

The Effect of Financial Ratio (Altman Z-Score) on Financial Distress Prediction in Manufacturing Sector in Indonesia 2016-2018

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ABSTRACT

This study tries to elaborate the possibility of financial distress in Indonesia public listed companies from manufacturing field. The manufacturing industry was chosen because of its position as a sector that held a significant contribution in the Indonesia industry as a whole. The test tool used to forecast bankruptcy was Altman Z-Score model which consisted of the ratio of net working capital / total asset (X_1), retained earnings / total assets (X_2), earnings before interest and tax / total assets (X_3), and book value of equity / total liabilities (X_4). This research also aimed to explain how each ratio affects financial distress. The total samples in this research were 139 companies during 2016-2018. The companies experiencing financial distress were 55 companies in 2016 and 2017, and 56 companies in 2018. Using the logistic regression test on SPSS 23, this research identifies that the four ratios in Altman Z-Score model had a positively affected the financial distress; with the ratio of retained earnings / total assets and earnings before interest and tax / total assets had the most significant effect.

Keywords - financial distress, financial ratios, Altman Z-Score, bankruptcy prediction.

1. INTRODUCTION

There are some sectors in every country that contributed the most to its economy. In Indonesia, manufacturing industry significantly contributed to the national economic. However, its contribution is declining nowadays. Based on the data of Indonesian Statistic Bureau (www.bps.go.id), the manufacturing industry only contributed of 19.86% in 2018. This "under 20% contribution" was the first time since 1990.

Since 2014 to the date, there have been twelve companies experienced delisting due to decrease in particular criterions and no longer meet the listing requirements on the exchange. Seven of the twelve delisted companies are manufacturing companies and two of them are delisted due to financial distress. [1] Financial distress is the initial phase of bankruptcy or the lack of a business to pay its obligations once due if it is not detected immediately.

[2] One way to overcome bankruptcy is using financial analysis to monitor and provide standards for companies. To the date, several models have been developed as analytical tools that can link multiple financial ratios as well as predict the possibility of financial distress in the company. This research used the Altman Z-Score model which has been used for the past 50 years as a practical tool to predict company bankruptcy [3].

In Indonesia, research on financial distress prediction using the Altman model in manufacturing companies has been conducted by several researchers. [4] in their research used

the samples of 88 go public manufacturing companies listed on the IDX website in 2008-2010 with the results pointed that among these 88 companies, ten companies faced financial distress and the remaining 78 were non-distress companies. Based on a research by [5] Altman model can predict bankruptcy by 57% in three years leading to bankruptcy, then 100% in two years previous to bankruptcy, and 86% one year before bankruptcy. Therefore, it is stated that the Altman Z-Score model can accurately forecast bankruptcy, especially one year to two years prior to bankruptcy.

[6] conducted a research regarding potential of financial distress in go public banking companies listed on the IDX (Indonesia Public Listed company website) in 2008-2010. His research used four ratios in the Altman Z-Score modification with the research conclusions point out that the four ratios had a positive influence on financial distress. [7] also examined the effects of four ratios in the Altman Z-Score modification model on financial distress and resulted that this ratio positively affected financial distress. This research is expected to provide confirmation and accurate illustration of how the effect of ratio of the Altman model on financial distress.

According on the explanation above, the aim of this research paper is to predict the potential for financial distress in Indonesia public listed companies from manufacturing field and determine the effect of the four ratios in the Altman Z-Score model on financial distress.

2. LITERATURE REVIEW AND HYPOTHESIS

2.1. Signaling Theory

Signaling theory, according to [8] is stating about how companies should give signals to financial statements users. Signal provides a big contribution to the survival of the company. Company with a good signal (good news) will report its financial statements voluntarily, so it can gain public trust and increase the value of the company. Signaling theory describes that managers provide signals to reduce information asymmetry which may occur if managers have more internal information and than the external parties. Information asymmetry in the company can cause financial distress because the investors feel that they are no longer earning benefit because of many things hidden by the company.

2.2. Agency Theory

Agency Theory point out the relationship amongst stockholders or company proprietor as the principal and management as the agent. Since agent is appointed by the principal, the agent must be responsible for all his obligations to the principal. However, the agent might prioritize his own interests compared to the company interests. Agent can also intentionally or unintentionally hide some information related to corporate finance so that the principal does not know the actual condition of the corporate finance.

The difference of information between the agent and the principal can actually lead to information asymmetry. Agent who should have prioritized the company has more information than the principal and external parties. If this condition is going on, it will bring impacts on the sustainability of the company (going concern). Therefore, it is necessary to control the agent so that information can be distributed evenly and the principal can find out the actual state of the company. An uncontrolled agent may cause financial distress to the company.

2.3. Altman Z-Score Model

Altman Z-Score model was invented through a research involving 66 manufacturing companies as the sample by Edward I. Altman in 1968. It turned out that the results of Altman's research could reach 95% prediction accuracy testing with company financial statement data one year before the company goes bankrupt [9]. In 1995, Altman modified the prediction model to be used in all types of business.

This research applied the modified Altman Z-Score model with the following equation:

$$Z = 6,56X_1 + 3,26X_2 + 6,72X_3 + 1,05X_4$$

Where:

X_1 = Net Working Capital/Total Assets (NWCTA)

X_2 = Retained Earnings/Total Assets (RETA)

X_3 = Earnings Before Interest and Tax/Total Assets (EBITTA)

X_4 = Book Value of Equity/Total Liability (BVETL)

Based on the Z-Score calculation, the companies were classified with the following criteria:

1. If the value of the Z-Score <1.1, it indicates that the business is going through the financial distress.
2. If the value of the Z-Score is between 1.1 and 2.6, it indicates that the business is belonged in the grey area.
3. If the value of the Z-Score is >2.6, it indicates that the business is not experiencing financial distress.

2.4. Hypothesis

The value of Net Working Capital (NWC) is acquired from subtracting current assets from current liability. The greater the value of NWC, the lower the likelihood of the business encounters financial distress.

H₁: NWCTA has a positive effect on financial distress

The business's capability to produce retained earnings from total assets is disclosed by this ratio. The greater the value of retained earnings, the lower the likelihood of business experiencing financial distress.

H₂: RETA has a positive effect on financial distress

The business's capability to manage their assets to get EBIT is disclosed by this ratio. The greater the value of EBIT, the lower the likelihood of business experiencing financial distress.

H₃: EBITTA has a positive effect on financial distress.

This ratio represents to what magnitude the business's capital is supported by debt. The greter the business's debt, the likelihood of the business encounters financial distress is higher.

H₄: BVETL has a positive effect on financial distress

3. RESEARCH METHOD

3.1. Data Types and Sources

Data used in this research was secondary quantitative data in the form of published financial statements of manufacturing companies collected from the Indonesian Public Listed Companies website (www.idx.co.id) in 2016-2018.

3.2. Sample and Sampling Technique

The samples in this research were Indonesia public listed companies from manufacturing field in 2016-2018 and met

the specified sample criteria. The total sample met the criteria was 139 companies.

Purposive sampling technique was chosen for this research, in which the sample was selected based on the following criteria:

- a. Indonesia Public Listed companies from manufacturing field in 2016-2018
- b. The company issued a complete financial statement in the period of 2016-2018
- c. The financial statements used the Indonesian currency, Rupiah (Rp)

3.3. Dependent Variables

This research uses financial distress as dependent variables and it affected by four independent variables. The assessment of financial distress used the modified Altman Z-Score model with the following formula:

$$Z'' = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

To obtain the value of dependent variable or Z, calculation was performed on four independent variables using the formula and then the results were summed up.

3.4. Independent Variables

The four independent variables in this research were:

1) *NWCTA*

This ratio was to calculate company's liquidity and determine the company's capability to pay their obligations.

$$X1 = \frac{\text{Net Working Capital}}{\text{Total Assets}}$$

2) *RETA*

This ratio is designated to find out the business's capability to produce retained earnings from asset. Retained Earnings were business profits that were not distributed to the shareholders.

$$X2 = \frac{\text{Retained Earnings}}{\text{Total Assets}}$$

3) *EBITTA*

This ratio is designated to calculate the business's profitability and productivity.

$$X3 = \frac{\text{EBIT}}{\text{Total Assets}}$$

4) *BVETL*

This ratio indicated to what immensity the company's assets were supported by debt. Book Value of Equity was obtained by dividing total company equity by the sum of outstanding shares.

$$X4 = \frac{\text{Book Value of Equity}}{\text{Total Liabilities}}$$

3.5. Data Analysis Technique

To predict financial distress and identify companies experiencing financial distress, the Altman Z-Score Model Discriminant Analysis was to obtain the Z-Score value, while logistic regression was to test the effect of ratios in the Altman model on financial distress. Logistic regression analysis in this research was conducted using the IBM program SPSS version 23.

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistics Analysis

TABLE I. DESCRIPTIVE STATISTICS

	N	Min	Max	Mean	Std. Deviation
NWCTA	417	-4.28	0.79	0.13	0.45
RETA	417	-0.54	0.71	0.01	0.07
EBITTA	417	-0.59	0.69	0.06	0.11
BVETL	417	-4.81	5.05	2.08	5.57
FD	417	0	1	0.22	0.41
Valid (listwise)	N 417				

Based on the table above, the total sample was 417 samples for the period of 2016-2018. NWCTA (X1) has a min value of -4.28, a max value of 0.79, a mean value of 0.12, also a std. deviation value of 0.45. RETA (X2) has a min value of -0.54, a max value of 0.71, a mean value of 0.01, also a std. deviation value of 0.07. EBITTA (X3) has a min value of -0.59, a max value of 0.69, a mean value of 0.06 and then a std. deviation value of 0.11. BVETL (X4) has a min value of -4.81, a max value of 5.05, a mean value of 2.08 and the value of a std. deviation with 5.57. FD (Y) has a min value of 0, a max value of 1, a mean value of 0.22 and then a std. deviation value of 0.41.

4.2. Altman Z-Score Model Discriminant Analysis

TABLE II. ALTMAN Z-SCORE

	Z-Score 2016	Z-Score 2017	Z-Score 2018
ASTRA INTERNATIO	1,088	1,100	0,982
GUDANG GARAM TBK	3,282	3,346	3,424
HM SAMPOERNA TBK	6,918	6,732	6,596
INDAH KIAT PULP	1,146	2,103	2,716

	Z-Score 2016	Z-Score 2017	Z-Score 2018
INDOFOOD SUKSES	1,571	1,565	0,797
INDOFOOD CBP SUK	3,442	3,332	2,731
INDOCEMENT TUNGG	3,513	2,397	2,073
KRAKATAU STEEL	-0,517	-0,525	-0,991
CHAROEN POK INDO	3,160	3,013	4,228
INDOMOBIL SUKSES	-0,146	-0,257	-0,615
WASKITA BETON PR	3,761	2,660	2,058
JAPFA COMFEED	3,312	2,926	2,860
SEMEN INDONESIA	1,329	1,134	1,783
BARITO PACIFIC	1,655	2,049	1,450
KALBE FARMA	4,748	4,633	4,444
CHANDRA ASRI	2,435	3,047	2,239
MAYORA INDAH	3,941	4,081	4,150
BENTOEL INTL INV	1,482	1,751	1,328
TJIWI KIMIA	0,542	0,646	1,203
GAJAH TUNGGAL	1,786	1,326	1,267
UNILEVER IND TBK	1,918	1,873	3,437
PAN BROTHERS TEX	3,947	4,295	4,833
SRI REJEKI ISMAN	2,761	3,506	3,253
ASTRA OTOPARTS	1,009	1,210	1,036
TEMPO SCAN PACIF	3,605	3,422	3,330
INDORAMA SYNTHET	0,358	0,444	0,736
PT STEEL PIPE IN	1,012	1,515	1,418
KIMIA FARMA	2,501	2,095	1,735
ULTRAJAYA MILK	5,468	5,010	3,975
SOLUSI BANGUN IN	-0,919	-0,874	-2,626
WIJAYA KARYA BET	1,567	0,761	1,193
FAJAR SURYA WISE	1,147	0,202	2,175
UNGGUL INDAH	3,623	3,188	4,026
MULTISTRADA ARAH	0,029	-0,107	-0,087
SUCACO-SUP CABLE	3,723	2,210	2,453
CENTRAL PROTEINA	-3,175	-7,761	-0,028
KINO INDONESIA T	1,918	1,896	1,743
INDUSTRI JAMU DA	4,847	4,427	3,971
POLYCHEM INDONES	0,372	1,428	2,414
ASAHIMAS FLAT GL	1,670	1,163	0,490
MALINDO FEEDMILL	1,500	-0,208	1,939
ASIA PACIFIC	-28,436	-27,952	-26,049
MULIA INDUSTRIND	-0,097	0,313	0,570
INDO KORDSA TBK	2,076	2,432	1,914
SIERAD PRODUCE	1,239	-0,674	0,753
ANEKA GAS INDUST	0,610	0,964	0,724
SELAMAT SEMPURNA	5,028	5,330	5,477
ALUMINDO LIGHT	-0,970	0,021	0,212
TEMBAGA MULIA SE	0,784	0,960	0,640
VOKSEL ELECTRIC	2,789	2,369	1,842
SURYA TOTO INDON	2,556	2,846	3,244

	Z-Score 2016	Z-Score 2017	Z-Score 2018
IMPACK PRATAMA I	3,452	3,034	2,982
INDOPOLY	0,350	0,142	0,417
KMI WIRE AND CAB	4,986	3,075	3,532
PELAT TIMAH NUSA	0,857	0,911	0,406
LOTTE CHEMICAL T	0,175	0,190	0,842
TRIAS SENTOSA	0,685	0,540	0,447
MANDOM INDONESIA	3,700	3,598	3,586
TIFICO FIBER	1,363	1,633	1,646
JEMBO CABLE CO	1,800	0,831	1,179
WILMAR CAHAYA IN	4,835	3,385	4,620
BUDI STARCH & SW	0,419	0,468	0,422
DARYA VARIA LABO	4,116	3,948	4,268
DELTA DJAKARTA	7,064	7,212	7,161
CITRA TUBINDO	1,762	1,257	1,310
WISMILAK INTI MA	4,204	4,012	4,272
INDOSPRING TBK	2,088	2,825	2,839
INDAL ALUMINIUM	0,481	0,504	0,609
NIPPON INDOSARI	2,675	2,292	2,414
RICKY PUTRA	0,997	1,290	1,574
SIANTAR TOP	2,125	3,040	2,728
MULTI BINTANG IN	2,908	3,935	3,166
ARGHA KARYA PRIM	0,633	0,324	0,450
INDOFARMA TBK PT	0,825	0,041	0,229
SEMEN BATURAJA P	1,452	0,897	1,194
BERLINA PT TBK	1,078	0,107	0,240
SARANACENTRAL BA	0,339	-0,368	-1,425
KEDAWUNG SETIA	1,508	1,481	1,404
SUPARMA	1,943	0,735	2,620
PRIMA ALLOY	0,246	0,021	-0,439
TOBA PULP LESTAR	-0,133	0,641	0,768
BUMITEKNOKULTURA	-0,537	0,074	0,809
ARWANA CITRAMULI	1,416	2,124	2,442
GOODYEAR INDONES	-0,156	-0,849	-1,092
SUMI INDO KABEL	3,510	3,945	2,717
PANASIA RESOURCE	-0,867	-2,685	-5,663
GARUDA METALINDO	3,385	2,981	2,088
TIRTA MAHAKAM RE	1,029	0,576	0,287
LANGGENG MAKMUR	1,862	1,576	0,866
LION METAL WORKS	4,284	3,464	3,650
SEPATU BATA	3,270	3,329	3,727
KERAMIKA INDO AS	0,181	0,826	0,914
SEKAR BUMI TBK	0,809	1,579	1,076
MERCK TBK PT	5,838	3,410	1,363
INDO ACIDATAMA	2,144	2,767	3,352
MARTINA BERTO TB	3,201	2,004	-0,458
GUNAWAN DIANJAYA	0,810	1,261	-1,122
SUMALINDO LESTAR	0,165	0,289	-2,464

	Z-Score 2016	Z-Score 2017	Z-Score 2018
TRISULA INTERNAT	2,332	2,451	2,171
SAT NUSAPERSADA	2,230	1,357	0,873
PELANGI INDAH CA	1,685	2,135	1,270
KABELINDO MURNI	1,741	1,014	1,151
BUANA ARTHA ANUG	2,113	2,422	2,506
ARGO PANTES	-5,532	-7,057	-8,168
MUSTIKA RATU	3,765	3,675	3,379
EVER SHINE TEX	0,828	-0,467	-0,246
CHAMPION PACIFIC	6,196	5,796	4,841
ASIA PACIFIC INV	-2,938	-2,255	-2,495
PRASIDHA ANEKA	-0,037	1,305	-0,092
EKADHARMA INTERN	4,029	3,786	3,857
SUNSON TEXTILE	0,195	1,032	1,754
INDO KOMODITI KO	1,082	-0,421	0,582
TUNAS ALFIN TBK	1,974	1,890	2,251
AKASHA WIRA INTL	1,969	1,072	1,616
ALKINDO NARATAMA	2,367	2,135	2,790
ERATEX DJAJA	1,070	-0,055	0,328
TRI BANYAN TIRTA	-0,372	-0,310	-0,581
SEKAR LAUT TBK	1,108	1,112	1,182
CHITOSE INTERNAS	2,681	2,660	2,170
CENTURY TEXTILE	-2,483	-3,353	-2,121
MULTI PRIMA	-2,360	9,645	3,193
DUTA PERTIWI NUS	3,872	3,558	3,632
KERTAS BASUKI R	-2,006	-1,814	-4,701
ATELIERS MECANIQ	3,846	4,425	3,449
BETONJAYA MANUNG	3,259	4,681	5,604
NUSANTARA INTI	-0,570	-0,293	-0,012
INTANWIJAYA INTE	2,859	3,190	2,619
YANAPRIMA HASTAP	-0,218	-0,596	0,081
JAKARTA KYOEI ST	1,276	1,195	0,817
LIONMESH PRIMA	2,976	3,755	3,261
ASIAPLAST INDUST	1,222	1,068	-0,314
SARIGUNA PRIMATI	0,114	1,519	1,727
PYRIDAM FARMA	2,270	2,929	2,711
ETERINDO WAHANAT	-0,950	-2,206	-5,665
KEDAUNG INDAH CA	3,110	4,111	3,451
PRIMARINDO ASIA	1,728	1,008	0,969
ALAKASA INDUSTRI	-0,011	2,009	1,276
INTI AGRI RESOUR	-1,180	-0,475	-0,559
INTIKERAMIK ALAM	-9,531	-9,629	-0,601

According on the result of the Altman Z-Score Model discriminant analysis above, from a total sample of 139 Indonesia public listed companies from manufacturing field in 2016-2018 that experienced financial distress, there were 55 companies in 2016, 55 companies in 2017, and 56 companies in 2018.

4.3. Logistic Regression Test

TABLE III. OMNIBUS TESTS OF MODEL COEFFICIENT

Step 1	Step	Chi-square	df	Sig.
	Block	230.637	1	0.000
	Model	230.637	1	0.000

According on the findings of the Omnibus Tests of the Model Coefficients above, the four independent variables in the form of financial ratios contained in the Altman Z-Score Model may be used to forecast financial distress, in which the significance value is 0.000 which is less than 0.05. Then, the regression model is said feasible to be used and the independent variables concurrently have a crucial influence on the dependent variable.

TABLE IV. MODEL SUMMARY

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	211.971 ^a	0.425	0.650

According on the findings of the Model Summary above, the Nagelkerke R Square value is 0.650 which implies that the four independent variables in this research can define the condition of 65% of companies experiencing financial distress while the rest is explicated by variables outside the model.

TABLE V. HOSMER AND LEMESHOW TEST

Step	Chi-square	df	Sig.
1	8.311	8	0.404

According on the findings of the Hosmer and Lemeshow Test above, the significance value is greater than 0.05 which implies the logistic regression equation model is capable to forecast the value of observation or the model is accepted because it matches the observational data.

TABLE VI. CLASSIFICATION TABLE

Observed		Predicted		
		Financial Distress		Percentage Correct
Step 1	Financial Distress	Non Financial Distress	Financial Distress	
		312	12	96.3
		33	60	64.5
Overall Percentage				89.2

According on the findings of the Classification Table above, the overall classification for logistic regression is 89.2%. The percentage of classification correctness for non-financial distress companies is 96.3% in which there are 12 observation errors in the financial distress category and 312 observations that can be predicted correctly. While the

percentage of classification correctness for companies experiencing financial distress is 64.5% in which there are 33 observation errors and 60 observations that can be predicted correctly.

TABLE VII. REGRESSION ANALYSIS RESULTS

	B	S.E.	Wald	df	Sig.	Exp(B)
NWCTA	-1.8534E-9	9.74	3.619	1	0.057	1.0
RETA	-2.3908E-8	6.18	14.933	1	0.00	1.0
EBITTA	-2.8123E-8	5.81	23.411	1	0.00	1.0
BVETL	-1407.092	1013	1.928	1	0.165	0
Constant	-0.249	0.22	1.273	1	0.259	0.78

4.4.The Effect of NWCTA Ratio on Financial Distress

According on the findings of the regression analysis, the Beta value is -1.8534E-9, which means that the ratio of NWCTA is negatively related to financial distress. This negative relation suggests that if the value of the ratio of NWCTA is bigger, then the likelihood of business experiencing financial distress is decreasing. It indicates that positive influence is showed by this ratio toward financial distress. These results are persistent with [7] research results stating that the ratio of NWCTA showed positive effect on financial distress. This variable also has a significance value of 0.057 or affects financial distress at a significant level of 5.7%.

4.5.The Effect of RETA Ratio to Financial Distress

According on the findings of the regression analysis, the Beta value is -2.3908E-8, which means that the ratio of RETA is negatively related to financial distress. This negative relation indicates that if the value of the ratio of RETA is bigger, then the likelihood of business experiencing financial distress is decreasing. It indicates that positive influence is showed by this ratio toward financial distress. These results are persistent with [7] research results stating that the ratio of RETA positively affect financial distress. This variable also has a significance value of 0.000 which affects financial distress with the very significant effect.

4.6.The Effect of EBITTA Ratio on Financial Distress

According on the regression analysis, the Beta value is -2,8123E-8, which means the variable ratio of EBITTA is negatively related to financial distress. This negative relation indicates that if the value of the ratio of EBITTA is bigger, then the likelihood of business

experiencing financial distress is decreasing. It indicates that positive influence is showed by this ratio toward financial distress. These results are persistent with [7] research results stating that the ratio of EBITTA positively affect financial distress. This variable also has a significance value of 0.000 which affects financial distress with the very significant effect.

4.7.The Effect of BVETL Ratio on Financial Distress

According on the regression analysis, the Beta value is -1407.092, which means that the ratio of BVETL is negatively related to financial distress. This negative relation suggest that if the value of the ratio of BVETL is bigger, then the likelihood of business experiencing financial distress is decreasing. It indicates that positive influence is showed by this ratio toward financial distress. These results are persistent with [7] research results stating that the ratio of BVETL has a positive effect on financial distress. This variable also has a significance value of 0.165 or affect financial distress at a significant level of 16.5%.

5. CONCLUSION

This findings is designed to forecast the possibility of financial distress in Indonesia public listed companies from manufacturing field in 2016-2018 involving 139 companies as the total sample of research. According on the findings of data analysis, the conclusions are:

- 1) According on the result of the Altman Z-Score Model discriminant analysis, from a total sample of 139 Indonesia public listed companies from manufacturing field in 2016-2018 that experienced financial distress, there were 55 companies in 2016, 55 companies in 2017, and 56 companies in 2018.
- 2) According on the result of logistic regression analysis, it would be able to deduced that the four independent variables within the form of financial ratios in the Altman Z-Score model may be used to forecast financial distress and concurrently have a significant effect on financial distress.
- 3) NWCTA ratio variable has a non-positive relation with financial distress, in which if the value of this ratio is greater, then the probability of business experiencing financial distress will be decreasing. It implies that this ratio positively affect financial distress. This ratio variable affects financial distress at a significant level of 5.7%.
- 4) RETA ratio variable has a non-positive relation with financial distress, in which if the value of this ratio is greater, then the probability of business experiencing financial distress will be decreasing. It implies that this ratio positively affect on financial distress. This ratio variable also has a significance value of 0,000 which means that this ratio has a crucial influence on financial distress.

- 5) EBITTA ratio variable has a non-positive relation with financial distress, in which if the value of this ratio is greater, then the probability of business experiencing financial distress will be decreasing. It implies that this ratio positively affects financial distress. This ratio variable also has a significance value of 0,000 which means that this ratio has a crucial influence on financial distress.
- 6) BVETL ratio variable has a non-positive relation with financial distress, in which if the value of this ratio is greater, then the probability of business experiencing financial distress will be decreasing. It implies that this ratio has positively affect financial distress. This ratio variable affects financial distress at a significant level of 16%.

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