

Capital Structure and Bank Performance in Indonesia's Dual Banking System

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The capital structure of a bank is directly tied to the risk and rate of return. The aim of this study is to examine the impact of capital structure on financial performance in Indonesia's dual banking system from the first quarter of 2013 to the third quarter of 2019, using 9 Conventional Commercial Banks (BUK) and 9 Sharia Commercial Banks (BUS) as research samples. Panel data regression is employed in this study, with Return on Assets (ROA) and Return on Equity (ROE) as dependent variables, and Equity to Total Asset Ratio (EAR), Debt to Equity Ratio (DER), company size, and economic growth as independent variables. The findings reveal that EAR, DER, and economic growth all have beneficial and significant effects on conventional commercial banks' ROA and ROE. Company size and economic growth have a positive and significant effect on ROA and ROE, while Sharia Commercial Banks, EAR, and DER have a negative and significant effect on ROA and ROE. These findings indicate that capital structure has a sometimes beneficial impact on financial success.

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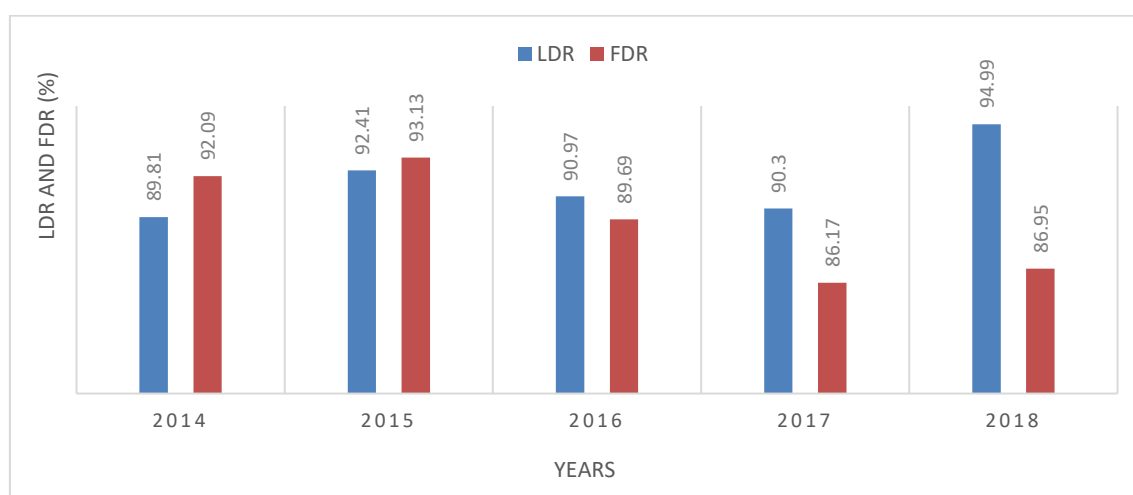
Keywords: Dual Banking System; Financial Performance; Panel Data Regression; Capital Structure

INTRODUCTION

Banking, the non-bank financial industry, and capital markets comprise Indonesia's financial services sector. Banking dominated this sector until 2018, with a market share of 74.08 percent. Since 1998, Indonesia has had a dual banking system comprised of conventional and Sharia banking systems. In contrast with conventional banking, Sharia uses a profit-sharing structure and agreed margins based on Sharia-compliant contracts rather than an interest system. Conventional

banking and Sharia banking, on the other hand, serve as financial intermediaries between those with funds and those in need of funds.

According to Financial Services Authority (OJK) statistics, Sharia banking had a market share of only 5.96 percent in 2018. However, when it comes to its intermediation function, Sharia banking can work well with a Financing to Deposits Ratio (FDR) of 78-100 percent. This range of statistics implies that Sharia banks dispersed 78-100 percent of the total TPF collected to the general populace.



Source : Indonesian Banking Statistics and Sharia Banking Statistics (processed)

Figure 1 Comparison of Loan to Deposit Ratio (LDR) of conventional banks and Financing to Deposit Ratio (FDR) of sharia banks in 2014-2018

According to the statistics in Figure 1, the average FDR of Islamic banks was 89.6 percent from 2014 to 2018, while the average LDR of conventional banks was 91.7 percent. These results remain within the Bank Indonesia (BI) normal FDR and LDR ranges, namely 78-100 percent for Islamic bank FDR and 78-92 percent for conventional bank LDR. This condition demonstrates that, despite Sharia banking having a lower market share than conventional banking, the intermediation function of the two banking systems is equally capable of functioning well.

Banking, as a financial intermediation organization, requires public trust so that people trust, feel secure, and are willing to utilize its services. Under these conditions, the performance of conventional and Sharia banking is critical to monitor because it represents the bank's ability to carry out its business activities. Financial performance is one method of evaluating bank performance because it describes the bank's financial state as well as the good and poor aspects of its work performance over a specified time period.

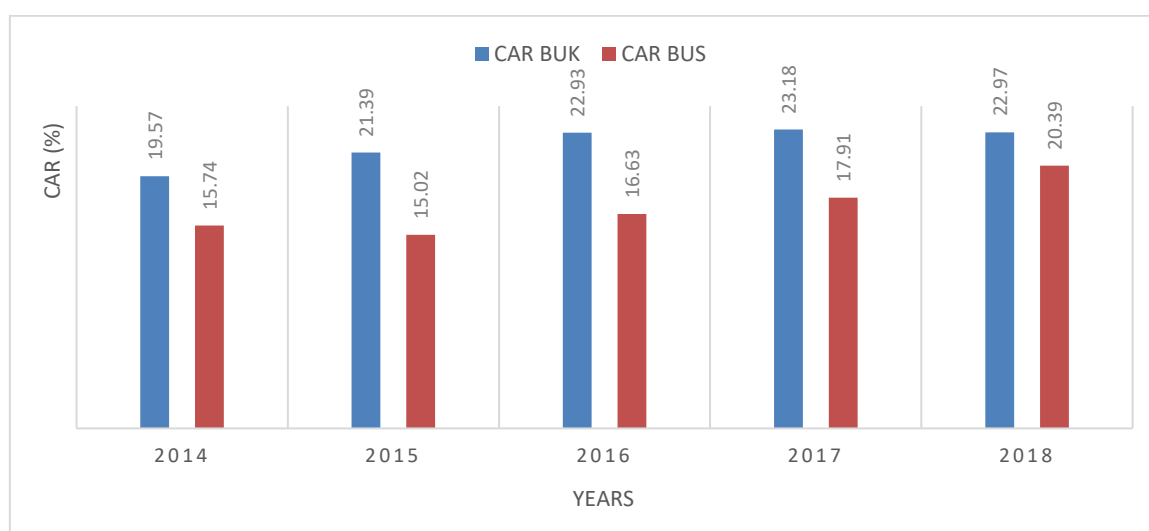
Capital is one factor that might affect a bank's financial success. Capital is a source of financing for any company entity, including banks, that is used to sustain its business continuity. If the bank's capital is minimal, it will be unable to offset the losses it confronts. As a result, this condition may have an impact on the bank's capacity to sustain its operational performance. Bank performance will also deteriorate, resulting in decreased public trust (Pinasti, 2018).

Capital is classified into two types: domestic capital and international capital. Paid-in capital, share premium, retained earnings, and current-year profit are all examples of own capital or equity. Loans and revenues from the sale of securities on the capital market can both be sources of foreign capital (Mardiyanto, 2009). The capital structure will be formed based on the balance of these two types of capital. Because capital structure is a combination of own capital and long-term debt utilized by a corporate entity to fund its business operating activities (Margaretha, 2011), capital structure management or decisions are critical to pay attention to. Because capital structure is closely tied to risk and rate

of return, this capital structure selection will have a substantial impact on financial performance (Al-Kayed et al., 2014). As a result, examining the relationship between capital structure and financial performance is critical. It is envisaged that an appropriate capital structure will boost financial performance.

According to the Financial Services Authority (OJK), Sharia banking in Indonesia still faces capital-related issues. According to the Indonesian Sharia Financial Development Report, until the end of 2018, the core capital category of 1-5 trillion rupiah (BUKU 2)

with a composition of 9 BUS dominated the classification of Commercial Banks with Business Activities (BUKU), Sharia Commercial Banks (BUS). There were four BUS with core capital of less than one trillion rupiah (BUKU 1) and only one BUS with a core capital of 5-30 trillion rupiah (BUKU 3). Aside from that, when it comes to achieving capital adequacy as measured by the Capital Adequacy Ratio (CAR), the BUS CAR is still lower than the CAR of Conventional Commercial Banks (BUK).



Source: Indonesian Banking Statistics and Sharia Banking Statistics (processed)

Figure 2 Comparison of BUK CAR and BUS CAR 2014-2018

Based on Figure 2, BUS's CAR (Capital Adequacy Ratio) increased from 2015-2018 but remains lower than BUK's CAR. CAR measures a bank's capital adequacy in supporting risk-generating assets (Raharjo et al., 2014). Lower CAR indicates reduced risk-handling capacity. Financial risk, which could lead to bankruptcy, concerns businesses, including banks (Ridwan, 2003). This risk is influenced by capital structure decisions, balancing debt and equity. Poor choices can increase the cost of capital, affecting financial performance (Utami, 2017). Higher debt composition elevates risk and impacts returns (Ridwan, 2003).

Based on the background and problem formulation described previously, the objectives of this research are as follows:

1. Analyze capital structure and financial performance in Indonesia's dual banking system (BUK and BUS).
2. Examine the impact of capital structure on financial performance in this system.

The study focuses on the effects of capital structure on financial performance within Indonesia's dual banking system.

LITERATURE REVIEW

Dual Banking System in Indonesia

According to Indonesian Law No. 10 of 1998, banking encompasses various activities related to financial institutions, business operations, and the methods and processes involved. In Indonesia, a dual banking system has been in place since 1992. This system combines conventional banking with Islamic banking, each contributing to the broader financial landscape. Both systems synergistically mobilize public funds to finance various sectors of the national economy (Undang-Undang RI Nomor 10 Tahun 1998).

Conventional Banking

In conventional banking, banks operate based on an interest system. Under the same law, there are two main types: Commercial Banks (BUK) and People's Credit Banks (BPR). BUKs provide comprehensive services, including payment and credit services, while BPRs focus more narrowly on providing credit without

offering payment services ([Undang-Undang RI Nomor 10 Tahun 1998](#)).

Islamic Banking

Islamic banks are regulated by Law No. 21 of 2008 and function on Shariah principles. Unlike conventional banks, they do not employ an interest-based system. Instead, they operate on a profit-sharing model. The Islamic banking system comprises three main types: Islamic Commercial Banks (BUS), People's Islamic Credit Banks (BPRS), and Shariah Business Units (UUS), which are part of conventional Commercial Banks ([Undang-Undang Nomor 21 Tahun 2008](#)).

Financial Performance

Financial performance is assessed through various metrics that give insights into a company's financial health. [Utari et al. \(2014\)](#) state that financial performance reflects operational outcomes from numerical financial data. The primary methods to analyze this are profitability ratios like Return on Asset (ROA) and Return on Equity (ROE). ROA measures a company's ability to generate income from its assets ([Sugiono, 2009](#)).

$$ROA = \frac{\text{Net Income}}{\text{Total Asset}}$$

A higher ROA indicates better asset utilization ([Safitri 2018](#)). ROE measures the return generated on equity investments ([Sugiono 2009](#)).

$$ROE = \frac{\text{Net Income after Tax}}{\text{Shareholder's Equity}}$$

Capital Structure

Capital structure, as described by [Utari et al. \(2014\)](#), is the composition of long-term debt and equity. Capital structure choice is a trade-off between risk and return ([Margaretha, 2011](#)). It directly impacts the company's financial performance and can influence risks and returns ([Al-Kayed et al., 2014](#)). The structure includes long-term liabilities like bonds and mortgages and equity components like preferred shares, common shares, and retained earnings ([Mardiyanto, 2009](#)). Key ratios used to assess capital structure include the Equity to Total Asset Ratio (EAR) and the Debt to Equity Ratio (DER).

$$EAR = \frac{\text{Total Equity}}{\text{Total Asset}}$$

EAR measures the proportion of equity to total assets, and DER shows the ratio of long-term debt to equity ([Ridwan 2003](#)).

$$DER = \frac{\text{Total Liability}}{\text{Total Equity}}$$

Firm Size

The size of a company can be indicative of its scale and influence in the market. One way to measure this is through the calculation of total assets ([Al-Kayed et al. 2014](#)), expressed as:

$$\text{Firm Size} = \ln \text{Total Asset}$$

Larger companies tend to be more resilient against bankruptcy and better equipped to handle market competition. This size advantage fosters greater public trust and contributes to a more secure financial standing.

Economic growth is another critical factor affecting a bank's internal and external financial performance ([Utari et al., 2014](#)). High economic growth, often reflected by an increase in the Gross Domestic Product (GDP), usually results in a ripple effect on individual incomes. This, in turn, triggers a spending increase across various sectors, positively affecting banking revenue. The economic cycle, therefore, has a substantial impact on a bank's financial well-being ([Al-Kayed et al., 2014](#)).

Lastly, the capital structure of a company, specifically a bank, is sensitive to economic fluctuations ([Mardiyanto, 2009](#)). A favorable economic condition can positively impact the capital structure, thus benefiting the financial performance. Conversely, a downturn in economic growth can be detrimental to a bank's capital structure, consequently affecting its financial stability and performance negatively ([Al-Kayed et al., 2014](#)).

Several studies have explored the impact of capital structure on the financial performance of banks, including Islamic banks. For instance, [Pinto et al. \(2017\)](#) found a significant relationship between capital structure and financial metrics like Net Profit Ratio and Return on Capital Employed in Indian banks. [Al-Kayed et al. \(2014\)](#) analyzed 85 Islamic banks in 19 countries. They found that Capital Ratio, Consumer and Short-Term Funds to Total Assets, and company size were significant factors in enhancing financial performance. [Sheikh and Qureshi \(2017\)](#) focused on Pakistani banks and discovered varying influences of profitability,

company size, and asset tangibility on the capital structure between conventional and Islamic banks.

Studies like those from [Larasati and Adityawarman \(2016\)](#) and [Ramadhan \(2018\)](#) also underscore the complexities in the relationship between capital structure and financial performance, emphasizing the role of other variables like overhead ratios and long-term debt-to-asset ratios. [Waharatri \(2019\)](#) found that economic growth significantly and positively impacts profitability indicators like Return on Asset (ROA) and Return on Equity (ROE) in Indonesian Islamic banks.

Finally, [Rionita and Abundanti \(2018\)](#) and [Sejati \(2019\)](#) examined Indonesian banks listed on the stock exchange. They found positive and negative relationships between debt ratios and profitability metrics like ROE, depending on the type of bank. These collective findings point to capital structure's nuanced and often context-specific impacts on a bank's financial performance

DATA AND METHODOLOGY

This quantitative study focuses on Indonesia's dual banking system, covering Commercial Banks (BUK) and Islamic Banks (BUS) from Q1 2013 to Q3 2019. Financial metrics such as ROA, ROE, EAR, DER, and SIZE are obtained from the banks' official websites, while GDPG data is sourced from Bank Indonesia. The study specifically targets BUK and BUS registered with Indonesia's Financial Services Authority (OJK) in 2019, chosen for their significant market share 70.06% for BUK and 64.67% for BUS as of 2018.

Sample selection is based on rigorous criteria, including OJK registration, consistent business form from 2013-2019, and the availability of complete quarterly financial reports. As a result, nine BUS and nine BUK were chosen as the study's samples. The selected banks are analyzed through two main methodologies: descriptive and panel data regression analyses.

Microsoft Excel 2013 and Eviews 10 software are used for data analysis. The study aims to evaluate the influence of factors like capital structure, company size, and economic growth on the financial performance of the chosen banks. Panel data regression is particularly employed for its capability to offer more informative data, tackle collinearity issues, and capture variations both across time and individual entities.

Panel Data Regression

Estimation in panel data regression models can be carried out using three approaches ([Firdaus, 2011](#)):

a) *Pooled Least Square* (PLS)

Pooled Least Square (PLS) is a model that combines all data (pooled) so that there are $N \times T$ observations. N is the number of cross-section units, and T is the number of time series. The following is the PLS equation model:

$$Y_{it} = \alpha_i + \beta X_{it} + u_{it}$$

Information :

Y_{it} : dependent variable value

X_{it} : independent variable value

α_i : constant intercept for each observation

β : slope

u_{it} : error

b) *Fixed Effect Model* (FEM)

Fixed Effect Model (FEM) is a model that includes elements of dummy variables that are different for each individual so that the intercept has variations between individuals (cross sections) and between units of time (time series). In FEM, the individual effect (ε_{it}) and the independent variable (X_{it}) can correlate (not random). The following is the FEM equation model:

$$Y_{it} = \sum \alpha_i D_i + \beta X_{it} + \varepsilon_{it}$$

Information :

Y_{it} : dependent variable value

X_{it} : independent variable value

α_i : model intercepts that change (individually) between cross-section units

β : slope

D : variable dummy

ε_{it} : error

c) *Random Effect Model* (REM)

In contrast to FEM, in the Random Effect Model (REM), individual effects (ε_{it}) and independent variables (X_{it}) cannot be correlated (are random). This assumption makes the error components of the individual effect and time included in the error. The following is the REM model equation:

$$Y_{it} = \alpha_0 + \beta X_{it} + \varepsilon_{it}$$

$$\varepsilon_{it} = u_{it} + v_{it} + w_{it}$$

Information :

$u_{it} \sim N(0, \delta_U)^2$: error component each observation (cross section)

$vit \sim N(0, \delta V)^2$: error component each period (time series)

$wit \sim N(0, \delta W)^2$: error component combinations

Research Model

This research examines the impact of capital structure on financial performance in Indonesia's dual banking system, focusing on both BUK and BUS. The independent variables are Equity to Asset Ratio (EAR) and Debt to Equity Ratio (DER), while the dependent variables are Return on Assets (ROA) and Return on Equity (ROE). Company size (SIZE) and economic growth (GDPG) are included as control variables. Four models are used to analyze the data:

a) Model 1 (ROAK)

$$ROAK_{it} = a_0 + a_1EAR_{it} + a_2DER_{it} + a_3LN_SIZE_{it} + a_4GDPG_{it} + \varepsilon_{it}$$

b) Model 2 (ROEK)

$$ROEK_{it} = a_0 + a_1EAR_{it} + a_2DER_{it} + a_3LN_SIZE_{it} + a_4GDPG_{it} + \varepsilon_{it}$$

c) Model 3 (ROAS)

$$ROAS_{it} = a_0 + a_1EARS_{it} + a_2DERS_{it} + a_3LN_SIZE_{it} + a_4GDPG_{it} + \varepsilon_{it}$$

d) Model 4 (ROES)

$$ROES_{it} = a_0 + a_1EARS_{it} + a_2DERS_{it} + a_3LN_SIZE_{it} + a_4GDPG_{it} + \varepsilon_{it}$$

Information :

ROAK = Return on Asset of BUK (%)

ROAS = Return on Asset of BUS (%)

ROEK = Return on Equity of BUK (%)

ROES = Return on Equity of BUS (%)

EARK = Equity to Total Asset Ratio of BUK (%)

EARS = Equity to Total Asset Ratio of BUS (%)

DERK = Debt to Equity Ratio of BUK (%)

DERS = Debt to Equity Ratio of BUS (%)

LN_SIZEK = Firm Size of BUK (Trillion rupiah)

LN_SIZES = Firm Size of BUS (Trillion rupiah)

GDPG = GDP Growth or Economic Growth (%)

a_0, b_0 = Intercept

$a_1, \dots, n, b_1, \dots, n$ = Slope

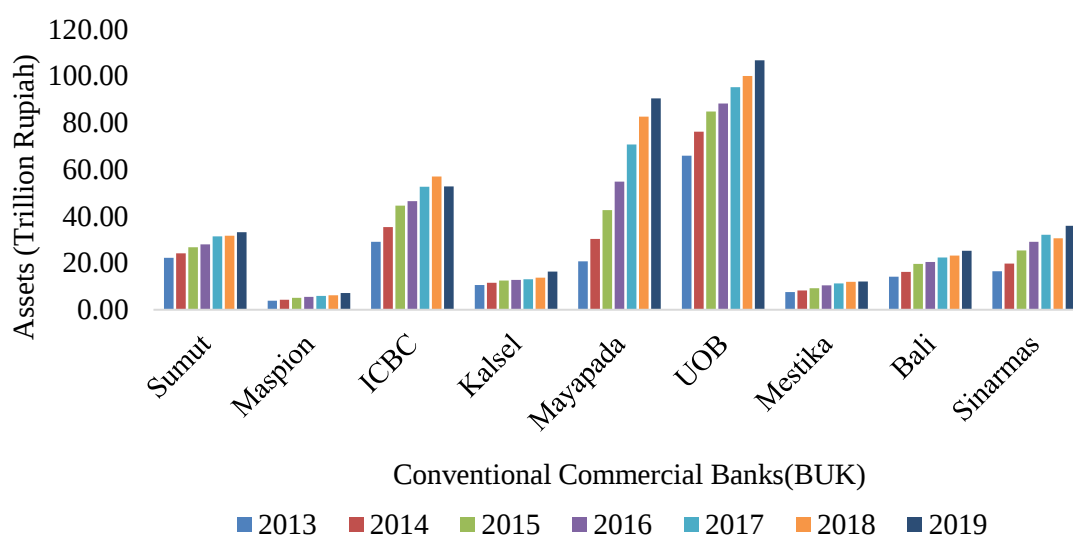
ε_{it} = Error term

I = individual- i

T = Time period- t

RESULT AND DISCUSSION

The data used in this research is data from 9 BUK and 9 BUS. BUK in this research is BPD North Sumatra (North Sumatra), Bank Maspion Indonesia, Bank ICBC Indonesia, BPD South Kalimantan (Kalsel), Bank Mayapada Internasional, Bank UOB Indonesia, Bank Mestika Dharma, BPD Bali, and Bank Sinarmas. At the same time, BUS consists of Bank Muamalat Indonesia, Bank Victoria Syariah, BRI Syariah, BNI Syariah, Bank Syariah Mandiri, Bank Mega Syariah, Bank Panin Dubai Syariah, Bank Syariah Bukopin, and BCA Syariah. The following is the development of the 9 BUK and 9 BUS assets used in this research during the 2013-2019 period.

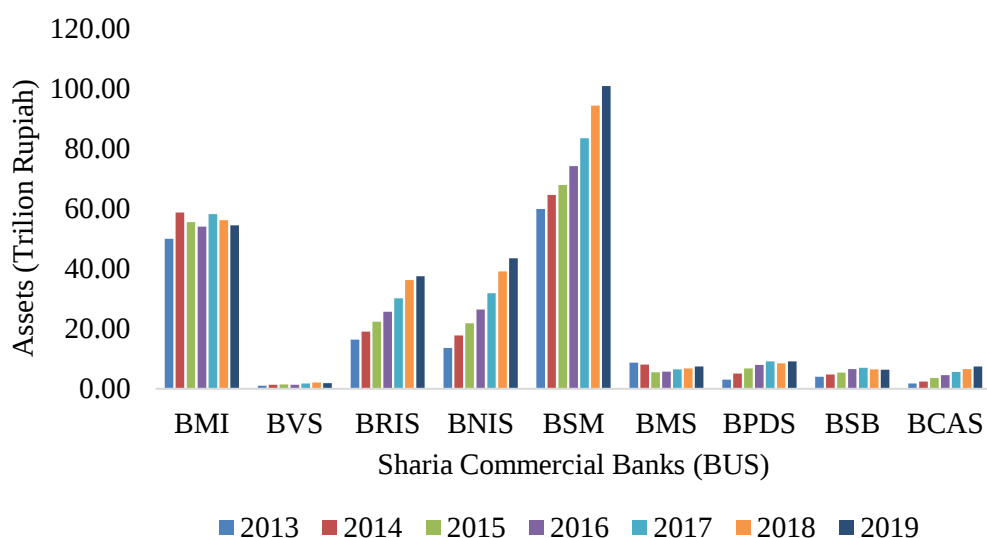


Source: Financial Report of Each BUK that is the Research Sample (processed)

Figure 3 Average BUK assets in 2013-2019

Based on Figure 3, the average assets of the nine BUKs during 2013-2019 continue to increase, except for ICBC Bank, which is still fluctuating. The largest average asset of the nine BUKs during this period was UOB Bank in 2019, which reached 106.63 trillion rupiahs, while the lowest average asset was Maspion Bank in

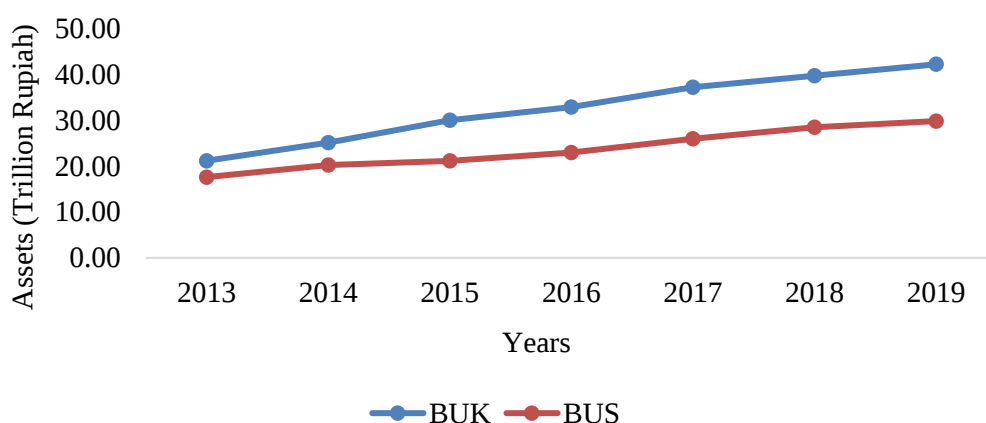
2013, with 3.87 trillion rupiahs. For BUS, the highest average asset of the nine BUS during the 2013-2019 period was BSM in 2019, with 100.78 trillion rupiah, and the lowest average asset was BVS, with 1.06 trillion rupiah in 2013. This can be seen in Figure 4.



Source: Financial Report of Each BUS that is the Research Sample (processed)
Figure 4 Average BUS assets in 2013-2019

In contrast to BUK, Figure 4 shows that during the 2013-2019 period, the average assets of the nine BUS were still fluctuating, except for BRIS, BNIS, BSM, and

BCAS, which continued to increase yearly. However, overall, the average BUS assets still show a positive trend. This can be seen in Figure 5.

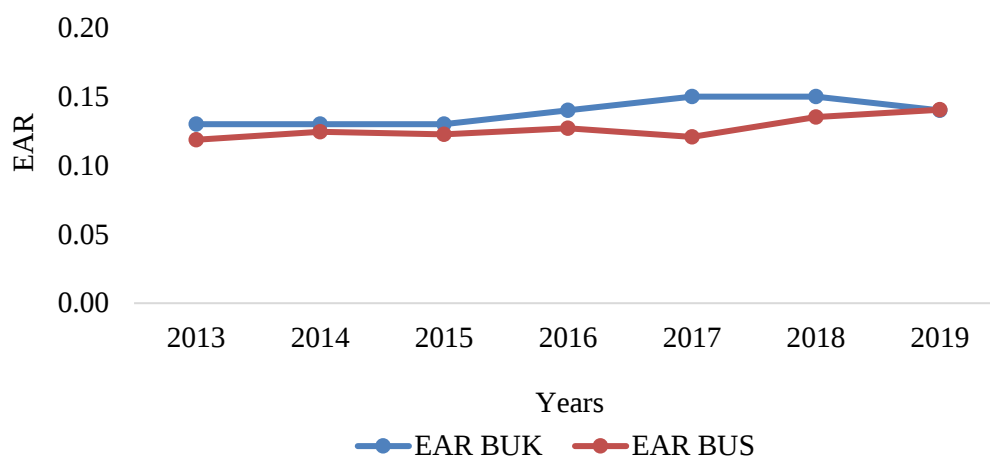


Source: Financial Report of Each BUS that is the Research Sample (processed)
Figure 5 Average BUK and BUS assets in 2013-2019

Development of DER and EAR BUK and BUS

In carrying out their business activities, BUK and BUS use internal funding sources or their capital and external funds or foreign capital as sources of business

financing. The balance between these two types of capital will be related to the formation of the capital structure. The capital structure ratios in this research are EAR and DER.



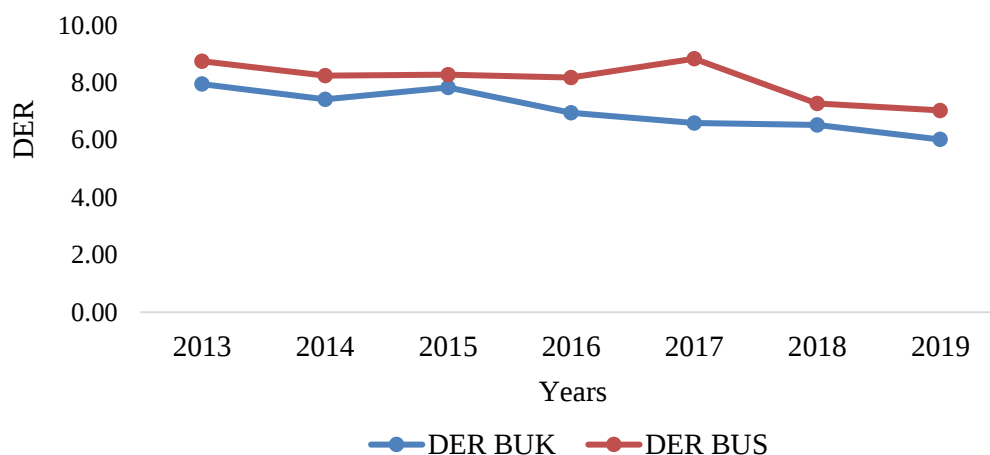
Source: Financial Report of Each BUS that is the Research Sample (processed)

Figure 6 BUK's and BUS's Average EAR period 2013-2019

Figure 6 shows the average development of EAR BUK and EAR BUS in the 2013-2019 period. Based on this data, the average EAR BUK and EAR BUS are classified as fluctuating and tend to increase. However, in the 2018-2019, the average EAR BUK decreased from 0.15 to 0.14, and the average EAR BUS decreased in the 2016-2017 period from 0.13 to 0.12. The EAR value is the balance between own capital and total assets,

which describes the amount of a business entity's capital, including banks, which are part of all its assets. Based on Figure 6, it is known that the average EAR in BUK and BUS is close to 0. This shows the low level of capital included in BUK and BUS assets.

For DER, the average DER BUK and BUS during 2013-2019 is classified as fluctuating and tends to decrease. This can be seen in Figure 7.



Source: Financial Report of Each BUS that is the Research Sample (processed)

Figure 7 BUK's and BUS's Average DER 2013-2019 period

DER is a comparison between total debt and capital owned. Figure 7 shows that the average value of DER BUK and DER BUS is more than 1. This indicates that BUK and BUS's debt is more significant than capital. According to [Margaretha \(2011\)](#), if a company's debt is high, the company's risk will be high, so that returns will increase. When risk increases, share prices will fall; if returns increase, share prices will rise. Therefore, an optimal capital structure, which balances

risk and return, is expected to streamline operational activities and improve financial performance.

Development of ROA and ROE BUK and BUS

ROA and ROE describe financial performance in this research. The following are the average ROA and ROE for BUK and BUS.

Table 1 Average ROA and ROE of BUK and BUS 2013-2019 (in percent)

	BUK		BUS	
	ROA	ROE	ROA	ROE
2013	2.88	21.33	1.58	20.39
2014	2.42	16.82	0.62	6.93
2015	1.91	14.26	0.51	4.28
2016	2.21	15.62	0.46	1.75
2017	1.99	12.06	0.42	2.08
2018	1.64	9.97	0.67	4.34
2019	1.69	10.01	0.64	4.38

Source: Financial Report of Each BUS that is the Research Sample (processed)

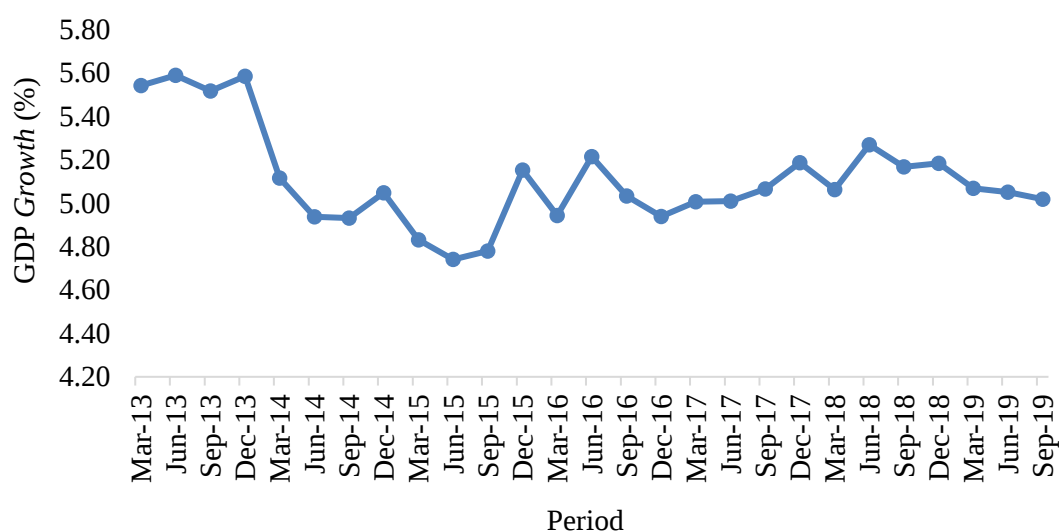
Based on Table 1, during the 2013-2019 period for BUK and BUS, the average ROE value was always more significant than the average ROA value. This result shows that the financial performance of BUK and BUS has a greater return on benefits for investors than the return on assets for the company. Apart from that, it is known that the average BUK ROA and BUS ROA in the 2013-2019 period were classified as fluctuating and tending to decline. However, it can also be seen that the average ROA of BUK during the current period is always higher than the ROA of BUS. The average ROA of BUK is in the range of 1.64-2.88 percent, while the average ROA of BUS is in the range of 0.42-1.58 percent.

Like the average ROA, Table 1 shows that the average ROE of BUK and BUS during 2013-2019 fluctuated and tended to decline. Nevertheless, the fluctuating average ROE of BUK is still better than BUS's. During the current period, the highest decline in the average ROE for BUS reached 13.46 percent in the 2013-2014 period, while the highest decline in the

average ROE for BUK was only 4.51 percent in the 2013-2014 period. Apart from that, based on Table 1, it can be seen that the average ROE of BUK is always higher than the average ROE of BUS. During the current period, BUK's average ROE was 9.97-21.33 percent, while BUS' average was 1.75-20.39 percent.

Indonesian Economic Growth

In improving and maintaining its financial performance, every business entity, including banks, will also be influenced by the economic conditions of its country. These economic conditions can affect banks operationally and in terms of policymaking related to their financial performance. Positive economic growth is also expected to influence bank financial performance. During the research period, from the first quarter of 2013 to the third quarter of 2019, Indonesia's economic growth fluctuated from 4.74 percent to 5.59 percent. The average economic growth in that period was 5.11 percent.



Source : Bank Indonesia (processed)

Figure 8 Indonesia's economic growth in the first quarter of 2013-third quarter of 2019

During the research period, it was also discovered that in Quarter IV 2018 to Quarter III 2019, Indonesia's economic growth declined from 5.18 percent to 5.02 percent. Based on data from the 2019 Indonesian economic report, the decline in economic growth is likely the result of the impact of uncertainty on global economic growth in 2018. World economic growth slowed from 3.8 percent in 2017 to 3.7 percent in 2018. The slowdown in world economic growth is due to decreasing growth in world trade volume and global commodity prices. The ongoing trade war between China and the United States (US) and the impact of geopolitical conflicts, such as Britain's agreement to leave the European Union (Brexit), are also causes of global economic uncertainty. As a result of this situation, the strength of the currencies of various developing countries against the US dollar has weakened because global investors are competing to attract their investments. Macroeconomic and financial system

stability in many developing countries, including Indonesia, is being disrupted. The development of Indonesia's economic growth can be seen in Figure 8.

The Influence of Capital Structure on the Financial Performance of BUK and BUS

In conducting panel data regression, the initial stage is to choose the best model. Three models can be tested, namely Pooled Least Square (PLS) or Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The first test is the Chow test, namely, choosing between PLS and FEM to choose the best model. Based on the results of the Chow test (Table 1) on the ROAK, ROEK, ROAS, and ROES models, it was obtained that the chi-square probability value was smaller than the significant level (0.05), so the model chosen was FEM.

Table 2 Chow test result

Effect Test	Model ROAK		Model ROEK		Model ROAS		Model ROES	
	Stat.	Prob.	Stat.	Prob.	Stat.	Prob.	Stat.	Prob.
Cross-section F	61.479	0.000	72.199	0.000	5.045	0.000	3.024	0.000
Cross-section Chi Square	277.922	0.000	305.203	0.000	39.29	0.000	24.304	0.000

Source: Own Estimation

Next, a Hausman test is carried out to determine the best model between FEM and REM. The Hausman test results (Table 2) show that the four models' probability values are more significant than the

significance level (0.05). Therefore, this study's panel data regression model for ROAK, ROEK, ROAS, and ROES is REM.

Table 3 Haussman Test result

Effect Test	Model ROAK		Model ROEK		Model ROAS		Model ROES	
	Stat.	Prob.	Stat.	Prob.	Stat.	Prob.	Stat.	Prob.
Cross-section random	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000

Source: Own Estimation

We then run classic assumption tests on REM: normality and multicollinearity. Normality, assessed

through Jarque-Bera, fails (Table 3) but can be resolved with large samples due to the central limit theorem.

Table 4 Normality test result

Criteria	Model ROAK	Model ROEK	Model ROAS	Model ROES
Jarque-Berra	25.524	8.964	2526.039	590.399
Probability	0.000	0.011	0.000	0.000

Source: Own Estimation

Multicollinearity tests show no issues (Table 4), confirming our REM choice is sound for the study variables.

Table 5 Multicollinearity test result

BUK'S Model (ROAK and ROEK)				
	EARK	DERK	LN_SIZEK	GDPG
EARK	1.000000	-0.915311	-0.515181	-0.010791
DERK	-0.915311	1.000000	0.454297	0.033815
LN_SIZEK	-0.515181	0.454297	1.000000	-0.114156
GDPG	-0.010791	0.033815	-0.114156	1.000000

BUS'S Model (ROAS and ROES)				
	EARS	DERS	LN_SIZES	GDPG
EARS	1.000000	-0.897904	-0.671338	-0.033998
DERS	-0.897904	1.000000	0.692720	0.045423
LN_SIZES	-0.671338	0.692720	1.000000	-0.072806
GDPG	-0.033998	0.045423	-0.072806	1.000000

Source: Own Estimation

The influence of EAR, DER, SIZE, and GDPG on ROA BUK and BUS

Panel data regression analysis in this study uses two independent variables, namely EAR and DER, as well as company size (SIZE) and economic growth

(GDPG) as control variables. The regression analysis is intended to determine the influence of the independent variable on the dependent variable. The following are the results of panel data regression using the random effect model (REM) in a model with the dependent variable ROA.

Table 6 Estimation results of the influence of capital structure on ROA of BUK and BUS

Variable	BUK		BUS	
	Coefficient	Probability	Coefficient	Probability
C	0.531313	0.7586	-4.141821	0.0224
EAR	0.104316	0.0389	-0.125367	0.0014
DER	0.001179	0.0954	-0.003885	0.0000
LN_SIZE	-1.089422	0.0000	0.527429	0.0000
GDPG	0.533750	0.0045	1.622270	0.0000

Source: Own estimation

The estimation results show that for BUK, EAR has a positive coefficient of 0.104 and a significance of 0.0389, indicating a positive influence on ROA (Hendrayanti & Muharam, 2013; Indarwati & Anan, 2014). On the other hand, EAR on BUS has a negative effect with a coefficient of -0.125 and a significance of 0.0014 (Waharatri, 2019). This means that an increase in EAR in BUK increases ROA, while in BUS, it decreases. For DER, in BUK, a positive coefficient of 0.001 and a probability of 0.0954 indicates a positive influence on ROA (Binangkit, 2014). In BUS, a coefficient of -0.004 and a probability of 0.0000 indicates a negative influence (Efendi & Wibowo, 2017; Sari, 2019). This shows that

debt is relatively more profitable for BUK than BUS. Company size also has a different impact. In BUK, company size has a negative effect on ROA, with a coefficient of -1.089 and a probability of 0.0000 (Isbanah, 2015; Wufron, 2017). Meanwhile, the effect is positive in BUS, with a coefficient of 0.527 and a probability of 0.0000 (Priyanto et al., 2017). Finally, economic growth (GDPG) positively affects both types of banks. In BUK, the coefficient is 0.534, and the probability is 0.0045 (Sorongan, 2016), and in BUS, the coefficient is 1.622, with a probability of 0.0000 (Sodiq, 2015; Waharatri, 2019).

In the context of capital, both tend to have a DER of more than 1, but the effect is the opposite on ROA. This research shows that the low capital of BUS in Indonesia (OJK, 2015) affects its ability to overcome risks and has a negative impact on ROA. This is to the Pecking Order and trade-off theories, which explain the company's choice in using funds.

The influence of EAR, DER, SIZE, and GDPG on ROE BUK and BUS

Regression analysis in this study uses two dependent variables, namely ROA and ROE. The following are the results of panel data regression analysis using REM in a model with the dependent variable ROE.

Table 7 Estimated results of the influence of capital structure on ROE of BUK and BUS

Variable	BUK		BUS	
	Coefficient	Probability	Coefficient	Probability
C	-4.184472	0.7266	-87.59498	0.0000
EAR	0.752651	0.0315	-1.342830	0.0012
DER	0.023230	0.0000	-0.029009	0.0000
LN_SIZE	-8.451569	0.0000	5.889144	0.0000
GDPG	3.553917	0.0000	23.49207	0.0000

Source: Own estimation

Based on Table 7's REM estimations, the ROE of BUK and BUS would be -4.184% and -87.595%, respectively, when all independent variables are zero. A unit increase in EAR leads to a statistically significant 0.753% increase in BUK's ROE, aligning with [Aba \(2018\)](#). Conversely, a unit increase in EAR results in a significant 1.343% decrease in BUS's ROE, consistent with [Waharatri \(2019\)](#). Thus, EAR exerts a significant but opposite influence on the ROEs of BUK and BUS.

The average EAR value of BUK and BUS in the sample in this study is always close to 0, meaning that the capital combined in BUK and BUS assets is still low. This shows that the low level of own capital included in BUK assets can increase ROA and BUK ROE. In contrast to BUK, the low level of capital included in BUS assets can reduce ROA and BUS ROE.

Until the end of 2018, Sharia Commercial Banks (BUS) were still dominated by the core capital category of 1-5 trillion rupiah (BUKU 2), with a composition of 9 BUS. It was recorded that there were 4 BUSs that were in the core capital category of less than 1 trillion rupiahs (BUKU 1), there was 1 BUS with core capital of 5-30 trillion rupiah (BUKU 3), and not a single BUS was in the core capital category of more than 30 trillion rupiahs (BUKU 4). Apart from that, if we look at the ratio of meeting capital adequacy shown by the Capital Adequacy Ratio (CAR), the BUS CAR is still lower than the CAR of Conventional Commercial Banks (BUK). This shows that the capital condition of BUS is still low compared to BUK. Therefore, there are differences in research results on BUK and BUS. The condition of the low composition of own capital in BUS assets, which indicates the high composition of debt in BUS assets,

can increase risks and burdens for BUS so that this condition can reduce ROA and ROE.

The coefficient for DER BUS is -0.029, indicating a statistically significant negative effect on BUS's ROE, in line with findings by [Kusumaningsih \(2016\)](#), [Holiwono \(2016\)](#), [Efendi and Wibowo \(2017\)](#), and [Ahmad et al. \(2018\)](#). The study also reveals that both BUK and BUS have an average DER greater than 1, implying BUK benefits in terms of ROE from higher total debt, while BUS suffers a decrease in ROE. This reflects the risk assessment suggested by [Ridwan \(2003\)](#), stating that higher debt levels increase risk and can adversely affect financial performance, which is evident in BUS's lowered ROE.

The coefficient for company size (SIZE) in BUK is -8.452, showing a statistically significant negative impact on BUK's ROE, corroborated by [Isbanah \(2015\)](#). Conversely, in BUS, the SIZE coefficient is 5.889, indicating a statistically significant positive effect on BUS's ROE, aligning with [Giyarti \(2015\)](#). In summary, an increase in company size would result in an 8.452% decrease in BUK's ROE and a 5.889% increase in BUS's ROE.

Economic growth (GDPG) shows a positive and statistically significant influence on both BUK and BUS ROE. For BUK, a unit increase in economic growth results in a 3.554% ROE increase, aligning with [Lestari and Apriliani \(2016\)](#). In BUS, the same increase leads to a dramatic 23.492% ROE rise, corroborated by [Waharatri \(2019\)](#). Both findings are statistically significant with p-values less than 0.05.

CONCLUSION AND RECOMMENDATION

Based on the results of research on the dual banking system, namely 9 BUK and 9 BUS, in the period from the first quarter of 2013 to the third quarter of 2019, it can be concluded that:

1. In BUK and BUS, the average value of EAR during the 2013-2019 period is classified as fluctuating and tends to increase. However, the average EAR value for BUK and BUS is close to 0. This shows that the amount of capital combined in BUK and BUS assets is low. For DER, the average DER BUK and BUS during the current period is classified as fluctuating, and its value tends to decrease. However, the average value of DER BUK and DER BUS is more than 1. This result indicates that BUK and BUS's debt is more significant than its capital. Meanwhile, the average ROE value is always more significant than the average ROA value for BUK and BUS. This result shows that the financial performance of BUK and BUS has a greater return on benefits for investors than the return on assets for the company.
2. In BUK, the capital structure represented by EAR and DER and strengthened by the control variables company size and economic growth simultaneously has a significant effect on BUK's ROA and ROE. Partially, EAR and DER have a positive and significant effect on BUK's ROA and ROE. As for company size and economic growth as control variables, company size partially has a negative and significant effect on BUK's ROA and ROE, while economic growth has a positive effect on BUK's ROA and ROE. In BUS, the capital structure represented by EAR and DER and strengthened by the control variables company size and economic growth simultaneously has a significant effect on BUS ROA and ROE. Partially, EAR and DER have a negative and significant effect on ROA and ROE BUS. As for company size and economic growth as control variables, company size, and economic growth have a positive and significant effect on ROA and ROE BUS.

Based on the results of the analysis and research that has been carried out, suggestions that can be given are:

1. BUS should consider the optimal capital structure composition for BUS. In this case, BUS must maximize the wealth owned by BUS to be used in making appropriate capital structure decisions.
2. BUS must combine two main factors in making capital structure decisions, namely risk and rate of

return, to provide the best results in determining the composition of capital structure. The BUS must consider the rate of return that must be obtained as compensation for the BUS and investors for the risks arising from the composition of the capital structure created. With this, it is hoped that it will help determine optimal capital structure decisions for BUS so that the capital structure can positively influence BUS's financial performance.

Further research can be carried out on capital structure ratios and other financial performance such as Long Term to Debt Asset Ratio (LTDAR) and Long Term to Debt Equity Ratio (LTDER) for capital structure, as well as Earning per Share (EPS) for financial performance. Apart from that, you can also add samples and periods to the research to further strengthen the research results.

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