



Factors Affecting the Health of Public Banking Companies in Indonesia

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Abstract. This study aims to find out and examine the influence of financial factors (Firm Size, Investment Performance, Operating Margin, Price Earning Ratio, Surplus Growth, and Liquidity) on the health of open government banking companies in Indonesia. The population of this study was as many as five open government banking companies in Indonesia, namely PT. BRI Tbk, PT. BMRI Tbk, PT. BNI Tbk, PT. And BTN Tbk,. Samples have been selected using the purposive sampling method totaling five companies with 40 analysis units (2012 – 2021). The data were processed using multiple linear regression tests for the first hypothesis and residual tests for the second hypothesis using the Eviews Application. The effect of this study shows that the speculation of monetary elements (Firm Size, Investment Performance, Operating Margin, Price Earning Ratio, Surplus Growth, and Liquidity) have a widespread effect on the financial health of banking companies.

Keywords: Firm Size · Investment Performance · Operating Margin · Price Earning Ratio · Surplus Growth · dan Liquidity · and Financial Health of Public Banking Companies in Indonesia

1 Introduction

The present-day generation of monetary globalization requires companies to conduct a healthy competition among companies, where every company has the same goal: to generate company profits and maximize the company's prosperity. Therefore, to obtain this primary purpose, the control has to be capable of producing the greatest income and cautious control of operational activities, especially those related to company finances, and maintain that the company is classified as a healthy company.

A company that is said to be healthy is a company that is free from predicted bankruptcy. One of the indicators of a healthy company is not experiencing financial problems. The organization's financial problems are one of the elements that have an effect on the financial disaster of the organization. The difficulties of organizations that can cause bankruptcy is caused by two factors, namely, the difficulties caused by external factors and the difficulties caused by internal factors [1].

The level of health of a company that has gone public is an essential part of being known and monitored by interested parties. On occasion, volatile monetary conditions and the level of fierce competition give impetus to many involved parties to pay terrific attention to the survival of the organization. The primary issue affecting the capital market fee is the corporation's health, which may be recognized from the business enterprise's financial statements. In addition, the cost of the inventory fee Index (JCI) can be a primary economic indicator in a rustic. The motion of the.

index is strongly inspired via expectancies for the essential conditions of the country and globally.

Soekarso [2] said that finance within the organization is one of the strategic capabilities, which includes wealth control and added price transformation and additionally controlling the organization's fitness. Economic statements consisting of stability sheets, earnings statements, and monetary ratios reflect the business enterprise's overall performance and fitness situation. Economic ratio analysis pertains to the enterprise's fitness thru ratios of effectiveness, efficiency, productiveness, rentability, liquidity, and solvency. The analysis indicates that the price of the actual financial ratio is above the usual manner that the organization is wholesome, and the price of the actual financial ratio is beneath.

The phenomena that the author obtains through literature or references to banks in Indonesia in 2021, such as the 2021 Indonesian Banking Booklet issued by the Financial Services Authority (OJK), publications from Bank Indonesia, and other sources, namely:

1. Primarily based on the monetary policy report – third region of 2021, the Capital Adequacy Ratio (car) of the Bankingindustry remainedexcessive in August 2021 at 24.38% and the ratio of non-appearingloans (NPL) become maintained at 3.35% (gross) and 1.08 (nett), at the same time as bank intermediation persevered high-quality growth of two.21% yoy in September 2021 [3].
2. ThebankIndonesiacustomer surveyinNovember 2021 indicated that patron optimism approximately monetary conditions reinforced. That is contemplated in the November 2021 client self assurance index (CCI) of 118.five, higher than 113.four in October 2021.
3. The share of client earnings saved to profits (financial savings to income ratio) was recorded at 14.6% in November 2021, weakening from 15% in the preceding month.
4. The dynamics that occur in Indonesia are also experienced by other countries in the world, namely the economic contraction and stimulus carried out still and largely by the authorities of both the central and fiscal banks of the Ministry of Finance during the Covid-19 Pandemic.
5. Low demand for credit from the public causes potential credit crunch problems.

The Altman model (Z-rating) uses more than one Discriminant analysis technique with five varieties: Working Capital to Total Assets, Retained Earnings to Total Assets, Earnings Before Interest and Taxes to Total Assets, Book Value of Equity to Book Value of Debt, dan Sales to Total Assets.

The Altman version (Z-rating) is one of the multivariate analysis fashions that predicts an organization's bankruptcy with a relatively honest degree of accuracy and accuracy. This has a look at goals to decide the prediction of financial ruin and the fulfillment charge of an agency as well as the corporation's financial overall performance based

totally on the consequences of discriminant evaluation. The use of the Altman version is primarily based on the ratio of the five variables.

To support the results of Altman's discriminant analysis, there is a financial analysis tool, namely Trend. This analysis describes the tendency to change a financial statement post over a period (from year to year). Prastowo and Julianty [4] with trend analysis, it will be known that a company's financial performance shows improvement/vice versa shows a decrease. Thus there is an indication that if financial performance decreases, the company is close to bankruptcy and vice versa. If financial achievements show improvement, it can be said that the company is far from bankruptcy.

Chen and Wong [5] conducted a study and found that there are several factors that affect the financial health of insurance companies in the Asian economy, namely company size, investment performance, liquidity ratio, premium growth, surplus growth, and combined ratio. According to Fachrudin [6], the better the performance during financial difficulties, the greater the company's chances of surviving. Chen and Wong [5] conducted a have a look at and observed that numerous elements have an effect on the monetary health of insurance organizations within the Asian financial system, specifically organization size, investment overall performance, liquidity ratio, top class boom, surplus boom, and combined ratio. According to Fachrudin [6], the better the performance in the course of economic difficulties, the extra the employer's probability of surviving.

Firm length is one of the benchmarks that indicate the dimensions of the corporation. Companies with smaller sizes could be prone to bankruptcy. It is far expected that massive companies have a higher level of financial fitness. In keeping with Chen and Wong [5], investment performance is a funding performance that well-known shows the effectiveness and performance of funding selections. Funding overall performance is classified through return on property (go back on investment). Go back on belongings (ROA) is the fee of going back on all employer property after deducting hobby and taxes. A high ROA ratio can be received from high BEP and coffee hobby costs. The better this ratio, the higher as it the way that the company's potential to make earnings. The higher, the better because it suggests a growth in the proportion of running income closer to its income.

Operating Profit Margin is a ratio used to calculate profitability without considering taxes and interest [7]. Operating income margin is acquired from profits earlier than interest and taxes on overall sales. If the company continues to make low profits, then the tendency of its company's financial health will also not be good. The results of research by Chen and Wong [5] show that positive business margins are significant for the financial health of insurance companies.

The Price Earning Ratio (PER) shows how much investors are willing to pay for every rupiah for the agency's benefit. The higher the fee of this ratio, the stronger the prospects for growth in the future. A growing company will have a high PER value.

The surplus growth or growth ratio is the capability of businesses to keep their economic function during monetary and business growth [7]. This ratio is done by comparing financial data historically (time series). If the comparison value is greater, the company's sales growth rate improves.

Liquidity is a ratio that measures a business enterprise's capacity to meet due to short-time period responsibilities [7]. Liquidity can be assessed with the aid of the present-day ratio. The present-day ratio is the supply of cutting-edge property to meet modern responsibilities. It is expected that with the company's large size, ROA, operating margin, PER, high growth surplus, and the right current ratio value, the company will be in a healthy condition and continue to grow from year to year.

Based on the background of the above troubles, the writer is inquisitive about accomplishing a take a look at with the name "factors Affecting the fitness of Banking agencies in Indonesia".

2 Methods

The data series method used in this is a documentation approach, a statistics series method by taking financial statements from the Indonesian stock trade. The kind of statistics accrued in this study is secondary information. Secondary records are statistics collected by using statistics collection businesses and posted to the.

information consumer community. Secondary information consists of go-phase statistics and time collection information (records pooling).

2.1 Operational Definition and Variable Measurement

An operational definition is a definition given to a variable via giving that means or specifying an interest or offering an operation had to degree the variable. The provision of operational definitions is carried out to eliminate doubts or biases that can arise.

The variables used in this examination consist of impartial variables (free) and dependent variables (not free). Unbiased (unfastened) variables, that is, variables that can affect different variables. The unbiased variables blanketed in this study are subsequent.

Firm Size = ln Total Aktiva.

Return On Assets (ROA) = Net Profit / Total Assets.

Operating Profit Margin = Operating Profit/Sales.

Price Earning ratio = Market price per share/earnings per share.

Surplus growth = (Current year's sales – Last year's sales) / Last year's sales.

Liquidity = Current Assets / Current Debt.

A dependent variable is a variable whose existence is influenced by the Circumstances that affect it. In this study, the dependent variable is the company's health obtained from the Z Score. Z-Score is a combination of several financial ratios that are considered to be able to predict the health of the organization.

$$Z = 0,717 X1 + 0,847 X2 + 3,107 X3 + 0,420 X4 + 0,998 X5 + 0,512 X6.$$

Where:

X1: Firm Size.

X2: Investment Performance.

X3: operating margin.

X4: price earning to ratio.

X5: surplus growth.

X6: liquidity.

The results of the Z-score calculation can be interpreted as follows:

$Z > 2,90$: The company does not experience problems with its financial condition.

$1,23 < Z < 2,9$: The company has few (though not serious) financial problems.

$Z < 1,23$: The Company is experiencing problems with a serious Financial condition.

An overview of operational definitions and variable measurements is listed in Table 1.

The data analysis model used in this study is a multiple linear regression analysis model and a residual test for coding variables. The motive of multiple linear regression analysis strategies is to peer without delay the influence of a few certain variables [8]. According to Ghozali [9], residual evaluation wants to take a look at the impact of deviations (deviations) of a model. The point of interest is the incompatibility (lack of healthy) due to the deviation of linear relationships between unbiased variables. Loss of in shape is indicated by way of the residual price inside the regression. To test the first speculation, more than one Linear Regression version with the following components is used:

$$Z - score = B0 + B1FirmSize + B2 \tag{1}$$

$$Investment\ Performance + B3\ OPM \tag{2}$$

Table 1. Operational Definition and Variable Measurement

Variable	Definisi Operasional	Parameter
Z- Score (Y)	the specified score of the degree of possible bankruptcy of the company	0.717 WCTA + 0.847 RETA + 3,107 EBITTA + 0,42 MVEBVL + 0,998 STA
Firm Size(X1)	Scale to the size of a company	Ln Total Aktiva
Investment Performance (X2)	ROA is the rate of return on all company assets after deducting interest	Net Profit/Total Assets
Operating Margin (X3)	Operating Profit Margin i.e. Comparison of profit before interest and tax on sales	Operating Profit/Sales
Price Earning Ratio (X5)	Comparison of the company's share price to earnings and book value per share	Market price per share/earnings per-share
Surplus Growth (X5)	The growth ratio is a measure of a company's ability to maintain its economic positionamid economicand industrial growth	Current year's sales – Last year's sales) / Last year's sales
Liquidity (X6)	Current Ratio is a comparison between current assets and	Current Assets / Current Debt

Testing classical assumptions

Multivariate analysis has been widely used to solve research problems. This is because business and other problems have multidimensional aspects. In conducting multivariate analysis testing, researchers need to test the data to be used. They take a look at it to be completed to keep away from or reduce bias over the research outcomes received. According to Ghozali's [9] research, the classical assumptions that are considered the most important are:

- 1 Have a normal distribution
- 2 There is no multicollinearity between independent variables
- 3 There is no heteroskedasticity or a constant variant of the disruptive variable (homoskedasticity)
- 4 There is no autocorrelation between residuals of each independent variable

Normality, multicollinearity, heteroskedasticity, and autocorrelation tests were performed on secondary data to come across the achievement of assumptions in more than one linear regression fashion and to interpret the data to be more relevant in reading.

Normality Test

According to Erlina [8], the normality check is beneficial for the preliminary level within the information analysis selection approach. If the records are regular, use parametric information; if the records are odd, use nonparametric records or remedy the information as ordinary. The motive of the normality check is to find out whether, in the regression model, the disruptor or residual variables have a normal distribution. This test is vital due to the fact to perform the t-check, and the f test assumes that the residual cost follows the regular distribution. If this assumption is violated or no longer met, then the statistical take a look at turns into an invalid for a small sample matter.

On this take a look at to hit upon whether the records are shipped normally or now not, specifically with the aid of using statistical analysis, specifically a statistics has a regular distribution can be seen from the Zskewness cost, that is a piece of information this is said to be regular if Z counts smaller than Z table.

Multicolonierity Test

This objective is to check whether the regression version discovered a correlation between independent variables. A very good regression model should not have any correlation between impartial variables. Multicolonierity is a scenario of the correlation of unbiased variables among one another [8].

In line with Erlina [8], there are multicollinearity checks which might be frequently used, particularly by means of looking at the VIF fee. The better the VIF, the greater the effect of multicollinearity. In standard, if the VIF value is more than 10, then there is fairly heavy multicollinearity between independent variables. The second multicollinearity check is by means of looking at the easy correlation coefficient among independent/explanatory variables, if r is the absolute value peak, then there are positive explanatory variables correlated, and the multicollinearity trouble is inside the equation.

Heteroskedasticity Test

In line with Erlina [8], one of the important assumptions of a linear regression model is that residual editions are homoscedasticity or consistent. Typically, heteroskedasticity often happens in models that use move section statistics instead of time series facts. This does not imply that models that use time-sequence statistics are loose from heteroscedasticity. The heteroskedasticity check pursuits to see whether there is a variable inequality in the regression model from the residual of 1 observation to some other.

Autocorrelation Test

According to Erlina [8], autocorrelation can occur in any study where the sequence of observations has meaning. Autocorrelation is a symptom where the error term in a period of time systematically depends on the error term in other periods. The autocorrelation takes a look at ambitions to peer whether or not, in a linear regression model, there is a correlation between the intruder blunders within the t period and the mistake in the $t-1$ or earlier periods. The way to stumble on autocorrelation is with the Durbin Watson check. This looks at the handiest used for first-order autocorrelation and requires the presence of intercepts (constants) inside the regression model.

Hypothesis Testing

Hypothesis testing is carried out using simultaneous and partial tests for independent variables. Simultaneous tests (F-checks) are used to look at the effect of unbiased variables on based variables concurrently (collectively). The partial take look (t-test) is used to examine the impact of unbiased variables on established variables.

The basis for taking simultaneous test conclusions (F-test) is.

1. If F calculates $> F$ of the desk, then H_a is ordinary
2. If F calculates $< F$ of the table, H_a cannot be frequent. For the degree of importance, specifically the alpha probability value of 5%

Hypothesis testing for coding variables using residual assays. Residual assays are used to overcome the tendency for high multicollinearity between independent variables and infringe on classical assumptions [9]. Residual trying out is accomplished to look if there is a courting of strengthening or weakening the unbiased variable with the coding variable towards the dependent variable. A variable is stated to be a coding variable if the price of the parameter coefficient is negative and big [9].

3 Result and Discussion

3.1 Descriptive Statistics

The research conducted aims to find out and analyze whether financial factors have an effect on the monetary fitness of open authorities banking groups in Indonesia from 2011 – 2021. The dependent variables in this study are firm size (FS), investment performance, operating margin, price-earning ratio (PER), surplus growth, and liquidity, while the dependent variables are the company's financial health (z-score).

A descriptive statistical evaluation of each variable can be visible in Table 2.

Table 2. Descriptive Statistics

	Z-Core	F Size	ROA	OPM	PER	Growth	Liability
Mean	35.70	20.24	0.018	0.453	16.45	0.119	1.221
Median	35.91	20.45	0.019	0.485	11.48	0.120	1.200
Maximum	76.76	21.27	0.034	0.690	106.00	0.460	1.380
Minimum	8.320	18.53	0.001	0.060	5.880	-0.130	1.080
Std. Dev.	19.34	0.745	0.008	0.1388	17.30	0.109	0.0841
Skewness	0.374	-0.666	-0.103	-0.770	3.926	0.273	0.048
Kurtosis	2.235	2.541	2.312	3.4004	19.60	4.228	1.652
Jarque-Bera	1.910	3.312	0.858	4.221	562.0	3.013	3.044
Probability	0.384	0.190	0.650	0.121	0.000	0.221	0.218
Sum	1428.	809.7	0.724	18.13	658.2	4.780	48.84
Sum Sq.	1459						
Dev.	4	21.68	0.002	0.743	11681	0.465	0.277
Observations	40	40	40	40	40	40	40

From table three above, it could be seen that the minimal firm size fee of 18.53 is owned via PT. Bank Tabungan Negara, Tbk in 2012, and the most cost of 21.27 is owned by PT. Bank Mandiri, Tbk in 2021. The common value of the firm size is 20.24, which shows the average logarithm of natural total assets, and has a standard deviation value of 0.745 in open Government Banking companies in Indonesia in 2012–2021.

The minimum investment performance / ROA fee of zero.001 is owned by means of PT. Bank Tabungan Negara, Tbk, in 2019, and the maximum fee of 0.034 is owned with the aid of PT. Pt. Financial institution Rakyat Indonesia, Tbk in 2013. The average value of Investment Performance / ROA is 0.018, which shows the average comparison between net profit and total assets, and has a standard deviation value of 0.008 in open Government Banking companies in Indonesia from 2012–2021.

The minimum value of OPM (Operating Profit Margin) of 0.060 is owned by PT. Bank Tabungan Negara, Tbk in 2019 and the maximum value of 0.690 was owned by PT. Bank Mandiri, Tbk, in 2012. The average value of OPM (Operating Profit Margin) is 0.018, which shows the average comparison between operating profit and sales, has a standard deviation value of 0.138 in open Government Banking companies in Indonesia from 2012–2021.

The minimum value of PER (Price Earning Ratio) of 5,880 is owned by means of PT. Bank Tabungan Negara, Tbk, in 2013, and the maximum value of 106.0 was owned by Bank Tabungan Negara, Tbk, in 2019. The average value of PER (Price Earning Ratio) is 16.45, which shows the average comparison between the price per share and earnings per share, and has a standard deviation value of 17.30 in open Government Banking companies in Indonesia in 2012–2021.

The minimum value of Surplus Growth of - 0.130 is owned by PT. Bank Negara Indonesia, Tbk in 2017, and the maximum value of 0.460 is owned by PT. State Savings Bank, Tbk in 2021. The average value of Surplus Growth is 0.119, which shows that the average evaluation among the difference between the current year's sales and last year's sales with last year's sales and last year's sales has a standard deviation value of 0.109 in open Government Banking companies in Indonesia in 2012–2021.

Liquidity/CR minimum value of 1,080 is owned by PT. Bank Tabungan Negara, Tbk in 2015, and the maximum value of 1,380 is owned by PT. Bank Mandiri, Tbk in 2019. The average value of Liquidity / CR is 1.221, which shows that the average comparison between current assets and current debt has a standard deviation value of 0.084 in open Government Banking companies in Indonesia in 2012–2021.

The minimum Z-Score of 8,320 is owned by PT. Bank Rakyat Indonesia, Tbk in 2020, and the maximum value of 76,760 is owned by PT. Bank Mandiri, Tbk in 2012. The average cost of the Z- score is 35.70, which suggests that the common addition of operating capital to general assets, retained profits to general property, income before interest and taxes to overall assets, marketplace price of fairness to e-book price of total debt, and sales to overall belongings, and has a fashionable deviation price of 19.34 in open authorities Banking companies in Indonesia in 2012–2021.

3.2 Hypothetical Classical Assumption Test

This test is carried out to determine if there is a violation of the classic assumptions on which the multiple linear regression model is based.

Hypothesis Normality Test

One of the simplest ways to look at residual normality is to observe a histogram graph that compares observational statistics with distributions near regular distributions [9].

The residual distribution is normal or cannot be tested using the Jarque- Fallow Test, with the Hypothesis, tested being:

Ho: normal distribution error.

H1: abnormal non-distribution error.

Where Ho is rejected if the statistical p-value of the Jarque-Fallow Test is insignificant (p-value < 0.05), while Ho is accepted if the p-value > 0.05.

Residual Normality Test

Based on Fig. 1, it can be visible that the opportunity fee of 0.419610 > zero.05, then the statistics are usually distributed.

According to Ghozali [9], the basis of normality decision-making is that if the records spread across the diagonal line and follow the route of the diagonal line or the histogram graph indicates a regular distribution sample, then the regression version meets the assumption of normality and if the information spreads a ways from diagonal and / does no longer comply with the route of the diagonal line or the histogram graph does not meet the ordinary distribution pattern. Then, the regression version does not meet the idea of normality.

Normality tests with graphs can be Normality exams with graphs may be deceptive if now not careful visually looking normal, wherein case it could be statistically the

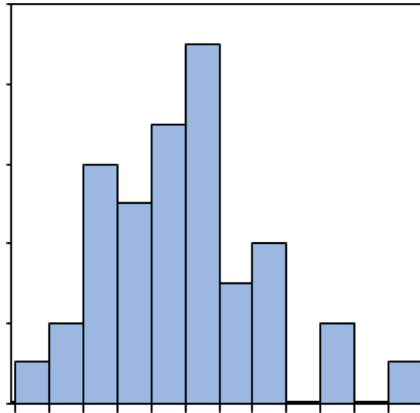


Fig. 1. Residual Normality Test

opposite manner around [9]. Consequently, similarly to looking at the graph, researchers used the Kolmogorov-Smirnov (okay-S) non- parametric statistical test, which can be seen in Table 3.

Based on Table 4 above, the Kolmogorov Smirnov Test Results were tested as a whole variable, the residual value of the variable (Lilliefors) > 0.05, which is 0.090988. This indicates that the data is normally distributed.

Table 3. Kolmogorov Smirnov Test Results.

Empirical Distributin Test for RESID				
Hypothesis: Normal				
Date: 06/06/22 Time 15:29				
Sample: 2012 2021				
Included observation: 40				
Method	Value	Adj. Value	Probability	
Liliefors (D)	0,090988	NA	> 0.1	
Cramer-von Mises (W2)	0.045933	0.047519	0.5474	
Watson (U2)	0.041330	0.041847	0.5914	
Anderson-Darling (A2)	0.324173	0.330707	0.5134	
Method: Maximum Likelihood – df corrected (Exact Solution)				
Parameter	Value	Std. Error	z-Statistic	Prob.
MU	8.38E-14	1.774102	4.73E-14	1.0000
SIGMA	1122041	1.270451	8.831761	0.0000
Long likelihood	-1529669	Mean dependent var.		8.29E-14
No. of Coefficients	-152.9669	S.D. dependent var.		112041

Table 4. Multicholinerity Test Results Using VIF.

Variance Inflation Factors			
Date: 06/06/22 Time 21:59			
Sample: 1 40			
Included pbservation: 40			
Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	3456.767	929.3136	NA
FS	14.06223	1551.324	2.049919
ROA	240796.5	25.49606	4.288077
OPM	1072.908	64.61980	5.364090
PER	0.018683	2.827179	1.466830
SG	339.7386	2.367859	1.063573
CR	1239.827	499.2290	2.311198

Multikolonieritas Test

The regression model is assumed not to contain linear dependency relationships between independent variables. In the event of a strong linear dependency relationship between independent variables.

There are many methods that can be done to determine the presence or absence of multicollinearity in regression models, namely by using the Pearson correlation coefficient, Variance Inflation Factors (VIF), and coefficients of determination auxiliary regression [10]. This study used two approaches to conduct a multicollinearity test: VIF and the Pearson correlation coefficient.

1. By using VIFs

Ho: no multicollinearity occurs in the regression model.

H1: regression model.: occurs multicollinearity in regression models.

Ho is accepted if the value of $VIF < 10$, from Table 4 can be seen that each VIF for Firm Size (FS) of 2.049919, Investment Performance (ROA) of 4.288077, Operating Profit Margin (OPM) of 5.364090, Price Earning Ratio (PER) of 1.466830, Surplus Growth (SG) of 1.063573, Liquidity / Current Ratio (CR) of 2.311198, where each independent variable has a VIF value smaller than 10. So it can be said that there is no multicollinearity in regression models.

2. By using the Pearson correlation coefficient

Based on Table 5 above, it can be seen that each value of the correlation coefficient is smaller than 0.9, so it can be said that the regression model does not experience symptoms of multicollinearity.

Heteroskedasticity Test.

The heteroskedasticity test was performed to test whether, in the regression model, there was a variance inequality of the residual. The heteroscedasticity test was performed using glacier assays, with the hypothesis:

Ho: no symptoms of heteroscedasticity occur in the linear regression model.

H1: symptoms of heteroscedasticity occur in regression models.

The decision is that if the significance value > 0.05 (alpha), then H0 is accepted. Conversely if the significance value < 0.05 (alpha) then ho is rejected.

Based on Table 7, it can be seen that each probability for Firm Size (FS) is 0.1921, Investment Performance (ROA) is 0.4204, Operating Profit Margin (OPM) is 0.2164, Price Earning Ratio (PER) is 0.2220, Surplus Growth (SG) is 0.7270, Liquidity/Current Ratio (CR) is 0.8582, greater than the significance level of 0.05, so it can be said that Ho received or in other words, there is no heteroskedasticity of the regression model.

Autocorrelation Test

The autocorrelation test is carried out by testing the Durbin Watson Test value to determine the presence or absence of autocorrelation in a regression model. The basis for decision-making is that if Durbin Watson is located between DU and 4- DU, there is no autocorrelation. The value of Durbin Watson on the autocorrelation test can be seen in the table.

Based on table 5, it can be seen that the Durbin-Watson (DW) value is 1.764320. Meanwhile, when viewed from DW for 6 independent variables and coding (k) = 6 and many data is 40, for a significance level of 0.05, a DL of 1.1754 and a DU of 1.8538 is obtained, so the $DL \leq D \leq DU = 1.1754 \leq 1.764320 \leq 1.8538$, which means that there is no positive autocorrelation, the results have no conclusions.

Table 5. Multicholnearity Test Results with Pearson Correlation Coefficient.

Variance Inflation Factors			
Date: 06/06/22 Time 21:59			
Sample: 1 40			
Included pbservation: 40			
Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	3456.767	929.3136	NA
FS	14.06223	1551.324	2.049919
ROA	240796.5	25.49606	4.288077
OPM	1072.908	64.61980	5.364090
PER	0.018683	2.827179	1.466830
SG	339.7386	2.367859	1.063573
CR	1239.827	499.2290	2.311198

Table 6. Heteroskedasticity Test Results

Heterokedaticity Test: Glesjer				
F- statistic	1.628021		Prob. F(6,33)	0.1706
Obs*R-squared	9.135892		Prob. Chi-Square(6)	0.1706
Scaled explained ss	8.06113		Prob. ChiSquare(6)	0.2355
Test Equation:				
Dependent Variable: ARESID				
Date: 06/06/22 Time 00:30				
Sample 1 40				
Included observation: 40				
Variable	Coefficient	Std. Error	t-statistic	Prob.
C	-58.21481	32.14646	-1.810925	0.0793
FS	2.730605	2.050337	1.331784	0.1921
ROA	-218.9193	268.3015	-0.815945	0.4204
OPM	22.57257	17.90933	1.260380	0.2164
PER	0.093024	0.074735	1.244709	0.2220
SG	-3.548102	10.07791	-0.352067	0.7270
CR	3.466820	19.252212	0.180075	0.0.8582
R-squared	0.228397	Mean dependent var		8.671333
Adjusted R-squared	0.088106	S.D. dependent var		6.984089
S.E. of regression	6.669327	Akaike info criterion		6.790543
Sum squared resid	1467.837	Schwarz criterion		7.086097
Log likelihood	-128.8109	Hannan-Quinn criter.		6.897406
F-statistic	1.628021	Durbin-Watson stat		2.091115
Prob(F-statistic)	0.170569			

3.3 Hypothesis Testing

Coefficient of Determination Test (Adjusted)

Based on Table 4.7, it shows an Adjusted R Square value of 0.602414 or 60.2%, meaning 60.2% of the influence of independent variables (firm Size, Investment Performance / ROA, OPM, PER, Surplus Growth, and Liquidity / CR) on the dependent variables (Company Health / Z-Score). While the remaining 39.8% was influenced and explained by other variables that were not included in this research model. The R Square value of 0.663581 or 66.35% indicates that the correlation or relationship between independent variables (firm Size, Investment Performance /ROA, OPM, PER, Surplus Growth, and Liquidity /CR) of the dependent variables (Company Health) is strong because it is above 50%. Uji Simultan (Uji – F).

Table 7. Heteroskedasticity Test Results.

Dependent Variable	ZS			
Method: Panel Least Squares				
Date: 06/06/22 Time 00:30				
Sample: 2012 2021				
Periods included: 10				
Cross-sections included: 4				
Total panel (balanced) observations: 40				
Variable	Coefficient	Std. Error	t-statistic	Prob.
C	85.35607	58.79428	1.451775	0.1560
FS	-14.75581	3.749864	-3.934921	0.0004
ROA	1025.574	490.7102	2.089979	0.0444
OPM	23.01836	32.75527	0.702738	0.4871
PER	0.216975	0.136687	1.587382	0.1220
SG	-1.147350	18.43200	-0.062248	0.9507
CR	177.4190	35.21118	5.038711	0.0000
R-squared	0.6635581	Mean dependent var		35.70125
Adjusted R-squared	0.602414	S.D. dependent var		19.34498
S.E. of regression	12.19787	Akaike info criterion		7.998027
Sum squared resid	4910.003	Scwarz criterion		8.293581
Log likelihood	-152.9605	Hannan-Quinn criter.		8.104890
F-statistic	10.84867	Durbin-Watson stat		1.764320
Prob(F-statistic)	0.000001			

Based on Table 4.7, it can be seen that F-Statistics is 10.84867, and using the F table list with a probability value of 5% is 2.34. It can be concluded that $10.84867 > 2.53$ means that H_0 is accepted. Meanwhile, the Prob (F-Statistic) value of 0.000001 is smaller than 0.05, which states that firm Size, Investment Performance, OPM, PER, Surplus Growth, and Liquidity have a positive effect on the financial health of public banking companies in Indonesia.

Partial test (t-test)

Based on Table 3.7 above, the partial influence of each independent variable on the dependent variable is as follows:

1. The probability value of firm size (FS) of $0.0004 < 0.05$ can be concluded that the Firm Size variable partially has a significant effect on the financial health of public banking companies in Indonesia.

2. The probability value of Investment Performance / ROA of $0.0444 < 0.05$ can be concluded that the Investment Performance /ROA variable partially has a significant effect on the financial health of public banking companies in Indonesia.
3. The probability value of Operating Profit Margin (OPM) of $0.4871 > 0.05$ can be concluded that the Operating Profit Margin variable partially has no significant effect on the financial health of public banking companies in Indonesia.
4. The probability value of the Price Earning Ratio (PER) of $0.1220 > 0.05$ can be concluded that the variable Price Earning Ratio partially has no significant effect on the financial health of public banking companies in Indonesia.
5. The probability value of Surplus Growth (SG) of $0.9507 > 0.05$ can be concluded that the variable Surplus Growth partially has no significant effect on the financial health of public banking companies in Indonesia.
6. The probability value of Liquidity/Current Ratio (CR) of $0.0000 < 0.05$ can be concluded that the Liquidity/Current Ratio variable partially has a significant effect on the financial health of public banking companies in Indonesia.

Multiple Linear Regression Analysis

Based on Table 3.7, the multiple linear regression equation between independent variables (firm Size, Investment Performance/ROA, OPM, PER, Surplus Growth, and Liquidity/CR) against the dependent variable (Z-score) produces the following model equation:

$$\begin{aligned} Z\text{-score} = & 85,3560 - 14,755 \text{ Firm Size.} \\ & + 1.025,57 \text{ Investment Performance} + 23,018 \text{ OPM} + 0,216 \text{ PER} - 1,147. \\ & \text{Surplus growth} + 177,41 \text{ Liquidity} + e. \end{aligned}$$

From the multiple linear regression equation above, it can be seen that there is a constant value factor of 85,356, which shows that if all independent variables (firm Size, Investment Performance / ROA, OPM, PER, Surplus Growth, and Liquidity / CR) are assumed to be zero, then the value of the financial health of public banking companies in Indonesia will decrease by 85,356.

3.4 Discussion of Research Results

Adjusted R Square value of 0.602414 or 60.2% means 60.2% influence of independent variables (firm Size, Investment Performance / ROA, OPM, PER, Surplus Growth, and Liquidity / CR) on dependent variables (Health of Public Banking Companies in Indonesia / Z-Score). These results show the influence of independent variables on the company's financial health simultaneously, which indicates the influence of firm size, investment performance, operating margin, price-earning ratio, surplus growth, and liquidity on the health of public banking companies in Indonesia.

The Adjusted R Square value that has not reached 100% shows that there are still other variables of 39.8% that are not used in this study that have an influence on the financial health of public banking companies in Indonesia. Other factors outside the variables of firm size, investment performance, operating margin, price earning ratio, surplus growth, and liquidity in influencing the financial health of public banking companies in Indonesia

are such as the Variable Capital Structure, Debt to Assets Ratio, Price to Book, Acid Ratio and other variables.

Based on the results of the F test conducted on the hypothesis, it is known that the F value is 10.84867 with a significance level of 0.000001, which is smaller than 0.05. Based on this result, it can be concluded that independent variables, namely firm size, investment performance, operating margin, price earning ratio, surplus growth, and liquidity, simultaneously affect the financial health of open banking companies in Indonesia in 2012–2021.

The Effect of firm Size on the finances of public banking companies in Indonesia

The results of the Firm Size test on the financial health of Public Banking companies in Indonesia using the t-test obtained a firm size (FS) probability value of $0.0004 < 0.05$, it can be concluded that the Firm Size variable partially affects the financial health of public banking companies in Indonesia. Firm size (company size) is a scale where a small company can be classified according to various ways, including total assets, log size, stock market value, and others [11]. Companies with smaller sizes will be vulnerable to bankruptcy. It is hoped that large companies will also have a better level of financial health. The results of this study align with research conducted by Chen and Wong [5], showing that company size has a significant and positive effect on the company's financial health.

The Effect of Investment Performance / Return on Assets (ROA) of finances of public banking companies in Indonesia

The results of the investment Performance / ROA test on the financial health of Public Banking Companies in Indonesia using the t-test obtained a probability investment performance / ROA value of $0.0444 < 0.05$. It can be concluded that the Investment Performance / ROA variable partially affects the financial health of public banking companies in Indonesia.

Return On Assets is used to measure investment performance. The greater.

this ratio, the better because it means that, the greater the company's ability to make a profit. This ratio indicates good and bad management in carrying out cost control or the management of its assets.

The results of this study align with research conducted by Chen and Wong [5], showing that investment performance has a significant and positive effect on the financial health of companies.

This study's results also support research by Rusdy [12], stating that Return On Assets partially has a significant effect on the company's health condition.

The effect of Operating Profit Margin (OPM) on the finances of public banking companies in Indonesia

The results of the Operating Profit Margin (OPM) test on the financial health of Public Banking Companies in Indonesia using the t-test obtained a probability operating profit margin (OPM) value of $0.4871 > 0.05$. It can be concluded that the Operating Profit

Margin variable partially has no significant effect on the financial health of public banking companies in Indonesia. OPM is derived from pre-interest income and taxes on total sales. The low ratio indicates a bad situation because every rupiah of sales is absorbed in high costs and gets a low profit. If the company continues to get low profits, then the tendency of the company's financial health will also not be good.

The results of this study support research conducted by Rusdy [12] stated that Net Profit Margin partially did not have a significant effect on the company's health condition. The results of this study are not in line with research conducted by Chen and Wong [5], showing that Operating Margin has a significant and positive effect on the company's financial health. These results are also not in line with Sihombing's research [13], resulting in that Gross Profit Margin can significantly distinguish the status of a company's health level. The results of research conducted by Affandi [14] stated that partially Net Profit Margin has a significant influence on the profit growth of the banking industry.

The effect of price earning ratio (PER) on the finances of public banking companies in Indonesia

The results of the Price Earning Ratio (PER) test on the financial health of Public Banking Companies in Indonesia using the t-test obtained the results of the probability Price Earning Ratio (PER) value of 0.1220.

> 0.05 , it can be concluded that the variable Price Earning Ratio partially does not have a significant effect on the financial health of public banking companies in Indonesia. PER compares the company's share price against earnings and book value per share. The market value and share price ratio will be high if the liquidity of asset management, debt management, and profitability ratios are favorable. This ratio shows how much investors are willing to pay for each rupiah of the company's profits. This ratio is higher for strong companies with growth prospects but lower for companies at risk [15].

The Effect of Surplus Growth on the finances of public banking companies in Indonesia

The results of the Surplus Growth test on the financial health of Public Banking Companies in Indonesia using the t-test obtained the results of the probability surplus growth (SG) value of 0.9507 > 0.05 . It can be concluded that the variable Surplus Growth partially has no significant effect on the financial health of public banking companies in Indonesia. Surplus Growth is calculated in terms of sales level. The sales rate can be calculated from the annual growth percentage in total sales. If the comparison value is getting bigger, then the company's sales growth rate is getting better.

The results of this study are in line with research conducted by Riadi, showing that the company's growth rate does not have a significant effect on the level of corporate health. This study's results align with research conducted by Chen and Wong [5], showing that Surplus Growth has a significant negative effect on the financial health of companies.

The Effect of Liquidity / Current Ratio (CR) on the finances of public banking companies in Indonesia

The results of the Liquidity/CR test on the financial health of Public Banking companies in Indonesia using the t-test obtained the results of the Probability Liquidity/Current Ratio (CR) value of $0.0000 < 0.05$, it can be concluded that the Liquidity/Current Ratio variable partially affects the financial health of public banking companies in Indonesia.

Whether or not a research company uses a current ratio. CR is the ability of the company's current assets to meet short-term obligations with current assets owned. An excessively high CR indicates an excess of cash or other current assets compared to what is needed now or a low level of liquidity than current assets and vice versa [16]. Investors and creditors can trust that the company has the money to be able to pay off short-term obligations.

The results of this study are not in line with research conducted by Chen and Wong [5], showing that the Current Ratio has a significant and positive effect on the company's financial health. The results of this study are also not in line with Sihombing's [13] research, revealing that the Current Ratio can significantly distinguish the status of the company's health level. The results of Rusdy's research [12] also stated that the Current Ratio partially had a significant effect on the company's health condition.

4 Conclusion

Based on the analysis and discussion of firm size, investment performance, operating price margin, price earning ratio, surplus growth, and liquidity against the Z-Score, a regression model was obtained as follows:

$$\text{Z-score} = 85,3560 - 14,755 \text{ Firm Size} + 1.025,57 \text{ Investment Performance} + 23,018 \text{ OPM} + 0,216 \text{ PER} - 1,147 \text{ Surplus growth} + 177,41 \text{ Liquidity} + e.$$

The explanation of the regression model above is as follows:

1. The results of the first hypothesis show that firm size partially has no influence on the Z-Score, but simultaneously Firm Size has a significant effect.
2. The results of the second hypothesis show that Investment Performance has a significant negative effect on the Z-Score both partially and simultaneously.
3. The results of the third hypothesis show that Operating Price Margin has a significant negative effect on the Z-Score both partially and simultaneously.
4. The results of the fourth hypothesis show that the Price Earning Ratio has a significant negative effect on the Z-Score both partially and simultaneously.
5. The results of the fifth hypothesis show that Surplus Growth partially has no effect on the Z-Score, but simultaneously Surplus Growth has a significant effect.

6. The results of the sixth hypothesis show that liquidity has a significant negative effect on the Z-Score both partially and simultaneously.
7. The results of the model feasibility test resulted in a regression model that was produced quite strongly where the z-score variables could be explained by independent variables (firm size, investment performance, operating price margin, price earnings ratio, surplus growth, and liquidity) of 60.2%.

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