks in the two countries



Source: Annual Report of Each Bank

According to the research of Nicholson (1960), the stock portfolio with lowest PERs dramatically outperformed the stock portfolio with higher PERs. Even though Top5 banks in Korea maintained low PERs for 8 years, it didn't outperform the stock return of the top 5 banks in Indonesia, which maintained high PERs. The stock return of the top 5 banks in Indonesia even showed much higher performance compared to the ones in Korea.

Figure 3: The accumulated stock returns of the top 5 banks in the two countries



Source: IDX.co.id, KRX.co.kr, Bloomberg

The phenomena contrasting to the general perceptions and previous research on PER requires further research. This study attempts to examine if there is significant difference in the indicators related to the financial performance, firm value, and macroeconomy in the top5 banks of the two countries. It is also the subject to study if the financial performance affects the firm's value (PER) in the top5 banks of the two countries. This study also investigates whether the macroeconomic factor has a moderating effect on the relationship between financial performance and firm value (PER).

Most studies are related to financial performance or market value ratio with Stock Return. Little research regarding the relationship between financial performance and PER has been conducted, crossing the countries with different macroeconomic environments. This study tries to fill the gap between the previous research and the empirical findings under different economic environments. A comparison analysis was conducted on the major Financial Performance, Interest Rate, and Firm Value (PER) of Top5 banks in Korea and Indonesia. The researcher also analyzed the causal relationship between major Financial Performance and Firm value (PER) and the Moderating effect between major Financial Performance and Firm value (PER).

LITERATURE REVIEW

Signaling Theory

Information asymmetry indicates that there are differences in information quality and amount between insiders and outsiders. Akerlof (1970) illustrated the asymmetric information in the used car market. Car buyers have less information about used cars than car salespeople do, so buyers will probably buy lower-quality cars from car salespeople. Likewise, information asymmetry

exists in the stock market. Managers of the company have more information about the company than shareholders or investors. Signaling theory indicates that An insider's action gives a signal to outsiders. This is attributed to the information asymmetry between insiders and outsiders. It is impossible for a listed company immediately discloses important information to its investors. Therefore, the management mostly knows more information about its company than the investors. According to Sarinastiti in 2015, the Signaling theory has been widely used in accounting and auditing studies which proposed that management may signal something about the firm through various aspects of financial information disclosure, which can be viewed as a signal by investors.

Gordon Growth Model and Sustainable Growth Model
Gordon (1959) relates a stock's intrinsic value to its future series of dividends. From his model, Kurach (2015) construed the relationship between the Price-Earnings Ratio and some of the Financial Ratios. Robert C. Higgins developed the concept of sustainable growth in 1977 for the discrete-time framework and extended it for the continuous-time framework (Higgins, 2011). He created the sustainable growth rate (SGR) comprising two accounting ratios: retention rate and return on equity.

Four financial ratios can be derived based on the underpinning models: ROE, NPM, TATO, and A/E. Profit Efficiency Ratio (ROE), Revenue Efficiency Ratio (NPM), Activity Ratio (TATO), Leverage Ratio (Asset to Equity) might positively affect Price Earnings Ratio. For this study, NPM was replaced to NIM

Profit Efficiency - ROE
Guillén et al. (2014) defined ROE as net income over total shareholders' equities. The ROE reflects the abilities of management to use the shareholders' funds effectively

Revenue Efficiency - NIM
Net interest margin (NIM) explains the gap between interest income earned by a bank and the interest it pays out to its lenders, herein mostly the depositors in the bank. (Puspitasari et al, 2021).

Liquidity - LDR
Pandia (2012) defined that Loan to Deposit Ratio states how actively a bank has used depositors' money to provide loans to its customers. Loan to Deposit Ratio (LDR) is a representative indicator of a bank's liquidity risk.

Activity - TATO
According to Kasmir (2015: 185), Total Assets Turnover is a ratio used to measure the turnover of all assets owned by a company. Gitman (2015) defines the total asset turnover (TATO) as a measurement that indicates the efficiency with which the firm uses its assets to generate sales.

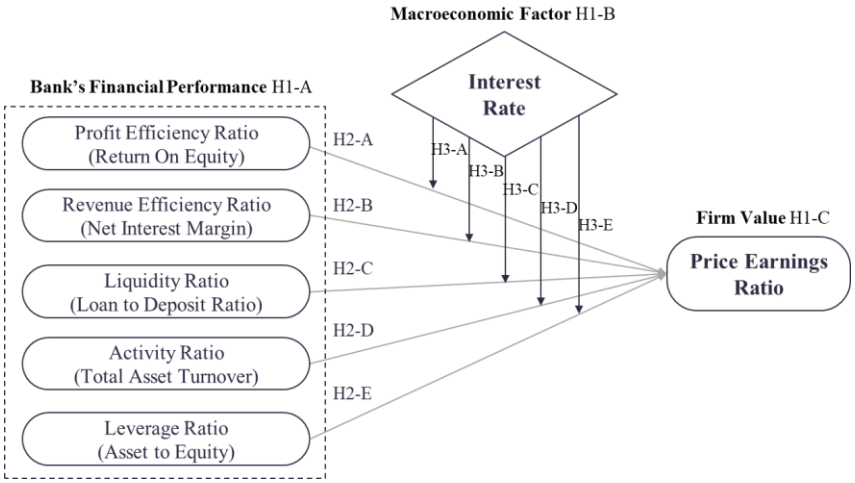
Leverage – A/E
Asset to Equity Ratio (A/E) is defined by Kharatyan (2016) as the total amount of company's assets relative to its equity capital. This ratio is a widely used leverage ratio of a firm and shows a firm's capital structure.

Firm Value - PER
Lutfi, M., & Arsitha, J. (2016), PER is one of the approaches in fundamental analysis which is based on the calculation of the ratio of share price per share with earnings per share and gives the indication of the timeframe required to return the funds at the level of share prices and company profits in a certain period.

Interest Rate
Imdadullah, M. B. A., & Hayatabad, P. (2012) defined the Interest rate is the cost of borrowing and also used as a discount rate to discount future cash flows of the financial assets. John M. Keynes (1939) assumed that the interest rate is the price that equalizes the demand of money to the supply of money.

Research Framework and Hypothesis Development
The theoretical framework of the independent, moderating, and dependent variables can be seen in the below figure:

Figure 4: Conceptual Framework



The hypothesis that will be answered in this research are:
H1-A. There are differences in financial performance (ROE, NIM, LDR, TATO, A/E) between Indonesia and Korea's Top 5 banks.
H1-B. There are differences in Interest rates between Indonesia and Korea.
H1-C. There are differences in PER between Indonesia and Korea's Top5 banks.
H2-A. Return On Equity affects the Price-Earnings Ratio of the Top 5 banks.
H2-B. Net Interest Margin affects the Price-Earnings Ratio of the Top 5 banks.
H2-C. Loan to Deposit Ratio affects the Price-Earnings Ratio of the Top 5 banks.
H2-D. Total Assets Turnover affects the Price-Earnings Ratio of the Top 5 banks.
H2-E. Assets to Equity affects the Price-Earnings Ratio of the Top 5 banks.
H3-A. Interest rate moderates the effect of Return On Equity on Price-Earnings Ratio of the Top 5 banks.
H3-B. Interest rate moderates the effect of Net Interest Margin on Price-Earnings Ratio the Top 5 banks.
H3-C. Interest rate moderates the effect of Loan to Deposit Ratio on Price-Earnings Ratio of the Top 5 banks.
H3-D. Interest rate moderates the effect of Assets Turnover on Price-Earnings Ratio of the Top 5 banks.
H3-E. Interest rate moderates the effect of Assets to Equity on Price-Earnings Ratio of the Top 5 banks.

Differences Between the Top 5 Banks in Indonesia and Korea

The widening gap in PER of the top 5 banks between Indonesia and Korea has been detected for the last 8 years. By analyzing the difference between the financial ratios, interest rates, and PER, the study would find a statistically significant gap between the two countries.

H1-A. There are differences in financial performance (ROE, NIM, LDR, TATO, A/E) between Indonesia and Korea's Top 5 banks.
H1-B. There are differences in Interest rates between Indonesia and Korea.
H1-C. There are differences in PER between Indonesia and Korea's Top5 banks.

Effect of Financial Performances (ROE, NIM, LDR, TATO, A/E) on Firm Value (PER)

H2-A. Return On Equity affects the Price-Earnings Ratio of the Top 5 banks.

Batubara & Ramadani (2021) tested the effect of ROE on PER in the manufacturing companies in IDX. The researchers concluded that ROE has a positive significant impact on PER. Iskandar et al. (2020), Soesilo et al. (2020), Wahyuni et al. (2018), Jitmaneeroj (2017), and Utomo et al. (2016) also reached the same results as Batubara and Ramadani (2021) in their studies. However, such studies as carried out by Fadjar et al. (2021), Sanjay & Rahayu (2020), and Asmirantho & Somantri (2017) show that ROE has a negative effect or no significant effect on PER.

H2-B. Net Interest Margin affects the Price-Earnings Ratio of the Top 5 banks.

NIM is a unique financial ratio for Banking Industry. A continuously higher level of NIM encourages investors to expect higher earnings in the future and fosters the stock price. Little research is found to examine the causality between NIM and PER since NIM is a specific financial ratio only for banks. However, there are a few studies conducted about the effect of NIM on ROA. Sunaryo (2020) examined the banks in Southeast Asia from 2012 to 2018 and concluded that NIM has a positive and significant effect on ROA. Yudha et al. (2017) also found that NIM positively affects ROA. Researchers such as Wahyu Hidayat (2013), Tenaya (2016), and Hayati (2016) studied the causality between ROA and PER. They concluded that ROA had a significant positive effect on PER. Meanwhile, the researchers such as Sudjiman(2020) concluded that ROA has a negative or no significant effect on PER.

H2-C. Loan to Deposit Ratio affects the Price-Earnings Ratio of the Top 5 banks.

LDR is a general liquidity ratio in a bank's financial ratios. Higher LDR indicates that it will increase earnings in the future. However, it also increases the risk that a bank should bear. There are a few researchers who tested the effect of LDR on PER. Chairani (2009) tested the banks in IDX and found out that LDR positively affected PER.
Meanwhile, Irawan (2018) concluded that LDR has no significant influence on PER. Although it is controversial whether LDR's effect on PER is significant or not in the previous research, LDR is a key liquidity indicator affecting a bank's profitability and healthiness.

H2-D. Total Assets Turnover affects the Price-Earnings Ratio of the Top 5 banks.
TATO is a representative active ratio that indicates how effectively a company's management uses its assets. There are few studies conducted to reveal the causality between TATO and PER. Anggraini (2013) and Sitepu (2013) examined Indonesian Stock Exchange and reached different results. One was that TATO negatively affects PER, but another was that TATO has no significant impact on PER. Meanwhile, a study carried out by Sausan (2020) argued that TATO affects Stock returns. Since a stock price is a component of PER, it is deduced that TATO would significantly affect PER.

H2-E. Assets to Equity affects the Price-Earnings Ratio of the Top 5 banks.
A/E is a leverage ratio derived from Du Pont Analysis. There is little research that investigates the relationship between A/E and PER. However, a few studies examine the causality between the debt-to-equity ratio (DER) and PER. The calculation of A/E and DER is not much different. 'A/E minus 1' is equal to DER. Therefore, it can be deduced if there is a certain relationship between DER and PER, there can be a similar result between A/E and PER. Many studies concluded that DER affects PER although the directions are different. Fadjar et al. (2021), Rohman et al. (2020), Susanto&Marhamah (2018), and Anggraini (2013) showed that DER has a negative impact on PER. Meanwhile, researchers such as Anggraini & Asmanah (2019), and Lutfi & Arsitha (2016) obtained the result that DER positively affects PER.

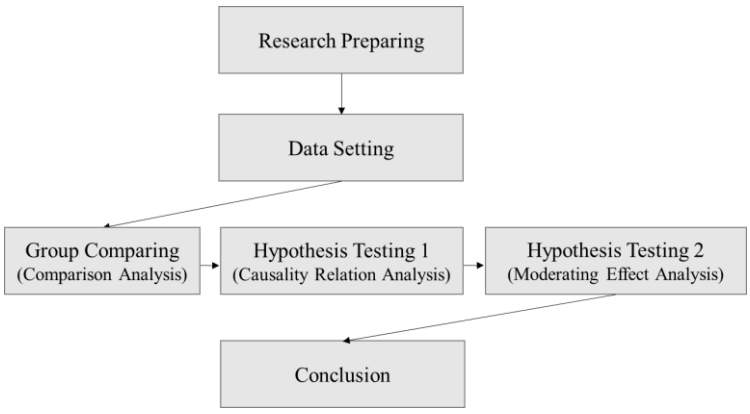
Moderation Effect of Macroeconomic Factor (Interest Rate) on the relationship between the Financial Ratios and Price Earnings Ratio
Interest Rate is expected to influence the bank's financial performance, structure, and stock performance. It is difficult to find the previous research examining if the interest rate moderates the effect of the financial ratios on PER. However, abundant studies attempted to reveal the effect of interest rates on financial ratios or stock returns. Juselius et al. (2017), Saeed (2014), Trujillo (2013), and García et al. (2009) showed that interest rates have significant influences on financial ratios such as NIM, ROE, and ROA. A few researchers like Priti (2016), Kasman (2011) concluded that interest rates significantly affect stock return. We use the reference interest rates of the central bank in each country to test the moderating effect of the interest rates.

H3-A. Interest rate moderates the effect of Return On Equity on Price-Earnings Ratio of the Top 5 banks.
H3-B. Interest rate moderates the effect of Net Interest Margin on Price-Earnings Ratio the Top 5 banks.
H3-C. Interest rate moderates the effect of Loan to Deposit Ratio on Price-Earnings Ratio of the Top 5 banks.
H3-D. Interest rate moderates the effect of Total Assets Turnover on Price-Earnings Ratio of the Top 5 banks.
H3-E. Interest rate moderates the effect of Assets to Equity on Price-Earnings Ratio of the Top 5 banks.

METHODS

This study uses quantitative descriptive and inferential research methods, purposive sampling to sample from the population, independent sample t-test, and hierarchical multiple regression analysis.

Figure 5: Research Flow



40 Banks listed on the Indonesian Stock Exchange. 9 Banks listed on the Korean Stock Exchange. Banks audited their Financial Statement at least on an annual basis. This research chose the top5 banks in the Indonesian and Korean stock markets based on the Total Asset. The observation period was eight years, from 2014 to 2021.

Table 1: Top 5 Banks in the two countries

	Indonesian Top 5 Banks	Korean Top 5 Banks
1	Bank Mandiri	KB Financial Group
2	Bank Rakyat Indonesia	Shinhan Financial Group
3	Bank Central Asia	Hana Financial Group
4	Bank Negara Indonesia	Woori Financial Group
5	Bank CIMB Niaga	Industrial Bank of Korea (IBK)

Measurement of Variables

Table 2: Research Variables

Variables	Formula
Return On Equity (ROE)	$ROE = \frac{Net\ Income}{Avg.\ Equity} \times 100\%$
Net Interest Margin (NIM)	$NIM = \frac{Net\ Interest\ Income}{Avg.\ Earning\ Assets} \times 100\%$
Loan to Dept Ratio (LDR)	$LDR = \frac{Total\ Loans}{Total\ Deposits} \times 100\%$
Total Asset Turnover (TATO)	$TATO = \frac{Total\ Revenue}{Avg.\ Total\ Assets}$
Asset to Equity (A/E)	$A/E = \frac{Total\ Assets}{Total\ Equity}$
Price Earning Ratio (PER)	$PER = \frac{Price}{EPS}$
Interest rates	Policy Rate of the Central Bank

This research uses comparison analysis, causal relation analysis, and moderating effect analysis to compare the financial performance ratios of two countries, examine the causal relationship between 5 independent variables and one dependent variable, and examine the moderating effect of the macroeconomic variable on the model. The SPSS statistics program (v.26) is used to process data.

Comparison Analysis (H1-A~C)

This study finds the two countries' means, standard deviations, minimum, and maximum values through the descriptive statistic method. After that, the value of Levene's test and T-test are tested by the independent sample t-test. With the result of the tests, the research examines the statistical significance of the variables' gap between the two countries and analyzes the meaning. The T-test is carried out to see if there are any significant differences in the means for two groups in the variable of interest.

Causal Relationship Analysis (H2-A~E) & Moderating Effect Analysis (H3-A~E)

This research uses the hierarchical regression model to examine the causality between the independent and dependent variables. The control variable is also input to increase the accuracy of the modeling results. The classical assumption test is conducted with the hierarchical regression results. The classical assumption test consists of a multicollinearity test and an autocorrelation test. After the model passes the classical assumption test, the research interprets the data from the modeling by checking the coefficient of determination (Adjusted R2), simultaneous significance test (F-test), and partial individual significance test (T-test). The moderating variable is added to the hierarchical regression model later to test the effect of moderating variable.

RESULT AND DISCUSSION

Comparison Analysis

Through the analysis, the researcher attempted to answer the hypotheses (H1-A, H1-B, and H1-C) regarding the comparison analysis.

H1-A. There are differences in financial performance (ROE, NIM, LDR, TATO, A/E) between Indonesia and Korea's Top 5 banks.
H1-B. There are differences in Interest rates between Indonesia and Korea.
H1-C. There are differences in PER between Indonesia and Korea's Top5 banks.

Table 3: Descriptive Statistical Results of Top 5 banks in Indonesia and Korea

	Country	N	Mean	Std. Deviation	Std. Error Mean	t	p
NIM	Indonesia	40	5.9418	1.1546	.1825	21.296***	.000
	Korea	40	1.9715	.2393	.0378		
ROE	Indonesia	40	14.3621	5.9476	.9403	6.598***	.000
	Korea	40	7.8810	1.7949	.2838		
LDR	Indonesia	40	88.3830	8.0101	1.266	-6.595***	.000
	Korea	40	123.6320	32.8403	5.1925		
A/E	Indonesia	40	6.9184	.7750	.1225	-30.599***	.000
	Korea	40	13.7587	1.1825	.1869		
TATO	Indonesia	40	.0958	.0108	.0017	20.430***	.000
	Korea	40	.0440	.0117	.0018		
Interest Rate	Indonesia	40	5.3125	1.53876	.24330	15.691***	.000
	Korea	40	1.3438	.43739	.06916		
PER	Indonesia	40	15.9743	7.7076	1.2186	7.573***	.000
	Korea	40	6.4846	1.8441	.2915		

Data Source: SPSS 26

With the results of the Independent Sample t-Test, the financial ratios (NIM, ROE, LDR, A/E, TATO) of each group show significant differences ($p < 0.001$). Therefore, H1-A is supported by the test results. The statistical significance is also detected in the results of the Independent Sample t-test when testing the difference of PER and Interest Rate between two groups (both $p < 0.001$). In conclusion, it is verified that the test values of the comparison analysis also support H1-B and H1-C.

Causal Relationship Analysis

Through the hierarchical regression analysis, the researcher attempted to answer the hypotheses in relation to the causal relationship analysis (H2-A, H2-B, H2-C, H2-D, and H2-E). According to the model summary obtained after processing the hierarchical regression model using SPSS version 26, the model showed statistical significance. In the classical assumption tests, there were no findings against the regression model's adequacy. Therefore, it is determined that the results of the significance tests are trustworthy. After the significance tests were conducted, this study obtained the results of the regression model as follows:

Table 4: Results of the Regression Model, Top 5 Banks in Indonesia and Korea

Dependent Variable	Independent Variables	Indonesian Group				Korean Group			
		B	*B*	t	p	B	*B*	t	P
PER	(Constant)	55.143		2.918	0.006*	8.094		1.883	0.068
	Mkt PER*	0.212	0.244	1.426	0.163	-0.127	-0.335	-3.864	0.000*
	NIM	7.179	1.075	2.711	0.011*	2.851	0.370	2.450	0.020*
	ROE	-0.758	-0.585	-2.192	0.036*	-0.630	-0.613	-7.565	0.000*
	LDR	-0.287	-0.299	-1.496	0.144	-0.010	-0.180	-1.807	0.080
	A/E	-0.662	-0.067	-0.447	0.658	0.009	0.006	0.046	0.963
	TATO	-484.37	-0.683	-1.987	0.055	20.084	0.128	1.074	0.291
F		9.983 (p<0.05)				4.290 (p<0.05)			
$_{Adj}R^2$		0.187				0.336			

H2-A. Return On Equity affects the Price-Earnings Ratio of the Top 5 banks.

The hierarchical regression analysis was carried out to verify the effect of the Profitability Efficiency Ratio (herein, ROE) on the Price-Earnings Ratio (PER) of the top 5 banks. As a result of the analysis in the Indonesian group, the model says that ROE significantly affects PER in a negative direction (B = -0.585, t= -2.192, p<0.05). On the other hand, in the Korean group, the model also resulted in that ROE has a significant effect on PER in a negative direction (B = -0.613, t= -7.565, p<0.001). In conclusion, it is confirmed that the research result supports the hypothesis 'H2-A' in both groups.

H2-B. Net Interest Margin affects the Price-Earnings Ratio of the Top 5 banks.

The hypothesis is answered based on the result of the hierarchical regression analysis conducted above to verify the effect of the Revenue Efficiency Ratio (herein, NIM) on the Price-Earnings Ratio (PER) of the top 5 banks as follows. As a result of the analysis in the Indonesian group, the model shows that NIM significantly affects PER in a positive direction (B = 1.075, t= 2.711, p<0.05). On the other hand, in the Korean group, the model also resulted in that NIM has a significant effect on PER in a positive direction (B = 0.370, t= 2.450, p<0.05). In conclusion, it is confirmed that the research result supports the hypothesis 'H2-B' in both groups.

H2-C. Loan to Deposit Ratio affects the Price-Earnings Ratio of the Top 5 banks.
The third hypothesis is answered by considering the results of the hierarchical regression analysis to verify the Liquidity Ratio (herein, LDR) effect on the Price-Earnings Ratio (PER) of the top 5 banks. As a result of the analysis in the Indonesian group, the model says that LDR has no significant effect on PER (B = -0.299, t= -1.496, p>0.10). On the other hand, in the Korean group, the model also showed that LDR has a marginally significant effect on PER in a negative direction (B = -0.180, t= -1.807, 0.05<p<0.10). In conclusion, it is confirmed that the research result marginally supports the hypothesis 'H2-C' only in the Korean group.

H2-D. Total Assets Turnover affects the Price-Earnings Ratio of the Top 5 banks.
Based on the result of the hierarchical regression analysis conducted above to verify the effect of Activity Ratio (herein, TATO) on the Price-Earnings Ratio (PER) of the top 5 banks, the model in the Indonesian group shows that TATO has a marginally significant effect on PER in a negative direction (B = -0.683, t= -1.987, 0.05<p<0.10). On the other hand, in the Korean group, the model also showed that TATO has no significant effect on PER (B = 0.128, t= 1.074, p>0.10). In conclusion, it is confirmed that the research result marginally supports the hypothesis 'H2-D' only in the Indonesian group.

H2-E. Assets to Equity affects the Price-Earnings Ratio of the Top 5 banks.
The hierarchical regression analysis was carried out to verify the effect of the Leverage Ratio (herein, A/E) on the Price-Earnings Ratio (PER) of the top 5 banks. As a result of the analysis in the Indonesian group, the model says that A/E has no significant effect on PER (B = -0.067, t= -0.447, p>0.10). On the other hand, in the Korean group, the model also showed that A/E has no significant effect on PER (B = 0.006, t= 0.046, p>0.10). In conclusion, it is confirmed that the research result does not support hypothesis 'H2-E' in both groups.

Moderating Effect Analysis
Through the hierarchical regression analysis above, the researcher attempted to answer the hypotheses related to the moderating effect analysis (H3-A, H3-B, H3-C, H3-D, and H3-E). According to the model summary obtained after processing the hierarchical regression model using SPSS version 26, the model in the Indonesian group is marginally significant. However, the model in the Korean group has no significance. Therefore, the results of the significance test of the hierarchical model only for the Indonesian group are marginally trustworthy, while the one for the Korean group is not. With these initial findings, the hypothesis tests in this section are discussed only for the Indonesian group. The summary of the model is in the following table.

Table 5: Results of Adjusted R Square, Top 5 Banks in Korea

	Indonesian Group		Korean Group	
Model	Adjusted R Square	Change Statistics Sig. F Change	Adjusted R Square	Change Statistics Sig. F Change
1	.164	.006	.187	.003
2	.336	.025	.755	.000
3	.371	.101	.750	.554
4	.472	.081	.718	.926

Table 6: Results of the Regression Model, Top 5 Banks in Indonesia

Dependent Variable	Independent Variables	Model 2[1)]				Model 4[2)]			
		B	*B*	t	P	B	*B*	t	p
PER	NIM	7.179	1.075	2.711	0.011*	-0.484	-0.481	-1.427	0.165
	ROE	-0.758	-0.585	-2.192	0.036*	-0.428	-0.487	-1.592	0.123
	LDR	-0.287	-0.299	-1.496	0.144	-0.639	-0.641	-2.239	0.034*
	A/E	-0.662	-0.067	-0.447	0.658	0.239	0.254	1.571	0.128
	TATO	-484.37	-0.683	-1.987	0.055	0.552	0.547	1.556	0.131
F		4.290 (p<0.05)				3.908 (p<0.05)			
$_{Adj}R^2$		0.336				0.472			

1) Results of the hierarchical regression analysis without the moderating variable
2) Results of the hierarchical regression analysis with the moderating variable

H3-A. Interest rate moderates the effect of Return On Equity on Price-Earnings Ratio of the Top 5 banks.
The hierarchical regression analysis was carried out to examine if the moderating variable (herein, Interest Rate) moderates the effect of Profitability Efficiency Ratio (herein, ROE) on the Price-Earnings Ratio (PER) of the top 5 banks. As a result of the analysis in the Indonesian group, the model says that Interest Rate has no significant moderating effect on the relationship of ROE

and PER. (*B* = -0.487, t= -1.592, p>0.10). On the other hand, in the Korean group, the model itself does not have significance. In conclusion, it is confirmed that the research result does not support hypothesis 'H3-A' in both groups.

H3-B. Interest rate moderates the effect of Net Interest Margin on Price-Earnings Ratio of the Top 5 banks..
The hierarchical regression analysis was carried out to examine if the moderating variable (herein, Interest Rate) moderates the effect of Revenue Efficiency Ratio (herein, NIM) on the Price-Earnings Ratio (PER) of the top 5 banks. As a result of the analysis in the Indonesian group, the model says that Interest Rate has no significant moderating effect on the relationship between NIM and PER. (*B* = -0.481, t= -1.4278, p>0.10). On the other hand, in the Korean group, the model itself does not have significance. In conclusion, it is confirmed that the research result does not support hypothesis 'H3-B' in both groups.

H3-C. Interest rate moderates the effect of Loan to Deposit Ratio on Price-Earnings Ratio of the Top 5 banks.
The hierarchical regression analysis was carried out to examine if the moderating variable (herein, Interest Rate) moderates the effect of the Liquidity Ratio (herein, LDR) on the Price-Earnings Ratio (PER) of the top 5 banks. As a result of the analysis in the Indonesian group, the model appears marginally appropriate in the model t-test. The results say that Interest Rate has a significant moderating effect on the relationship between LDR and PER. (*B* = -0.641, t= -2.239, p<0.05). On the other hand, in the Korean group, the model itself does not have significance. In conclusion, it is confirmed that the research result marginally supports the hypothesis 'H3-C' only in the Indonesian groups

H3-D. Interest rate moderates the effect of Total Assets Turnover on Price-Earnings Ratio of the Top 5 banks.
The hierarchical regression analysis was carried out to examine if the moderating variable (herein, Interest Rate) moderates the effect of Activity Ratio (herein, TATO) on the Price-Earnings Ratio (PER) of the top 5 banks. As a result of the analysis in the Indonesian group, the model says that Interest Rate has no significant moderating effect on the relationship between TATO and PER. (*B* = 0.547, t= 1.556, p>0.10). On the other hand, in the Korean group, the model itself does not have significance. In conclusion, it is confirmed that the research result does not support hypothesis 'H3-D' in both groups.

H3-E. Interest rate moderates the effect of Assets to Equity on Price-Earnings Ratio of the Top 5 banks.
The hierarchical regression analysis was carried out to examine if the moderating variable (herein, Interest Rate) moderates the effect of the Leverage Ratio (herein, A/E) on the Price-Earnings Ratio (PER) of the top 5 banks. As a result of the analysis in the Indonesian group, the model says that Interest Rate has no significant moderating effect on the relationship between A/E and PER. (*B* = 0.254, t= 1.571, p>0.10). On the other hand, in the Korean group, the model itself does not have significance. In conclusion, it is confirmed that the research result does not support hypothesis 'H3-E' in both groups.

Table 7: Summary of Research Variables

Variable	Hypothesis	Indonesian Group		Korean Group	
		Result	Remarks	Result	Remarks
ROE, NIM, LDR, TATO, A/E	H1-A. There are differences in financial performance (ROE, NIM, LDR, TATO, A/E) between Indonesia and Korea's Top 5 banks.	t = -30.599 ~ +21.296 p < 0.001	H1-A is **supported** by the result	t = -30.599 ~ +21.296 p < 0.001	H1-A is **supported** by the result
Interest Rate	H1-B. There are differences in Interest rates between Indonesia and Korea	Mean = 5.31 t = +15.691 p < 0.001	H1-B is **supported** by the result	Mean = 1.34 t = +15.691 p < 0.001	H1-B is **supported** by the result
Price Earnings Ratio (PER)	H1-C. There are differences in PER between Indonesia and Korea's Top5 banks.	Mean = 15.9 t = +7.573 p < 0.001	H1-C is **supported** by the result	Mean = 6.48 t = +7.573 p < 0.001	H1-C is supported by the result
ROE (Return On Equity)	H2-A. Return On Equity affects the Price-Earnings Ratio of the Top 5 banks.	*B* = -0.585 t = -2.192 p < 0.05	H2-A is **supported** by the result	*B* = -0.613 t = -7.565 p < 0.001	H2-A is **supported** by the result
NIM (Net Interest Margin)	H2-B. Net Interest Margin affects the Price-Earnings Ratio of the Top 5 banks.	*B* = +1.075 t = +2.711 p < 0.05	H2-B is **supported** by the result	*B* = +0.370 t = +2.450 p < 0.05	H2-B is **supported** by the result
LDR (Loan to Deposit Ratio)	H2-C. Loan to Deposit Ratio affects the Price-Earnings Ratio of the Top 5 banks.	*B* = -0.299 t = -1.496 p > 0.10	H2-C is not **supported** by the result	*B* = -0.180 t = -1.807 0.10>p>0.05	H2-C is marginally **supported** by the result

Variable	Hypothesis	Indonesian Group		Korean Group	
		Result	Remarks	Result	Remarks
TATO (Total Asset Turnover)	H2-D. Total Assets Turnover affects the Price-Earnings Ratio of the Top 5 banks.	*B* = -0.683 t = -1.987 0.10>p>0.05	H2-D is marginally **supported** by the result	*B* = +0.128 t = +1.074 p > 0.10	H2-D is not **supported** by the result
A/E (Assets to Equity)	H2-E. Assets to Equity affects the Price-Earnings Ratio of the Top 5 banks.	*B* = -0.067 t = -0.447 p > 0.10	H2-E is not **supported** by the result	*B* = +0.006 t = +0.046 p > 0.10	H2-E is not **supported** by the result
Interest Rate - ROE	H3-A. Interest rate moderates the effect of Return On Equity on Price-Earnings Ratio of the Top 5 banks.	*B* = -0.487 t = -1.592 p > 0.10	H3-A is not **supported** by the result	Model: not appropriate (Sig. △F =0.926)	H3-A is not **supported** by the result
Interest Rate – NIM	H3-B. Interest rate moderates the effect of Net Interest Margin on Price-Earnings Ratio the Top 5 banks.	*B* = -0.481 t = -1.427 p > 0.10	H3-B is not **supported** by the result	Model: not appropriate (Sig. △F =0.926)	H3-B is not **supported** by the result
Interest Rate – LDR	H3-C. Interest rate moderates the effect of Loan to Deposit Ratio on Price-Earnings Ratio of the Top 5 banks.	*B* = -0.641 t = -2.239 p < 0.05	H3-C is **supported** by the result (Model: Marginally appropriate)	Model: not appropriate (Sig. △F =0.926)	H3-C is not **supported** by the result
Interest Rate – TATO	H3-D. Interest rate moderates the effect of Assets Turnover on Price-Earnings Ratio of the Top 5 banks.	*B* = +0.547 t = +1.556 p > 0.10	H3-D is not **supported** by the result	Model: not appropriate (Sig. △F =0.926)	H3-D is not **supported** by the result
Interest Rate – A/E	H3-E. Interest rate moderates the effect of Assets to Equity on Price-Earnings Ratio of the Top 5 banks.	*B* = +0.254 t = +1.571 p > 0.10	H3-E is not **supported** by the result	Model: not appropriate (Sig. △F =0.926)	H3-E is not **supported** by the result

CONCLUSION AND RECOMMENDATION

Conclusion

This research started from the findings;

A. There are gaps in the PER levels between the top 5 banks of Indonesia and Korea, and those gaps have been wider and wider for the last eight years.
B. There were two previous research widely spread regarding the PER gaps as follows;
   a. The stocks with the lower PER levels are undervalued (thus, they tend to outperform in the long run).
   b. If there are the stock groups that continuously have higher PERs for a while, those stocks tend to have higher growth rates so that investors are willing to buy them at relatively higher values.
C. However, comparing the top 5 banks in Indonesia to the ones in Korea, they have outperformed Korean ones for the last eight years, although they have been showing higher PERs. Moreover, the Indonesian top 5 banks showed lower earnings growth than the Korean ones. Therefore, the previous studies ('B.a' and 'B.b') do not support this phenomenon.

The researchers set up the questions and hypothesis and reached the conclusions through various tests and analyses: the five financial performances (NIM, ROE, LDR, TATO, A/E), PER, and interest rates in the two groups are significantly different. Moreover, financial performances such as NIM and ROE showed significant effects on PER in both groups and the macroeconomic factor, interest rate, marginally moderates the relationship between LDR and PER only in the Indonesian group.
In the hypothesis related to the comparison analysis, all the hypotheses (H1-A, H1-B, and H1-C) are supported by the test results. Thus, the researcher concludes there are statistically significant differences between Indonesia and Korea's Top 5 banks on the financial ratios, interest rate, and PER. In the causal relationship analysis, H2-A and H2-B are supported by the test results in both

groups. H2-C in the Korean and H2-D in the Indonesian groups are marginally supported. On the other hand, the test results do not support H2-C in the Indonesian group, H2-D in the Korean group, and H2-E in both groups. Thus, the researcher concludes the profit efficiency ratio (ROE) and revenue efficiency ratio (NIM) affect the relative firm values (PER) of the top 5 banks in both countries. In the hypothesis related to the moderating effect analysis, H3-C is supported by the test results in the Indonesian group, not in the Korean group. Meanwhile, the test results in both groups do not support the other hypotheses (H3-A, H3-B, H3-D, and H3-E). Thus, the researcher concludes that the interest rate moderates the liquidity ratio (LDR) and marginally effect on the relative firm value (PER) regarding the top 5 banks of Indonesia.

Implication

This research results present that NIM and ROE have significant impacts on PER. NIM positively affects PER in both groups. Although NIM decreased in both groups for the observed period, the absolute figures of the NIMs in the Indonesian group are still much bigger than in the Korean group. On the other hand, significant drops in PER in the Korean group are observed while the Indonesian group maintains the PER level relatively high. This is matched to the result of the analysis. It is inferred that the higher level of the NIMs in the Indonesian group contributed to the higher level of the PER, compared to the Korean group. Meanwhile, the high growth rate in the equity contributes to the decrease of the ROE in the Indonesia group. ROE appears to affect PER in both groups negatively. A decrease in the ROE level affects the increase of PER in the Indonesian group. During the period that ROE dramatically dropped in both groups in 2020, PER in the Indonesian group increased sharply while PER in the Korean group decreased. This implies that the stock market investors have relatively strong beliefs about the banking sector in the Indonesian group.

Table 8: Net Profits Growth of the Top 5 banks in Indonesia and Korea

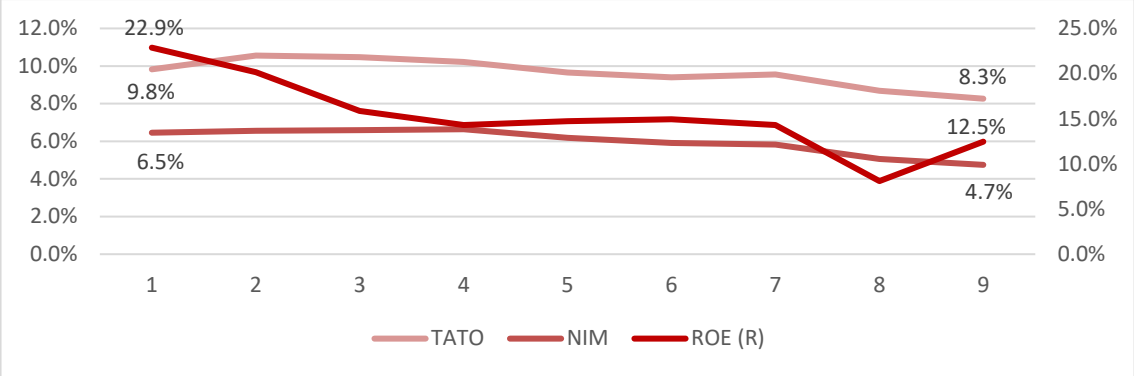
	Indonesia			Korea		
	PER	ROE	NIM	PER	ROE	NIM
2014	12.73	20.17	6.56	9.19	6.08	2.17
2015	17.02	15.88	6.60	7.57	5.93	2.03
2016	13.65	14.29	6.64	7.69	6.85	1.99
2017	16.31	14.74	6.18	7.69	8.65	2.03
2018	13.97	14.96	5.92	5.62	9.04	2.03
2019	14.73	14.32	5.82	5.20	8.58	1.95
2020	24.63	8.10	5.07	4.74	7.56	1.78
2021	14.75	12.45	4.75	4.17	10.35	1.79

Based on the research analysis, this study obtained the comparison data. Comparing the mean values, the financial ratios related to efficiencies such as NIM, ROE, and TATO are higher in the Indonesian group. Meanwhile, the financial ratios related to Leverage, such as LDR and A/E are higher in the Korean group. It is implicated that the Top 5 banks in Indonesia show better efficiency in their operation, and the Korean group struggles to increase its profitability by increasing its risk in operating. It is guessed that the Korean top 5 banks experienced a decrease in efficiency as their size (assets, equity, employment, etc.) during the process of becoming mega banks, according to the Korean Government's policy. However, as time went by, the top Indonesian banks also experienced the increase in equity through the accumulation of net profits and capital injections. This resulted in the trend of the decrease in the financial ratios regarding the efficiency as the top Korean banks previously experienced. The top Indonesian banks do not seem to actively increase the leverage to overcome the decrease in efficiency by now. Notwithstanding, sooner or later, they would start to take action to overcome the increase of inefficiency in various ways, such as following the steps that the Korean banks have taken already.

Table 9: Comparison of the two groups

`	Indonesia		Korea	
	Mean	Std. Deviation	Mean	Std. Deviation
PER	15.9744	7.7076	6.4846	1.8441
NIM	5.9418	1.1546	1.9715	.2393
ROE	14.3621	5.9476	7.8810	1.7949
LDR	88.3830	8.0101	123.6320	32.8403
A/E	6.9184	.7750	13.7587	1.1825
TATO	.0958	.0108	.044060	.0117
Interest Rate	5.3125	1.5387	1.3438	.4373

Figure 6: Trend of the financial ratios in the Top 5 Indonesian Banks



Recommendations

The results of this research might help the investors in the stock market to determine if the target company's stock price is undervalued or overvalued. Based on the illustration of this study and the conclusion, the investors should not depend only on the relative firm value or the comparison of the relative firm value to determine whether the firm value is overvalued or undervalued, especially when they compare them to other countries. It is strongly recommended to examine the general belief of the market participants on specific industries. In addition to investors' expectations of the stock, it should be taken into account that the company's 'profitability-related indicators', such as ROE and NIM, also affect PER.

For the banks in Indonesia, the results of this research represent that the banks in Indonesia have been experiencing a decrease in efficiency in their operation. They can respond this change by following similar steps that the Korean banks have taken before. However, Indonesian banks have a huge advantage compared to Korean banks. The advantage is the large population that the banks have not touched yet. In other words, Indonesia still has great potential for the banking industry. In the past, it has been regarded as tremendous time and labor-consuming to touch the potential customers in rural areas with low incomes. That explains why the banking penetration rate in Indonesia is so low. Digitalization of the banking service can solve this problem by reducing the time and labor demand on bringing the unbanked population into the banking system. Some of the leading banks in Indonesia and aggressive digital banks have already started.

Even though this study tried to fill the gap between the previous studies and the phenomenon found in Indonesia and Korea, this study was conducted with the very selected data and targets. Therefore, future studies regarding the following recommendations are proposed.

1. It is recommended that future study covers more countries and companies. It is because this study only focuses on the Top 5 banks in each country's stock exchange: the Indonesian and Korean Stock Exchange.
2. Future researchers can conduct the same tests with the quarterly prepared data. It is because the data to be examined in this research is limited to the year-end numbers officially announced from 2014 to 2021.
3. Other financial ratios could be used to analyze and elaborate on the phenomenon. It is because this study limited the financial ratios to 5 ratios in 5 categories only.
   a. Profitability ratio: Return on Equity
   b. Revenue Efficiency Ratio: Net Interest Margin
   c. Liquidity Ratio: Loan to Deposit Ratio
   d. Activity Ratio: Total Asset Turnover
   e. Leverage Ratio: Asset to Equity Ratio
4. Further research using the other market value multiples such as PBR or PSR is recommended. It is because this study only used Price-Earnings ratio, commonly used to compare the relative values of the companies.
5. Future researchers could use the other macroeconomic factors as moderating variables since this study only used the interest rate (herein, policy rate) to verify the moderating effect.

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