

## **THE EFFECTS OF OWNERSHIP STRUCTURES AND SPECIFIC CHARACTERISTICS ON THE CAPITAL STRUCTURES OF IDX-LISTED BANKS**

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### **Abstract**

*The present study observes the effects of ownership structures and specific characteristics on the capital structures of banks listed in Indonesia Stock Exchange (IDX). The author finds that the ownership structures and bank-specific characteristics (e.g., profitability, size and credit risk) do not have significant partial effect on the capital structures, while expense management does. This is consistent with a strand of previous studies including Haruman (2008), Yuke and Hadri (2005), Rista and Bambang (2011), Siringoringo (2012) and (Imas, et al., 2015).*

*Keywords: ownership structures, specific characteristics and capital structures*

### **1. INTRODUCTION**

Taswan (2010) lays out banking-control perspective to classify bank ownership in Indonesia, which includes concentrated ownership, government ownership, private domestic ownership and foreign ownership. Large individual ownership indicates that bank ownership in Indonesia is concentrated into a number of owners. Managers, as a result, are simply subordinates to controller stakeholders. The major differences between government-controlled banks, domestic banks, mixed banks and foreign banks lie in the capitals and legal forms (Siringoringo, 2012).

Capital structure policy deals with an optimal combination of using different sources of funds to finance an investment and a firm's overall operations to meet substantial financial goals and, in turn, to gain significant profits and values from the emerging market (Gitman, 2009).

In addition to bank ownership, bank-specific characteristics, or internal factors, are taken into consideration to examine the capital structure decisions of the banks listed on IDX. Prominent bodies of literature have shed light on the relationship among the three domains with a wide variety of research findings. In the present study, the author breaks down the variables of bank-specific characteristics into profitability, size, credit risk and management expense.

### **2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

#### **Ownership Structure**

##### **1.1. Agency Cost Theory**

Jensen & Meckling (1976) establish the relationship between ownership structures and capital structures in terms of the percentage of share ownership by insiders (stakeholders) and outsiders (shareholders), in addition to debt and equity, when it comes to the most important factors in capital structures. As insider ownership rises, managerial ownership serves to align the interests of outside shareholders and managers (who act as agents as well as principals), and agency cost will decline. Hence, agency cost will rise with a reduction in managerial ownership. Bathala, et al. (1994) find the comparison regarding capital structure policy that the higher the insiders' proportions, the greater the desires to reduce the firm's cost of capital. In other words, firms no longer need to take on debts because the agency costs of debt will reduce as insiders own more shares.

Furthermore, in the presence of large-block shareholders who buy stocks with a large amount of institutional ownership, firms exercise more control and external monitoring, which in turn leads to agency cost-reducing mechanism. One might expect that debt policy and institutional ownership can be a substitution-monitoring effect mechanism. Bathala, et al. (1994) explore this effect and find that institutional investors can encourage more effective monitoring services and mitigate the extent of opportunistic behaviors by managers. The monitoring of managerial activities may help reduce agency conflicts and become a substitute for debts.

Banking institutions involve a very complex set of agency relationship. Common examples of this relationship include principals (shareholders) and agents (management), bank and debtors, and bank and regulators (Taswan, 2010).

##### **1.2. Asymmetric Information Theory**

Myers (1984) suggests that funding needs are based on a certain hierarchy in choosing how a firm funds its growth projects as to minimize the likelihood of information asymmetry. Basically, a firm will prioritize internal, when available, over external financing. When external financing is required, a firm will prefer debt to equity owing to lower information costs resulting from debt issues. A firm will finally finance itself by issuing new equity shares as a last resort.

### **1.3. Types of Bank Ownerships in Indonesia**

The ownership structure of commercial banks in Indonesia, according to Bank Indonesia, is categorized into 6 groups, i.e., Bank Persero (BUMN), Bank Umum Swasta Nasional Devisa (BUSN Devisa), Bank Swasta Nasional Non Devisa (BUSN Non Devisa), Bank Pembangunan Daerah (BPD), mixed banks and foreign banks.

## **2. Bank-Specific Characteristics**

### **2.1. Profitability**

Profitability is the degree that a bank is able to generate earnings (expressed as a percentage) over a specified time period compared to its underlying expenses and other related costs incurred during or subsequent to its efforts to generate earnings. The financial ratio that measures the percentage of profit a firm earns is calculated by ROA (Return on Assets), which compares returns on equity (net income) with total assets. This calculation allows bank management to utilize its financial resources to generate profits (Athanasoglou, et al., 2005).

### **2.2. Size**

Bank size also provides a description as to how a bank is able, upon expansion, to stay competitive in an over-saturated marketplace. There is a strong likelihood that a larger bank can perform its portfolio strategies across all lines of operation. As such, the size of a bank positively affects leverage ratio and tends to increase the level of debt financing (Darwanto, 2008).

### **2.3. Credit Risk**

Credit risk, or default risk, refers to the risk that customers fail, are unable or are unwilling to meet their commitments in terms of return of capital and payment of interest within the specified period of time (Dahlan Siamat, 1999). The magnitude of default risk can be indicated by the level of bad debt. A number of factors responsible for bad debt include the quality of credit appraisal, macroeconomic factor and moral hazard, both debtors' and creditors'.

### **2.4. Management Expense**

Management expense describes the total expense associated with doing business on a day-to-day basis which includes operating costs and other relevant expenses incurred. The increase in management expenses proxied by the relative proportion between the ratio of operating costs and that of total assets indicates a linear relationship with bank leverage. This means bank leverage increases as high operating costs continue to rise (Darwanto, 2008).

## **3. Capital Structure**

### **3.1 Modigliani-Miller (MM) Theory**

MM argue that, based on the proposition with taxes, a greater proportion of debt equity ratio benefits the value of a company owing to corporate tax shield. They propose that, in a perfect capital market with taxes, the interest payment that results from debt, in most cases, can be used to reduce the amount of taxable income and, thus, are tax-deductible interest. With the advantage of tax shield benefits, the levered company will enjoy a higher market value than the unlevered company. There are, however, a number of authorities who are not in favor of the so-called corporate tax shield. Such is criticized in terms of the capital market, which is perfectly competitive and frictionless, while in an imperfect capital market, costs associated with bankruptcy and agency problems, and asymmetric information are very likely to occur, and an ample sum of debt can distress the company value, accordingly (Brigham, 2005 and Peirson, 2006).

### **3.2 Trade-Off Theory**

Trade-off theory, similar to balancing theory, advocates the idea that a company can capitalize on an optimal capital structure by trading off the benefits and the costs of debt, as described by Peirson (2006:394):

*Trade-off theory proposes that companies have an optimal capital structure based on a trade off between the benefits and costs of using debt.*

### **3.3 Pecking Order Theory**

In most cases, a firm will prefer debts, if external funding is required, to new equities or shares, given that the cost of bond issuance is cheaper than that of new shares. When new shares are issued, the price of old shares lowers, which, in turn, can be a bad signal for investors. Asymmetric information between managers (insiders) and shareholders (outsiders) may result in the decline of share prices. In this sense, the managers are more aware of the prospects of the firm than the shareholders.

## **Funding Sources for Banks**

Taswan (2010:174) suggests that banks must pay close attention to the composition of funds, interest rates and overhead costs to capitalize on cash flow opportunities by considering the following principles:

1. Cost of funds is minimized to the least possible level by setting up a certain composition.
2. Funds with low volatility and high stability are the bedrock of liquidity management.
3. The composition of funding sources holds the implementation of credit commitments and placement of other productive assets to the largest extent possible.

**Hypothesis**

Following the arguments above, the author tests potential explanation for the effect of ownership structures and bank-specific characteristics on capital structures through the following hypotheses:

Hypothesis 1: The ownership structures of banks significantly affect their capital structure.

Hypothesis 2: The bank-specific characteristics significantly affect their capital structure.

**3. RESEARCH METHOD**

**Operational Variables**

The following table presents the variables observed in the present study:

Table 1. Operational Variables

Variable	Indicator	Formula	Scale	Type of Data
Capital Structure (Y)	- Total Debt (Deposit, Subordinated Debt) - Equity	$DER = \frac{\text{Debt}}{\text{Equity}}$	Ratio	Secondary
Ownership Structure				
Government Ownership (X <sub>1</sub> )	Number of Shares	$\frac{\% \text{ Government Share}}{\% \text{ Total Share}}$	Ratio	Secondary
Domestic Ownership (X <sub>2</sub> )	Number of Shares	$\frac{\% \text{ Domestic Share}}{\% \text{ Total Share}}$	Ratio	Secondary
Mixed Ownership (X <sub>3</sub> )	Number of Shares	$\frac{\% \text{ Mixed Share}}{\% \text{ Total Share}}$	Ratio	Secondary
Foreign Ownership (X <sub>4</sub> )	Number of Shares	$\frac{\% \text{ Foreign Share}}{\% \text{ Total Share}}$	Ratio	Secondary
Bank-Specific Traits				
Profitability (X <sub>5</sub> )	- Net Income - Total Assets	$\frac{\text{Net Income}}{\text{Total Assets}}$	Ratio	Secondary
Size (X <sub>6</sub> )	Total Assets	Size = Ln Assets	Ratio	Secondary
Credit Risk (X <sub>7</sub> )	- Amount of Bad Debts - Total Credit	$\frac{\text{Amount of Bad Debts}}{\text{Total Credit}}$	Ratio	Secondary
Management Expense (X <sub>8</sub> )	- Total Costs - Total Assets	$\frac{\text{Total Costs}}{\text{Total Assets}}$	Ratio	Secondary

**Data Sources and Types**

The present study relies on quantitative research, which includes secondary data. In secondary data analysis, the author analyzes the pre-existing data available from other sources and may have been used and published in previous researches, e.g., the balance sheets and income statements of publicly-traded banks from 2013 to 2016 and the proportions of bank stock ownerships. The population empirically selected for the study is the entire conventional commercial banks listed on IDX. Purposive sampling is applied based on the purpose of the study and the following characteristics of the population:

1. The conventional commercial banks operate from 2013 to 2016 and present their financial statements during the same period.
2. The banks have periodically released and consolidated the fully audited financial statements during the period.

**Data Collection**

The author gathers data to inform the research questions using library research, a disciplinary resource featuring a diverse array of scholarly journals, publications and the likes across the areas in need of investigation that highlight the subject of interest.

**Data Analysis and Hypothesis Test**

a. Data Analysis

In statistical modeling, multiple linear regression analysis enables the author to assess the effect of more than one predictor variable on a criterion or response variable. The simple form of regression equation to assess the association between these two types of variables is defined by:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_8X_8 + \varepsilon$$

Where

- Y = Capital Structure
- b<sub>1</sub>, b<sub>2</sub>, b<sub>3</sub>, ..., b<sub>8</sub> = Regression Coefficient X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, ..., X<sub>8</sub>
- X<sub>1</sub> = Government Ownership Structure
- X<sub>2</sub> = Domestic Ownership Structure
- X<sub>3</sub> = Foreign Ownership Structure
- X<sub>4</sub> = Mixed Ownership Structure
- X<sub>5</sub> = Profitability
- X<sub>6</sub> = Size
- X<sub>7</sub> = Credit Risk
- X<sub>8</sub> = Management Expense
- A = Constant
- E = Residual

The calculation and interpretation of the correlation coefficient between the independent variables, e.g., ownership structures and bank-specific characteristics (r<sub>X<sub>1</sub>X<sub>5</sub></sub>, r<sub>X<sub>1</sub>X<sub>6</sub></sub>, r<sub>X<sub>1</sub>X<sub>7</sub></sub>, r<sub>X<sub>1</sub>X<sub>8</sub></sub>, r<sub>X<sub>2</sub>X<sub>5</sub></sub>, r<sub>X<sub>2</sub>X<sub>6</sub></sub>,..... r<sub>X<sub>4</sub>X<sub>8</sub></sub>), are given by the following formula:

$$r_{x_i x_j} = \frac{n \sum_{i=1}^n x_{i1} x_{ij} - \sum_{i=1}^n x_{i1} \sum_{i=1}^n x_{ij}}{\sqrt{\left[ n \sum_{i=1}^n x_{i1}^2 - \left( \sum_{i=1}^n x_{i1} \right)^2 \right] \left[ n \sum_{i=1}^n x_{ij}^2 - \left( \sum_{i=1}^n x_{ij} \right)^2 \right]}}$$

b. Hypothesis Test

The given model or equation considers a set of statistical inferences, both partially (individually) and simultaneously, across the variables with the testing criteria at a significance level of 5% (α=0,05).

**Overall Test (F-Test)**

The statistic outcome of the simultaneous association between independent and dependent variables is defined by the following hypothesis formula:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_8X_8 + \varepsilon$$

$$H_0 : \rho_{XY_1} = \rho_{XY_2} = \dots = \rho_{XY_8} = 0$$

$$H_a : \text{at least one } \rho_{YX_i} \neq 0 ; i = 1, 2, \dots, k$$

The F-test for the overall or simultaneous significance is as follows:

$$F = \frac{(n - k - 1) \sum_{i=1}^k \rho_{yxi} r_{yxi}}{k \left( 1 - \sum_{i=1}^k \rho_{yxi} r_{yxi} \right)}$$

Source: Gujarati (2006)

The above statistical test follows Snedecor's F-distribution with degrees of freedom v<sub>1</sub> = k and v<sub>2</sub> = n-k-1, where k = the number of independent variables.

The F-test recognizes the following criteria:

- If F<sub>cal</sub> ≥ F<sub>table</sub> with α=0,05, H<sub>0</sub> is rejected—there is a simultaneous effect of the independent variables on the dependent variable.
- If F<sub>cal</sub> ≤ F<sub>table</sub> with α=0,05, H<sub>0</sub> is accepted—there is no simultaneous effect of the independent variables on the dependent variable.

**Individual Test (T-Test)**

When the test of the overall hypothesis formulation rejects the null hypothesis (H<sub>0</sub>), at least one path coefficient is not equal to zero (p<sub>YX<sub>i</sub></sub> ≠ 0). Under such circumstance, partial (individual) test is required to determine whether each independent variable, individually, is enough to create a significant relationship with the dependent variable. The hypothesis formula where partial path coefficient is assumed is defined by:

$$H_0 : \rho_{YX_i} = 0$$

$H_a: \rho_{yx_i} \neq 0$ , where  $i = 1,2,3...k$

The statistical test is defined by:

$$t_i = \frac{\rho_{yxi}}{\sqrt{\frac{(1 - R^2_{YX1...Xk})CR_{ij}}{n - k - 1}}}$$

Source: Gujarati (2006)

Partial test between X variables ( $X_1$ - $X_8$ ) and Y variable includes a two-tailed significance, given that the present study does not hypothesize a specific directional correlation (i.e., positive and negative correlation) between the two variables of interest. The criteria are as follows:

If  $-t_{table} > |t_{cal}| > t_{table}$  ( $\alpha$ ,  $n-k-1$ ),  $H_0$  is rejected—there is a significant partial effect of independent variable ( $X_i$ ) on dependent variable (Y).

If  $-t_{table} < |t_{cal}| < t_{table}$  ( $\alpha$ ,  $n-k-1$ ),  $H_0$  is accepted—there is no significant partial effect of independent variable ( $X_i$ ) on dependent variable (Y).

#### 4. RESULT AND DISCUSSION

##### Multiple Linear Regression Analysis

Prior to the procedure of regression model, we need to tap into a set of assumptions regarding linear regression that, in Gauss-Markov's term, fits into BLUE (Best Linear Unbiased Estimator) (Gujarati, 2011).

- Essentially, “best” is defined in a sense that regression line is the “best guess” at using a set of data to make a prediction. Regression line is necessary to express the pattern of relationship that relates two or more series of data. A line that fits the data well will be the one that minimizes the sum of errors. An error results from the observed value of a response variable that differs from the value predicted by the regression line. An efficient estimator, in addition to the “best” property, is unbiased.
- Statistical inferences in linear regression focus on  $\beta$  with the assumption that the relationship between the predictor X and the response Y is linear.

On average,  $\bar{X} = \frac{1}{n} \sum X = \frac{1}{n}(x_1 + x_2 + \dots + x_n)$  is a linear estimator that expresses linear function that fits a predictive model to an observed data set of X values. OLS (Ordinary Least Square) estimates also minimize the squared residuals, thus creating linear estimates.

- An estimator is said to be unbiased if the estimator's expected value of  $\beta$  is not different from the true parameter value of  $\beta$  ( $\beta = \beta$ ).

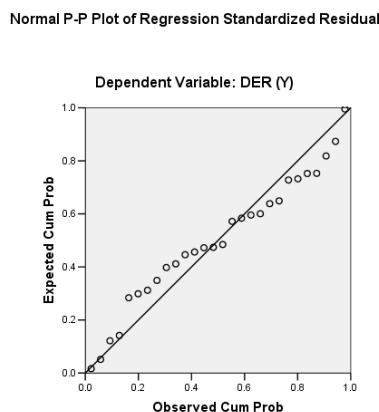
Four principal assumptions, including normality test, multicollinearity test, heteroscedasticity test and autocorrelation test, are used to justify the linear regression models for the purpose of inferences or predictions.

##### 4.1.1.1 The Effect of Government Ownership ( $X_1$ ), Profitability ( $X_5$ ), Size ( $X_6$ ), Credit Risk (Non Performing Loan) ( $X_7$ ) and Management Expense ( $X_8$ ) on Debt to Equity Ratio (Y)

###### a. Normality Test

The following figure shows a graphical method to decide whether the data come from a normal distribution.

Figure 4.1 P-P Plot of Normality Test

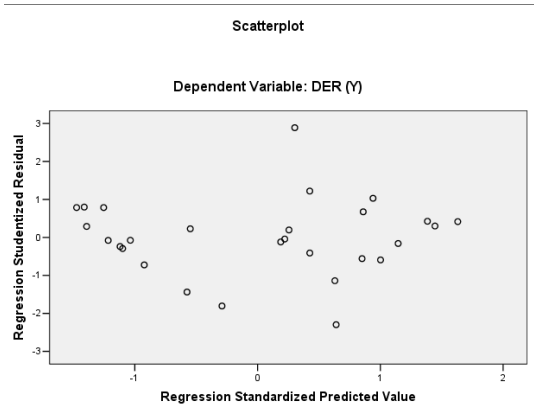


The graphical assessment of normality above shows the points track closely to the diagonal line, indicating that the data set is well modeled by a normal distribution.

**b. Heteroscedasticity Test**

The following figure also uses a graph for the examination of heteroscedascity.

Figure 4.2 Scatterplot of Heteroscedasticity



The scatterplot graph presented in Figure 4.2 shows that there is no obvious patterns in distribution, and the plots spread above and below zero on Y axis, thus indicating the absence of heteroscedascity. In other words, the regression model conforms to the assumption of homoscedascity.

**c. Multicollinearity Test**

To indicate the extent to which multicollinearity is present, VIF is calculated for each predictor using SPSS with the following output:

Table 4.1 VIF Value of Multicollinearity Test  
 Coefficients<sup>a</sup>

Model		Collinearity Statistics	
		Tolerance	VIF
1	Government Ownership (X <sub>1</sub> )	.602	1.662
	Profitability (X <sub>5</sub> )	.663	1.509
	Size (X <sub>6</sub> )	.122	8.227
	Credit Risk (NPL) (X <sub>7</sub> )	.221	4.521
	Management Expense (X <sub>8</sub> )	.219	4.570

a. Dependent Variable: DER (Y)

The VIF value for each predictor is seen to be far less than 10, i.e., X<sub>1</sub> = 1,662, X<sub>5</sub> = 1,509, X<sub>6</sub> = 8,227, X<sub>7</sub> = 4,521, and X<sub>8</sub> = 4,570. Thus, multicollinearity is not present as two or more predictors included in the model are not significantly correlated so that the value of one cannot linearly be predicted by that of the other with a substantial degree of accuracy.

**d. Autocorrelation Test**

Linear regression model is tested for autocorrelation. The resulting statistical value d = 1,117 in SPSS (14.0 for Windows).

Table 4.2 Zero-Order Autocorrelation Test

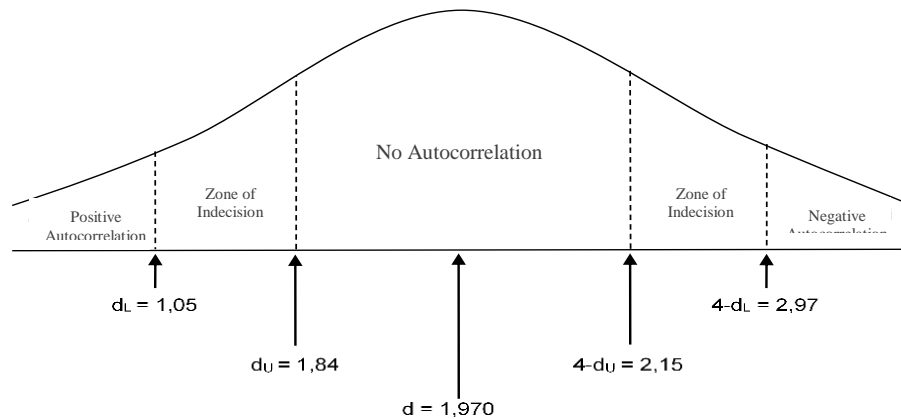
Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.884 <sup>a</sup>	.782	.733	.86324	1.970

a. Predictors: (Constant), Management Expense (X<sub>8</sub>), Government Ownership (X<sub>1</sub>), Profitability (X<sub>5</sub>), Credit Risk (NPL) (X<sub>7</sub>), Size (X<sub>6</sub>)

b. Dependent Variable: DER (Y)

The test statistic is d = 1.970. This value is computed and compared with the tabulated values of d<sub>L</sub> and d<sub>U</sub> in Durbin-Watson table. Critical values of d at α = 0.05 for k = 5 and n = 28 are d<sub>L</sub>=1,05 and d<sub>U</sub> = 1,84. Given that the d value lies between the two critical values—d<sub>U</sub> (1,84) and 4-d<sub>U</sub> (2,15)—the model does not indicate positive autocorrelation.

Figure 4.3 Zero-Order Autocorrelation Test



**e. Analysis of Multiple Linear Regression Equation**

After examining that the model assumptions are not violated, multiple linear regression analysis is run to measure the effect of Government Ownership ( $X_1$ ), Profitability ( $X_5$ ), Size ( $X_6$ ), Credit Risk ( $X_7$ ) and Management Expense ( $X_8$ ) on DER ( $Y$ ). The aim is to identify the relationship among the variables and use this relationship to make predictions about the dependent variable based on the observed values of the independent variable in a causal inference.

The multiple regression model is:

$$Y = \alpha + b_1X_1 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + e$$

Where

- Y = DER
- $X_1$  = Government Ownership
- $X_5$  = Profitability
- $X_6$  = Size
- $X_7$  = Credit Risk (NPL)
- $X_8$  = Management Expense
- $\alpha$  = Constant/ Intercept
- $b_{1,5,6,7,8}$  = Regression Coefficient
- e = Residual Variable

Based on SPSS, the calculation of multiple linear regression yields the following output:

Table 4.4 The Output of Regression Coefficient Coefficient<sup>a</sup>

Model		Unstandard Coefficients		Standard Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	31.125	10.044		3.099	.005
	Government Ownership ( $X_1$ )	1.204	.770	.200	1.562	.133
	Profitability ( $X_5$ )	9.210	9.735	.116	.946	.354
	Size ( $X_6$ )	-1.564	.518	-.862	-3.020	.006
	Credit Risk (NPL) ( $X_7$ )	-.349	.301	-.245	-1.157	.260
	Management Expense ( $X_8$ )	55.740	10.020	1.184	5.563	.000

a. Dependent Variable: DER (Y)

Following the above output, the resulting constant and regression coefficient can be used in multiple linear regression analysis to build a regression equation:

$$Y = 31,125 + 1,204 X_1 + 9,210 X_5 - 1,564 X_6 - 0,349 X_7 + 55,740 X_8$$

The interpretations are as follows:

- $\alpha = 31,125$  If Government Ownership ( $X_1$ ), Profitability ( $X_5$ ), Size ( $X_6$ ), Credit Risk (NPL) ( $X_7$ ), and Management Expense ( $X_8$ ) take on zero (0), DER (Y) ends up in 31,125 units.
- $b_1 = 1,204$  If Government Ownership ( $X_1$ ) increases by one unit, DER (Y) will increase by 1,204 units.

- $b_5 = 9,210$  If Profitability ( $X_5$ ) increases by one unit and the other variables are held constant, DER (Y) will increase by 9,210 units.
- $b_6 = -1,564$  If Size ( $X_6$ ) increases one unit and the others are held constant, DER (Y) will decrease by 1,564 units.
- $b_7 = -0,349$  If Credit Risk (NPL) ( $X_7$ ) increases by one unit and the others are held constant, DER (Y) will decrease 0,349 unit.
- $b_8 = 55,740$  If Management Expense ( $X_8$ ) increases by one unit and the others are held constant, DER (Y) will increase 55,740 units.

**f. Analysis of Coefficient of Correlation and Coefficient of Determination**

The calculation and the estimation output of Pearson’s product-moment correlation coefficient are illustrated and discussed below:

Table 4.5 The Value of Product-Moment Correlation Coefficient

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.884 <sup>a</sup>	.782	.733	.86324	1.970

- a. Predictors: (Constant), Management Expense ( $X_8$ ), Government Ownership ( $X_1$ ), Profitability ( $X_5$ ), Credit Risk (NPL) ( $X_7$ ), Size ( $X_6$ )
- b. Dependent Variable: DER (Y)

The value of correlation coefficient (r) is 0,884, which is interpreted based on the following objective criteria:

Table 4.6 Correlation Coefficient and Its Interpretations

Confidence Interval	Relationship Degree
0,00 - 0,199	Very low
0,20 - 0,399	Low
0,40 - 0,599	Moderate
0,60 - 0,799	High
0,80 - 1,000	Very High

Source: Sugiyono (2002: 183)

The selection of confidence level for an interval can range in value from -1 to +1; the larger the value, the higher the relationship between variables. In Pearson’s correlation, a value of 0,884 indicates an almost perfect linear relationship between the free variables and the bound variable, simultaneously.

The value of r represents the percentage of variation that can be explained by the formula of determination coefficient:

$$\begin{aligned}
 DC &= R^2 \times 100\% \\
 &= (0,884)^2 \times 100\% \\
 &= 78,2\%
 \end{aligned}$$

The resulting value of determination coefficient is 78,2%, indicating an almost perfect degree of linear correlation between the X variables and Y variable. 78.2% of the variance in Y can be explained by the changes in Xs, simultaneously. The remaining 21,8% of the variation in Y is presumed to be due to random variability.

The percentage of partial effect can be obtained by multiplying the value of beta coefficient by that of zero-order coefficient.

Table 4.7 The Value of Beta Coefficient and Zero-Order Coefficient

Model		Standardized Coefficients	Correlations
		Beta	Zero-Order
1	Government Ownership ( $X_1$ )	.200	.532
	Profitability ( $X_5$ )	.116	.562
	Size ( $X_6$ )	-.862	.454
	Credit Risk (NPL) ( $X_7$ )	-.245	-.290
	Management Expense ( $X_8$ )	1.184	.786

a. Dependent Variable: DER (Y)



1. Variable  $X_1 = 0,200 \times 0,532 = 0,106 = 10,6 \%$
2. Variable  $X_5 = 0,116 \times 0,562 = 0,065 = 6,5 \%$
3. Variable  $X_6 = -0,862 \times 0,454 = -0,391 = -39,1\%$
4. Variable  $X_7 = -0,245 \times -0,290 = 0,071 = 7,1 \%$
5. Variable  $X_8 = 1,184 \times 0,786 = 0,931 = 93,1 \%$

**g. Simultaneous Hypothesis Test (F-Test)**

Below is a set of simultaneously-tested hypotheses:

$H_0 \rightarrow b_{YX_i} = 0$  There is no significant effect of Government Ownership ( $X_1$ ), Profitability ( $X_5$ ), Size ( $X_6$ ), Credit Risk (NPL) ( $X_7$ ), and Management Expense ( $X_8$ ) on DER (Y) at the same time.

$H_a \rightarrow b_{YX_i} \neq 0$  There is no significant effect of Government Ownership ( $X_1$ ), Profitability ( $X_5$ ), Size ( $X_6$ ), Credit Risk (NPL) ( $X_7$ ), and Management Expense ( $X_8$ ) on DER (Y) at the same time.

Significance level  $\alpha = 5\%$ .

The statistical test is F-test.

The F statistical value using SPSS is presented below:

Table 4.8 Estimation Result of Simultaneous Hypothesis Test

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	58.847	5	11.769	15.794	.000 <sup>b</sup>
	Residual	16.394	22	.745		
	Total	75.241	27			

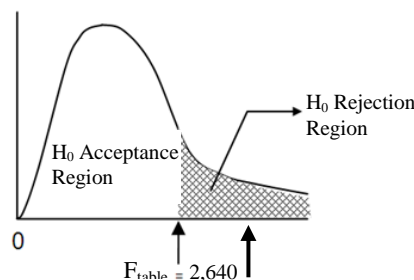
- a. Predictors: (Constant), Management Expense ( $X_8$ ), Government Ownership ( $X_1$ ), Profitability ( $X_5$ ), Credit Risk (NPL) ( $X_7$ ), Size ( $X_6$ )
- b. Dependent Variable: DER (Y)

In the Anova output, the author uses the  $F_{cal}$ , which is 15,794, and compares it to the probability distribution of F-value. For  $\alpha=5\%$ ,  $db_1$  (degree of freedom) =  $k = 5$ , and  $db_2 = n - k - 1 = 28 - 5 - 1 = 23$ , the resulting  $F_{table}$  is 2,640.

The simultaneous hypothesis testing is based on these underlying criteria:

- Reject  $H_0$  in favor of  $H_1$  if  $F_{cal} \geq F_{table}$ ; or
- Accept  $H_0$  and reject  $H_1$  if, otherwise,  $F_{cal} < F_{table}$ .

Figure 4.5 Curve of Simultaneous Hypothesis Test



The  $F_{cal}$ , as it appears in the curve, is greater than  $F_{table}$  ( $15,794 > 2,640$ ).  $H_0$  is therefore accepted, indicating that the group of X variables (Government Ownership, Profitability, Size, Credit Risk, and Management Expense) is jointly significant in DER (Y).

**h. Partial Hypothesis Test (T-Test)**

A T-test, unlike F-test, determines whether a single variable is significant.

- 1)  $H_0 \rightarrow b_{YX_1} = 0$  Government Ownership ( $X_1$ ) does not significantly affect DER (Y).  
 $H_1 \rightarrow b_{YX_1} \neq 0$  Government Ownership ( $X_1$ ) significantly affects DER (Y).
- 2)  $H_0 \rightarrow b_{YX_5} = 0$  Profitability ( $X_5$ ) does not significantly affect DER (Y).  
 $H_1 \rightarrow b_{YX_5} \neq 0$  Profitability ( $X_5$ ) significantly affects DER (Y).
- 3)  $H_0 \rightarrow b_{YX_6} = 0$  Size ( $X_6$ ) does not significantly affect DER (Y).  
 $H_1 \rightarrow b_{YX_6} \neq 0$  Size ( $X_6$ ) significantly affects DER (Y).
- 4)  $H_0 \rightarrow b_{YX_7} = 0$  Credit Risk (NPL) ( $X_7$ ) does not significantly affect DER (Y).  
 $H_1 \rightarrow b_{YX_7} \neq 0$  Credit Risk (NPL) ( $X_7$ ) significantly affects DER (Y).
- 5)  $H_0 \rightarrow b_{YX_8} = 0$  Management Expense ( $X_8$ ) does not significantly affect DER (Y).  
 $H_1 \rightarrow b_{YX_8} \neq 0$  Management Expense ( $X_8$ ) significantly affects DER (Y).

Significance level  $\alpha = 5\%$ .

The statistical test is T-test.

The T statistical value using SPSS is presented below:

Table 4.9 Estimation Result of Partial Hypothesis Test

Model		Coefficient <sup>a</sup>				
		Unstandard Coefficients		Standard Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	31.125	10.044		3.099	.005
	Government Ownership (X <sub>1</sub> )	1.204	.770	.200	1.562	.133
	Profitability (X <sub>5</sub> )	9.210	9.735	.116	.946	.354
	Size (X <sub>6</sub> )	-1.564	.518	-.862	-3.020	.006
	Credit Risk (NPL) (X <sub>7</sub> )	-.349	.301	-.245	-1.157	.260
	Management Expense (X <sub>8</sub> )	55.740	10.020	1.184	5.563	.000

a. Dependent Variable: DER (Y)

In the Anova output,  $t_{cal}$  of  $X_1 = 1,562$ ,  $X_5 = 0,946$ ,  $X_6 = -3,020$ ,  $X_7 = -1,157$  and  $X_8 = 5,563$ . These values are compared to the probability distribution of the t value. For  $\alpha = 5\%$ , df (degree of freedom) =  $n - k - 1 = 28 - 5 - 1 = 23$  in a two-tailed test, the resulting  $t_{table}$  is 2,069 and -2,069.

The partial hypothesis testing is based on these underlying criteria:

Reject  $H_0$  in favor of  $H_1$  if  $-t_{table} \geq t_{cal} \geq t_{table}$ ; or

Accept  $H_0$  and reject  $H_1$  if  $-t_{table} < t_{cal} < t_{table}$ .

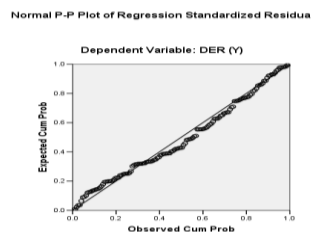
Unlike the previous finding that the multiple X variables have a significant effect on Y variable, testing only one variable at a time enables the author to analyze the experiment to see how much a single change affects the result; Government Ownership ( $X_1$ ) does not significantly affect DER (Y) ( $1,562 < 2,069$ ); Profitability ( $X_5$ ) does not significantly affect DER (Y) ( $0,946 < 2,069$ ); Size ( $X_6$ ) significantly affects DER (Y) ( $-3,020 < -2,069$ ); Credit Risk (NPL) ( $X_7$ ) does not significantly affect DER (Y) ( $-1,157 > -2,069$ ); and Management Expense ( $X_8$ ) significantly affects DER (Y) ( $5,563 > 2,069$ ).

#### 4.1.1.2 The Effect of Domestic Ownership ( $X_2$ ), Profitability ( $X_5$ ), Size ( $X_6$ ), Credit Risk (NPL) ( $X_7$ ) dan Management Expense ( $X_8$ ) on DER (Y)

##### a. Normality Test

A graphical display is used to summarize whether the data follow a normal distribution.

Figure 4.6 P-P Plot of Normality Test

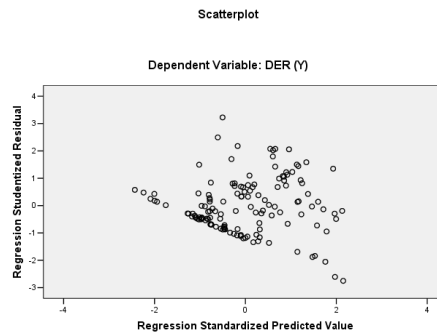


The distribution of data points follows the normal reference line along the diagonal. This data distribution looks fairly normal, accordingly.

##### b. Heteroscedasticity Test

Figure 4.7 tests a regression model for heteroscedasticity by a graphical examination of the residuals.

Figure 4.7 Scatterplot of Heteroscedasticity



The residual scatterplot provides a visual examination of heteroscedasticity assumption and exhibits a random displacement of points with no clustering or systematic patterns. The points are also seen to be distributed above and below 0 (zero coordinate) on Y axis, indicating no signs of heteroscedasticity. This distribution satisfies the homoscedasticity assumption.

**c. Multicollinearity Test**

To indicate the extent to which multicollinearity is present, VIF is calculated for each predictor using SPSS with the following output:

Table 4.10 VIF Value of Multicollinearity Test Coefficients<sup>a</sup>

Model		Collinearity Statistics	
		Tolerance	VIF
1	Domestic Ownership (X <sub>2</sub> )	.853	1.172
	Profitability (X <sub>5</sub> )	.925	1.081
	Size (X <sub>6</sub> )	.852	1.174
	Credit Risk (NPL) (X <sub>7</sub> )	.944	1.059
	Management Expense (X <sub>8</sub> )	.909	1.100

a. Dependent Variable: DER (Y)

The VIF value for each predictor, as it appears in the table, is far below 10, i.e., X<sub>2</sub> = 1,172, X<sub>5</sub> = 1,081, X<sub>6</sub> = 1,174, X<sub>7</sub> = 1,059, and X<sub>8</sub> = 1,100. This suggests no multicollinearity is present as these predictors included in the model are not significantly correlated and, thus, are independent predictors.

**d. Autocorrelation Test**

Linear regression model is tested for autocorrelation that yields statistical value d = 0,784 in SPSS (14.0 for Windows).

Table 4.11 Zero-Order Autocorrelation Test

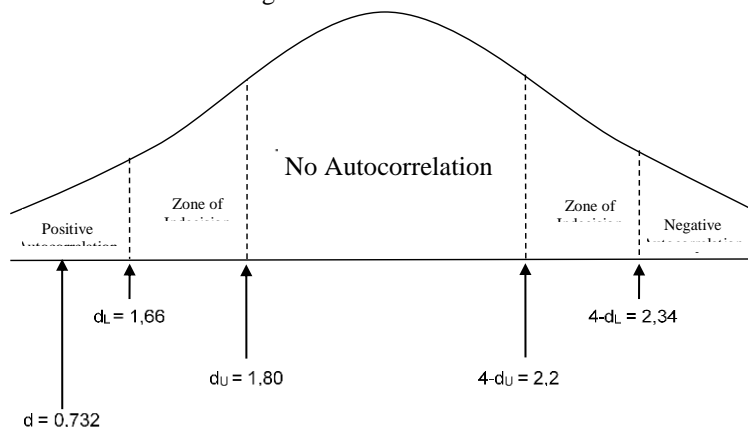
Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.574 <sup>a</sup>	.330	.305	2.30618	.732

a. Predictors: (Constant), Management Expense (X<sub>8</sub>), Size (X<sub>6</sub>), Credit Risk (NPL) (X<sub>7</sub>), Profitability (X<sub>5</sub>), Domestic Ownership (X<sub>2</sub>)

b. Dependent Variable: DER (Y)

The test statistic is d = 0,732. This value is computed and compared with the tabulated values of d<sub>L</sub> and d<sub>U</sub> in Durbin-Watson table. At α = 0.05, the d value is no greater than d<sub>L</sub> (1,66). This indicates that the model is positively autocorrelated.

Figure 4.8 Zero-Order Autocorrelation Test



One of the approaches to dealing with an estimation in an autocorrelated linear model is transformation of variables using the estimate of  $\rho$  (rho) based on the  $d$  value in Durbin-Watson statistic (Gujarati, N. Damodar, *Essentials of Econometrics, Second Edition*, 1998: 394).

Subsequent to the variable transformation (one-time transformation), the transformed samples are retested for autocorrelation using SPSS (13.0 for Windows) with the following output:

Table 4.12 Last-Order Autocorrelation Test

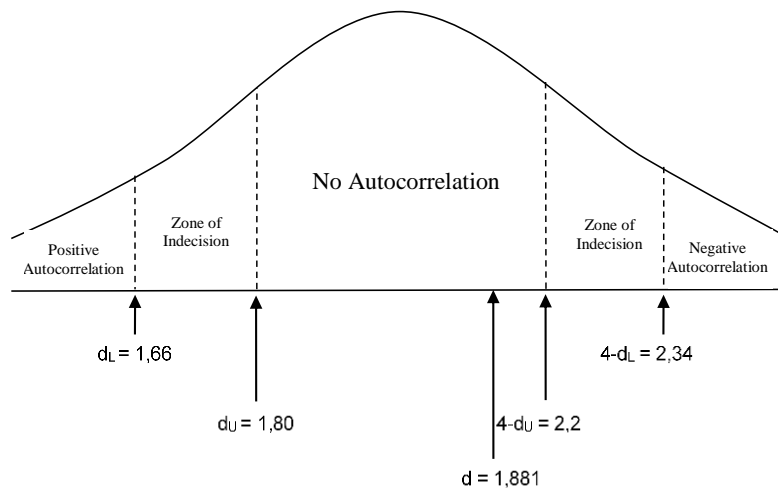
Model Summary <sup>a</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.410 <sup>a</sup>	.168	.137	1.56189	1.881

a. Predictors: (Constant), Management Expense ( $X_8$ ), Size ( $X_6$ ), Credit Risk (NPL) ( $X_7$ ), Profitability ( $X_5$ ), Domestic Ownership ( $X_2$ )

b. Dependent Variable: DER (Y)

The test statistic is  $d = 1,881$ . This value is computed and compared with the tabulated values of  $d_L$  and  $d_U$  in Durbin-Watson table. Critical values of  $d$  at  $\alpha = 0.05$  for  $k = 5$  and  $n = 140$  are  $d_L = 1,66$  and  $d_U = 1,80$ . Given that  $d$  value lies between the two critical values— $d_U$  (1,80) and  $4-d_U$  (2,2)—the model is no longer autocorrelated.

Figure 4.9 Last-Order Autocorrelation Test



#### e. Analysis of Multiple Linear Regression Equation

After all of the assumptions are checked, multiple linear regression analysis is run to examine the effect of the multiple  $X$  variables—Domestic Ownership ( $X_2$ ), Profitability ( $X_5$ ), Size ( $X_6$ ), Credit Risk (NPL) ( $X_7$ ), and Management Expense ( $X_8$ ) on  $Y$  variable—DER. This identifies a formula to make a prediction about the dependent variable based on the observed values of the independent variables in a causal relationship, i.e.:

$$Y = \alpha + b_2X_2 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + e$$

Where:

- Y = DER
- $X_2$  = Domestic Ownership
- $X_5$  = Profitability
- $X_6$  = Size
- $X_7$  = Credit Risk (NPL)
- $X_8$  = Management Expense
- $\alpha$  = Constant/ Intercept
- $B_{2,5,6,7,8}$  = Regression Coefficient
- e = Residual Variable

Table 4.13 presents the output of the calculation of multiple linear regression using SPSS statistics.

Table 4.13 The Output of Regression Coefficient Coefficient<sup>a</sup>

Model	Unstandard Coefficients		Standard Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.544	.311		1.778	.078
Domestic Ownership (X <sub>2</sub> )	3.485	1.033	.328	3.372	.001
Profitability (X <sub>5</sub> )	.030	.069	.037	.431	.667
Size (X <sub>6</sub> )	1.124	.986	.109	1.140	.256
Credit Risk (NPL) (X <sub>7</sub> )	1.444	1.385	.085	1.043	.299
Management Expense (X <sub>8</sub> )	.812	1.624	.044	.500	.618

a. Dependent Variable: DER (Y)

The resulting constant and regression coefficient can be used to formulate a linear regression equation:

$$Y = 0,554 + 3,485 X_2 + 0,030 X_5 + 1,124 X_6 + 1,444 X_7 + 0,812 X_8$$

The equation is interpreted as follows:

- $\alpha = 0,554$  If Domestic Ownership (X<sub>2</sub>), Profitability (X<sub>5</sub>), Size (X<sub>6</sub>), Credit Risk (NPL) (X<sub>7</sub>), and Management Expense (X<sub>8</sub>) take on zero, DER (Y) will end up in 0,554 unit.
- $b_2 = 3,485$  If Domestic Ownership (X<sub>2</sub>) increases by one unit and the others are held constant, DER (Y) will increase by 3,485 units.
- $b_5 = 0,030$  If Profitability (X<sub>5</sub>) increases by one unit and the others are held constant, DER (Y) will increase by 0,030 unit.
- $b_6 = 1,124$  If Size (X<sub>6</sub>) increases by one unit and the others are held constant, DER (Y) will increase by 1,124 units.
- $b_7 = 1,444$  If Credit Risk (NPL) (X<sub>7</sub>) increases by one unit and the others are held constant, DER (Y) will increase by 1,444 units.
- $b_8 = 0,812$  If Management Expense (X<sub>8</sub>) increases by one unit and the others are held constant, DER (Y) will increase by 0,812 unit.

**f. Analysis of Correlation Coefficient and Determination Coefficient**

Table 4.14 presents the output of correlation coefficient estimation using SPSS statistics.

Table 4.14 The Value of Product-Moment Correlation Coefficient

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.410 <sup>a</sup>	.168	.137	1.56189	1.881

- a. Predictors: (Constant), Management Expense (X<sub>8</sub>), Size (X<sub>6</sub>), Credit Risk (NPL) (X<sub>7</sub>), Profitability (X<sub>5</sub>), Domestic Ownership (X<sub>2</sub>)
- b. Dependent Variable: DER (Y)

The resulting value of correlation coefficient (r) is 0,410, which is interpreted based on the following objective criteria:

Table 4.15 Correlation Coefficient and Its Interpretation

Confidence Interval	Correlation Degree
0,00 - 0,199	Very Low
0,20 - 0,399	Low
0,40 - 0,599	Moderate
0,60 - 0,799	High
0,80 - 1,000	Very High

Source: Sugiyono (2002: 183)

Pearson r = 0,410 indicates only a moderate simultaneous correlation between the free variables and the bound variable.

More specifically, the resulting r value describes the variation percentage in Y explained by Xs in a determination coefficient formula:

$$\begin{aligned} DC &= R^2 \times 100\% \\ &= (0,410)^2 \times 100\% \\ &= 16,8\% \end{aligned}$$

The resulting value of determination coefficient is 16,8%, indicating a moderate degree of linear correlation between the Xs and Y. In other words, 16,8% of the variance in Y can be explained by the

changes in Xs, simultaneously. The remaining 83,2% of the variation in Y is presumed to be due to random variability, not to the regression of X on Y.

The coefficient can represent the percentage of partial effect by multiplying the value of beta coefficient by that of zero-order coefficient.

Table 4.16 The Value of Beta Coefficient and Zero-Order Coefficient<sup>a</sup>

Model		Standardized Coefficients	Correlations
		Beta	Zero-Order
1	Domestic Ownership (X <sub>2</sub> )	.328	.385
	Profitability (X <sub>5</sub> )	.037	.033
	Size (X <sub>6</sub> )	.109	.278
	Credit Risk (NPL) (X <sub>7</sub> )	.085	.044
	Management Expense (X <sub>8</sub> )	.044	.146

a. Dependent Variable: DER (Y)

- Variable X<sub>2</sub> = 0,328 × 0,385 = 0,126 = 12,6 %
- Variable X<sub>5</sub> = 0,037 × 0,033 = 0,001 = 0,1 %
- Variable X<sub>6</sub> = 0,109 × 0,278 = 0,030 = 3,0 %
- Variable X<sub>7</sub> = 0,085 × 0,044 = 0,004 = 0,4 %
- Variable X<sub>8</sub> = 0,044 × 0,146 = 0,006 = 0,6 %

**g. Simultaneous Hypothesis Test (F-Test)**

Below is a set of simultaneously tested hypotheses.

H<sub>0</sub> → b<sub>YXi</sub> = 0 There is no significant effect of Domestic Ownership (X<sub>2</sub>), Profitability (X<sub>5</sub>), Size (X<sub>6</sub>), Credit Risk (NPL) (X<sub>7</sub>), and Management Expense (X<sub>8</sub>) on DER (Y).

H<sub>a</sub> → b<sub>YXi</sub> ≠ 0 There is a significant effect of Domestic Ownership (X<sub>2</sub>), Profitability (X<sub>5</sub>), Size (X<sub>6</sub>), Credit Risk (NPL) (X<sub>7</sub>), and Management Expense (X<sub>8</sub>) on DER (Y).

Significance level α = 5%.

The statistical test is F-Test.

The F statistical value using SPSS is presented below:

Table 4.17 Estimation Result of Simultaneous Hypothesis Test

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	66.031	5	13.206	5.413	.000 <sup>b</sup>
	Residual	326.892	134	2.439		
	Total	392.923	139			

a. Predictors: (Constant), Management Expense (X<sub>8</sub>), Size (X<sub>6</sub>), Credit Risk (NPL) (X<sub>7</sub>), Profitability (X<sub>5</sub>), Domestic Ownership (X<sub>2</sub>)

b. Dependent Variable: DER (Y)

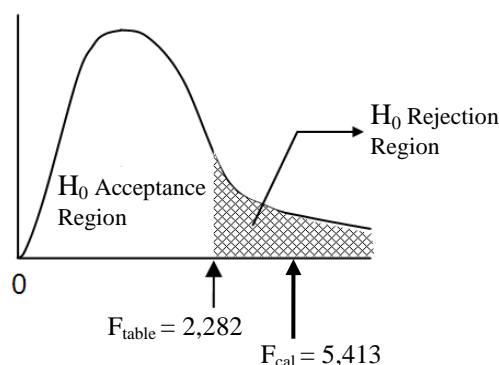
In the Anova output, the resulting F<sub>cal</sub> is 5,413, which is compared to the probability distribution of F-value. For α=5%, db<sub>1</sub> (degree of freedom) = k = 5, and db<sub>2</sub> = n - k - 1 = 140 - 5 - 1 = 134, the resulting F<sub>table</sub> is 2,282.

The simultaneous test meets these underlying criteria:

Reject H<sub>0</sub> in favor of H<sub>1</sub> if F<sub>cal</sub> ≥ F<sub>table</sub>; or

Accept H<sub>0</sub> and, hence, reject H<sub>1</sub> if F<sub>cal</sub> < F<sub>table</sub>.

Figure 4.10 Curve of Simultaneous Hypothesis Test



The  $F_{cal}$ , as it appears in the curve, is greater than the  $F_{cal}$  ( $5,413 > 2,282$ ).  $H_0$  is therefore accepted, indicating that the group of Xs (Domestic Ownership, Profitability, Size, Credit Risk, and Management Expense) is jointly significant in DER (Y).

**h. Partial Hypothesis Test (T-Test)**

T-test assesses a single regression coefficient at a time based on the hypotheses:

- 1)  $H_0 \rightarrow b_{YX_2} = 0$  Domestic Ownership ( $X_2$ ) does not significantly affect DER (Y).  
 $H_1 \rightarrow b_{YX_2} \neq 0$  Domestic Ownership ( $X_2$ ) significantly affects DER (Y).
- 2)  $H_0 \rightarrow b_{YX_5} = 0$  Profitability ( $X_5$ ) does not significantly affect DER (Y).  
 $H_1 \rightarrow b_{YX_5} \neq 0$  Profitability ( $X_5$ ) significantly affects DER (Y).
- 3)  $H_0 \rightarrow b_{YX_6} = 0$  Size ( $X_6$ ) does not significantly affect DER (Y).  
 $H_1 \rightarrow b_{YX_6} \neq 0$  Size ( $X_6$ ) significantly affects DER (Y).
- 4)  $H_0 \rightarrow b_{YX_7} = 0$  Credit Risk (NPL) ( $X_7$ ) does not significantly affect DER (Y).  
 $H_1 \rightarrow b_{YX_7} \neq 0$  Credit Risk (NPL) ( $X_7$ ) significantly affects DER (Y).
- 5)  $H_0 \rightarrow b_{YX_8} = 0$  Management Expense ( $X_8$ ) does not significantly affect DER (Y).  
 $H_1 \rightarrow b_{YX_8} \neq 0$  Management Expense ( $X_8$ ) significantly affects DER (Y).

Level significance  $\alpha = 5\%$ .

The statistical test is T-test.

The T statistical value using SPSS is presented below:

Table 4.18 Estimation Result of Partial Hypothesis Test  
 Coefficient<sup>a</sup>

Model	Unstandard Coefficients		Standard Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.544	.311		1.778	.078
Domestic Ownership ( $X_2$ )	3.485	1.033	.328	3.372	.001
Profitability ( $X_5$ )	.030	.069	.037	.431	.667
Size ( $X_6$ )	1.124	.986	.109	1.140	.256
Credit Risk (NPL) ( $X_7$ )	1.444	1.385	.085	1.043	.299
Management Expense ( $X_8$ )	.812	1.624	.044	.500	.618

a. Dependent Variable: DER (Y)

In the Anova output,  $t_{cal}$  of  $X_2 = 3,372$ ,  $X_5 = 0,431$ ,  $X_6 = 1,140$ ,  $X_7 = 1,043$  and  $X_8 = 0,500$ . These values are compared to the probability distribution of the t value. For  $\alpha = 5\%$ , df (degree of freedom) =  $n - k - 1 = 140 - 5 - 1 = 134$  in a two-tailed test, the resulting  $t_{table}$  is 1,978 and -1,978.

The partial test meets these underlying criteria:

Reject  $H_0$  in favor of  $H_1$  if  $-t_{table} \geq t_{cal} \geq t_{table}$ ; or

Accept  $H_0$  and, hence, reject  $H_1$  if  $-t_{table} < t_{cal} < t_{table}$ .

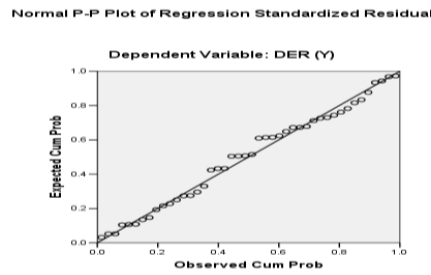
Testing one variable at a time helps pinpoint which changes of Xs have an effect on Y based on those criteria with the following results; Domestic Ownership ( $X_2$ ) significantly affects DER (Y) ( $3,372 > 1,978$ ); Profitability ( $X_5$ ) does not significantly affect DER (Y) ( $0,431 < 1,978$ ); Size ( $X_6$ ) does not significantly affect DER (Y) ( $1,140 < 1,978$ ); Credit Risk (NPL) ( $X_7$ ) does not significantly affect DER (Y) ( $1,043 < 1,978$ ); and Management Expense ( $X_8$ ) does not significantly affect DER (Y) ( $0,500 < 1,978$ ).

**4.1.1.3 The Effect of Mixed Ownership ( $X_3$ ), Profitability ( $X_5$ ), Size ( $X_6$ ), Credit Risk (NPL) ( $X_7$ ) and Management Expense ( $X_8$ ) on DER (Y)**

**a. Normality Test**

Figure 4.12 presents a graphical method to compute the likelihood that the data come from a normal distribution.

Figure 4.12 P-P Plot of Normality Test

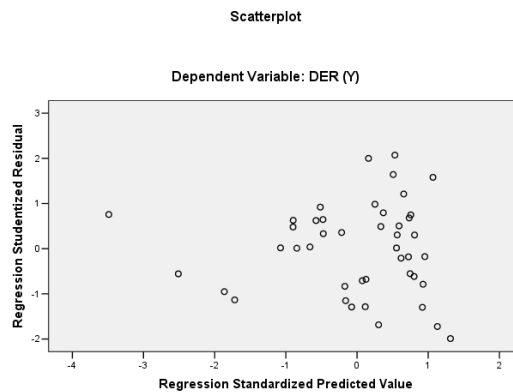


A plot of points that lie approximately on a straight line or scatter around the reference (regional) line indicates a normally-distributed set of data.

**b. Heteroscedasticity Test**

The nature of heteroscedasticity is examined using a graphical method below:

Figure 4.13 Scatterplot of Heteroscedasticity



The scatterplot exhibits no established patterns, and the data points lie above and below zero coordinate on Y axis. This indicates no heteroscedasticity of residuals, thus yielding homoscedastic data.

**c. Multicollinearity Test**

The following output indicates the VIF value for each free variable using SPSS statistics:

Table 4.19 VIF Value of Multicollinearity Test  
 Coefficients<sup>a</sup>

Model		Collinearity Statistics	
		Tolerance	VIF
1	Mixed Ownership (X <sub>3</sub> )	.945	1.058
	Profitability (X <sub>5</sub> )	.299	3.347
	Size (X <sub>6</sub> )	.748	1.337
	Credit Risk (NPL) (X <sub>7</sub> )	.728	1.374
	Management Expense (X <sub>8</sub> )	.220	4.536

a. Dependent Variable: DER (Y)

The resulting VIF value for each free variable goes below 10, i.e., X<sub>3</sub> = 1,058, X<sub>5</sub> = 3,347, X<sub>6</sub>=1,377, X<sub>7</sub>=1,374, and X<sub>8</sub>=4,536. A VIF below 10 does not indicate high correlation among these free variables in the regression model, representing a linear combination of the independent variables.

**d. Autocorrelation Test**

The linear regression model is tested for autocorrelation that yields statistical value d = 0,999 in SPSS (14.0 for Windows).

Table 4.20 Zero-Order Autocorrelation Test

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.626 <sup>a</sup>	.392	.312	1.73261	1.279

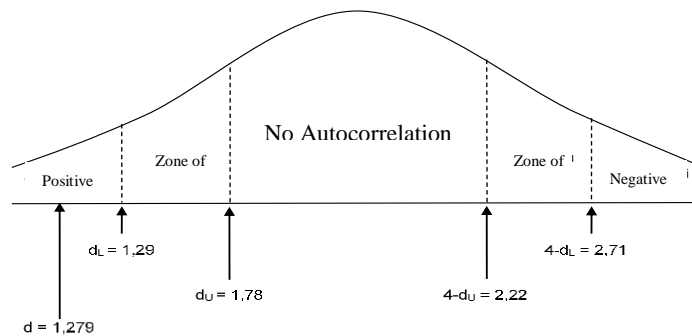
a. Predictors: (Constant), Management Expense (X<sub>8</sub>), Mixed Ownership (X<sub>3</sub>), Credit Risk (NPL) (X<sub>7</sub>), Size (X<sub>6</sub>), Profitability (X<sub>5</sub>)

b. Dependent Variable: DER (Y)



The test statistic is  $d = 1,279$ . This value is computed and compared with the tabulated values of  $d_L$  and  $d_U$  in Durbin-Watson table. The critical values at  $\alpha = 0.05$  for  $k = 5$  and  $n = 44$  are  $d_L=1,29$  and  $d_U = 1,78$ . Given that the  $d$  value does not exceed  $d_L$  ((1,29), the model is assumed to be positively autocorrelated.

Figure 4.14 Zero-Order Autocorrelation Test



When autocorrelation is problematic, the predictor variables are transformed (one time) using the estimate of  $\rho$  (rho) based on the  $d$  value in Durbin-Watson statistic (Gujarati, N. Damodar, *Essentials of Econometrics, Second Edition*, 1998: 394).

Following the one-time variable transformation, autocorrelation test is rerun using SPSS (13.0 for Windows).

Table 4.21 Last-Order Autocorrelation Test

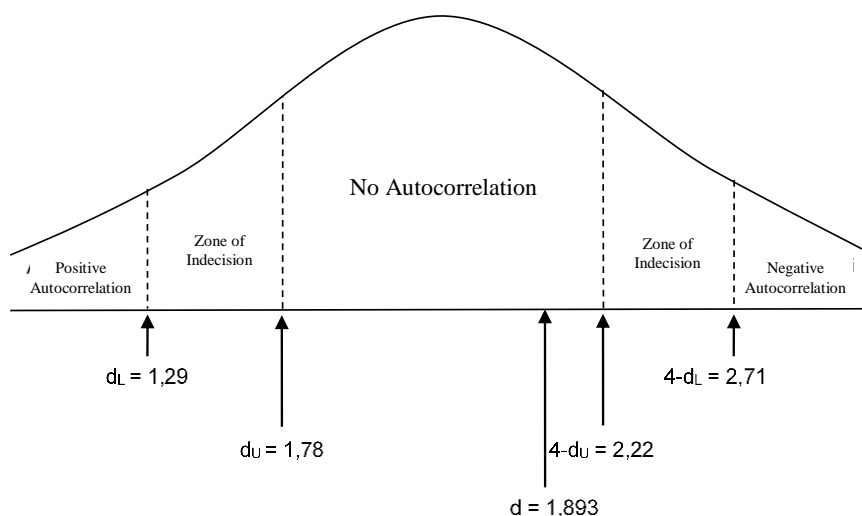
Model Summary <sup>a</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.604 <sup>a</sup>	.365	.281	1.56770	1.893

a. Predictors: (Constant), Management Expense ( $X_8$ ), Mixed Ownership ( $X_3$ ), Credit Risk (NPL) ( $X_7$ ), Size ( $X_6$ ), Profitability ( $X_5$ )

b. Dependent Variable: DER (Y)

The test statistic is  $d = 1, 893$ . This value is computed and compared with the tabulated values of  $d_L$  and  $d_U$  in Durbin-Watson table. Critical values of  $d$  at  $\alpha = 0.05$  for  $k = 5$  and  $n = 44$  are  $d_L=1,29$  and  $d_U = 1,78$ . Given that  $d$  value lies in the range of the two critical values— $d_U$  (1,78) and  $4-d_U$  (2,22)—the model is no longer autocorrelated.

Figure 4.15 Last-Order Autocorrelation Test



**e. Analysis of Multiple Linear Regression Equation**

Multiple Linear Regression attempts to model the causal relationship between the group of  $X_s$ —Mixed Ownership ( $X_3$ ), Profitability ( $X_5$ ), Size ( $X_6$ ), Credit Risk (NPL) ( $X_7$ ) and Management Expense ( $X_8$ )—and  $Y$  (DER) by fitting a linear equation to the observed data, i.e.:

$$Y = \alpha + b_3X_3 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + e$$

Where

- Y = DER
- X<sub>3</sub> = Mixed Ownership
- X<sub>5</sub> = Profitability
- X<sub>6</sub> = Size
- X<sub>7</sub> = Credit Risk (NPL)
- X<sub>8</sub> = Management Expenses
- α = Constant/ Intercept
- B<sub>3,5,6,7,8</sub> = Regression Coefficient
- e = Residual Variable

Table 4.22 presents the output of multiple linear regression calculation using SPSS statistics.

Table 4.22 The Output of Regression Coefficient Coefficient<sup>a</sup>

Model		Unstandard Coefficients		Standard Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.778	1.438		.541	.592
	Mixed Ownership (X <sub>3</sub> )	.203	3.337	.009	.061	.952
	Profitability (X <sub>5</sub> )	.819	.567	.338	1.446	.156
	Size (X <sub>6</sub> )	-13.783	6.478	-.362	-2.128	.040
	Credit Risk (NPL) (X <sub>7</sub> )	.661	.793	.124	.834	.410
	Management Expense (X <sub>8</sub> )	1.048	.327	.740	3.207	.003

a. Dependent Variable: DER (Y)

The resulting constant and regression coefficient can be used to formulate a linear regression equation:

$$Y = 0,778 + 0,203 X_3 + 0,819 X_5 - 13,783 X_6 + 0,661 X_7 + 1,048 X_8$$

The equation is interpreted as follows:

- α = 0,778 If Mixed Ownership (X<sub>3</sub>), Profitability (X<sub>5</sub>), Size (X<sub>6</sub>), Credit Risk (NPL) (X<sub>7</sub>) and Management Expense (X<sub>8</sub>) take on zero (0), DER (Y) will end up in 0,778 unit.
- b<sub>3</sub> = 0,203 If Mixed Ownership (X<sub>3</sub>) increases by one unit and the others are held constant, DER (Y) will increase by 0,203 unit.
- b<sub>5</sub> = 0,819 If Profitability (X<sub>5</sub>) increases by one unit and the others are held constant, DER (Y) will increase by 0,819 unit.
- b<sub>6</sub> = - 13,783 If Size (X<sub>6</sub>) increases by one unit and the others are held constant, DER (Y) will decrease by 13,783 units.
- b<sub>7</sub> = 0,661 If Credit Risk (NPL) (X<sub>7</sub>) increases by one unit and the others are held constant, DER (Y) will increase by 0,661 unit.
- b<sub>8</sub> = 1,048 If Management Expense (X<sub>8</sub>) increases by one unit and the others are held constant, DER (Y) will increase by 1,048 units.

**f. Analysis of Correlation Coefficient and Determination Coefficient**

Table 4.23 presents the output of correlation coefficient estimation using SPSS statistics.

Table 4.23 The Value of Product-Moment Correlation Coefficient

Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.604 <sup>a</sup>	.365	.281	1.56770	1.893

a. Predictors: (Constant), Management Expense (X<sub>8</sub>), Mixed Ownership (X<sub>3</sub>), Credit Risk (NPL) (X<sub>7</sub>), Size (X<sub>6</sub>), Profitability(X<sub>5</sub>)

b. Dependent Variable: DER (Y)

The resulting value of correlation coefficient (r) is 0,604, which is interpreted based on the following objective criteria:

Table 4.24 Correlation Coefficient and Its Interpretation

Confidence Interval	Correlation Degree
0,00 - 0,199	Very Low
0,20 - 0,399	Low
0,40 - 0,599	Moderate
0,60 - 0,799	High
0,80 - 1,000	Very High

Source: Sugiyono (2002:183)

Pearson  $r = 0,604$  suggests a high linear simultaneous correlation between the free variables and the bound variable.

The resulting  $r$  value corresponds to the percentage of the variation that measures how well the variation of  $X_s$  explains that of  $Y$  defined in the determination coefficient formula below:

$$\begin{aligned} CD &= R^2 \times 100\% \\ &= (0,604)^2 \times 100\% \\ &= 36,5\% \end{aligned}$$

The resulting value of determination coefficient of 36,5% implies that 36,5% of the variance in  $Y$  can be simultaneously explained by the changes in  $X_s$ . The remaining 63,5% of the variation in  $Y$  is presumed to be subject to random variability, not to the regression of  $X$  on  $Y$ .

The percentage of partial effect resulting from the multiplication of the value of beta coefficient by that of zero-order coefficient is shown in Table 4.25.

Table 4.25 Value of Beta Coefficient and Zero-Order Coefficient<sup>a</sup>

Model		Standardized Coefficients	Correlations
		Beta	Zero-Order
1	Mixed Ownership ( $X_3$ )	.009	.250
	Profitability ( $X_5$ )	.338	-.108
	Size ( $X_6$ )	-.362	-.221
	Credit Risk (NPL) ( $X_7$ )	.124	.227
	Management Expense ( $X_8$ )	.740	.393

a. Dependent Variable: DER (Y)

1. Variable  $X_3 = 0,009 \times 0,250 = 0,002 = 0,2 \%$
2. Variable  $X_5 = 0,338 \times -0,108 = -0,037 = -3,7 \%$
3. Variable  $X_6 = -0,362 \times -0,221 = 0,080 = 8,0 \%$
4. Variable  $X_7 = 0,124 \times 0,227 = 0,028 = 2,8 \%$
5. Variable  $X_8 = 0,740 \times 0,393 = 0,291 = 29,1 \%$

**g. Simultaneous Hypothesis Test (F-Test)**

Below is a set of simultaneously-tested hypotheses:

- $H_0 \rightarrow b_{YX_i} = 0$  There is no significant effect of Mixed Ownership ( $X_3$ ), Profitability ( $X_5$ ), Size ( $X_6$ ), Credit Risk (NPL) ( $X_7$ ), and Management Expense ( $X_8$ ) on DER (Y).
- $H_a \rightarrow b_{YX_i} \neq 0$  There is a significant effect of Mixed Ownership ( $X_3$ ), Profitability ( $X_5$ ), Size ( $X_6$ ), Credit Risk (NPL) ( $X_7$ ), and Management Expense ( $X_8$ ) on DER (Y).

Significance level is  $\alpha = 5\%$ .

The statistical test is F-test.

The F statistical value using SPSS is presented below:

Table 4.26 Estimation Result of Simultaneous Hypothesis Test

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53.589	5	10.718	4,361	.003 <sup>a</sup>
	Residual	93.392	38	2.458		
	Total	146.980	43			

a. Predictors: (Constant), Management Expense ( $X_8$ ), Mixed Ownership ( $X_3$ ), Credit Risk (NPL) ( $X_7$ ), Size ( $X_6$ ), Profitability ( $X_5$ )

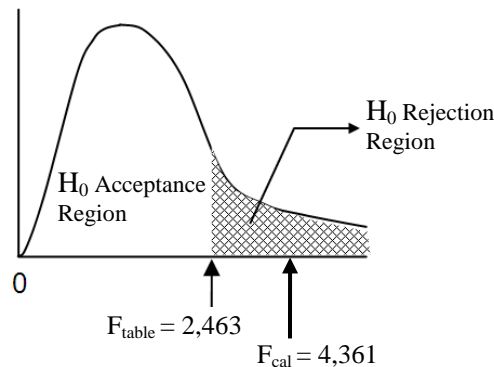
b. Dependent Variable: DER (Y)

In the Anova output, the resulting  $F_{cal}$  is 4,361, which is compared to the probability distribution of F-value. At  $\alpha=5\%$ ,  $db_1$  (degree of freedom) =  $k = 5$ , and  $db_2 = n - k - 1 = 44 - 5 - 1 = 38$ , the resulting  $F_{table}$  is 2,463.

The simultaneous test meets these underlying criteria:

- Reject  $H_0$  in favor of  $H_1$  if  $F_{cal} \geq F_{table}$ ; or  
 Accept  $H_0$  and, hence, reject  $H_1$  if  $F_{cal} < F_{table}$ .

Figure 4.16 Curve of Simultaneous Hypothesis Test



The  $F_{cal}$ , as it appears in the curve, is greater than the  $F_{table}$  ( $4,361 > 2,463$ ).  $H_0$  is therefore accepted, indicating that the group of Xs (Mixed Ownership, Profitability, Size, Credit Risk, and Management Expenses) is jointly significant in DER (Y).

**h. Partial Hypothesis Test (T-Test)**

T-test examines the significance of a single regression coefficient at a time.

- 1)  $H_0 \rightarrow b_{YX3} = 0$  Mixed Ownership ( $X_3$ ) does not significantly affect DER (Y);  
 $H_1 \rightarrow b_{YX3} \neq 0$  Mixed Ownership ( $X_3$ ) significantly affects DER (Y).
- 2)  $H_0 \rightarrow b_{YX5} = 0$  Profitability ( $X_5$ ) does not significantly affect DER (Y);  
 $H_1 \rightarrow b_{YX5} \neq 0$  Profitability ( $X_5$ ) significantly affects DER (Y).
- 3)  $H_0 \rightarrow b_{YX6} = 0$  Size ( $X_6$ ) does not significantly affect (Y);  
 $H_1 \rightarrow b_{YX6} \neq 0$  Size ( $X_6$ ) significantly affects DER (Y).
- 4)  $H_0 \rightarrow b_{YX7} = 0$  Credit Risk (NPL) ( $X_7$ ) does not significantly affect DER (Y);  
 $H_1 \rightarrow b_{YX7} \neq 0$  Credit Risk (NPL) ( $X_7$ ) significantly affects DER (Y).
- 5)  $H_0 \rightarrow b_{YX8} = 0$  Management Expense ( $X_8$ ) does not significantly affect DER (Y);  
 $H_1 \rightarrow b_{YX8} \neq 0$  Management Expense ( $X_8$ ) significantly affects DER (Y).

Significance level is  $\alpha = 5\%$ .

The statistical test is T-test.

The t statistical value using SPSS is presented below:

Table 4.27 Estimation Result of Partial Hypothesis Test  
 Coefficient<sup>a</sup>

Model		Unstandard Coefficients		Standard Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.778	1.438		.541	.592
	Mixed Ownership ( $X_3$ )	.203	3.337	.009	.061	.952
	Profitability ( $X_5$ )	.819	.567	.338	1.446	.156
	Size ( $X_6$ )	-13.783	6.478	-.362	-2.128	.040
	Credit Risk (NPL) ( $X_7$ )	.661	.793	.124	.834	.410
	Management Expense ( $X_8$ )	1.048	.327	.740	3.207	.003

a. Dependent Variable: DER (Y)

In the anova output, the resulting  $t_{cal}$  of  $X_3 = 0,061$ ,  $X_5 = 1,446$ ,  $X_6 = -2,128$ ,  $X_7 = 0,834$  and  $X_8 = 3,207$ . These values are compared to the probability distribution of the T-value. At  $\alpha = 5\%$ , db (degree of freedom) =  $n - k - 1 = 44 - 5 - 1 = 38$  in a two-tailed test, the resulting  $t_{tabel}$  is 2,024 and -2,024.

The partial test meets these underlying criteria:

Reject  $H_0$  in favor of  $H_1$  if  $-t_{table} \geq t_{cal} \geq t_{table}$ ; or

Accept  $H_0$  and, hence, reject  $H_1$  if  $-t_{table} < t_{cal} < t_{table}$ .

The partial t-test assesses, as Xs are not highly correlated, which X actually creates the effect on Y based on those criteria with the following results; Mixed Ownership ( $X_3$ ) does not significantly affect DER (Y) ( $0,061 < 2,024$ ); Profitability ( $X_5$ ) does not significantly affect DER (Y) ( $1,446 < 2,024$ ), Size ( $X_6$ ) does

not significantly affect DER (Y) ( $-2,128 > -2,024$ ); Credit Risk (NPL) ( $X_7$ ) does not significantly affect DER (Y) ( $0,834 < 2,024$ ); and Management Expense ( $X_8$ ) significantly affects DER (Y) ( $3,207 > 2,024$ ).

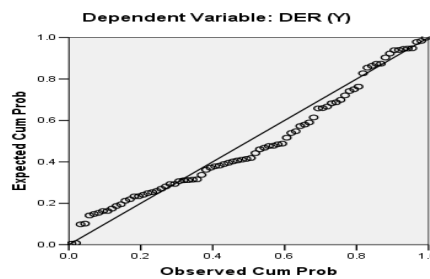
**4.1.1.4 The Effect of Foreign Ownership ( $X_4$ ), Profitability ( $X_5$ ), Size ( $X_6$ ), Credit Risk (NPL) ( $X_7$ ) and Management Expenses ( $X_8$ ) on DER (Y)**

**a. Normality Test**

The graphical method below provides the examination of the data normality.

Figure 4.17 P-P Plot of Normality Test

Normal P-P Plot of Regression Standardized Residual



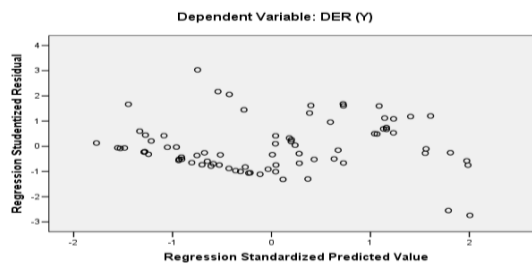
The points on the plot align with the diagonal line, and, thus, the data set conforms to the normal distribution.

**b. Heteroscedasticity Test**

Figure 4.18 presents a graphical procedure to check for the potential heteroscedasticity in the application of regression analysis.

Figure 4.18 Scatterplot of Heteroscedasticity

Scatterplot



The data points stray from the line in a non obvious fashion, with the distribution of points scattering randomly around zero on Y axis, thus no signs of heteroscedasticity. The homoscedasticity assumption of the regression model is therefore thoroughly verified for the predictive purposes.

**c. Multicollinearity Test**

Multicollinearity is tested by examining the VIF output for each free variable using SPSS statistics.

Tabel 4.28 VIF Value of Multicollinearity Test  
 Coefficients<sup>a</sup>

Model		Collinearity Statistics	
		Tolerance	VIF
1	Foreign Ownership ( $X_4$ )	.762	1.312
	Profitability ( $X_5$ )	.869	1.151
	Size ( $X_6$ )	.875	1.143
	Credit Risk (NPL) ( $X_7$ )	.827	1.209
	Management Expense ( $X_8$ )	.904	1.106

a. Dependent Variable: DER (Y)

The resulting VIF for each free variable stays below 10, i.e.,  $X_4 = 1,312$ ,  $X_5 = 1,151$ ,  $X_6 = 1,143$ ,  $X_7 = 1,209$ , and  $X_8 = 1,106$ . A VIF below 10 indicates insignificant correlation among these variables, thus making them independent of each other.

**d. Autocorrelation Test**

The regression model is tested for autocorrelation in Durbin-Watson test. The resulting d statistic value is 1,615 in SPSS (14.0 for Windows).

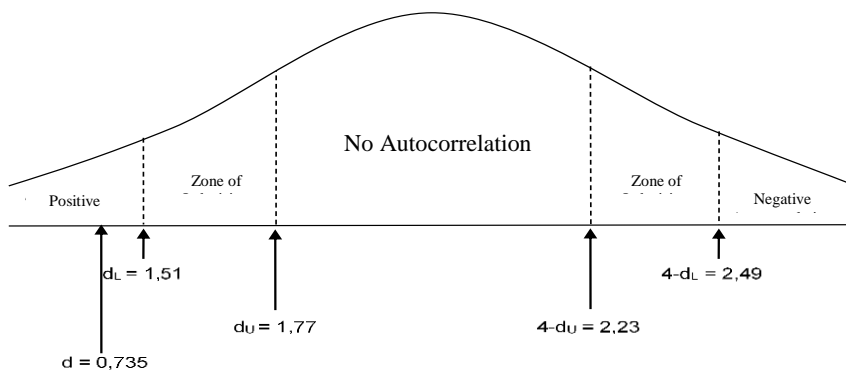
Table 4.29 Zero-Order Autocorrelation

Model Summary <sup>a</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.591 <sup>a</sup>	.349	.305	2.54306	.735

- a. Predictors: (Constant), Management Expense ( $X_8$ ), Size ( $X_6$ ), Profitability ( $X_5$ ), Credit Risk (NPL) ( $X_7$ ), Foreign Ownership ( $X_4$ )  
 b. Dependent Variable: DER (Y)

The table results in d value of 0,735. This value is compared with  $d_L$  and  $d_U$  in Durbin-Watson table. At  $\alpha = 0.05$  for  $k = 5$  and  $n = 80$ , the resulting  $d_L = 1,51$  and  $d_U = 1,77$ . This model runs into positive autocorrelation.

Figure 4.19 Zero-Order Autocorrelation



To remove autocorrelation, the variables are transformed (two times) using the estimate of  $\rho$  (rho) based on the d statistic in Durbin-Watson test (Gujarati, N. Damodar, *Essentials of Econometrics, Second Edition*, 1998: 394).

Following the two-time transformation, autocorrelation test is rerun using SPSS (13.0 for Windows) with the following output:

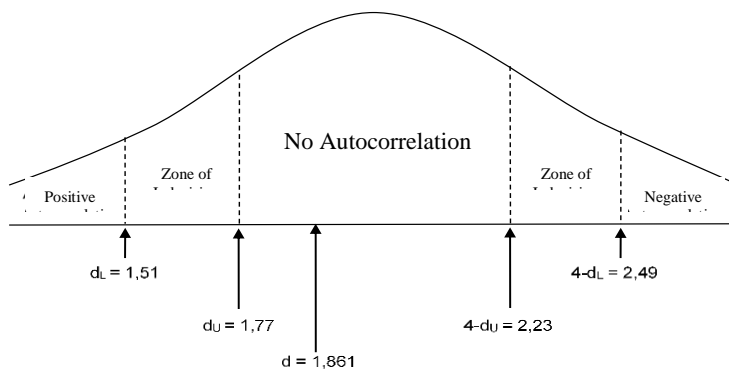
Table 4.30 Last-Order Autocorrelation

Model Summary <sup>a</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.475 <sup>a</sup>	.226	.174	1.71175	1.861

- a. Predictors: (Constant), Management Expense ( $X_8$ ), Profitability ( $X_5$ ), Foreign Ownership ( $X_4$ ), Credit Risk (NPL) ( $X_7$ ), Size ( $X_6$ )  
 b. Dependent Variable: DER (Y)

The d value in the SPSS output is 1,861, which is compared to  $d_L$  and  $d_U$  in Durbin-Watson table. At  $\alpha = 0.05$ , for  $k = 5$  and  $n = 80$ , the resulting  $d_L = 1,51$  and  $d_U = 1,77$ . Given that the d value stands in the range of  $d_U$  (1,77) and  $4 - d_U$  (2,23), the model no longer remains autocorrelated.

Figure 4.20 Last-Order Autocorrelation



**e. Analysis of Multiple Linear Regression Equation**

Multiple linear regression requires the relationship between the independent and dependent variables to be linear. The four principal assumptions of linearity have been verified where the regression model does not violate each of the aforementioned assumptions. These assumptions justify the use of multiple linear regression model for purposes of inference or prediction about the effect of Foreign Ownership (X<sub>4</sub>), Profitability (X<sub>5</sub>), Size (X<sub>6</sub>), Credit Risk (NPL) (X<sub>7</sub>) and Management Expense (X<sub>8</sub>) on DER (Y).

The model for multiple linear regression is defined by:

$$Y = \alpha + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + e$$

Where

- Y = DER
- X<sub>4</sub> = Foreign Ownership
- X<sub>5</sub> = Profitability
- X<sub>6</sub> = Size
- X<sub>7</sub> = Credit Risk (NPL)
- X<sub>8</sub> = Management Expense
- α = Constant/ Intercept
- b<sub>4,5,6,7,8</sub> = Regression Coefficient
- e = Residual Variable

The calculation output of multiple linear regression in SPSS statistics is presented below:

Table 4.31 The Output of Regression Coefficient  
 Coefficient<sup>a</sup>

Model		Unstandard Coefficients		Standard Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.096	.479		2.287	.025
	Foreign Ownership (X <sub>4</sub> )	-.075	.772	-.010	-.097	.923
	Profitability (X <sub>5</sub> )	2.139	.605	.495	3.533	.001
	Size (X <sub>6</sub> )	-.477	1.330	-.050	-.359	.721
	Credit Risk (NPL) (X <sub>7</sub> )	1.867	2.569	.079	.727	.470
	Management Expense (X <sub>8</sub> )	-3.204	6.381	-.055	-.502	.617

a. Dependent Variable: DER (Y)

The resulting constant and regression coefficient can be used to formulate a linear regression equation:

$$Y = 1,096 - 0,075 X_4 + 2,139 X_5 - 0,477 X_6 + 1,867 X_7 - 3,204 X_8$$

The equation is interpreted as follows:

- α = 1,096 If Foreign Ownership (X<sub>4</sub>), Profitability (X<sub>5</sub>), Size (X<sub>6</sub>), Credit Risk (NPL) (X<sub>7</sub>) and Management Expense (X<sub>8</sub>) take on zero (0), DER (Y) will end up in 1,096 units.
- b<sub>4</sub> = - 0,075 If Foreign Ownership (X<sub>4</sub>) increases by one unit and the others are held constant, DER (Y) will decrease by 0,075 unit.
- b<sub>5</sub> = 2,139 If Profitability (X<sub>5</sub>) increases by one unit and the others are held constant, DER (Y) will increase by 2,139 units.
- b<sub>6</sub> = - 0,477 If Size (X<sub>6</sub>) increases by one unit and the others are held constant, DER (Y) will decrease by 0,477 unit.
- b<sub>7</sub> = 1,867 If Credit Risk (NPL) (X<sub>7</sub>) increases by one unit and the others are held constant, DER (Y) will increase by 1,867 units.
- b<sub>8</sub> = - 3,204 If Management Expense (X<sub>8</sub>) increases by one unit and the others are held constant, DER (Y) will decrease by 3,204 units.

**f. Analysis of Correlation Coefficient and Determination Coefficient**

Table 4.32 presents the output of correlation coefficient estimation using SPSS statistics.

Table 4.32 The Value of Product-Moment Correlation Coefficient

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.475 <sup>a</sup>	.226	.174	1.71175	1.861

a. Predictors: (Constant), Management Expense (X<sub>8</sub>), Profitability (X<sub>5</sub>), Foreign Ownership (X<sub>4</sub>), Credit Risk (NPL) (X<sub>7</sub>), Size (X<sub>6</sub>)

b. Dependent Variable: DER (Y)

The resulting value of correlation coefficient (r) is 0,475, which is interpreted based on the following objective criteria:

Table 4.33 Correlation Coefficient and Its Interpretation

Confidence Interval	Correlation Degree
0,00 - 0,199	Very Low
0,20 - 0,399	Low
0,40 - 0,599	Moderate
0,60 - 0,799	High
0,80 - 1,000	Very High

Source: Sugiyono (2002: 183)

Pearson  $r = 0,475$  indicates only a moderate simultaneous correlation between the free variables and the bound variable.

The  $r$  value shows the variation percentage in  $Y$  which is explained by all of the  $X$ s altogether in a determination coefficient formula:

$$\begin{aligned} CD &= R^2 \times 100\% \\ &= (0,475)^2 \times 100\% \\ &= 22,6\% \end{aligned}$$

The resulting value of determination coefficient of 22,6% indicates that 22,6% of the variation in  $Y$  can be simultaneously explained by the changes in  $X$ s. The remaining 77,4% of the variation in  $Y$  accounts for random variability, not for the regression of  $X$  on  $Y$ .

The coefficient corresponds with the percentage of partial effect by multiplying the value of beta coefficient by that of zero-order coefficient.

Table 4.34 Value of Beta Coefficient and Zero-Order Coefficient<sup>a</sup>

Model		Standardized Coefficients	Correlations
		Beta	Zero-Order
1	Foreign Ownership ( $X_4$ )	-.010	-.056
	Profitability ( $X_5$ )	.495	.461
	Size ( $X_6$ )	-.050	.290
	Credit Risk (NPL) ( $X_7$ )	.079	.085
	Management Expense ( $X_8$ )	-.055	-.091

a. Dependent Variable: DER (Y)

- Variable  $X_3 = -0,010 \times -0,056 = 0,001 = 0,1 \%$
- Variable  $X_5 = 0,495 \times 0,461 = 0,228 = 28,8 \%$
- Variable  $X_6 = -0,050 \times 0,290 = -0,015 = -1,5 \%$
- Variable  $X_7 = 0,079 \times 0,085 = 0,007 = 0,7 \%$
- Variable  $X_8 = -0,055 \times -0,091 = 0,005 = 0,5 \%$

### g. Simultaneous Hypothesis Test (F-Test)

The simultaneously-tested hypotheses are as follows:

$H_0 \rightarrow b_{YX_i} = 0$  There is no significant effect of Foreign Ownership ( $X_4$ ), Profitability ( $X_5$ ), Size ( $X_6$ ), Credit Risk (NPL) ( $X_7$ ) and Management Expense ( $X_8$ ) on DER (Y).

$H_a \rightarrow b_{YX_i} \neq 0$  There is a significant effect of Foreign Ownership ( $X_4$ ), Profitability ( $X_5$ ), Size ( $X_6$ ), Credit Risk (NPL) ( $X_7$ ) and Management Expense ( $X_8$ ) on DER (Y).

The significance level is  $\alpha = 5\%$ .

The statistical test is F-test.

The F statistical value using SPSS is presented below:

Table 4.35 Estimation Result of Simultaneous Hypothesis Test

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	63.307	5	12.661	4.321	.002 <sup>a</sup>
	Residual	216.826	74	2.930		
	Total	280.133	79			



a. Predictors: (Constant), Management Expense ( $X_8$ ), Profitability ( $X_5$ ), Foreign Ownership ( $X_4$ ), Credit Risk (NPL) ( $X_7$ ), Size ( $X_6$ )

b. Dependent Variable: DER (Y)

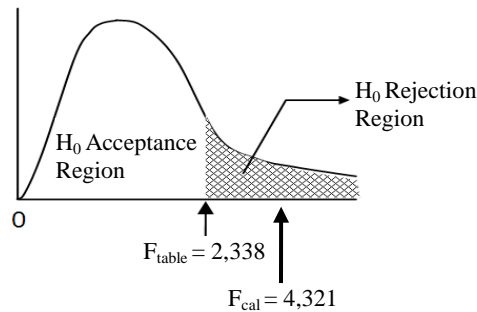
In the Anova output, the resulting  $F_{cal}$  is 4,321, which is compared to the probability distribution of F-value. At  $\alpha=5\%$ ,  $db_1$  (degree of freedom) =  $k = 5$ , and  $db_2 = n - k - 1 = 80 - 5 - 1 = 74$ , the resulting  $F_{table}$  is 2,338.

The simultaneous test meets these underlying criteria:

Reject  $H_0$  in favor of  $H_1$  if  $F_{cal} \geq F_{table}$ ; or

Accept  $H_0$  and, hence, reject  $H_1$  if  $F_{cal} < F_{table}$ .

Figure 4.21 Curve of Simultaneous Hypothesis Test



The  $F_{cal}$ , as it appears in the curve, is greater than the  $F_{table}$  ( $4,321 > 2,338$ ).  $H_0$  is therefore accepted, indicating that the group of  $X_s$  (Foreign Ownership, Profitability, Size, Credit Risk, and Management Expenses) is jointly significant in DER (Y).

#### h. Partial Hypothesis Test (T-Test)

T-test assesses a single regression coefficient at a time based on the hypotheses:

- 1)  $H_0 \rightarrow b_{YX4} = 0$  Foreign Ownership ( $X_4$ ) does not significantly affect DER (Y);  
 $H_1 \rightarrow b_{YX4} \neq 0$  Foreign Ownership ( $X_4$ ) significantly affects DER (Y).
- 2)  $H_0 \rightarrow b_{YX5} = 0$  Profitability ( $X_5$ ) does not significantly affect DER (Y);  
 $H_1 \rightarrow b_{YX5} \neq 0$  Profitability ( $X_5$ ) significantly affects DER (Y).
- 3)  $H_0 \rightarrow b_{YX6} = 0$  Size ( $X_6$ ) does not significantly affect DER (Y);  
 $H_1 \rightarrow b_{YX6} \neq 0$  Size ( $X_6$ ) significantly affects DER (Y).
- 4)  $H_0 \rightarrow b_{YX7} = 0$  Credit Risk (NPL) ( $X_7$ ) does not significantly affect DER (Y).  
 $H_1 \rightarrow b_{YX7} \neq 0$  Credit Risk (NPL) ( $X_7$ ) significantly affects DER (Y).
- 5)  $H_0 \rightarrow b_{YX8} = 0$  Management Expense ( $X_8$ ) does not significantly affect DER (Y);  
 $H_1 \rightarrow b_{YX8} \neq 0$  Management Expense ( $X_8$ ) significantly affects DER (Y).

The significance level is  $\alpha = 5\%$ .

The statistical test is T-test.

The T statistical value using SPSS is presented below:

Table 4.36 Estimation Result of Partial Hypothesis Test  
 Coefficient<sup>a</sup>

Model		Unstandard Coefficients		Standard Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.096	.479		2.287	.025
	Foreign Ownership ( $X_4$ )	-.075	.772	-.010	-.097	.923
	Profitability ( $X_5$ )	2.139	.605	.495	3.533	.001
	Size ( $X_6$ )	-.477	1.330	-.050	-.359	.721
	Credit Risk (NPL) ( $X_7$ )	1.867	2.569	.079	.727	.470
	Management Expense ( $X_8$ )	-3.204	6.381	-.055	-.502	.617

a. Dependent Variable: DER (Y)

In the Anova output,  $t_{cal}$  of  $X_4 = -0,097$ ,  $X_5 = 3,533$ ,  $X_6 = -0,359$ ,  $X_7 = 0,727$  and  $X_8 = -0,502$ . These values are compared to the probability distribution of the T-value. At  $\alpha = 5\%$ ,  $db$  (degree of freedom) =  $n - k - 1 = 80 - 5 - 1 = 74$  in a two-tailed test, the resulting  $t_{tabel}$  is 1,993 and  $-1,993$ .

The partial test meets these underlying criteria:

Reject  $H_0$  in favor of  $H_1$  if  $-t_{table} \geq t_{cal} \geq t_{table}$ ; or

Accept  $H_0$  and, hence, reject  $H_1$  if  $-t_{table} < t_{cal} < t_{table}$ .

The criteria predict Y on the basis of Xs with the following outcomes; Foreign Ownership ( $X_4$ ) does not significantly affect DER (Y) ( $-0,097 > -1,993$ ); Profitability ( $X_5$ ) significantly affects DER (Y) ( $3,533 > 1,993$ ); Size ( $X_6$ ) does not significantly affect DER (Y) ( $-0,359 > -1,993$ ); Credit Risk (NPL) ( $X_7$ ) does not significantly affect DER (Y) ( $0,727 < 1,993$ ); and Management Expense ( $X_8$ ) significantly affects DER (Y) ( $-0,502 > -1,993$ ).

The result of hypothesis test confirms the insignificant partial effect of ownership structure on capital structure. The proportion of firm ownership does not measure the extent of debt instrument that allows financial latitude. Prior data reflect that firms take on debt financing more heavily over the years, and the ownership structure is bound to remain stable (Haruman, 2008) and (Imas, et al., 2015).

Profitability has a weak effect on capital structure decision. Krishnan (1996), Badhuri (2002), Moh'd (1998), Majumdar (1999) (in Yuke and Hadri, 2005) and Imas, et al. (2015) point out that a firm which earns higher return on equity when its needs for external funding or debt decreases to fund new investment is able to earn at a higher rate than it pays for borrowed funds. A high-performance firm is expected to use its internal funds (retained earnings) and, thus, relies less on debt financing in its capital structure.

The partial effect of firm size on capital structure also shows insignificant result. Rista and Bambang (2011), Heruman (2008) and Imas, et al. (2015) assert that a managerial decision that affects the financial condition of a firm is not greatly influenced by how much of total assets have been allocated among current and fixed assets.

Consistent with Haruman (2008) and Imas, et al. (2015), the present study finds measuring and managing credit risk is of central importance for financial institutions and has no significant effect on the dynamic capital structure adjustment, notwithstanding. Exposure to credit risk across different firms varies widely. However, the tendency to take on a great deal of high-yield debt remains high.

Management expense, as opposed to other previous variables, has major potential effect on the factors that influence the decisions concerning the capital structure. In accordance with Siringoringo (2012) and Imas, et al. (2015), the present study finds that relatively high management expenses commonly indicate an aggressive total cost associated with the increase in assets, thus exceeding the marginal costs of imposing a leverage ratio increase.

## 5. CONCLUSION

By considering the data of the entire conventional banks listed on IDX from 2013-2016, this present study empirically examines the effects of ownership structures and bank-specific characteristics on the capital structures. It has provided an in-depth understanding of firms' capital structure needs in a qualitative manner, highlighting the importance of evaluating how the capital structures help finance their assets, day-to-day operations and future growth. To this end, multiple linear regression is performed to gather and represent the predictive results concerning the correlation of capital structures and a number of variables. All hypotheses are confirmed insignificant, except one. The findings are statistically insignificant with respect to the relationship between ownership structure and capital structure; the relationship between profitability and capital structure; the relationship between firm size and capital structure; and the relationship between credit risk and capital structure. When it comes to management expenses, however, it can be ascertained that there is a significant relationship in the framework for evaluating the dynamic capital structure adjustment. These relationships can potentially affect a firm's financial decision and its adjustment and how firms are relying more heavily on the banking sector for their debt financing needs.

## 6. SUGGESTION

This study contributes to the extant literature on capital structures in banking institutions and fills the gap in the wide strand of literature by providing empirical evidence of the relationship between ownership structures and bank-specific characteristics in terms of how the observed firms manage their capital structures. There are different subjects of analysis in order to extrapolate key themes and results that help predict future trends, shed light on previously hidden disciplinary pathways that can be applied to practice and provide means for understanding relevant pivotal research issues based on research approaches appropriate for the development of knowledge in a given study. In addition, the author suggests these specific aspects be observed in more depth:

1. other variables useful for the description of the sample clusters to emphasize large-scale and representative sets of data and to provide a solid foundation for future research efforts;
2. the policy of each bank ownership to address key elements incorporated into the internal loan guidelines, standards and procedures in all geographic areas where the banks are active.

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