

# Determinants of Banking Capital and its Impact on Financial Intermediation (Study in Regional Development Bank in Indonesia)

Herry Achmad Buchory

**Abstract:** This is to analyze the determinants of banking capital including assets growth (AG), credit growth (CG), capital growth (CapG), credit risk and profitability. And its impact on financial intermediation. Banking capital is measured by capital adequacy ratio (CAR), credit risk is measured by non performing loans (NPLs) and loans losses reserve (LLR), profitability is measured by return on equity (ROE) and net interest margin (NIM), financial intermediation is measured loans to deposit ratio (LDR). The method used is descriptive and verification method, with secondary data from the financial statements 15 Regional Development Bank in Indonesia period 2011-2016. The data analysis technique used is multiple linear regression, while hypothesis testing uses T - test to examine the effect of partial independent variables and F - test to examine the effect of independent variables simultaneously. Based on the research results, it is concluded that partially, AG, CG, NPLs have negative and significant effect on CAR; CapG has positive and significant effect on CAR; While LLR, ROE, NIM have negative effect but not significant on CAR; Simultaneously, AG, CG, CapG, NPLs, LLR, NIM and ROE have significantly effect on CAR. And CAR has positive and significant effect on LDR.

**Index Terms:** Keywords: Assets Growth, Banking Capital, Credit Growth, Financial Intermediation, Loans Losses Reserve, Non-Performing Loans, Net Interest Margin, Return on Equity.

## I. INTRODUCTION

Financial intermediation is the primary function of a bank, namely the process of raising funds and channeling funds. To measure the intermediary function can be used the loans to deposits ratio (LDR) (1). Funds collected by the bank cannot be automatically disbursed to the credit if it is not supported by the capital. The role of capital for banks is to support business expansion, cover risks and to meet regulation. According to (3), capital is required to support the operation and maintain the viability of the bank in the long term.

Bank Indonesia as the central bank in Indonesia issued the regulation on December 2012 through the PBI number of 14/26/PBI/2012 about Business Activity and Office Network Based on Core Capital. The ability of a bank to meet capital is indicated by the Capital Adequacy Ratio (CAR). With a high CAR, it means that banks can carry out business expansion while also covering risks.

The CAR achieved by RDB until December 2016 is 21.69% lower than the national banking industry at 22.93%. This means that the amount of capital owned by RDB generally is still small. The limited amount of capital owned by banks is an obstacle faced by most RDBs in Indonesia (4).

**Revised Manuscript Received on 04 May 2019**

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While LDR is achieved by RDB until December 2016 is 93.65% higher than the national banking industry at 90.70% and other banks group (5). The lower CAR allegedly by growth in assets and credit and other factors which are higher than capital growth.

The problem of this research is how is the effect of assets growth (AG), credit growth (CG), capital growth (CapG), non-performing loans (NPLs), loans losses reserve growth (LLRG), return on equity (ROE) and net interest margin (NIM) on Capital Adequacy Ratio (CAR)? And how is the influence of Capital Adequacy Ratio (CAR) on LDR?

## II. LITERATURE REVIEW

Financial intermediation in the banking sector is the process of raising funds and channel them back in the form of credit used to finance productive activities that have contributed to economic growth. The loan to deposit ratio (LDR) can be used to measure the implementation of bank intermediation (1, 9). The higher this ratio is, the better it means that the bank could carry out intermediation function optimally, vice versa.

The intermediation function will be optimal if the bank has sufficient capital (1). Although the bank has sufficient funds but not automatically be able to extend credit if they have limited capital. Thus the role of capital is important for bank management in making decisions to earn profits and overcome the risks faced by banks (2, 10). CAR can be calculated by the ratio between the amount of capital and risk-weighted assets. Growth in the amount of capital will increase the CAR of a bank vice versa.

### A. The effect of Assets Growth (AG) on Capital Adequacy Ratio (CAR).

Assets owned by a company including a bank show the size of a company. The assets owned by the bank are sourced from equity and public funds. The amount of public funds, in general, is greater than the capital. Therefore, Bank Indonesia issued regulations on the minimum capital adequacy ratio (CAR) that must be maintained by banks. Asset growth if not supported by additional capital will cause a decrease in CAR.

Some previous research conducted by (11) state that the capital ratio is determined by asset growth (LnSize). Furthermore (12) that size is the most significant variable that explains the variance of CAR. Similarly, according to research results (13), that size has a negative effect and significant effect on CAR. Likewise, the results of research by (14) that size have a positive effect on capital adequacy. But it is not in line with the results of the study according to (15) that the

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relationship between CAR and assets is negative for an unchanged level of regulatory capital. Furthermore, according to (16) do not appear to have any significant effect on CAR. And according to (17) that size has a significant and negative relationship with capital adequacy ratio. (18) found that indicate a negative relationship between bank size and capital adequacy ratio. Asset growth if not offset by an increase in capital will decrease CAR. Therefore the research hypothesis influence between these variables can be expressed as follows:

H1: Assets Growth (AG) has a negative effect on CAR

### **B. The effect of Credit Growth (CG) on Capital Adequacy Ratio (CAR).**

Credit is the main business of banking. Most of the sources of funds used for bank lending come from third parties or public funds. To maintain the CAR does not decrease then the provision of credit must be supported by additional capital. In other words, if the bank gives credit without added capital will lower the bank's capital. This is consistent with a previous study conducted by (13) that loans have a significant effect on CAR. However, according to research conducted by (14) that LNTA (loans) have no significant effect on capital adequacy. Credit growth if not offset by an increase in capital will decrease CAR. Therefore the research hypothesis influence between these variables can be expressed as follows:

H2: Credit Growth (CG) has a negative effect on CAR

### **C. The effect of Capital Growth (CapG) on Capital Adequacy Ratio (CAR).**

CAR as an indicator of the capital strength of a bank can be calculated by the ratio between the amount of capital and risk-weighted assets. Growth in the amount of capital will increase the CAR of a bank vice versa. Therefore capital growth has a positive relationship with CAR (1). Additional capital will increase CAR. Therefore the hypothesis that can be built in the relationship between these variables is expressed as follows:

H3: Capital Growth (CapG) has a positive effect on CAR

### **D. The effect of Loans Losses Reserve Growth on Capital Adequacy Ratio (CAR).**

The bank's management will always maintain the loan disbursed so that the quality is still good. Because if the bank faces non-performing loans, the bank's profitability will decrease due to lower interest income and rising costs of loans loss reserves (LLR) that ultimately will reduce the bank's capital.

Some previous research conducted by (19) state that the loan loss reserve of the banks is important determinants of capital adequacy ratio and loan loss reserve was significantly related to capital adequacy ratio. Similarly, according to research results (12) that LLR and credit risk are the most significant variable that explains the variance of CAR. Although according to research (13) which states LLR does not appear to has a significant effect on CAR. Increased credit risk requires banks to form LLRs that will ultimately reduce bank capital. Therefore the hypothesis that can be built in the relationship between these variables is as follows:

H4: Loans Losses Reserve (LLR) has a negative effect on CAR

### **E. The effect of Non-Performing Loans (NPLs) on Capital Adequacy Ratio (CAR).**

Credit is the biggest asset owned by the bank. And from the bank loan interest will get the biggest income. Therefore, if the credit is problematic, the bank will face losses which will eventually reduce bank capital. Credit quality or credit risk of a bank is indicated by the Non-Performing Loans (NPLs). NPLs has negative effects on CAR. The results of research by (11) state that the capital ratio is determined by the amount of non-performing loans (NPL). The results of the study were conducted by (15) that the relationship between CAR and NPL is negative. Meanwhile, according to research results (12) results show that credit risk is the most significant variable that explains the variance of CAR. The high NPL indicates that bank credit risk is increasing. Under these conditions, bank earnings will decrease and costs will increase as a result will decrease profit and will eventually decrease capital. Therefore the hypothesis that can be built in the relationship between these variables is as follows:

H5: Non-Performing Loans (NPLs) have a negative effect on CAR

### **F. The effect of Return on Equity (ROE) on Capital Adequacy Ratio (CAR).**

As with ROA and NIM, ROE is a measure of bank profitability. The higher ROE indicates that the level of profitability achieved by the bank the better. The better profitability, it will increase the bank's capital derived from the results of operations of the bank. This is consistent with several previous studies conducted by (14) that ROE has a negative effect on capital adequacy. Furthermore, according to research (17) that return on equity do not have a significant effect on CAR. Similarly, according to research results (18) found that indicate a negative relationship between Return on Equity (ROE) and capital adequacy ratio. The hypothesis that can be built in the relationship between ROE variables with CAR is as follows:

H6: Return On Equity (ROE) has a positive effect on CAR

### **G. The effect Net Interest Margin (NIM) on Capital Adequacy Ratio (CAR).**

To find out that the management of a bank can manage its earning assets optimally, it can be seen from the Net interest margin (NIM) achieved by the bank. NIM is obtained from the ratio of interest income to earning assets. A high NIM indicates that banks can earn revenue. Revenue is one source of bank capital to optimize intermediation in the form of lending or credit.

Previous research was conducted by (11) which states that the capital ratio is determined by the Net Interest Margin (NIM) did not a significant effect on the bank's capital adequacy ratio. Likewise, the results of research by (16) that NIM does not appear to have any significant effect on CAR. And according to research (13) which states LLR does not appear to have a

Published By:  
Blue Eyes Intelligence Engineering  
& Sciences Publication



significant effect on CAR. Similarly, according to research results (14) that NIM has a negative effect on capital adequacy. The hypothesis that can be built in the relationship between NIM variables with CAR is as follows:

H7: Net Interest Margin (NIM) has a positive effect on CAR.

Based on the above discussion it can be stated that all independent variables affect the CAR. Therefore, the research hypothesis can simultaneously be expressed as follows:

H8: AG, CG, CapG, NPLs, LLR, ROE and NIM have an effect on CAR

**H. The effect of Capital Adequacy Ratio (CAR) on Loans to Deposit Ratio (LDR).**

Intermediation function can be implemented optimally if supported by adequate capital (1). Although funds collected from third parties are very large, if not supported by additional capital, the bank will be limited in carrying out intermediation function, especially in lending or credit. In other words, financial intermediation is influenced by bank capital (1). The previous research was conducted by (1, 17, 20-22) concluded that CAR had a significant positive effect on LDR. Similarly, according to research results (23) that capital structure influence the bank's intermediation function in Indonesia Banking. However contrary to the research results according to (1) found that partially CAR has a negative effect but not significant on LDR. Similarly, according to research conducted by (24) concluded that that CAR does not have a positive effect on the LDR. The hypothesis that can be built in the relationship between CAR variables with LDR is as follows:

H9: CAR has a positive effect on LDR

**II. METHODOLOGY AND DATA**

For the purposes of data analysis and testing the research hypothesis, the research methods used in this study are descriptive and verification methods (25).

The data used in this study is secondary data from the publication of the financial statements of 15 Regional Development Banks (RDB) which have capital above IDR 1 trillion periods 2012-2016. The data analysis technique uses multiple linear regression. While to test the research hypothesis partially using the t-test and the F-test used to test hypotheses simultaneously. The regression equation used is as follows:

$$Y = a + \beta X_1 + \beta X_2 + \beta X_3 + \beta X_4 + \beta X_5 + \beta X_6 + \beta X_7 + e \quad (1)$$

$$Z = a + \beta Y + e \quad (2)$$

Where,

Y = Capital Adequacy Ratio (CAR)

Z = Loan to Deposits Ratio (LDR)

a = A constant which is the value of the variable Y when the variable X is 0 (zero)

$\beta$  = Coefficient of the regression

X<sub>1</sub> = Assets Growth (AG)

X<sub>2</sub> = Credit Growth (CG)

X<sub>3</sub> = Capital Growth (CapG)

X<sub>4</sub> = Loans Losses Reserve (LLR)

X<sub>5</sub> = Non Performing Loans (NPLs)

X<sub>6</sub> = Return On Equity (ROE)

X<sub>7</sub> = Net Interest Margin (NIM)

e = Residual

**II. RESULTS AND FINDINGS**

**A. Empirical Results**

The development of average of Assets Growth (AG), Credit Growth (CG), Capital Growth (CG), Loans Losses Reserves Growth (LLRG), Non Performing Loans (NPLs), Net Interest Margin (NIM), Return On Equity (ROE), Capital Adequacy Ratio (CAR) and Loans to Deposit Ratio (LDR) Regional Development Bank (RDB) in Indonesia Periods 2010 – 2016 is presented in Table I. following:

**Table I.** Average Development of AG, CG, CG, LLRG, NPLs, NIM, ROE, CAR and LDR Regional Development Bank (RDB) in Indonesia Period 2010 – 2016 (in percentage)

Name of Bank	Assets Growth	Credit Growth	Capital Growth	LLR Growth	NP Ls	NIM	ROE	CAR	LDR
DKI Jakarta	14.0	14.7	32.7	78.2	4.4	6.4	20.49	18.06	85.48
West Java	10.2	14.3	11.3	-5.9	2.4	7.0	22.76	17.28	85.25
Central Java	14.5	17.3	20.3	15.1	1.0	7.8	28.04	15.72	85.65
East Java	9.81	10.6	18.7	61.3	3.2	6.9	20.76	20.22	84.76
North Sumatra	5.57	8.43	10.4	33.2	4.0	8.3	29.31	14.60	95.27
West Sumatra	8.22	7.39	14.9	-2.8	2.6	7.0	24.64	16.17	97.80
Riau	4.37	9.38	5.59	18.9	3.2	7.0	21.25	19.11	85.74
West Nusa Tenggara	14.7	11.2	20.8	-7.2	1.6	10.30	30.48	19.95	102.29
Papua	7.71	19.9	10.5	98.8	5.8	7.2	15.29	19.90	75.51
North Sulawesi	14.2	11.9	19.4	34.4	0.9	9.4	27.35	15.65	104.65
South Sulawesi	15.9	17.2	15.0	-11.0	0.9	10.28	23.92	23.76	101.31
East Kalimantan	1.24	4.34	6.23	26.0	4.1	6.5	17.52	20.51	81.78
West Kalimantan	12.1	12.1	19.2	16.5	0.4	9.1	23.60	18.98	84.67
South Kalimantan	11.8	15.8	19.9	46.5	2.8	6.3	17.39	19.92	77.46
Central Kalimantan	9.74	12.9	20.1	-22.0	0.6	8.5	26.25	25.63	63.74
Maximum	15.9	19.9	32.7	98.8	5.8	10.30	30.48	25.95	104.29
Minimum	1.24	4.34	5.59	-22.0	0.4	6.3	15.29	14.60	63.74
Average	10.2	12.5	16.3	25.2	2.5	7.8	23.59	19.17	87.42

Source : Financial Statement Publication period 2011-2016, processed.

From Table I. above can be



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explained:

1. In the period 2010 to 2016, the average development of AG, CG, LLR, NPLs, NIM, ROE, CAR, and LDR fluctuates with the highest growth achieved by South Sulawesi (AG); Papua (CG); DKI Jakarta (CapG); Papua (LLRG); Papua (NPLs); West Nusa Tenggara (NIM); , West Nusa Tenggara (ROE); Central Kalimantan (CAR) and North Sulawesi (LDR). While the lowest growth achieved by East Kalimantan (AG); East Kalimantan (CG); Riau (CapG); Central Kalimantan (LLRG); West Kalimantan (NPLs); South Kalimantan (NIM); Papua (ROE); North Sumatra (CAR) and Central Kalimantan (LDR).
2. In general, the average performance of 15 BPDs during the period 2011 - 2016 can be said to be good because it still meets the provisions issued by Bank Indonesia or Financial Services Authority (OJK).  
But for BPDs whose growth in assets and credit is greater (South Sulawesi) if not followed by capital growth will lead to a decrease in CAR even though LDR increases. Likewise to the BPDs that have high NPLs (Jakarta and Papua), then to maintain the performance of CAR and LDR needed additional capital.

## B. Multiple Linear Regression Analysis

To determine the level of dependence of the dependent variable with one or more independent variables can be used multiple linear regression analysis. This analysis is intended to estimate the average value of the dependent variable based on the value of the independent variables are known (26). By regression analysis it can be seen whether there is influence between independent variables with the dependent variable. The results of multiple linear regression analysis in this study can be seen in Table II and Table III. Based on Table II and Table III, the regression equation is as follows:

$$CAR (Y) = 47.121 - 15.636\beta X_1 - 7.471\beta X_2 + 34.755\beta X_3 - 0.862\beta X_4 - 0.335\beta X_5 - 0.051\beta X_6 - 0.125\beta X_7 \quad (1)$$

$$LDR (Z) = 167.241 + 6.498\beta Y \quad (2)$$

The equation above it can be explained as follows:

1. Constant value (a) of 47.121, which means a positive constant value. This shows if the AG ( $X_1$ ), CG ( $X_2$ ), CapG ( $X_3$ ), LLRG ( $X_4$ ), NPLs ( $X_5$ ), NIM ( $X_6$ ) and ROE ( $X_7$ ) have a value of zero, CAR (Y) will increase by 47.121
2. Coefficient of regression of AG ( $X_1$ ), is -15.636, showed a negative correlation, which means that if there is increase AG ( $X_1$ ) per unit, and other variables remain, the CAR (Y) will decrease by 15.636.
3. Coefficient of regression of CG ( $X_2$ ), is -17.471, showed a negative correlation, which means that if there is increase CG ( $X_1$ ) per unit, and other variables remain the CAR (Y) will decrease by 17.471.
4. Coefficient of regression of CapG ( $X_3$ ), is 34.755, showed a positive correlation, which means that if CapG ( $X_3$ ) increases per unit and other variables remain the CAR (Y) will increase by 34,755.
5. Coefficient of regression of LLRG ( $X_4$ ), is -.862 showed a negative correlation, which means that if there is increase LLRG ( $X_4$ ) per unit, and other variables remain the CAR (Y) will decrease by 0.862.
6. Regression Coefficient of NPLs ( $X_5$ ) -.335 indicating a

negative relationship, meaning that if there is additional NPLs ( $X_5$ ) per unit and other variables remain then the CAR (Y) was decrease by 0.335.

7. Regression coefficient for the variable ROE ( $X_6$ ), is -.051 indicating a negative relationship, meaning that if ROE ( $X_6$ ) increases per unit other variables remain the CAR (Y) was decrease by 0.051, vice versa.
8. Regression coefficient for the variable NIM ( $X_7$ ), is -.125 indicating a negative relationship, meaning that if NIM ( $X_7$ ) increases per unit and other variables remain the CAR (Y) will decrease with 0.125.
9. Regression coefficient of the CAR (Y) 6.498, meaning a positive correlation the CAR (Y) and LDR (Z), so that if CAR (Y) increases per unit and other variables remain the LDR will increase by 6.498.

**Table II:** The Results of Multiple Linear Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
(Constant)	47.121	6.385		7.380	.000
AG	-15.636	5.236	-1.176	-2.986	.004
CG	-17.471	4.728	-1.280	-3.696	.000
1 CapG	34.755	2.692	2.533	12.908	.000
LLRG	-.862	.814	-.128	-1.059	.293
NPLs	-.335	.153	-.173	-2.189	.031
ROE	-.051	.054	-.081	-.957	.341
NIM	-.125	.259	-.042	-.481	.632

a. Dependent Variable: CAR

**Table III:** The Results of Multiple Linear Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
1 (Constant)	167.241	24.247		6.987	.000
CAR	6.498	3.033	.303	2.142	.035

a. Dependent variable: LDR

## C. Analysis of Correlation Coefficient and Coefficient of Determination

Correlation coefficient is used to measure the strength of the relationship between the independent variable and the dependent variable. While the coefficient of determination is used to see how much the independent variable contributes to the dependent variable. From the Table IV can be concluded that a value of correlation (R) the variable AG ( $X_1$ ), CG ( $X_2$ ), CapG ( $X_3$ ), LLRG ( $X_4$ ), NPLs ( $X_5$ ), NIM ( $X_6$ ) and ROE ( $X_7$ ) with CAR are 0.867, meaning that the correlation level are in strong correlation (25). While the coefficient of determination explains the

contribution effect of AG ( $X_1$ ), CG ( $X_2$ ), CapG ( $X_3$ ), LLRG ( $X_4$ ), NPLs ( $X_5$ ), NIM ( $X_6$ ) and ROE ( $X_7$ ) with CAR (Y) is 0.751 ( $R^2$ ) indicating that AG ( $X_1$ ), CG ( $X_2$ ), CapG ( $X_3$ ), LLRG ( $X_4$ ), NPLs ( $X_5$ ), NIM ( $X_6$ ) and ROE ( $X_7$ ), accounted to 75.1% of CAR (Y), and the remaining 24.9% was influenced by other variables not examined in this study. Meanwhile value of correlation the variable CAR (Y) with LDR (Z) is (R) 0.808, meaning has strong correlation. And the determination coefficient of CAR (Y) with LDR (Z) is 0.654 ( $R^2$ ), showed that CAR (Y) contributed 65.4% on LDR (Z), and the remaining 34.6% was influenced by other variables not examined in this study.

**Table IV:** The Results of Correlation Coefficient and Coefficient of Determination

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.867 <sup>a</sup>	.751	.730	2.34358

a. Predictors: (Constant), AG, CG, CapG, LLRG, NIM, NPLs, ROE

b. Dependent Variable: CAR

**Table V:** The Results of Correlation Coefficient and Coefficient of Determination

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.808 <sup>a</sup>	.654	.624	8.78534

a. Predictors: (Constant), CAR

b. Dependent Variable: LDR

#### D. Partial significance test (t-test)

Partial significance test (t-test) was used to test the effect of partially independent variables (AG, CG, CapG, LLRG, NPLs, NIM, and ROE) to CAR (Y) as the dependent variable. From Table II and III can be explained as follows:

##### 1. The effect of Assets Growth (AG) on Capital Adequacy Ratio (CAR)

Partial test results between AG to CAR shows the t-value of -2.986 greater than the t-table (1.664) with a significant value of .004 which is below 0.05. This means that the AG has a negative effect and significant effect on the Capital Adequacy Ratio (CAR). Thus the hypothesis H1 which states AG has a negative effect on CAR is acceptable. The results of this study, in line with previous research conducted by (11) that the capital ratio of the state-owned banks in Indonesia is determined by the asset growth (LnSize). And (12) that size is the most significant variable that explains the variance of Egyptian banks' CAR. Likewise, according to (13) that size has a negative effect and significant effect on CAR. Similarly, the research results according to (15) that the relationship between CAR and assets is negative for an unchanged level of regulatory capital in The Albanian Banking System. Furthermore, according to (16) that size (assets) do not appear to have any significant effect on CAR in Turkish Banks. And according to (17) that size has a significant and negative relationship with a capital adequacy ratio in Kuwait Banks. (18) found that indicate a negative relationship between bank size and capital adequacy ratio in

Iranian Banks. However, contrary to the research results according to (14) that size has a positive effect on capital adequacy in Ethiopia Commercial Banks

##### 2. The effect of Credit Growth (CG) on Capital Adequacy Ratio (CAR)

The partial test results between CG and CAR obtained t-count of -3.696 higher than t-table (1.664) with a significance value of 0.000 which is under 0.05, meaning that CG has a negative and significant effect on CAR, so hypothesis H2 which states CG has a negative effect on CAR is acceptable. The results of this study, supporting the research conducted by Menkomen (2015) states LNTA (loans) have no a significant effect on capital adequacy in Ethiopia Commercial Banks. Similarly, according to research results (13), loans have a significant effect on CAR

##### 3. The effect of Capital Growth (CapG) on Capital Adequacy Ratio (CAR)

Partial test results between CapG and CAR obtained the t-value of 12.908 higher from the t-table (1.664) and a significant value is .000 under 0.05, meaning CG has a positive and significant effect on Capital Adequacy Ratio (CAR). Thus the hypothesis H3 which states CG has a positive effect on CAR is acceptable. The results of this study, in line with previous research conducted by Buchory (2014) that CAR as an indicator of the capital strength of a bank. Growth in the amount of capital will increase the CAR of a bank vice versa. Therefore capital growth has a positive relationship with CAR.

##### 4. The effect of Loans Losses Reserve Growth on Capital Adequacy Ratio (CAR)

The result of partial test between LLRG and CAR obtained t-count of -1.059 lower from t-table (1.664) and a significant value of 0.293 which is higher 0.05, meaning LLRG has a negative but not significant effect on the Capital Adequacy Ratio (CAR). Thus the hypothesis H4 which states LLRG has a negative effect on CAR is acceptable. The results of this study, in line with previous research conducted by (27) that loan loss reserve of the banks is important determinants of capital adequacy ratio of commercial banks in Ethiopia and loan loss reserve were significantly related to capital adequacy ratio. Similarly, according to research results (12) that LLR and credit risk are the most significant variable that explains the variance of Egyptian banks' CAR. Although according to research (13) which states LLR does not a significant effect on CAR.

##### 5. The effect of Non-Performing Loans (NPLs) on Capital Adequacy Ratio (CAR)

The result of partial test between the NPLs and CAR obtained t-count of -2.189 higher from t-table (1.164) and a significant value of 0.031 under 0.05, meaning NPLs have negative and significant effect on the Capital Adequacy Ratio (CAR), so hypothesis H5 which states NPLs have a negative effect on CAR is acceptable. This study supporting previous research conducted by (15) that the relationship between CAR and NPL is negative. Likewise, the results of research (11) that the capital ratio of the state-owned banks in Indonesia is determined by the amount of non- performing loans (NPL). Meanwhile, according to research result (12) results show that credit

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risk is the most significant variable that explains the variance of Egyptian banks' CAR.

### 6. The effect of Return On Equity (ROE) on Capital Adequacy Ratio (CAR)

Partial test results between ROE and CAR obtained the t-count of -0.957 lower from t-table (1.664) and a significant value of .341 higher than 0.05, meaning ROE has a negative but not significant effect on the Capital Adequacy Ratio (CAR). So the hypothesis H6 which states ROE has a positive effect the CAR is rejected. This result is in line with the research conducted by (14) that ROE has a negative effect on capital adequacy in Ethiopia Commercial Banks. Furthermore according to research (17) that Return on equity does not have a significant effect on CAR in Kuwaiti Banks. Similarly, according to research results (18) found that indicate a negative relationship between Return on Equity (ROE) and capital adequacy ratio in Iranian Banks.

### 7. The effect Net Interest Margin (NIM) on Capital Adequacy Ratio (CAR).

The result of partial test between the NIM and CAR obtained the t-count of -0.481 lower from t-table (1.664) and a significant value of 0.632 higher than 0.05, meaning NIM has negative but not a significant effect on the Capital Adequacy Ratio (CAR). So hypothesis H7 which states NIM has a positive effect on CAR is rejected. This study supporting previous research conducted by (11) capital ratio state-owned banks in Indonesia is determined by Net Interest Margin (NIM) but did not significantly effects to the bank's capital adequacy ratio. Likewise, the results of research by (16) that NIM does not appear to have any significant effect on CAR in Turkish Banks. Similarly, according to research results (14) that NIM has a negative effect on capital adequacy in Ethiopia Commercial Banks.

### 8. The effect of Capital Adequacy Ratio (CAR) on Loans to Deposit Ratio (LDR).

The result of partial test between the CAR and LDR obtained the t-count of 2.142 higher from t-table (1.664) and a significant value of 0.35 higher than 0.05, meaning CAR has positive but not a significant effect on the Capital Adequacy Ratio (CAR), so the hypothesis H9 which states CAR has a positive effect on Loans to Deposit Ratio (LDR) is acceptable. This study supporting previous research conducted by (1, 17, 20-22) which states that CAR has a positive and significant effect on LDR as an indicator on the implementation of banking intermediation function. Similarly, according to research results (23) that capital structure influence the bank's intermediation function in Indonesia Banking. However contrary to the research results according to (1) found that partial CAR has a negative but no significant effects on LDR. Similarly, according to research conducted by (24) which state that CAR does not have a positive effect on the LDR.

### E. Simultaneous significant test (F-test)

Simultaneously the influence of independent variables (AG, CG, CapG, LLRG, NPL, NIM, and ROE) on the independent variable (CAR) can be seen in Table VI. The F-count is 135,314 higher than the F-table 2,110 with a significance value of 0,000 below 0.05. This means that AG, CG, CapG, LLRG, NPL, NIM and ROE simultaneously have a significant effect on CAR. Thus the hypothesis H8 which

states AG, CG, CapG, LLRG, NPL, NIM and ROE has an effect on CAR can be accepted.

Table VI. : Simultaneous Test Results (F-Test) ANOVA

Model	Sum of squares	Df	Mean square	F	Sig.
1 Regression	1357.682	7	193.955	35.314	.000 <sup>b</sup>
Residual	450.373	83	5.492		
Total	1808.054	90			

Dependent variable CAR;

Predictors: (constant), AG, CG, CapG, LLRG, NIM, NPLs, ROE

## V. CONCLUSION

Based on research results some conclusions can be drawn as follows:

1. Partially, AG, CG, NPLs have a negative and significant effect on CAR; CapG has a positive and significant effect on CAR; While LLR, ROE, NIM have a negative effect but not significant on CAR;
2. Simultaneously, AG, CG, CapG, NPLs, LLR, NIM, and ROE have a significant effect on CAR. And CAR has a positive and significant effect on LDR.
3. The contribution effect of AG (X1), CG (X2), CapG (X3), LLRG (X4), NPLs (X5), NIM (X6) and ROE (X7) with CAR as a dependent variable (Y) is 75.1% and the remaining 24.9% was influenced by other variables not examined in this study. And the effect of CAR (Y) on LDR (Z) is 65.4%, and the remaining 34.6% was influenced by other variables not examined in this study.

## VI. IMPLICATIONS

The results show that capital is needed to support business expansion, cover risks and meet regulation. While the capital owned by RDB in general is still limited, therefore some strategies that must be taken by RDB management in saving and increasing capital are as follows: in the short run, bank management must be able to manage its financial resources by investing its assets with low risk, especially in lending; advising RDB owners to raise capital with fresh money or reimburse dividends earned. In the medium term management and owners of RDB may consider inviting strategic investors, and in the long term consider doing a go public strategy, or other RDB merger. With these strategies, it is expected to save capital use and raise capital owned by RDB so as to support business expansion while covering the potential risks.

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