Financial Distress, Bankruptcy Analysis, And Implications For Stock Prices Of Consumer Goods Companies In Indonesia

Etty Susilowati[a]
Budi Luhur University

John Marlintong Simangunsong [b]
Budi Luhur University

ABSTRACT

This study aims to analyze financial distress and bankruptcy through the Altman Z-Score method and its effect on stock prices on consumer goods companies listed on the Indonesia Stock Exchange for the period 2012 to 2017. Sampling is determined by purposive sampling technique while data processing is done through software Eviews and Microsoft Excel. The results showed that bankruptcy only occurred at Indofarma Tbk (INAF) in 2017. Simultaneously, the Z-score had a significant effect on stock prices and the panel data regression results confirmed that the Income Before Interest and Tax (EBIT) on Total Assets had an influence significant with a contribution of 38.25% to the share price.

INTRODUCTION

The consumer goods industry is an industrial field that grows significantly over time. This is because the industry provides basic needs and ensures the survival of all people in any part of the world. The industry also has a positive contribution in the capital market, which indicated by many consumer goods companies are going public (Haryanto Lim, Kardinal, & Juwita, 2015). Investors are very interested in investing their funds in the consumer goods industry because the market trend is increasing every year. The Indonesian economy still faces the risk of high global uncertainty, even though, Indonesia's economic performance in 2011 could become a support entering 2012, mainly due to the support of a strong domestic market. Throughout 2011, the issue of the debt crisis and acute budget deficit in Greece has caused economic shocks, especially in global financial markets, including in Indonesia. Various attempts were executed by countries belonging to the European Union (EU), and in particular 15 countries that make use of the euro

currency, apparently did not succeed in returning investor confidence, even pessimism strengthened that the EU crisis would take a long time.

The consumer goods companies which have been going public, utilize the existence of the capital market to obtain funding sources or financing alternatives that can be used as a mean to reflect the company's financial performance. The market will respond positively through increasing the company's stock price if the company's financial performance is good. Investors or prospective investors before investing their funds in a company always search information in terms of the company's financial performance. The unstable economic condition of Indonesia results in a large risk of a company experiencing financial distress or even bankruptcy. Error prediction on the continuity of operations of a company in the future can be induced a loss of income or investment in the company. The phenomenon that has occurred in Indonesia was the delisting of several consumer goods companies in 2015. Delisting occurs when the shares listed on the stock exchange experience a decrease so that they do not meet the recording requirements, then the shares can be excluded from listing on the stock.

Therefore, an analysis of the causes of bankruptcy needs to be performed to anticipate future bankruptcy by analyzing the company's financial ratios as an alternative in testing whether financial information produced by financial accounting is useful for classifying stock prices in the capital market. By doing so, a company management can determine a good policy for the company, obtain maximum profits, and avoid the possibility of bankruptcy in the future. Based on the description described above, we analyze financial distress and bankruptcy by using the Altman model (Z-score) and its effect on stock prices in the consumer goods companies listed on the Indonesian Stock Exchange for the period 2012 until 2017.

LITERATURE REVIEW

Financial distress

Financial distress is defined as the inability of a company to finance its financial obligations by their due date. This condition describes the unhealthy financial condition of the company or crisis, which can be caused by a decrease in the performance of business operations, illiquid assets, or high fixed costs (Darsono, 2005; Wahyuningtyas & Isgiyarta, 2010; Ninh, Do Thanh, & Hong , 2018). Financial distress does not always cause bankruptcy. However, companies with this kind of experience will have a high possibility to terminate employee's employment, to eliminate dividend payments, to stop operating activities and to plan restructuring in order to prevent companies from going bankrupt (Hill, Perry, & Andes, 1996; Tirapat & Nittayagasetwat, 1999). Nuresa & Hadiprajitno (2013) stated that the following indicators imply that a company experiences financial distress: (1) a decrease in the amount of dividends distributed to shareholders for several consecutive periods, (2) a continuous decline in profits even the company suffered losses, (3) closed or sold one or more business units, (4) massive employee dismissal, and (5) continuous decline in stock prices in the market.

Previous studies on financial distress have been conducted to predict the possibility of companies experiencing the condition, including Chen, Zhang, & Zhang (2013) on

manufacturing companies in China; Mselmi, Lahiani, & Hamza (2017) on French small and medium-sized firms, and Ninh, Do Thanh, & Hong (2018) on listed firms on Hanoi Stock Exchange (HNX), Vietnam. Specifically, in Indonesia, Hidayat & Meiranto (2014) has conducted a prediction in all manufacturing companies listed on the Indonesia Stock Exchange, Iqbal, Riyadi, Sabrianti, & Afidah (2018) on Islamic banks, and Sulastri & Zannati (2018) on the automotive and textile companies. Various models are used to produce the best predictive power. The most commonly used models are the Z-score model and Emerging Score Model (EMS) as suggested by Altman (1968) and Altman (2005). Apart from the lack of models that can only be used for linear classification, these two models have been proven accurate in predicting the occurrence of financial distress over the past decades (Chouhan, Chandra, & Goswami, 2014; Almamy, Aston, & Ngwa, 2016; Ko, Fujita , & Li, 2017).

Relationship Between Financial Distress And Stock Prices

The stock price is the price formed on the stock exchange which is obtained to calculate the value of its shares. The stock price is generated from the interaction of the sellers and buyers which are usually motivated by their expectations of the company's profits, for which investors need information relating to stock formation in making decisions to sell or buy these shares (Anoraga & Pakarti, 2006). Investor's decision on the sale and purchase of shares is based on an analysis of the company's financial statements. The analysis used in this study is a horizontal analysis consisting of an analysis of the company's financial ratios, including (1) the working capital ratio of total assets, (2) retained earnings, against total assets, (3) earnings before interest and taxes on total assets, (4) book value of equity against book value of debt and (5) sales of total assets (Altman, 1968). These ratios are also indicators that predict the condition of financial distress in the company (Maina & Sakwa, 2017). Theoretically, companies that have a high Z-score indicates a low likelihood of experiencing financial distress and it is represented in the form of higher stock prices (Zhao, 2015).

The ratio of working capital to total assets is used to measure the ability of a company to meet their short-term obligations or a comparison of total current assets to total assets (Toto, 2011). The ratio of retained earnings to total assets measures the company's ability to finance company activities by using net income without going through debt (Baimwera & Muriuki, 2014). The ratio of earnings before interest and tax to total assets measures the ability of a company to use its assets to generate profits (Ray, 2011). The ratio of the book value of equity to book value of debt is used to measure the ability of companies to make funding originating from debt (Baimwera & Muriuki, 2014). This ratio is considered as an effective instrument in predicting the possibility of corporate bankruptcy (Altman, 2005). Finally, the ratio of sales to total assets is used to measure the ability of a company to generate sales through the optimal use of its assets (Ray, 2011). Rahmawati & Hadiprajitno (2015) proved that only the ratio of earnings before interest and tax (EBIT) affects stock prices, while the effects of working capital to total assets, book value of equity to book value of debt, retained earnings to total assets, sales to total assets are proven not significant. Moreover, Nurjannah, Retnowati, Pudjowati (2016), Nurfadillah (2016) and Arkan (2016) stated that the ratio of working capital to total assets and book value of equity to book value of debt significantly affect financial performance, including stock prices.

Eventually, Otom (2014) and Prabawa & Lukiastuti (2015) testified that sales to total assets affect stock prices. Based on the explanation above, the hypotheses to be tested are as follows.

H1: The Z-Score value has a positive effect on the stock prices of the consumer goods companies
H2: The ratio of working capital to total assets has a positive effect on the price of consumer goods companies (a negative effect on financial distress)
H3: The ratio of retained earnings to total assets has a positive effect on consumer goods company stock prices (a negative effect on financial distress)
H4: Earnings before interest and tax ratio has a positive effect on consumer goods company stock prices (a negative effect on financial distress)
H5: Market value of equity to book value of debt ratio has a positive effect on consumer goods company stock prices (a negative effect on financial distress)
H6: The ratio of sale to total assets has a positive effect on consumer goods company stock prices (a negative effect on financial distress)

METHODS

Sampling And Data Collection

This study employed financial data from 22 consumer goods companies which was selected based on the purposive sampling method. The specific criteria set out in the selection process were the companies that have gone public, have been listed on the Indonesian Stock Exchange, and have has complete financial reports and were actively published the reports during the period of 2012 to 2017. The type of data used is secondary data that were obtained from the Indonesian Capital Market Directory (ICMD) in the form of financial statements from 2012 to 2017. The list of companies are denoted in table 1.

Table 1. List of Companies Used in The Study

No.	Stock codes	Companies
1	ADES	Akasha Wira International Tbk
2	CEKA	Wilmar Cahaya Indonesia Tbk
3	DLTA	Delta Djakarta Tbk
4	DVLA	Darya Varia Laboratoria Tbk
5	GGRM	Gudang Garam Tbk
6	HMSP	H.M. Sampoerna Tbk
7	ICBP	Indofood CBP Sukses Makmur Tbk
8	INAF	Indofarma Tbk
9	INDF	Indofood Sukses Makmur Tbk
10	KAEF	Kimia Farma Tbk
11	KICI	Kedaung Indah Can Tbk
12	KLBF	Kalbe Farma Tbk
13	MBTO	Martina Berto Tbk
14	MERK	Merck Indonesia Tbk
15	MLBI	Multi Bintang Indonesia Tbk
16	MYOR	Mayora Indah Tbk
17	PSDN	Prasidha Aneka Niaga Tbk

No.	Stock codes	Companies
18	ROTI	Nippon Indosari Corpindo Tbk
19	TCID	Mandom Indonesia Tbk
20	TSPC	Tempo Scan Pacific Tbk
21	ULTJ	Ultra Jaya Milk Industry and Trading Company Tbk
22	UNVR	Unilever Indonesia Tbk

Source: Indonesia Stock Exchange (2018)

Altman's Z-score Model

To predict financial distress, the Z-score as a suggested model by Altman (2005) was utilized by using five categories of ratios to measure profitability, liquidity, solvency, leverage and activity. The equation used is the equation (1). The equation is called as pure Altman's Z-scores which were first formulated by Altman (1968). The cut off point used to evaluate the Z-score is denoted in table 2.

$$Z\text{-Score} = 1.2 X_1 + 1.4 X_2 + 3.3 X_3 + 0.6 X_4 + 1.0 X_5 \quad (1)$$

Where:
X_1 = Ratio of working capital to total assets (WC/TA)
X_2 = Ratio of retained earnings to total assets (RE/TA)
X_3 = Ratio of earnings before interest and taxes to total assets (EBIT/TA)
X_4 = Ratio of book value of equity to book value of debts (BVE/BVD)
X_5 = Ratio of sale to total assets (S/TA)

Table 2. Cut off point of Z-scores

Z-Scores	Results
< 1,81	The company was declared bankrupt
1,81 < Z-Score < 2,99	The company is in the gray area (between bankruptcy and non-bankruptcy)
> 2,99	The company is declared to be safe area

Source: Toto (2011)

Panel Data Regression Model

The panel data regression was applied on the dependent variable of the stock prices of all consumer goods companies from 2012 to 2017 (Y) and five independent variables of financial ratios including: a ratio of working capital to total assets, a ratio of retained earnings to total assets, a ratio of earnings before total assets, a ratio of book value of equity to book value of debt, and a ratio of sale to total assets. The ratios were used to calculate Z-score as well. By following Firdaus (2011), there are three possible models used, namely Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The selection of the best model is performed through Chow Test to determine between CEM or FEM and Hausman Test to determine between FEM or REM. Afterwards, the process was continued by testing the classical assumptions of the regression equation which consisted of a normality,

heteroscedasticity, multicollinearity, and autocorrelation test. The equation used is denoted in the equation (2).

Ln Stock Prices $(SP)_{it} = \alpha + \beta_1 \ln(WC/TA)_{it} + \beta_2 \ln(RE/TA)_{it} + \beta_3 \ln(EBIT/TA)_{it} + \beta_4 \ln(BVE/BVD)_{it} + \beta_5 \ln(S/TA)_{it} + e$ (2)

Where:
SP   = Stock prices
WC/TA   = Ratio of working capital to total assets
RE/TA   = Ratio of retained earnings to total assets
EBIT/TA   = Ratio of earnings before interest and taxes to total assets
BVE/BVD = Ratio of book value of equity to book value of debts
S/TA   = Ratio of sale to total assets
i   = Consumer goods companies
t   = Years
e   = Error

FINDINGS

Z-score Classification Results

According to the Altman Z-score calculation, there were no companies declared bankrupt in 2012. However, there were four companies in the gray area, namely CEKA, INAF, INDF and MYOR. The remaining eighteen companies were in the safe area (figure 1).
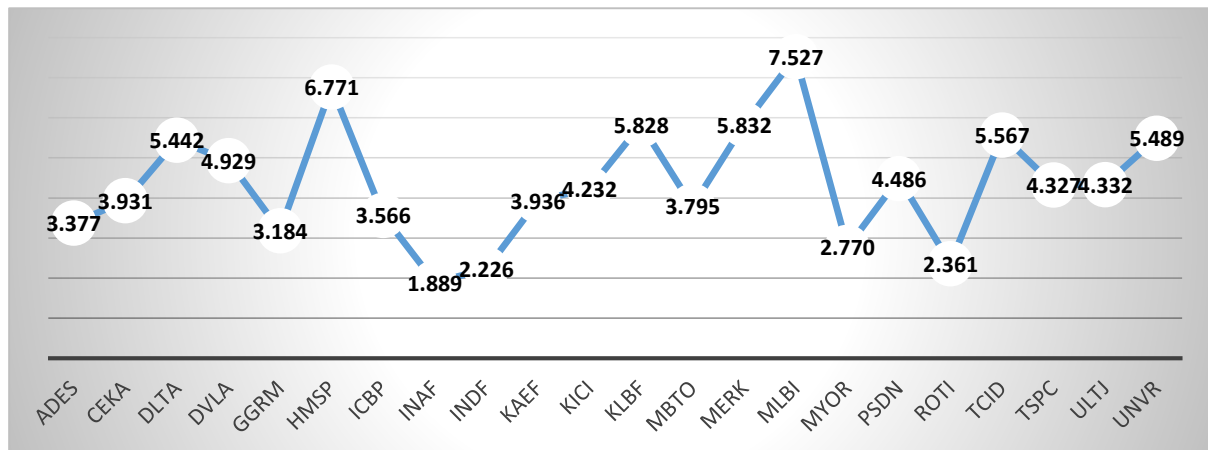
Figure 1. Z-scores of consumer goods companies in 2012
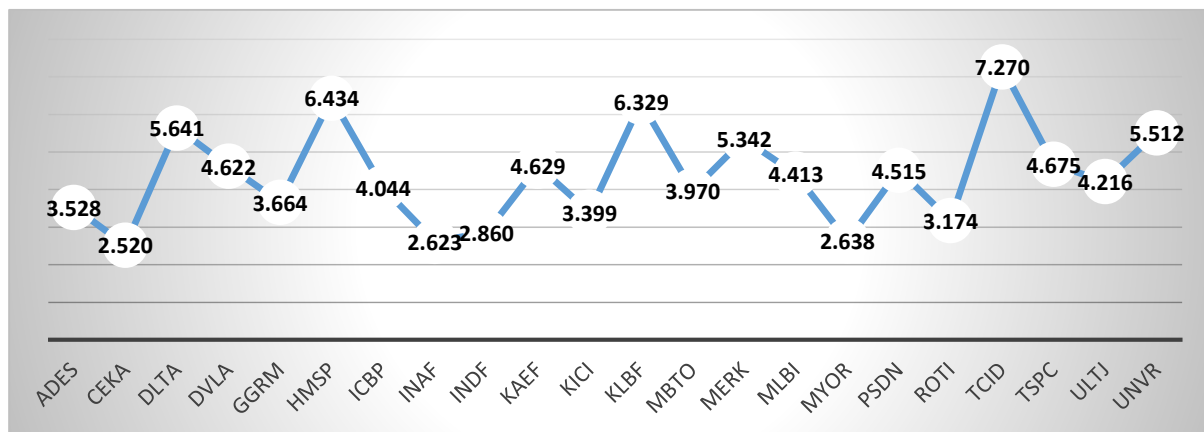
In 2013 there were no companies declared bankrupt, but there were four companies belong to the gray area, namely INAF, INDF, MYOR and ROTI. While the remaining eighteen companies were declared in the safe zone. CEKA left the gray area and entered into the safe area, while another company, namely ROTI, entered the gray area (figure 2). Suwitno (2013) revealed that 93 % of companies that are in the gray area category in a given year, will not experience

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bankruptcy in the next operational year. In addition, Sinarwati (2010) stated that companies that experience financial distress will tend to do the voluntary auditor switching. However, Jayanti & Rustiana (2017) added that, in the gray area category, the company had not taken this action, and the company's status was unpredictable.

Figure 2. Z-scores of consumer goods companies in 2013

Furthermore, in 2014 there were also no companies declared bankrupt, but there were four companies which in the previous year were included in the gray area category, belong to the same category this year (figure 3). According to Tristantyo (2013), companies that have been in this category for many years and do not make improvements to both the management and financial aspects, will experience bankruptcy in the following years. The four companies, namely INAF, INDF and MYOR have been in this category since 2012 and have not indicated any improvement during the next two years.

Figure 3. Z-scores of consumer goods companies in 2014

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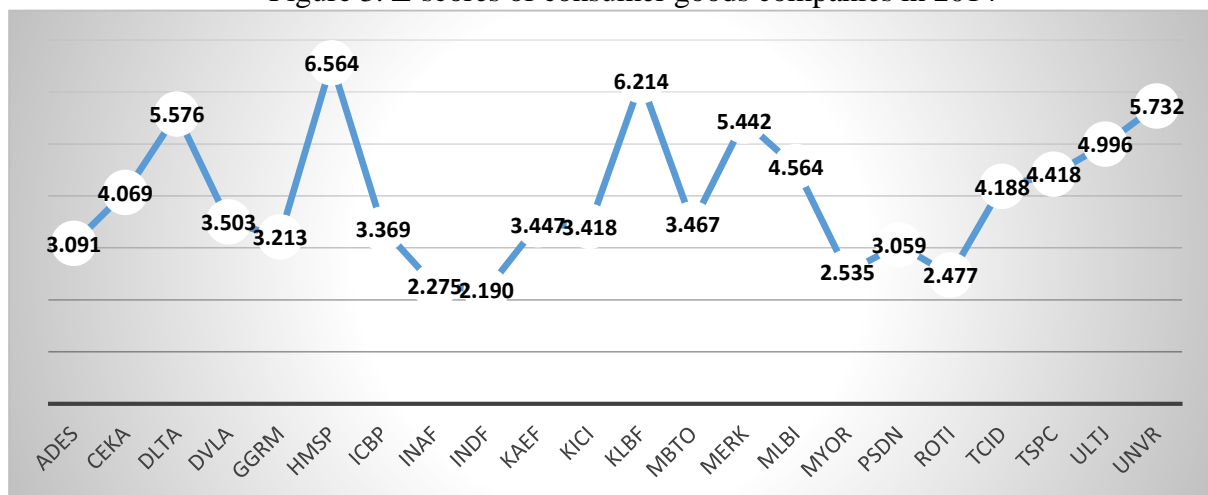
In 2015, there were no companies declared bankrupt, but there were five companies included in the gray area category, namely ADES, INAF, INDF, PSDN and ROTI. MYOR companies were out of this category and belonged to the category of healthy companies. On the contrary, there were additional two new companies, namely ADES and PSDN (figure 4). MYOR's exit from the gray area category gave a support to the prediction of Suwitno (2013). However, the other two companies, INAF and INDF, did not indicate any improvement. The INAF Z-score was only slightly above the cut-off value of 1.81. Likewise with INDF, the value of Z-score has continued to decline since 2013.

Figure 4. Z-scores of consumer goods companies in 2015
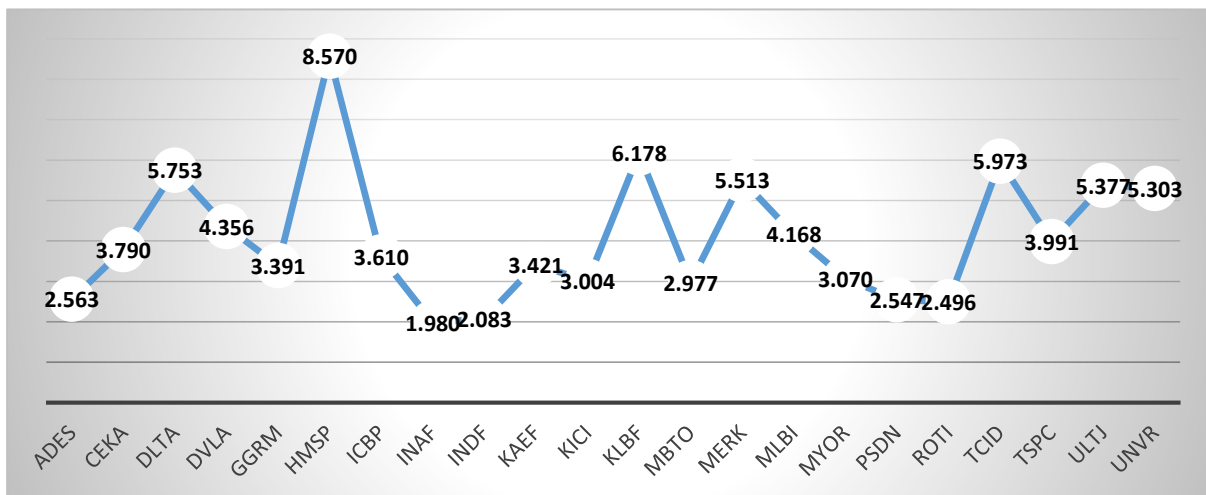
In 2016, the number of companies belonged to the gray area category increased to eight companies, namely ADES, INAF, INDF, KAEF, KICI, MBTO, PSDN and ROTI. Five of them were the same company in the previous year. ADES and ROTI experienced an increasing of Z-scores compared to 2015, while PSDN indicated a decrease (figure 5). Whereas INAF and INDF, both of them indicated an increasing of Z-score this year, even though they were still not out of the gray area category. This implied that the turning point of the two companies began this year.

Figure 5. Z-scores of consumer goods companies in 2016
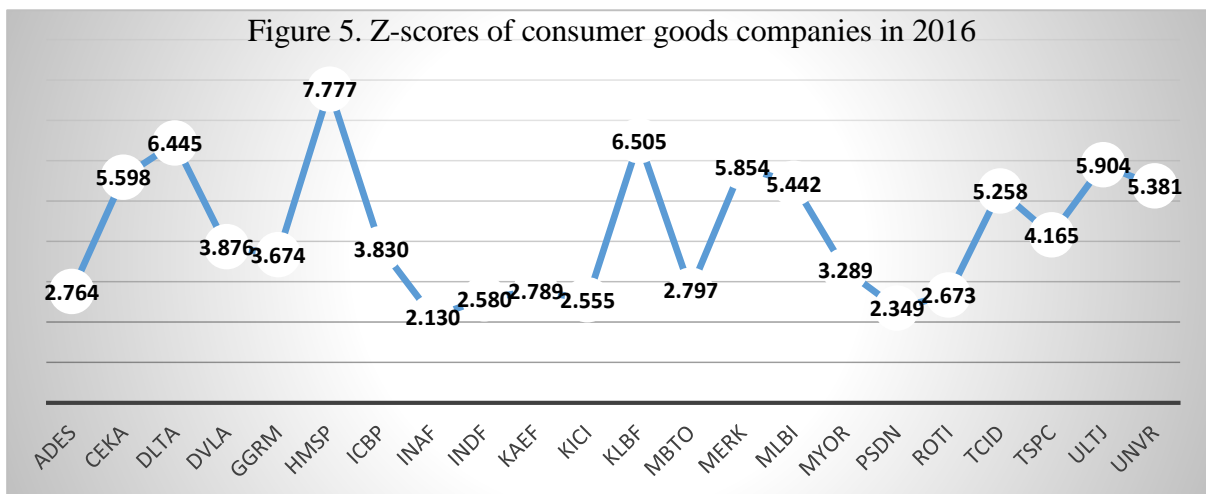
However, in 2017, INAF entered the category of bankrupt companies. The Z-score of the company declined from a previous increase of 2,130 to 1,667. This is due to the loss experienced by the company for many years and the company's assets and income (Choy, Munusamy, Chelliah, & Mandari, 2011). While the other six companies, namely ADES, INDF, KAEF, KICI, MBTO, and ROTI belong to the gray area category. PSDN out of this category becomes a healthy company that supports Suwitno (2013) (figure 6). The length of time each company takes to get out of the gray area category is different. CEKA only takes one year since 2012, MYOR takes three years, and PSDN takes two years. While the two INDF and ROTI companies did not show any changes in status since 2012 and 2013. There are several factors that might cause this condition. The success of the company to improve the company's financial performance will greatly affect the success of the strategy taken. Reduction in the number of employees, leadership change, company size, ownership of free assets, cost cutting, asset reduction and technology adoption (Francis & Desay, 2005). Even Bruton, Ahlstrom, & Wan (2003) stated that companies in ASEAN with a relatively small size, are better able to do turnaround to overcome the problem of financial distress than companies with a relatively large size. The measure is measured by the number of assets, sales turnover, and number of employees. This is because small companies usually have a shorter and simpler structure and bureaucracy, so they respond faster and adapt to change (Francis & Desay, 2005). However, it should be noted in terms of the impact of the above strategies. Specifically, in Indonesia, this will have a huge impact on employee demos due to termination of employment, mistrust of staff with management, and even sabotage resulting in a negative image of the company which will be an additional cost for the company (Smith & Graves, 2005).

Figure 6. Z-scores of consumer goods companies in 2017
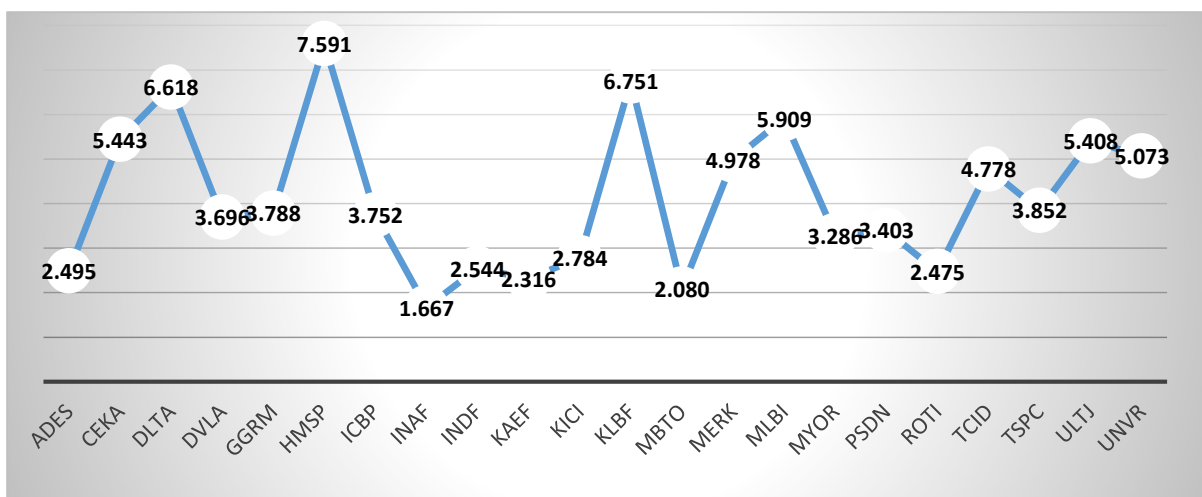
Panel Data Regression Results

The simultaneous test results on variable Z-scores on stock prices indicate that there is a significant effect between the value of Z-Score on stock prices (F-statistics of 19.158; P-value

of 0.000024). The finding is consistent with Apergis, Sorros, Artikis, & Zisis (2011), Amaliawati & Lestari (2014), and Andriawan and Salean (2016) studies, but it is contrary to Marcelina and Yuliandhari's (2014) (table 3). This relationship reveals that investors make use of information in terms of the company's financial condition before they invest capital. Companies that have a low Z-score value will have a low stock price, whereas a company with a high Z-score will have a high stock price and produce higher returns.

Table 3. Simultaneous test results with the least squares panel regression

Variables	Coeff.	Std. error	T-statistics	Prob.
C	5.538872	0.519916	10.65339	0.0000
Z-score	1.605470	0.366793	4.377045	0.0000
R-squared	0.128444	Mean dependent var.		7.739606
Adj R-squared	0.121740	S.D. dependent var.		1.622500
S.E. of Regression	1.520535	Akaike info criterion		3.691037
Sum squared residual	300.5635	Scwarz criterion		3.734716
Log likelihood	-241.6085	Hannan-Quinn criterion		3.708786
F-statistics	19.15852	Durbin-Watson stat		0.099555
Prob.	0.000024			
Periods included	6			
Cross-sections included	22			
Total panel (balanced) observations	132			

Source: processed data

Furthermore, the result of panel data regression indicates that the variables that significantly affect the stock price are earnings before interest and tax to total assets (EBIT/TA) (coeff. = 1,215). This indicates that an increase of 1% in the variable will increase the stock price by 1.215%, ceteris paribus. This also proves that the EBIT/TA contributes to the increase in the Z-score value. In contrast, the declining EBIT/TA indicates the inability of companies to finance their financial needs, including the payment of interest on loans. Usually, companies that experience a decline in EBIT/TA will increase their loans to cover funding shortages. However, this decision actually adds to the burden of the company and causes the company to go bankrupt (Choy, Munusamy, Chelliah, & Mandari, 2011). The results of this study consistent with the prior research of Ardian & Khoiruddin (2014), Rahmawati & Hadiprajitno (2015) and Lestari, Oktaviani, & Arafah (2016). While the other four variables do not significantly affect stock prices. These findings are consistent with Choy, Munusamy, Chelliah, & Mandari (2011) and Rahmawati & Hadiprajitno (2015) and are contrary to the findings by Machfudz, Nurfadillah, & Noor (2018) and, Otom (2014), and Prabawa & Lukiastuti (2015) (table 4).

Table 4. Panel least square estimation results

Variables	Coeff.	Std. error	T-statistics	Prob.
C	5.538872	0.519916	10.65339	0.0000
WC/TA	0.812612	1.843412	0.440819	0.6602
RE/TA	-0.055999	0.144913	-0.386429	0.6999

Variables	Coeff.	Std. error	T-statistics	Prob.
EBIT/TA	1.215702	0.173414	7.010382	0.0000
MVE/BVD	-0.681014	0.754272	-0.902876	0.3685
S/TA	-0.648366	0.382800	-1.693748	0.0930
R-squared	0.408016	Mean dependent var.		7.847975
Adj R-squared	0.382500	S.D. dependent var.		1.554237
S.E. of Regression	1.221338	Akaike info criterion		3.285701
Sum squared residual	173.0333	Scwarz criterion		3.433603
Log likelihood	-194.4277	Hannan-Quinn criterion		3.341712
F-statistics	15.99026	Durbin-Watson stat		0.284113
Prob.	0.000000			
Periods included	6			
Cross-sections included	22			
Total panel (balanced) observations	122			

Source: Own data processing

CONCLUSION

The results of the Altman's Z-Score calculation indicate that only one company, Indofarma Tbk (INAF) would experience bankruptcy or financial distress in 2017. This is due to a significant decrease in the ratio retained earnings to total assets and EBIT to total assets from the previous year. Six other companies, namely ADES, INDF, KAEF, KICI, MBTO, and ROTI were included in the gray area category in 2017. There were three companies that succeeded in escalating their company status out of the gray area category, namely CEKA, MYOR, and PSDN and there were two INDF and ROTI companies that have not indicated any improvement in their status since 2012 and 2013 until 2017. The results of the analysis with a simultaneous test confirmed that Z-score has a significant effect on stock prices. Furthermore, the results of the analysis with panel data regression confirm that that only earnings before interest and tax to total asset variables significantly affect stock prices in the consumer goods companies in Indonesia.

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