

**Digital Sharia Bank in Indonesia: Efforts to Increase Competitiveness and Profitability Achievement**

**Binti Nur Asiyah<sup>1</sup>, Lantip Susilowati<sup>2</sup>, Lisa Yuniarti<sup>3</sup>, Atok Syihabuddin<sup>4</sup>, Amin Wahyudi<sup>5</sup>,  
Mohammad Han Holle<sup>6</sup>**

UIN Sayyid Ali Rahmatullah Tulungagung, Indonesia  
binti.nur.asiyah@uinsatu.ac.id

**ABSTRACT**

**Purpose** — *This paper aims to determine the competitiveness of Islamic banks that already have digital banking services in terms of profitability competitiveness. Review of the profitability side of maximizing profits from productive asset management and maximizing profits from shareholder expectations.*

**Method** — *The analytical method used is a mixed method in the form of quantitative and qualitative. The quantitative approach is the model selection test, the Chow test and the Hausman test. In panel data regression, there are classic assumption tests that must be used in this research, namely the normality test, heteroscedasticity test, autocorrelation test, hypothesis test to determine simultaneous or partial effects, and the coefficient of determination test. Qualitative approach to photograph digital services in cases at BSI and BCA Syariah.*

**Result** — *Digital services by providing BSI Mobile and BCA Syariah mobile applications. The competitiveness of digital sharia banks (BSI and BCA Syariah) with the Return on Assets (ROA) ratio is influenced simultaneously by total assets, total equity, total financing and total funding of 99.6% and competitiveness is viewed from Return On Equity (ROE) is influenced simultaneously by these variables by 98.8%. The range of 1 to 2 percent is influenced by other variables. The practical implications of this research are for digital Islamic banks to maximize the management of total financing and operational costs so that they significantly encourage increased competitiveness of profits for each asset managed, and maximize total assets, total funding in maximizing the competitiveness of the profit side of shareholder expectations and customer reach.*

**Novelty** — *The results of the research show its novelty in terms of encouragement to increase competitiveness in maximizing competitive profits, both in terms of asset review and shareholder expectations, as well as encouragement for sharia banks to be able to reach funding and financing customers more widely.*

**Keywords:** *Digital sharia bank, ROA, ROE*

**INTRODUCTION**

The Financial Services Authority revealed that digital banks can generally carry out all banking activities from opening accounts, transfers, deposits, to closing accounts via smartphones/electronic devices without needing to be physically present at the bank. Apart from that, the other most basic difference is that digital banks generally do not have physical offices (other than the head office) or can use limited physical offices (Financial Services Authority Regulation No. 12 of 2021). The following are digital banking services as in the research:

Title	Method	Goals & Results	Reference
The Impact of Digital Banking Services on Performance of Commercial Banks	Pearson correlation coefficient & inferential test multiple regression analysis	The study revealed that ROA in CBZ a commercial bank in Zimbabwe increased in upwards trends due to an increase in online customer deposits through DIGITAL banking platforms	(Wadesango and Magaya 2020)
"I Just Don't Like	SMARTPLS	Managerial actions	(Nel and Boshoff 2021)

Digital-Only Banks, and You Should Not Use Them Either": Traditional-Bank Customers' Opposition to Using Digital-Only Banks		were proposed to dismantle the barriers and to undo opposition to the use of digital-only banks	
Comparison of Customers' Satisfaction and Loyalty between Digital Bank and Traditional Bank: Empirical Evidence from South Korea	Structural Equation Models ( SEM )	The usefulness of DBs was perceived better than that of TBs regarding customer satisfaction and loyalty, but the ECE of TBs proved more advantageous than that of DBs in terms of customer satisfaction.	(Shin 2022)
A Digital Maturity Model for Digital Banking Revolution for Iranian Banks	Qualitative approach	Instrument to measure digital maturity at a particular point in time and help develop a vision and a roadmap for digital transformation	(Goumeh and Barforoush 2021)
Factors Influencing Digital Bank Performance	Regression Models	Performance of digital banks is measured by return on assets in 2018. The results show that digital banks which have more customers and more transactions through digital communication, have higher performance	(Koroleva and Kudryavtseva 2019)
Customer Perceptions of Korean Digital and Traditional Banks	ANOVA test	DB use had a moderating effect on the relationship between convenience and CS and the relationship between ECE and CS. DB use encouraged increased positive relationships between convenience and CS, and moderated the relationship between ECE and CS in a negative direction	(Shin, Cho, and Lee 2020)
Digital Transformation and its Impact on Operational Efficiency and Competitive Advantage in Islamic Banks	Descriptive analytical method	The most important of which is the presence of a statistically significant effect at the significance level ( $\alpha \leq 0.05$ ) of digital transformation in Islamic banks operating in Jordan in relation to operational efficiency and competitive advantage	(Shehadeh et al. 2023)

Based on the research above, only 1 reputable international journal writes about digital transformation in Islamic banking, so this paper is appropriate to write about Islamic digital banking in welcoming readiness to move forward with digital. Online tracking results for sharia banks in Indonesia that have digital banking services, namely Bank Aladin Syariah, Bank Syariah Indonesia (BSI Mobile) and BCA Syariah (BCA Syariah Mobile), Bank mu'amalat (mu'amalat din application). This paper chooses the objects of Bank Syariah Indonesia and BCA Syariah which are unique when discussing sharia banks which are maintained by the government and are purely private as well as banking which started offline by adding digital online services. Sharia banks, in an effort to adapt to technology and community needs, add digital-based services. If so far the digital service in question has been in the form of mobile banking which includes managing withdrawals and transfers, now sharia banks are adding services such as online account opening and online financing. This service is the answer to the needs of customers who hope for convenience, speed and efficiency. Bank Syariah Indonesia has the enthusiasm to face the digital banking trend in Indonesia, by accelerating digitalization capacity, increasing mobile system stability, adding and updating features (enhance), and focusing on improving user experience which focuses on how users experience interaction/use. (Prihantri 2022)

This research is intended to analyze the capabilities of digital sharia banks with research questions: 1) How are digital sharia banking services in Indonesia? 2) How is the competitiveness of digital Islamic banks reflected in the profits from each asset managed? 3) How is the competitiveness of digital Islamic banks reflected in the profits expected from shareholders?

## **RESEARCH METHODS**

This research uses a quantitative method, namely an approach to empirical studies to collect, analyze and display data in numerical form with an associative approach that describes a relationship between variables.

Population is the entire collection of elements that have a number of general characteristics, which consist of the areas to be studied. The population used in this research is Sharia Banks. Meanwhile, the sample is part of the population. The samples from this research were 2 banking institutions, namely Bank Syariah Indonesia and Bank Central Asia Syariah, which produced 30 sample data from 2018-2019.

This research uses secondary data in the form of monthly financial reports from the published Financial Services Authority website. The analytical method used is the model selection test, the Chow test and the Hausman test. In panel data regression, there are classic assumption tests that must be used in this research, namely the normality test, heteroscedasticity test, autocorrelation test, hypothesis test to determine simultaneous or partial effects, and the coefficient of determination test.

## **DEVELOPMENT HYPOTHESIS**

### **Assets**

Asset comes from the word asset which is taken from English which means wealth. An asset is a tool that has economic value and can be owned by individuals, companies or governments from a financial perspective. Assets are needed if the organization has a profit orientation that produces net cash flow in the future. (Wahyuni and Khoirudin 2020).

The assets owned by the company and added together as a whole in carrying out its business will become the asset structure. The asset structure itself can consist of current assets and fixed assets. Every organization certainly has assets, whether they are government organizations, private organizations or household organizations. Assets or assets can be divided into: a) Current assets; b) Tangible fixed assets; c) Intangible fixed assets; d) Long term investment; e) Other assets. The assets owned by the company must also be managed effectively and efficiently in order to support sales activities so that the company's profitability can increase. The higher the total asset turnover, the more efficient the use of all assets in generating sales. Companies that have large amounts of fixed assets tend to use their assets for each asset component, both current assets and fixed assets, so that companies can allocate assets efficiently. Companies that can allocate their assets efficiently do not need external funds. (Cahyono and Primasari 2019)

### **Equity**

Equity is the right or part owned by the owner of the company which is shown in the capital (share capital), surplus and retained earnings posts. Or it can be interpreted as the excess value of assets owned by the company over all its debts. (Indonesian Accounting Association 2009) , states that equity is part of the owner's rights in the company, namely the difference between existing assets and liabilities, and as such is not a measure of the company's sales value. Basically, equity comes from the owner's investment

and the company's business results. Equity will decrease, especially due to withdrawal of investment by the owner, distribution of profits or due to losses. Equity consists of owner deposits which are often called capital or members' principal savings for cooperative legal entities, retained earnings, and other elements. (Munawir 2007) states as follows: "the definition of equity is the rights or part owned by the company, namely in the share capital and retained earnings posts". From this definition it can be said that the two characteristics of equity, namely equity are the same as net assets, namely the difference between company assets and company debt and equity can increase or decrease due to an increase or decrease in net assets either from non-owner sources (income and costs) or investment by the owner or distribution to the owner (Jawal 2014) .

### **Financing**

The existence of Sharia Banks that carry out financing based on sharia principles is not only to seek profits and enliven the banking business in Indonesia, but also to create a safe business environment, including: 1) Providing financing using sharia principles that implements a profit sharing system that does not burden debtors, 2 ) Helping the poor who are not touched by conventional banks because they are unable to fulfill the requirements set by conventional banks, 3) Helping economically weak communities who are always played by loan sharks by helping through funding for the businesses they undertake (Auditya and Afridani 2019 ) .

### **Funding**

Funding is the activity of collecting funds from customers or potential customers in the form of savings or capital participation in order to strengthen inward capital (Ismawati 2019) . Banking is an important service industry in supporting development financing, both as a fund collector and as an institution that facilitates the flow of money from society to society. In this case, banks are public financial intermediaries and development agents. According to Republic of Indonesia Law Number 10 of 1998 dated 10 November 1998 concerning banking, what is meant by a bank is a business entity that collects funds from the public in the form of savings and distributes them in order to improve the standard of living of many people (Kasmir, 2005, p. 23). From the definition above, it can be explained more broadly that banks are companies that operate in the financial sector. This means that banking activities are always related to the financial sector. Banking activities to collect funds from the wider community are known as funding. The definition of collecting funds means collecting or seeking funds by purchasing from the community, while bank activities in distributing funds to the community are known as lending (Wahyudi 2019) .

### **Operating Expenses Operating Income (BOPO)**

BOPO is the ratio between operating costs to operating income. Operating costs are costs incurred by the bank in order to carry out its main business activities, such as interest costs, marketing costs, labor costs and other operating costs. Operating income is the bank's main income, namely income obtained from placing funds in the form of credit and other operating income. The smaller the BOPO shows the more efficient the bank is in carrying out its business activities. (Rivai 2007) explains that the ratio of Operational Expenses to Operational Income (BOPO) is a comparison between operational costs and operational income in measuring the level of efficiency and ability of a bank in carrying out its operational activities. According to Bank Indonesia through SE BI No.6/73/Intern/2004, operational efficiency is measured by comparing total operating costs with total operating income or often using the term BOPO. This ratio aims to measure the ability of operational income to cover operational costs. Below is the formula for calculating the Operating Expenses to Operating Income (BOPO) ratio as follows:  $BOPO = \frac{\text{Total Operating Expenses}}{\text{Total Operating Income}} \times 100\%$  Bank Indonesia determines that the BOPO ratio does not exceed 90%, if it exceeds 90%, then the bank is categorized as inefficient in carrying out its operations, in this case costs are not controlled, which ultimately causes income to decrease, leading to a decline in the quality of financing due to a lack of income to cover operational activities for distributing financing. Banks are required to carry out efficiency and maximize income so that financial performance can run optimally. Non-Performing Financing (NPF).

### **Profit**

Profit is a return on investment to the owner. This measures the value that an entity can provide to investors and entities still have the same wealth with its initial position. Based on the definitions above, it can be concluded that profit is a company's performance which is measured by the reduction between the company's income and expenses that occur in a certain period. Samryn (2012), states that the definition of profit is as follows: "Profit is a source of internal funds that can be obtained from the company's normal activities and does not require extra costs for storage and use. Wild and Subramanyam (2014), stated that

the definition of profit is profit (earnings) or net income (net income) indicating the company's profitability. Profit reflects the return to equity holders for the period in question, while the items in the statement detail how the profit was earned. Profit growth is influenced by changes in components in the financial statements, for example changes in sales, changes in cost of goods sold, changes in operating expenses, changes in interest expenses and changes in income tax (Haqiqi et al. 2022).

### **Return on Assets (ROA)**

Return on Assets (ROA) is the ratio of net profit after tax to total assets as a whole. This ratio is a measure to assess the percentage rate of return on the assets owned. If this ratio is high, it means that there is efficiency carried out by management. Return on assets (ROA) is used to measure a company's ability to generate net profits based on a certain level of assets. This ratio shows the ability of economic resources invested in overall assets to generate net profits. In other words, how much profit is obtained for each rupiah invested in assets. In calculating this ratio, the total assets used are the total of total assets (end of year) during the calculation period. This is because using the total amount of total assets can provide added value for investors to determine growth, decline or other significant factors in a business. The higher the percentage of this ratio, the better the efficient use of assets to obtain net profits in the company's operational activities. This in turn increases the company's attractiveness, making the company increasingly attractive to investors, because the rate of return on asset investment will be greater.

Kasmir (Kasmir 2012) explains that Return on Assets (ROA) is a ratio that shows the return on the number of assets used in the company." In addition, Return on assets provides a better measure of a company's profitability because it shows management's effectiveness in using assets to generate income. (Budiarta 2020) explains that Return on Assets (ROA) is an indicator to measure a company's rate of return or the company's effectiveness in generating profits by utilizing the total assets (wealth) owned by the company after adjusting for the costs of funding these assets. The greater the ROA, the greater the level of profit achieved by the bank so that the possibility of a bank being in trouble is smaller.

### **Return on Equity (ROE)**

Return on equity (ROE) is a comparison between the amount of profit available to owners of their own capital on the one hand and the amount of their own capital that produces that profit on the other hand or in other words the profitability of their own capital is the ability of a company with its own capital working in it to make a profit. According to (Iswi Haryani 2010) Return on Equity (ROE) can be used to measure the performance of bank management in managing available capital to generate profits after tax. The greater the ROE, the greater the level of profit achieved by the bank so that the possibility of a bank being in trouble is smaller. This ratio is useful for knowing the amount of return given by the company for each rupiah of capital from the owner. This ratio shows management's success in maximizing the level of return to shareholders. The higher this ratio, the better because it provides a greater rate of return on the company's capital. This ratio measures profit per rupiah of sales. The calculation of this formula is net profit divided by the average of equity. This ratio reflects the company's ability to control costs and expenses related to sales.

In this case (Kasmir 2012) also explains that Return on Equity (ROE) is an indicator of the company's ability to return shareholder investment. This is reinforced by (Irham Fahmi 2012) stating that Return on Equity (ROE) is one of the profitability ratios in assessing the extent to which a company uses its resources to be able to provide a return on its equity. Return on Equity (ROE) is a profitability ratio that explains a measurement of the income available to company owners for the capital invested in the company.

## **RESULTS AND DISCUSSION**

### **Results**

#### **Analysis of digital sharia banking services in Indonesia**

Indonesian sharia bank digital sharia banking services with the launch of a mobile banking application.

**Figure 1.** BSI Mobile Application



Source: Online Observation, BSI Mobile

The BSI mobile application was launched by BSI after its founding on February 1 2021 and has features that the community needs, namely:

**Picture 2.** BSI Mobile Application



Source: Online observation, BSI mobile

BCA Syariah digital sharia banking services with BCA Syariah mobile.

**Figures. 3** BCA Syariah Mobile Application



Source: Online observation, BCA Syariah mobile application

The BCA Syariah mobile application has attractive features for customer users, including:  
Picture.



Source: Online observation, BCA Syariah mobile application

## **Review of digital bank competitiveness from Return on Assets. The influence of total assets, total equity, total financing, total funding, total BOP, and profit on ROA at Bank Syariah Indonesia and Bank BCA Syariah**

### **Model Selection Test**

#### **Test Chow**

The Chow test is carried out to compare which is the best between the Common Effect Model or the Fixed Effect Model.

**Table 1.** Chow Test

Effects Test	Statistics	df	Prob.
<b>Cross-section F</b>	1.616410	(21.16)	0.1653
<b>Chi-Square cross section</b>	50.086332	21	0.0004

Source: E-Views 12 Output Results, 2023

Based on the Chow Test table above, the *Cross Section* and *Chi Square probability values* are  $0.0004 > 0.05$  so that  $H_0$  is rejected and  $H_a$  is accepted. This means that the better model to use is to use *the Fixed Effect Model*.

**Hausman test**

The Hausman test is carried out to compare or choose which model is the best between *the Fixed Effect Model* and *the Random Effect Model*.

**Table 2.** Hausmant Test

Test Sumarry	Chi-Sq. Statistics	Chi-Sq. df	Prob.
<b>Random cross-section</b>	15.802678	6	0.0149

Source: E-Views 12 Output Results, 2023

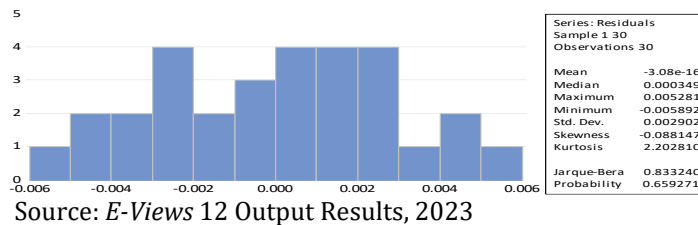
Based on the table above, the Cross Section and Chi Square probability values are  $0.0149 < 0.05$ , so  $H_0$  is rejected and  $H_a$  is accepted. This means that the better model to use in research is to use *the Fixed Effect Model*. The results of the Hausman test accepted the null hypothesis, so for further testing the model chosen was the Random Effect Model so there was no need to continue with the LM (Langrange Multiplier) test.

**Classic assumption test**

**Normality test**

The normality test is carried out to test whether the regression model and variables are normally distributed or not.

**Table 4.** Test



Source: E-Views 12 Output Results, 2023

Based on the output results, it can be seen that the *Jarque Berra Probability value* is 0.659271. The probability value is  $0.659271 > 0.05$ , meaning the data is normally distributed.

**Heteroscedasticity Test**

The heteroscedasticity test is carried out to test whether in the regression model there is an inequality of variance from the residuals of one observation to another. The heteroscedasticity test used is Breusch Pagan Godfrey.

**Table 6.** Heteroscedasticity Test

<b>F-statistic</b>	1.230510	<b>Prob. F(6.23)</b>	0.3272
<b>Obs*R-Squared</b>	7.289976	<b>Prob. Chi-Square (6)</b>	0.2949
<b>Scaled explained SS</b>	8.850503	<b>Prob. Chi-Square (6)</b>	0.1822

Source: E-Views 12 Output Results, 2023

Based on the table of heteroscedasticity test output results, the Prob *Chi Square value* is  $0.2949 > 0.05$ , it can be concluded that there is no heteroscedasticity problem in the regression model.

## Autocorrelation Test

The autocorrelation test is carried out to determine whether or not there is a correlation between confounding variables in a certain period and confounding variables in the previous period.

**Table 7.** Autocorrelation Test

<b>F-statistic</b>	1.304148	<b>Prob. F(6.17)</b>	0.3078
<b>Obs*R-squared</b>	9.456100	<b>Prob. Chi Square (6)</b>	0.1495

Source: *E-Views 12* Output Results, 2023

Based on the results of the autocorrelation test output, the Prob Chi Square (2) (Obs\*R-Squared) value is 0.1495. It can be concluded that  $0.1495 > 0.05$ , meaning that there is no autocorrelation problem in the regression model.

## Panel Data Regression Analysis

Based on the Chow Test and Hausman Test, the one chosen as the best model and which can be used for further testing is *the Fixed Effect Model (FEM)*.

**Table 8.** Fixed Effect Model

Variables	Coefficient	Std. Error	t-statistic	Prob.
<b>ROA</b>	-0.002403	0.002236	-1.074731	0.2984
<b>Total Assets</b>	-1.64E-09	2.42E-11	-68.01827	0.0000
<b>Total Equity</b>	6.65E-09	1.70E-09	3.918629	0.0012
<b>Total Financing</b>	-9.03E-11	1.17E-10	-0.769707	0.4527
<b>Total Funding</b>	1.25E-09	1.76E-10	7.092939	0.0000
<b>BOP</b>	-2.34E-09	3.12E-08	-0.074907	0.9412
<b>Profit</b>	2.67E-08	1.08E-08	2.466503	0.0253

Source: *E-Views 12* Output Results, 2023

The regression equation is as follows:

$$Y = -0.00240271911142 - 1.64489490225e-09*X1 + 6.65280813324e-09*X2 - 9.03155031e-11*X3 + 1.25020801856e-09*X4 - 2.33784512717e-09*X5 + 2.67297475965e-08*X6 +$$

Based on the results of the panel data regression output above, it shows that:

- The constant value is -0.002403, meaning that if the variables total assets (X1), total equity (X2), total financing (X3), total funding (X4), total operational costs (X), and profit (X6) are constant, then ROA will experience a decrease of 0.002403 one unit.
- The beta coefficient value of the total asset variable (X1) is -1.64E-09 one unit. If the other variables are constant and the variable X1 increases by one unit, then the capital variable (Y) will decrease by 1.64E-09 one unit. On the other hand, if the values of other variables are constant and variable X1 decreases by 1, then variable Y will increase by 1.64E-09 one unit. (negative relationship)
- The beta coefficient value of the total equity variable (X2) is 6.65E-09 one unit, if the values of other variables are constant and the variable X2 increases by one unit then the capital variable (Y) will increase by 6.65E-09 one unit. On the other hand, if the values of other variables are constant and variable X2 decreases by one unit, variable Y will also decrease by 6.65E-09 one unit. (positive relationship)
- The beta coefficient value of the total financing variable (X3) is -9.03E-11 one unit. If the values of other variables are constant and the variable X3 increases by one unit, the capital variable (Y) will experience a decrease of 9.03E -11 one unit. On the other hand, if the values of other variables are constant and variable X3 decreases by 1 unit, variable Y will increase by -9.03E-11 one unit. (negative relationship)
- The beta coefficient value of the total funding variable is 1.25E-09 one unit, if the values of other variables are constant and variable X4 increases by one unit then the capital variable (Y) will increase by -1.25E-09. On the other hand, if the values of other variables are constant and variable X4 decreases by one unit, variable Y will experience a decrease of 1.25E-09 one unit. (positive relationship)



- f) The beta coefficient value of the total BOP variable (X5) is  $-2.34E-09$  one unit, if the values of other variables are constant and the variable X5 increases by one unit then the capital variable (Y) will experience a decrease of  $2.34E-09$ . On the other hand, if the values of other variables are constant and variable X5 decreases by one unit, variable Y will increase by  $2.34E-09$  one unit. (negative relationship)
- g) The beta coefficient value of the profit variable (X6) is  $2.67E-08$  one unit, if the values of other variables are constant and the variable X6 increases by one unit then the capital variable (Y) will experience an increase of  $2.67E-08$ . On the other hand, if the values of other variables are constant and variable X6 decreases by one unit, variable Y will experience a decrease of  $2.67E-08$  one unit. (positive relationship).

## Hypothesis testing

### Simultaneous F Test

The F test is carried out to see whether all the independent variables together have an effect on the dependent variable or not. If the F count is  $> 0.05$ , then the independent variable simultaneously has an effect on the dependent variable, but if the F count is  $< 0.05$ , then simultaneously the independent variable has no effect. on the dependent variable. The F test in this research uses the following hypothesis:

**Table 9.** Simultaneous Test (F)

<b>R-squared</b>	0.998573	<b>Mean dependent var</b>	0.007823
<b>Adjusted R-Squared</b>	0.996164	<b>SD dependent var</b>	0.024256
<b>SE of regression</b>	0.001502	<b>Akaike info criterion</b>	-9.902503
<b>Sum squared resid</b>	3.61E-05	<b>Schwarz criterion</b>	-8.767109
<b>Log likelihood</b>	245.8551	<b>Hannan-Quinn Criter</b>	-9.481444
<b>F-statistic</b>	414.5769	<b>Durbin-wats on stat</b>	3.826087
<b>Prob(F-statistic</b>	0.000000		

Source: *E-Views 12* Output Results, 2023

Based on the output results above, you can then calculate the F table using the formula ( $df_1 = k-1$ ) and ( $df_2 = n - k$ ), then from the data you can get  $df_1 = 6-1 = 5$  while  $df_2 = 30 - 6 = 24$  using The two-sided significance level is 0.05 so that the F table is 2.62. Then from the table above, the calculated F is  $14.5769 > F$  table 2.62 and it can be seen that the calculated F probability value is  $0.000000 < 0.05$ , so  $H_0$  is rejected and  $H_a$  are accepted, meaning that together the variables total assets (X1), total equity (X2), total financing (X3), total funding (X4), total BOP (X5), and profit (X6) have a significant effect on the variable Return of Assets (ROA) (Y).

### Partial T Test

The T test is carried out to see whether an independent variable has an effect on the dependent variable or not. The partial test can be determined by comparing the calculated T value with the T table. If the t count is  $> 0.05$ , then together the independent variables have an effect on the dependent variable, but if the t count is  $< 0.05$ , then partially the independent variables have no effect on the dependent variable.

**Table10.** Partial Test (T) with *Fixed Effect Model*

<b>Variables</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-statistic</b>	<b>Prob.</b>
<b>ROA</b>	-0.002403	0.002236	-1.074731	0.2984
<b>Total Assets</b>	-1.64E-09	2.42E-11	-68.01827	0.0000
<b>Total Equity</b>	6.65E-09	1.70E-09	3.918629	0.0012
<b>Total Financing</b>	-9.03E-11	1.17E-10	-0.769707	0.4527
<b>Total Funding</b>	1.25E-09	1.76E-10	7.092939	0.0000
<b>BOP</b>	-2.34E-09	3.12E-08	-0.074907	0.9412
<b>Profit</b>	2.67E-08	1.08E-08	2.466503	0.0253

Source: *E-Views 12* Output Results, 2023

From the output results, the next step is to find the size of the T table by determining the degree of freedom (df) with the formula ( $df=nk$ ). From the existing data it can be obtained  $30-6=24$ . So the df value

= 24. Then the significance level used is two-sided, namely 0.05, so a T table of 0.07976 can be obtained so that the following conclusions can be drawn:

- a) Influence of total assets (X1) on ROA (Y)  
Ha: There is a significant influence between the total asset variable on ROA at Bank Syariah Indonesia and Bank BCA Syariah  
It is known that the probability value of X1 is 0.0000, then Ho is rejected and Ha is accepted. This means that partially there is a significant influence between the total asset variable (X1) on the ROA variable (Y).
- b) Effect of total equity (X2) on ROA (Y)  
Ha: There is a significant influence between the total equity variable on ROA at Bank Syariah Indonesia and Bank BCA Syariah  
It is known that the probability value of X2 is 0.0012, then Ho is rejected and Ha is accepted. This means that partially there is a significant influence between the total equity variable (X2) on the ROA variable (Y).
- c) The influence of total financing (X3) on the ROA variable (Y)  
Ho: There is no significant influence between the total financing variable (X3) on the ROA variable at Bank Syariah Indonesia and Bank BCA Syariah (Y)  
It is known that the probability value of X3 is 0.4527 > 0.05, then Ho is accepted and Ha is rejected. This means that partially there is no significant influence between the total financing variable (X3) on the ROA variable (Y).
- d) The influence of total funding (X4) on the ROA variable (Y)  
Ha: There is a significant influence between the total funding variable (X4) on the ROA variable at Bank Syariah Indonesia and BCA Syariah (Y)  
It is known that the probability value of X4 is 0.0000 < 0.05, then Ho is rejected and Ha is accepted. This means that partially there is a significant influence between the total funding variable (X4) on the ROA variable (Y).
- e) The effect of total BOP (X5) on the ROA variable (Y)  
Ho: There is no significant influence between the total BOP variable on the ROA variable at Bank Syariah Indonesia and BCA Syariah (Y)  
It is known that the probability value of X5 is 0.9412 > 0.05, then Ho is accepted and Ha is rejected. This means that partially there is no significant influence between the total BOP variable (X5) on the ROA variable (Y).
- f) Influence of profit (X6) on the ROA variable (Y)  
Ha: There is a significant influence between the profit variable on the ROA (Y) variable.  
It is known that the probability value of X6 is 0.0253 < 0.05, then Ho is rejected and Ha is accepted. This means that partially there is a significant influence between the profit variable (X6) on the ROA variable (Y).

#### Coefficient of Determination Test

**Table11.** Determination Coefficient Test

<b>R-squared</b>	0.998573	<b>Mean dependent var</b>	0.007823
<b>Adjusted R-Squared</b>	0.996164	<b>SD dependent var</b>	0.024256
<b>SE of regression</b>	0.001502	<b>Akaike info criterion</b>	-9.902503
<b>Sum squared resid</b>	3.61E-05	<b>Schwarz criterion</b>	-8.767109
<b>Log likelihood</b>	245.8551	<b>Hannan-Quinn Criter</b>	-9.481444
<b>F-statistic</b>	414.5769	<b>Durbin-wats on stat</b>	3.826087
<b>Prob(F-statistic</b>	0.000000		

Source: *E-Views 12* Output Results, 2023

Based on the results of the coefficient of determination test above, it can be seen that the *Ajusted R-Square probability value* is 0.996164. Thus, it can be concluded that the variables total assets, total equity, total financing, total funding, total BOP, and profit contribute to explaining the return of assets (ROA) variable of 0.996164 or 99%, while the remaining 1% is influenced by other variables. which was not explained in this study.

**Review of digital bank competitiveness from Return on Equity. The influence of total assets, total equity, total financing, total funding, total BOP, and profit on ROE at Bank Syariah Indonesia and Bank BCA Syariah**

## Model Selection Test

### Test Chow

The Chow test is carried out to compare which is the best between the Common Effect Model or the Fixed Effect Model.

**Table 12.** Chow Test

Effects Test	Statistics	df	Prob.
Cross-section F	1.389264	(21.16)	0.2536
Chi-Square cross section	45.669576	21	0.0014

Source: E-Views 12 Output Results, 2023

Based on the Chow Test table above, the *Cross Section* and *Chi Square probability values* are  $0.0014 > 0.05$  so that  $H_0$  is rejected and  $H_a$  is accepted. This means that the better model to use is to use *the Fixed Effect Model*.

### Hausman test

The Hausman test is carried out to compare or choose which model is the best between *the Fixed Effect Model* and *the Random Effect Model*.

**Table 13.** Hausmant Test

Test Sumarry	Chi-Sq. Statistics	Chi-Sq. df	Prob.
Random cross-section	12.718421	6	0.0477

Source: E-Views 12 Output Results, 2023

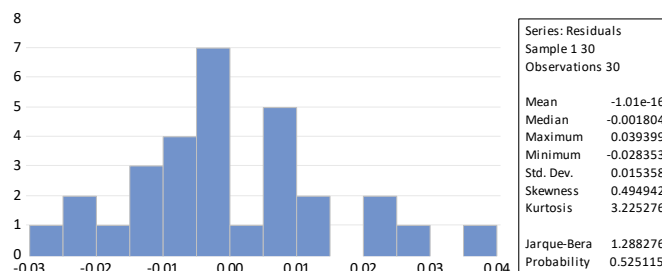
Based on the table above, the Cross Section and Chi Square probability values are  $0.0477 < 0.05$ , so  $H_0$  is rejected and  $H_a$  is accepted. This means that the better model to use in research is to use *the Fixed Effect Model*. The results of the Hausman test accepted the null hypothesis, so for further testing the model chosen was the Random Effect Model so there was no need to continue with the LM (Langrange Multiplier) test.

### Classic assumption test

#### Normality test

The normality test is carried out to test whether the regression model and variables are normally distributed or not.

**Table 14.** Test



Source: E-Views 12 Output Results, 2023

Based on the output results, it can be seen that the *Jarque Berra Probability value* is 0.525115. The probability value is  $0.525115 > 0.05$ , meaning the data is normally distributed.

### Heteroscedasticity Test

The heteroscedasticity test is carried out to test whether in the regression model there is an inequality of variance from the residuals of one observation to another. The heteroscedasticity test used is Breusch Pagan Godfrey.

**Table 16.** Heteroscedasticity Test

<b>F-statistic</b>	1.526067	<b>Prob. F(6.23)</b>	0.2141
<b>Obs*R-Squared</b>	8.542374	<b>Prob. Chi-Square (6)</b>	0.2010
<b>Scaled explained SS</b>	5.586574	<b>Prob. Chi-Square (6)</b>	0.4711

Source: *E-Views 12* Output Results, 2023

Based on the table of heteroscedasticity test output results, the Prob *Chi Square* value is 0.2010 > 0.05, it can be concluded that there is no heteroscedasticity problem in the regression model.

### Autocorrelation Test

The autocorrelation test is carried out to determine whether or not there is a correlation between confounding variables in a certain period and confounding variables in the previous period.

**Table 17.** Autocorrelation Test

<b>F-statistic</b>	0.876897	<b>Prob. F(6.17)</b>	0.5321
<b>Obs*R-squared</b>	7.090372	<b>Prob. Chi Square (6)</b>	0.3126

Source: *E-Views 12* Output Results, 2023

Based on the output results of the autocorrelation test, the Prob Chi Square (2) (Obs\*R-Squared) value is 0.3126. It can be concluded that 0.3126 > 0.05, meaning that there is no autocorrelation problem in the regression model.

### Panel Data Regression Analysis

Based on the Chow Test and Hausman Test, the one chosen as the best model and which can be used for further testing is *the Fixed Effect Model (FEM)*.

**Table 18.** Fixed Effect Model

<b>Variables</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-statistic</b>	<b>Prob.</b>
<b>ROE</b>	0.223467	0.063828	3.501093	0.0030
<b>Total Assets</b>	-0.001253	0.001185	-1.057286	0.3061
<b>Total Equity</b>	-0.046267	0.013595	-3.403250	0.0036
<b>Total Financing</b>	0.023032	0.008880	2.593632	0.0196
<b>Total Funding</b>	-0.002931	0.010187	-0.287745	0.7772
<b>BOP</b>	-0.003614	0.001507	-2.398540	0.0290
<b>Profit</b>	0.020389	0.020389	11.13002	0.0000

Source: *E-Views 12* Output Results, 2023

The regression equation is as follows:

$$Y = 0.223467228565 - 0.00125273040491 \cdot \text{LOG}(X1) - 0.0462670494795 \cdot \text{LOG}(X2) + 0.0230315127661 \cdot \text{LOG}(X3) - 0.00293130480058 \cdot \text{LOG}(X4) - 0.00361390765688 \cdot \text{LOG}(X5) + 0.0203891140883 \cdot \text{LOG}(X6) + [CX=F].$$

Based on the results of the panel data regression output above, it shows that:

- The constant value is 0.223467, meaning that if the variables total assets (X1), total equity (X2), total financing (X3), total funding (X4), total operational costs (X5), and profit (X6) are constant, then ROE will experienced an increase of 0.223467 one unit.
- The beta coefficient value of the total asset variable (X1) is -0.001253 one unit. If the other variables are constant and the variable X1 increases by one unit, then the capital variable (Y) will decrease by 0.001253 one unit. On the other hand, if the values of other variables are constant and variable X1 decreases by 1, then variable Y will increase by 0.001253 one unit. (negative relationship)
- The beta coefficient value of the total equity variable (X2) is -0.046267 one unit, if the values of other variables are constant and the variable X2 increases by one unit then the capital variable (Y) will experience a decrease of 0.046267. On the other hand, if the values of other variables are constant and variable X2 decreases by one unit, variable Y will increase by 0.046267 one unit. (negative relationship)

- d. The beta coefficient value of the total financing variable (X3) is 0.023032 one unit, if the values of other variables are constant and the variable X3 increases by one unit then the capital variable (Y) will increase by 0.023032. On the other hand, if the values of other variables are constant and variable X3 decreases by one unit, variable Y will decrease by 0.023032 one unit. (positive relationship)
- e. The beta coefficient value of the total funding variable is -0.002931 one unit, if the values of other variables are constant and variable X4 increases by one unit then the capital variable (Y) will decrease by 0.002931. On the other hand, if the values of other variables are constant and variable X4 increases by one unit, variable Y will experience a decrease of 0.002931 one unit. (negative relationship)
- f. The beta coefficient value of the total BOP variable (X5) is -0.003614 one unit, if the values of the other variables are constant and the variable X5 increases by one unit then the capital variable (Y) will experience a decrease of 0.003614. On the other hand, if the values of other variables are constant and variable X5 decreases by one unit, variable Y will increase by 0.003614 one unit. (negative relationship\_
- g. The beta coefficient value of the profit variable (X6) is 0.020389 one unit, if the values of other variables are constant and the variable X6 increases by one unit then the capital variable (Y) will increase by 0.020389. On the other hand, if the values of other variables are constant and variable X6 decreases by one unit, variable Y will experience a decrease of 0.020389 one unit. (positive relationship)

### Hypothesis testing

#### Simultaneous F Test

The F test is carried out to see whether all the independent variables together have an effect on the dependent variable or not. If the F count is  $> 0.05$ , then the independent variable simultaneously has an effect on the dependent variable, but if the F count is  $< 0.05$ , then simultaneously the independent variable has no effect. on the dependent variable. The F test in this research uses the following hypothesis:

**Table 19.** Simultaneous Test (F)

R-squared	0.995633	Mean dependent var	0.029702
Adjusted R-Squared	0.988264	SD dependent var	0.030786
SE of regression	0.003335	Akaike info criterion	-8307479
Sum squared resid	0.000178	Schwarz criterion	-7.172086
Log likelihood	210.7645	Hannan-Quinn Criter	-7.886420
F-statistic	135.1065	Durbin-wats on stat	3.826087
Prob(F-statistic	0.000000		

Source: *E-Views 12* Output Results, 2023

Based on the output results above, you can then calculate the F table using the formula ( $df_1 = k-1$ ) and ( $df_2 = n - k$ ), then from the data you can get  $df_1 = 6-1 = 5$  while  $df_2 = 30 - 6 = 24$  using the two-sided significance level is 0.05 so that the F table is 2.62. Then from the table above, the calculated F is  $14.5769 > F$  table 2.62 and it can be seen that the calculated F probability value is  $0.000000 < 0.05$ , so  $H_0$  is rejected and  $H_a$  are accepted, meaning that together the variables total assets (X1), total equity (X2), total financing (X3), total funding (X4), total BOP (X5), and profit (X6) have a significant effect on the variable (ROE) (Y).

#### Partial T Test

The T test is carried out to see whether an independent variable has an effect on the dependent variable or not. The partial test can be determined by comparing the calculated T value with the T table. If the t count is  $> 0.05$ , then together the independent variables have an effect on the dependent variable, but if the t count is  $< 0.05$ , then partially the independent variables have no effect on the dependent variable.

**Table 20.** Partial Test (T) with *Fixed Effect Model*

Variables	Coefficient	Std. Error	t-statistic	Prob.
<b>ROE</b>	0.223467	0.063828	3.501093	0.0030
<b>Total Assets</b>	-0.001253	0.001185	-1.057286	0.3061
<b>Total Equity</b>	-0.046267	0.013595	-3.403250	0.0036

<b>Total Financing</b>	0.023032	0.008880	2.593632	0.0196
<b>Total Funding</b>	-0.002931	0.010187	-0.287745	0.7772
<b>BOP</b>	-0.003614	0.001507	-2.398540	0.0290
<b>Profit</b>	0.020389	0.020389	11.13002	0.0000

Source: *E-Views 12* Output Results, 2023

From the output results, the next step is to find the size of the T table by determining the degree of freedom (df) with the formula ( $df=nk$ ). From the existing data it can be obtained  $30-6=24$ . So the df value = 24. Then the significance level used is two-sided, namely 0.05, so a T table of 0.07976 can be obtained so that the following conclusions can be drawn:

Influence of total assets (X1) on ROE (Y)

Ho: There is no significant influence between the total asset variable on ROE at Bank Syariah Indonesia and Bank BCA Syariah. It is known that the probability value of X1 is 0.3061, then Ho is accepted and Ha is rejected. This means that partially there is a significant influence between the total asset variable (X1) on the ROE variable (Y).

Ha: There is a significant influence between the total equity variable on ROE at Bank Syariah Indonesia and Bank BCA Syariah. It is known that the probability value of X2 is  $0.0036 < 0.05$ , then Ho is rejected and Ha is accepted. This means that partially there is a significant influence between the total equity variable (X2) on the ROE variable (Y).

Ha: There is a significant influence between the total financing variable (X3) on the ROE variable at Bank Syariah Indonesia and Bank BCA Syariah (Y).

It is known that the probability value of X3 is  $0.0196 < 0.05$ , then Ho is rejected and Ha is accepted. This means that partially there is a significant influence between the total financing variable (X3) on the ROE variable (Y).

Ho: There is no significant influence between the total funding variable (X4) on the ROE variable at Bank Syariah Indonesia and BCA Syariah (Y).

It is known that the probability value of X4 is  $0.7772 > 0.05$ , then Ho is accepted and Ha is rejected. This means that partially there is no significant influence between the total funding variable (X4) on the ROE variable (Y).

Ha: There is a significant influence between the total BOP variable on the ROE variable at Bank Syariah Indonesia and BCA Syariah (Y).

It is known that the probability value of X5 is  $0.0290 < 0.05$ , then Ho is rejected and Ha is accepted. This means that partially there is a significant influence between the total BOP variable (X5) on the ROE variable (Y).

Ha: There is a significant influence between the profit variable on the ROA (Y) variable

It is known that the probability value of X6 is  $0.0000 < 0.05$ , then Ho is rejected and Ha is accepted. This means that partially there is a significant influence between the profit variable (X6) on the ROE variable (Y).

#### Coefficient of Determination Test

**Table 21.** Determination Coefficient Test

R-squared	0.995633	Mean dependent var	0.029702
Adjusted R-Squared	0.988264	SD dependent var	0.030786
SE of regression	0.003335	Akaike info criterion	-8307479
Sum squared resid	0.000178	Schwarz criterion	-7.172086
Log likelihood	210.7645	Hannan-Quinn Criter	-7.886420
F-statistic	135.1065	Durbin-wats on stat	3.826087
Prob(F-statistic	0.000000		

Source: *E-Views 12* Output Results, 2023

Based on the results of the coefficient of determination test above, it can be seen that the *Adjusted R-Square probability value* is 0.988264. Thus it can be concluded that the variables total assets, total equity, total

financing, total funding, total BOP, and profit contribute to explaining the ROE variable of 0.988264 or 98%, while the remaining 2% is influenced by other variables not explained in the research This.

## **Discussion**

### **The influence of Assets on ROA**

Assets have a negative and significant effect on ROA. The company makes good use of all its assets to support its operational activities so that the profits generated by the company increase. This is in accordance with research from (Anggresia 2018) , (Alpi and Gunawan 2018) , and (Pranata 2014) where total assets have a significant effect on Return of Assets.

### **The effect of equity on ROA**

Equity has a positive and significant effect on ROA. The results of the hypothesis test show that the equity variable has a positive and significant effect on profitability. This means that the higher the equity of a banking company, the greater the profitability of banking companies listed on the IDX for the 2018-2021 period. Understanding Equity according to Khoiriyah (2020) equity is the right or part owned by the owner of the company which is shown in postcapital (share capital), surplus and retained profits. It can also be interpreted as the excess value of assets owned by the company over all its debts. (AR, Musa, and Nurman 2022) . The results of this research are in line with research conducted by (Jawal 2014)

### **The influence of financing on ROA**

Financing has no significant effect on ROA. This is in accordance with research from (Muhammad 2005) stated that in practice, it turns out that the significance of profit sharing in the investment operations of bank funds plays a very weak role . Financing does not have a significant effect on Return of Assets, but this is not in accordance with research from (Thufailah 2023) . Islamic banks are likely to improve the quality of their employees by employing technicians and management experts to evaluate the business projects they lend to in order to look more closely and more carefully than at the technicalities of lending at conventional banks. This will increase the costs incurred by bankers in maintaining the efficiency of their banking performance. And finally, when providing financing with a profit sharing system, if a loss occurs, the bank will share in the losses of the business run by the entrepreneur. The ability to share in this risk is likely to be encouraging riskier investment .

### **The influence of funding on ROA**

Funding has a positive and significant effect on ROA. Funding greatly contributes to encouraging the growth of company fund assets which will be used to distribute funds which will affect company income (profit). Empirically, the results of this research are consistent with research conducted by (Sari and Dewi 2023) where the research shows that there is a significant positive influence between funding achievement and bank profitability. Research conducted by (Juleita and Nawawi 2021) results show that funding has a significant positive effect on bank profitability. This is in accordance with research from (Intan Herawati 2018) which states that funding has a positive and significant effect on ROA.

### **The influence of BOP on ROA**

BOP does not have a significant effect on ROA. The research results show that BOPO has a negative impact on ROA. So the smaller the BOPO, the more the bank's ROA will increase. On the contrary. This is due to installments of work costs, so the profits generated by the bank will decrease. If operational costs increase, the bank's operating income will decrease. This results in a reduction in the bank's total profit before tax and ultimately a decrease in ROA.

BOP is a ratio that measures the proportion between work costs and work wages. This ratio is used to measure the level of effectiveness and capacity of the bank in completing operational activities. The smaller the value of this ratio, the more efficiently the bank spends operational costs, with cost efficiency making profits taken by the bank, by way of profitability. The results of this research are supported by the results of research conducted by (Maulana et al., 2021) , (Ahmed Mennawi and Ahmed 2020), (Henry and Ruslim 2022), (Putra 2020), (Hosen et al. 2019) which states that BOP has an impact negative and significant on bank profitability, namely the ROA variable.

### **Influence of Assets on ROE**

Assets do not have a significant effect on ROE. Where the influence of assets on ROE shows the magnitude of the benefits of current assets in influencing the amount of Islamic bank income. This is confirmed by research from (Sudarsono et al, 2018) and (Puteh 2013) which states that Total Assets (turnover) is the

ability of funds embedded in all rotating assets in a certain period or the ability of invested capital to generate revenue. Total Asset Turnover is used to measure the effectiveness of a company in using its resources in the form of assets. The higher this ratio, the more efficient the use of assets and the faster the return of funds in the form of cash. This condition can be said to mean that there is a positive relationship between TAT and ROE.

#### **Effect of Equity on ROE**

Equity has a significant negative effect on ROE. This is in accordance with research from (Julita 2018) and (Astuti et al, 2015) where Return on Equity (ROE) is a profitability ratio that compares a company's net profit with its net assets (equity or capital). This ratio measures how much profit is generated by the Company compared to the capital paid in by shareholders. This ratio uses the relationship between profit after tax and the company's own capital, which is considered as its own capital, namely ordinary shares, share premium, retained earnings, preferred shares and other reserves.

#### **The Effect of Financing on ROE**

Financing has a positive and significant effect on ROE. This is in accordance with research from (Inti Dwi et al, 2014) , where the values obtained show that financing has a positive influence on the level of ROE. This can be seen from the distribution of capital invested by each party, so that the risk taken is not large, even though the profits obtained are shared. This is reinforced by previous research conducted by Putra that murabahah financing has a positive effect on ROE profitability. Apart from that, this research is also strengthened by (Aisyah, Jaryono 2016) stating that murabahah financing has a positive influence on ROE profitability. Murabahah financing has a significant effect on Return On Equity. This is because Murabahah financing is a sharia banking product with the principle of buying and selling which makes a significant contribution to bank profits from the margin obtained from each financing disbursed. This happens if payments and settlements are made according to the specified time, which will increase profitability. This causes murabahah financing to have a significant effect on Return On Equity.

#### **The Effect of Funding on ROE**

Funding does not have a significant effect on ROE. The results of this research are strengthened by research from (Satria and Saputri 2016) and (M. Thamrin dkk 2015). Return on Equity (ROE) can provide useful clues in assessing the effectiveness of a company's operations. ROE can show the combination of effectiveness of liquidity, asset management and debt on a company's operating results. As previously stated, in order to obtain profits, liquidity conditions are the most important conditions. If a company is unable to fulfill its obligations in the short term, it means that the company cannot get the opportunity to make a profit.

#### **Influence of BOP on ROE**

BOP has a negative and significant effect on ROE. The coefficient sign which is negative indicates that the higher the BOPO ratio (the less efficient the Islamic people's financing bank), the level of profitability will decrease. This result is similar to (Harianto 2017) and (Amelia 2015), where the BOPO ratio influences the level of profitability in Islamic banks. These results indicate that the ratio of Operational Costs Per Operational Income (BOPO) at the bank has experienced an increase in foreign exchange, which means efficiency has decreased, thereby reducing the profits or returns obtained by shareholders from the funds that have been invested in the company (Aprilia and Handayani 2018 (Aprilia and Handayani 2018). The results of this research are consistent with research conducted by (Saputri and Oetomo 2016), which states that Operational Costs Per Operational Income (BOPO) has a significant negative effect on Return On Equity (ROE).

#### **CONCLUSION**

Digital sharia banks in Indonesia at BSI implement BSI mobile, and at BCA Syariah implement BCA Syariah mobile. The competitiveness of profits from asset management is significantly influenced by total assets, total equity, total funding and profit. The competitiveness of profits from shareholder expectations is influenced by total equity, total financing, costs and profits.

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