

# DATA ANALYSIS: FRAUDULENT FINANCIAL REPORTING (FFR) OF INDONESIAN STATE-OWNED ENTERPRISES

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## 1.1 DATA ANALYSIS

The data used is quantitative so that data analysis performed is processed using IBM SPSS Statistics data processing software with logistic regression analysis techniques/models. The process of analyzing the data is as follows.

### 1.1.1 MODEL FIT TESTING

**TABLE 1.1 BENEISH M-SCORE DUMMY VALUE**

Value	NO FRAUD	FRAUD	Sample
Dummy	0	1	115
Number of Companies	81	34	
Percentage of Companies	70%	30%	

Source: SPSS Processed Data, 2021

## 1. LIKELIHOOD FIT MODEL TEST

**TABLE 1.2 LIKELIHOOD OVERALL FIT MODEL**

-2 LL (Early)	-2 LL (End)	Chi Square Count ((-2LL Early) – (-Final 2LL))	Chi Square Table (df = k-1)
139.641	118.724	20.917	9.487

Source: SPSS Processed Data, 2021 (Appendix 1)

## 2. DETERMINATION COEFFICIENT TEST ( $R^2$ )

**TABLE 1.3 COEFFICIENT OF DETERMINATION ( $R^2$ )**

Cox & Snell R Square	Nagelkerke R Square
0.166	0.237

Source: SPSS Processed Data, 2021 (Appendix 2)

### 3. REGRESSION MODEL FEASIBILITY TEST

**TABLE 1.4 MODEL ELIGIBILITY**

Hosmer & Lemeshow Test			
Chi-square	Df	Sig.	Result (Sig > 0.05)
11.643	8	0.168	<b>PROPER</b>

Source: SPSS Processed Data, 2021 (Appendix 3)

**TABLE 1.5 SIMULTANEOUS MODELS**

Omnibus Test			
Chi-square	Df	Sig.	Result (Sig < 0.05)
20.917	5	0.001	<b>SIMULTANEOUS</b>

Source: SPSS Processed Data, 2021 (Appendix 3)

### 4. PREDICTION ACCURACY TEST

**TABLE 1.6 ACCURACY TESTING**

Predictions			
Fraudulent Financial Reporting (FFR)			Percentage of Truth
	NO FRAUD	FRAUD	
NO FRAUD	79	2	97.5
FRAUD	22	12	35.3
Overall Percentage			<b>79.1</b>

Source: SPSS Processed Data, 2021 (Appendix 4)

#### 1.1.2 HYPOTHESIS TESTING

#### 1. LOGISTIC REGRESSION ANALYSIS

**TABLE 1.7 LOGISTIC REGRESSION ANALYSIS TESTING**

Independent Variables	Dependent Variables	$\beta$ (Beta)
DSRI	FFR	<b>0.824</b>
GMI		<b>0.438</b>
AQI		<b>0.012</b>
LVGI		<b>-0.002</b>
TATA		<b>7.019</b>
Constant		<b>-2.548</b>

Source: SPSS Processed Data, 2021 (Appendix 5)

Based on Table 1.7 of the logistic regression equations generated through testing in this study as follows.

$$Y = \frac{e^{-2.548+0.824DSRI+0.438GMI+0.012AQI-0.002LVGI+7.019TATA}}{1 + e^{-2.548+0.824DSRI+0.438GMI+0.012AQI-0.002LVGI+7.019TATA}}$$

Based on hypothesis testing the optimal logistic regression equations generated in this study as follows.

$$Y = \frac{e^{-2.548+0.438GMI+7.019TATA}}{1 + e^{-2.548+0.438GMI+7.019TATA}}$$

## 2. HYPOTHESIS TEST

**TABLE 1.8 VARIABLE SIGNIFICANCE**

Independent Variables	Dependent Variables	Sig.
DSRI	FFR	<b>0.092</b>
GMI		<b>0.040</b>
AQI		<b>0.654</b>
LVGI		<b>0.996</b>
TATA		<b>0.021</b>
Constant		<b>0.002</b>

Source: SPSS Processed Data, 2021 (Appendix 5)

### 1.1.3 RESULTS

Based on the hypothesis testing that has been carried out on the logistic regression tests, this analysis obtains the following results.

1. Days Sales in Receivable Index (DSRI) has no significant positive effect on Fraudulent Financial Reporting (FFR).
2. Gross Margin Index (GMI) has a significant positive effect on Fraudulent Financial Reporting (FFR).
3. Asset Quality Index (AQI) has no significant positive effect on Fraudulent Financial Reporting (FFR).
4. Leverage Index (LVGI) has no significant positive effect on Fraudulent Financial Reporting (FFR).
5. Total Accrual to Total Assets Index (TATA) has a significant positive effect on Fraudulent Financial Reporting (FFR).

## APPENDIX

### APPENDIX 1: LIKELIHOOD FIT MODEL

#### ENCODING DUMMY LOGISTIC

Dependent Variable Encoding	
Original Value	Internal Value
NO FRAUD	0
FRAUD	1

#### LIKELIHOOD OVERALL MODEL FIT

Iteration History <sup>a,b,c,d</sup>								
Iteration		-2 Log likelihood	Coefficients					
			Constant	X1_DSRI	X2_GMI	X3_AQI	X4_LVGI	X5_TATA
Step 1	1	122.765	-1.582	0.227	0.290	0.005	0.045	3.530
	2	119.724	-2.029	0.436	0.377	0.008	0.023	5.636
	3	118.779	-2.406	0.730	0.426	0.009	-0.016	6.797
	4	118.725	-2.539	0.818	0.437	0.011	-0.004	7.010
	5	118.724	-2.548	0.824	0.438	0.012	-0.002	7.019
	6	118.724	-2.548	0.824	0.438	0.012	-0.002	7.019
a. Method: Enter								
b. Constant is included in the model.								
c. Initial -2 Log Likelihood: 139.641								
d. Estimation terminated at iteration number 6 because parameter estimates changed by less than 0.001.								

### APPENDIX 2: DETERMINATION COEFFICIENT

#### DETERMINATION COEFFICIENT

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	118.724 <sup>a</sup>	0.166	0.237
a. Estimation terminated at iteration number 6 because parameter estimates changed by less than 0.001.			

### APPENDIX 3: REGRESSION MODEL FEASIBILITY

#### MODEL ELIGIBILITY

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	11.643	8	0.168

#### SIMULTANEOUS MODELS

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	20.917	5	0.001
	Block	20.917	5	0.001
	Model	20.917	5	0.001

## APPENDIX 4: PREDICTION ACCURACY

## ACCURACY TESTING

Classification Table <sup>a</sup>					
	Observed		Predicted		
			Y_FFR		Percentage Correct
			NO FRAUD	FRAUD	
Step 1	Y_FFR	NO FRAUD	79	2	97.5
		FRAUD	22	12	35.3
	Overall Percentage				79.1
a. The cut value is 0.500					

## APPENDIX 5: LOGISTIC REGRESSION ANALYSIS

## LOGISTIC REGRESSION ANALYSIS

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1 <sup>a</sup>	X1_DSR I	0.824	0.489	2.840	1	0.092	2.279	0.874	5.942
	X2_GMI	0.438	0.213	4.219	1	0.040	1.550	1.020	2.354
	X3_AQI	0.012	0.027	0.201	1	0.654	1.012	0.960	1.067
	X4_LVG I	-0.002	0.418	0.000	1	0.996	0.998	0.440	2.263
	X5_TAT A	7.019	3.048	5.305	1	0.021	1117.732	2.846	438955.990
	Constant	-2.548	0.827	9.503	1	0.002	0.078		

a. Variable(s) entered on step 1: X1\_DSRI, X2\_GMI, X3\_AQI, X4\_LVGI, X5\_TATA.