FINANCIAL DISTRESS ANALYSIS OF MANUFACTURING COMPANIES LISTED ON THE IDX FOR THE 2016-2020 PERIOD WITH SPRINGATE AND ALTMAN METHODS

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Abstract

The COVID-19 pandemic period is a difficult time for many business actors where this pandemic has a negative impact that causes entrepreneurs to have to adapt to new situations. In running its business, it is not uncommon for companies to fail to achieve their short-term and long-term goals, causing operational losses in the current year. If the loss is experienced continuously by the company, then the event can bring the company to bankruptcy until bankruptcy. In the third quarter of 2021, BPS recorded a manufacturing industry growth of 3.68 percent, a fairly good increase in the midst of the large number of COVID-19 cases in Indonesia. According to the Central Statistics Agency (BPS), 5 business sectors contributed 63.8 percent to Indonesia's Gross Domestic Product (GDP) in the fourth quarter of 2021, with the manufacturing sector taking first place with a contribution of 18.3 percent to GDP. Therefore, there are various reasons why this research is important, including the fact that the manufacturing sector is very important in the production of primary and secondary goods for public consumption and other enterprises. Manufacturing companies are also still the leading sector or sectors that lead and contribute to the country's economic growth and in the absorption of labor. In addition, this study also wants to prove whether it is true that the manufacturing sector shows a positive stretch during the pandemic, or only some industries in the manufacturing sector by using the Springate S-Score and Altman Z-Score methods. Calculations of financial condition carried out by the Springate and Altman methods on manufacturing companies listed on the Indonesia Stock Exchange in 2016-2020 show that the Springate method groups 282 samples into the healthy category and another 283 into the distress category. While the Altman method groups 235 samples into the healthy category, 136 samples into the gray zone category, and 194 others into the distress category. The results also show that the Springate method has a higher level of consistency than the Altman method in this study.

Keywords: Financial Distress, Manufacturing, Springate, Altman, Financial Distress, Bankruptcy, Pandemic, COVID-19.

Introduction

Companies with good financial conditions will certainly try to carry out their activities effectively and efficiently, for example by doing automation or by reducing work stages that do not have added value so as to reduce costs and increase profits. In practice, companies are faced with 2 main goals: long-term goals and short-term goals.

Every year, the company publishes financial statements containing income and costs borne, cash flows received and issued, asset and debt values, and others that aim to show the company's financial position and are expected to be a tool for decision makers to understand the company's financial situation. The financial statements are also a means for shareholders to further examine how the company's performance has been over the past year. Sometimes, published financial reports may contain information that looks good, without realizing that the company is facing financial problems that must be resolved immediately.

In running its business, it is not uncommon for companies to fail to achieve their short-term and long-term goals, causing operational losses in the current year. If the loss is experienced continuously by the company, then the event can bring the company to bankruptcy until bankruptcy. If a company has been declared bankrupt by the court, then the company must sell all of its assets which will later be used to pay off the company's obligations. The company's assets during the bankruptcy period will be managed and sold, which will be managed by a curator who is directly appointed by the court.

The COVID-19 pandemic period is a difficult time for many business actors where this pandemic has a negative impact that causes entrepreneurs to have to adapt to new situations. The unpleasant impact is not only felt by small business actors, but also by large-scale companies. Large companies also receive a significant impact from the regulation. According to Erwin Haryono (Head of the BI Communications Department), the results of the Business Activity Survey show that respondents estimate that business activity will slow down in the third quarter of 2021 when compared to the achievement of business activities in the previous quarter. In addition, Hariyadi Sukamdani said that if the Emergency PPKM was extended it would worsen the world's economic and business situation, because the very strict restrictions on activities caused the income of several companies to drop drastically.

With the drastic decline in income, the company must have tried various ways to save its operations, by cutting salaries and incentives, or by reducing the number of workers and conducting layoffs. The pandemic, which has lasted for approximately 2 years, has not only caused significant losses to companies, but has also caused employees to lose their jobs and increased unemployment in Indonesia. Jobstreet Indonesia has distributed questionnaires to workers affected by the COVID-19 pandemic which was conducted in October 2020, where 35% of workers were laid off and 19% of workers were temporarily laid off. However, after terminating their employees, several companies are still unable to finance their operational activities, resulting in financial distress which, if followed up late, will lead the company to bankruptcy and bankruptcy.

This study pays attention to all companies belonging to the manufacturing sector which are said to have grown aggressively in the midst of the pandemic and do not appear to have received too much negative impact due to the pandemic.

According to the Central Statistics Agency, the manufacturing sector grew negatively by -2.93 percent during 2020. However, in the first quarter of 2021, the manufacturing sector experienced growth, although it still contracted by -0.71 percent. In the third quarter of 2021, BPS recorded a manufacturing industry growth of 3.68 percent, a fairly good increase in the midst of the large number of COVID-19 cases in Indonesia. According to the Central Statistics Agency (BPS), 5 business sectors contributed 63.8 percent to Indonesia's Gross Domestic Product (GDP) in the fourth quarter of 2021, with the manufacturing sector ranking first with a contribution of 18.3 percent to GDP. Therefore, there are various reasons why this research is important, including the fact that the manufacturing sector is very important in the production of primary and secondary goods for public consumption and other enterprises.

Furthermore, despite the pandemic, the manufacturing sector remains the leading sector in Indonesia, so the level of financial health is very important to monitor. The manufacturing sector is an important sector in Indonesia because it contributes significantly to economic growth and employment in Indonesia. This sector also contributes to the expansion of Indonesia's exports and investment. Manufacturing companies are also still the leading sector or sectors that lead and contribute to the country's economic growth and in the absorption of labor.

Previous research was conducted by Rahmat (2020) entitled "Analysis of Financial Distress Using the Altman Z-Score Model, Springate Zmijewski, Grover and the Camel Method of Bank Health Assessment" with research results showing that PT. BPR Intan Jabar did not experience financial distress and was categorized as a healthy BPR. In addition, another study was conducted by Marisa Fitriani and Nurul Huda (2020) entitled "Analysis of Financial Distress Prediction Using the Springate Method (S-Score) at PT Garuda Indonesia Tbk with research results showing that PT Garuda Indonesia is in the distress category and has the potential to went bankrupt.

Therefore, there are various reasons why this research is important, including the fact that the manufacturing sector is very important in the production of primary and secondary goods for public consumption and other enterprises. Manufacturing companies are also still the leading sector or sectors that lead and contribute to the country's economic growth and in the absorption of labor. In addition, this research also wants to prove whether the manufacturing sector really shows a positive stretch during the pandemic, or only a few companies in the manufacturing sector. Another reason is because it is very important to detect distress conditions in the company first so that the company's management can make the right and careful business strategy to improve the company's performance before it leads to bankruptcy. This study will examine the financial health of companies in the manufacturing sector on the Indonesia Stock Exchange, in the last 5 years including conditions before and during the COVID-19 pandemic using the Springate Model and the Altman Model.

Distress conditions that occur can be calculated and predicted using various available models. Previous research conducted by Malaika (2019) entitled "Analysis of the Accuracy of Predicting Bankruptcy with the Altman Z-Score, Springate, Ohlson Method in Financial Distress Conditions" showed that the Springate method produced the highest level of prediction accuracy, followed by Altman and then Ohlson. Another study conducted by Bimo Aryo Seto and Sri Trisnaningsih (2021) with the title "Using the Altman Z-Score, Springate, Zmijewski and Grover Models in Predicting Financial Distress" shows that Altman has the highest level of accuracy, followed by the Zmijewski model and the Springate. In addition, according to BAPEPAM (2005), the Springate and Altman models have advantages in that there is a calculation of EBIT to total assets ratio which is the best indicator to determine the occurrence of bankruptcy. Based on these reasons, the researcher is interested in comparing the two models, namely the Springate model and the Altman model.

In contrast to previous research, this study is entitled "Analysis of Financial Distress in Manufacturing Sector Companies Listed on the Stock Exchange in 2016-2020 With the Springate and Altman Models", and will examine whether financial difficulties and bankruptcy predictions faced by companies in the manufacturing sector use the Springate model. and Altman for comparison. The population in this study are all manufacturing companies in Indonesia listed on the Indonesia Stock Exchange between 2016 and 2020.

Research Methodology
Research design

This study aims to test and predict the company's financial difficulties, especially for manufacturing companies listed on the IDX in 2016 to 2020. This type of research is to make predictions made with secondary data and quantitative methods with the object of research in the form of annual financial report data. published by manufacturing sector companies listed on the Stock Exchange in 2016 and 2020.

The data analysis method in this test starts from collecting secondary data taken from the annual reports of manufacturing companies, the official website of the Jakarta Stock Exchange which is accessed from www.idx.co.id and also from Thomson Reuters. Then calculate the required financial ratios, then enter the results of the ratio calculation into the Springate S-Score and Altman Z-Score formulas to identify and categorize the financial conditions of manufacturing companies listed on the Indonesia Stock Exchange in 2016 and 2020.

Variables and Measurements
 1. Working Capital to Total Asset Ratio
    Calculating liquidity from total assets to working capital. If the working capital is greater, it is expected that the company's operational activities will be smoother so that it can increase profits.
    Working Capital/Total Asset
 2. Earnings Before Interest and Taxes to Total Asset Ratio

Measuring the ability to manage resources effectively, by looking at the results of sales and investments (Sarbapriya Ray, 2011)
Earnings Before Interest and Taxes/Total Asset

3. Earnings Before Taxes to Current Liabilities Ratio
Measuring the company's ability to generate profits from total short-term liabilities.
Profit Before Interest/Current Liabilities

4. Sales to Total Asset Ratio
Measuring the company's ability to generate sales from the total assets owned.
Sales/Total Assets

5. Retained Earnings to Total Asset Ratio
This ratio will show how much the company's ability to generate retained earnings from the total assets owned by the company.
Retained Earnings/Total Assets

6. Market Value of Equity to Total Liabilities Ratio
This ratio measures the company's ability to guarantee each of its debts through its own capital.
Market Value of Equity/Total Liabilities

Population and Sample

Population

This study collects financial information from all manufacturing companies listed on the IDX official website in 2020.

Sample

Purposive sampling was used, and the following criteria:

1. Previously, companies were divided into two categories: healthy and depressed. According to Zhang (2007), companies experiencing financial difficulties will have negative retained earnings.
2. For the 5th consecutive year, the company has issued a complete financial report.

From the 2 criteria above, the number of samples to be studied is 113 companies and a 5-year period, or a total of 565 firm-years, of which 131 firm-years are grouped as companies experiencing distress due to having negative retained earnings.

Analysis And Discussion

In this study, the object of research is a manufacturing company listed on the Indonesia Stock Exchange in 2020 with complete information required by researchers. Data is taken from annual reports published by companies and accessed directly from the official website of each company and from the official website of the Indonesia Stock Exchange. In addition, the data is also taken from Thomson Reuters. With the specified criteria, the number of samples that meet the requirements are:

Table 1

IDX listed manufacturing company in 2020	190
Newly registered manufacturing company after 2016	(46)
Manufacturing companies that were delisted in the research period	(9)
Manufacturing companies with incomplete data	(22)
Total companies to be researched	**113**
Research data period	5 years
Total sample	565

The Indonesia Stock Exchange recorded that there were 190 manufacturing companies in 2020 of which 46 had just taken the floor after 2016 so they did not have complete data for 5 consecutive years, 9 others were officially removed from trading by the Indonesia Stock Exchange (delisting) and 22 companies others do not have the required completeness of data so that only 113 companies will be used as samples in this study with a period of 5 financial years. The total data to be observed is 565 data.

Springate Method

In classifying companies into 2 categories, healthy or bankrupt, it is necessary to calculate each variable. This model has 4 variables, namely (1) Working Capital To Total Assets, (2) EBIT To Total Assets, (3) EBT To Current Liabilities, and (4) Total Sales to Total Assets. The formula for the Springate model is:

$$S = 1.03A + 3.07B + 0.66C + 0.4D$$

Descriptive Statistics of Working Capital To Total Assets (A) Springate Method

	A
Mean	0.164
Median	0.177
Standard Deviation	0.485
Maximum	1.681
Minimum	-4.538

Descriptive Statistics of Earnings Before Interest and Taxes to Total Assets (B) Springate Method

	B
Mean	0.068
Median	0.058
Standard Deviation	0.112
Maximum	0.626
Minimum	-0.948

Descriptive Statistics of Earnings Before Taxes to Current Liabilities (C) Springate Method

	C
Mean	0.327
Median	0.153
Standard Deviation	0.613
Maximum	5.035
Minimum	-1.551

Descriptive Statistics of Sales to Total Assets (D) Springate Method

	D
Mean	0.984
Median	0.854
Standard Deviation	0.716
Maximum	8.429
Minimum	0.006

After calculating the 4 required ratios, these ratios are entered into the available S-Score formula. The Springate model groups companies into 2 categories, namely healthy and bankrupt with a cut-off point of 0.862. If the S-Score calculation results above 0.862, then the company is categorized as a healthy company. Conversely, if the obtained S-Score is less than 0.862, then the company is categorized as a bankrupt company or has financial problems. From 565 observations, the results of grouping manufacturing companies according to the S-Score are as follows:

	S-Score
Healthy	282
Bankrupt	283

Altman Method

       Slightly different from the Springate model, the Altman model groups companies into 3 categories, namely healthy, gray zone and bankrupt. This grouping is based on the results of the calculation of each variable. Altman's model has 5 variables, namely (1) Working Capital To Total Asset Ratio, (2) Retained Earnings To Total Asset Ratio, (3) Earnings Before Interest and Taxes To Total Assets Ratio, (4) Market Value of Equity to Total Liabilities Ratio, and (5) Sales to Total Assets Ratio. The formula for the Altman model is:

$$Z = 1.2X1 + 1.4X2 + 3.3X3 + 0.6X4 + 0.99X5$$

Descriptive Statistics of Working Capital to Total Assets (X_1) Altman Method

	X_1
Mean	0.164
Median	0.177
Standard Deviation	0.485
Maximum	1.681
Minimum	-4.538

Descriptive Statistics of Retained Earnings to Total Assets (X_2) Altman Method

	X_2
Mean	0.053
Median	0.193
Standard Deviation	1.015
Maximum	0.825
Minimum	-9.622

Descriptive Statistics of Earning Before Interest and Taxes To Total Assets (X_3) Altman Method

	X_3
Mean	0.068
Median	0.057
Standard Deviation	0.112
Maximum	0.626
Minimum	-0.948

Descriptive Statistics of Market Value of Equity to Total Liabilities (X_4) Altman Method

	X_4
Mean	4.180
Median	1.307
Standard Deviation	14.012
Maximum	295.986
Minimum	0.009

Descriptive Statistics of Sales to Total Assets (X_5) Altman Method

	X_5
Mean	0.984
Median	0.854
Standard Deviation	0.716
Maximum	8.429
Minimum	0.006

After calculating the required 5 ratios, similar to the Springate model, these ratios are entered into the available Z-Score formulas. Altman's model groups companies into 3 categories, namely healthy, gray zone and bankrupt where if the Z value is below 1.8 then the company is categorized as a company that is experiencing financial difficulties. If the Z value is between 1.81 and 2.99, then the company is categorized as a company that is in the gray zone. Companies that are in this zone are expected to

improve their performance so that they can return to health. Finally, if the Z value is above 2.99, then the company is categorized as a healthy company. *Fr*om 565 observations, the results of grouping manufacturing companies according to the Z-Score are as follows:

	Z-Score
Healthy	236
Gray Zone	135
Bankrupt	194

Model Comparative Analysis

After performing calculations using two different models and grouping the companies studied, the table below presents the overall grouping results.

	S-Score	Z-Score
Sehat	282	235
Zona Abu-Abu	-	136
Bangkrut	283	194

Based on the table above, it can be seen that the most-healthy condition is seen in the Springate model group. In the previous chapter, it was stated that this research consisted of 565 firm-years and there were 434 companies categorized as companies with healthy financial conditions. If seen from table 4.13, the Springate model with the most-healthy conditions compared to the Altman model which recorded fewer healthy companies.

The overall calculation can be concluded that if you look at the results of the calculation of bankruptcy predictions, the Altman method provides a smaller number of bankruptcy predictions, but provides an early warning for companies in the gray zone to improve company performance so that it does not lead to bankruptcy. As for the Springate method, it provides a larger bankruptcy prediction number but does not provide early detection as is done by the Altman method.

Comparative analysis of the model was carried out by comparing the results of the Altman and Springate categorization methods and seeing the consistency of the results of each method when compared to the initial categorization. This analysis was conducted to determine the level of consistency of each method. A method is said to be consistent if the method categorizes the sample into a consistent group, where a healthy sample is included in the healthy group and a distressed sample is included in the bankrupt group. On the other hand, it is said to be inconsistent if a method is wrong with

the sample results, where a healthy sample is put into a group other than healthy and a sample with distress is included in a group other than bankrupt.

	S-Score	Z-Score
Consistent	370	340
Inconsistent	195	225
Total	**565**	**565**

After comparing, the results show that the Springate method groups 370 samples consistently and 195 samples inconsistently from the initial categorization. While the Altman method grouped 340 samples consistently and 225 samples inconsistently from the initial categorization. From the above results, it can be concluded that the Springate method has a higher level of consistency than the Altman method.

After calculating the overall S-Score and Z-Score values, grouping them according to the company's financial condition, and looking at the consistency of the model, a comparison of the mean scores between industries was also carried out to see the level of financial health by industry in the manufacturing sector with the following results:

Industry	Mean S-Score	Mean Z-Score
Basic and chemical industry, cement	0.634	4.401
Basic and chemical industry, porcelain and glass	0.858	2.783
Basic and chemical industry, metal, etc	0.801	2.566
Basic and chemical industry, chemical	1.173	2.942
Basic and chemical, plastics and packaging industries	0.907	2.322
Basic and chemical industry, animal feed	1.313	4.355
Basic and chemical industry, wood and its processing	-0.323	-1.662
Basic and chemical industry, pulp and paper	0.610	1.191
Basic and chemical industry, machinery and heavy equipment	0.962	2.722
Various industries, automotive and components	0.901	2.987

Miscellaneous industries, textiles and garments	0.324	3.245
Miscellaneous industry, footwear	0.797	1.817
Miscellaneous industry, cable	1.195	3.041
Miscellaneous industry, electronics	0.892	2.424
Consumer goods, food and beverage industry	1.603	6.587
Consumer goods industry, cigarettes	1.885	9.520
Consumer goods industry, pharmaceutical	1.637	9.266
Consumer goods, cosmetics and household goods industry	1.204	5.519
Consumer goods industry, household appliances	0.709	1.803

Based on the table above, it can be seen that only a few industries are in distress as seen from the mean S-Score, namely the cement industry, the porcelain and glass industry, the metal industry and the like, the wood and processing industry, the pulp and paper industry, the textile and garment industry, footwear industry and household appliances industry.

Meanwhile, judging from the mean Z-Score, only a few industries are in distress, namely the wood and processing industry and the pulp and paper industry. From the table above, it can be seen that the industry with the highest mean S-Score and mean Z-Score is the cigarette industry and the industry with the lowest score is the wood industry and its processing. The calculation results support the statement from the Central Statistics Agency which states that the manufacturing industry experienced positive turmoil during the pandemic.

Condition of Sample Company in 2022

The number of companies that were sampled in this study were 113 companies. The condition of the sample companies is reviewed in 2022 whether the conditions are in accordance with the predictions that have been made.

The review is carried out by checking on the Indonesia Stock Exchange website page. The results of the last review on 27 May 2022 showed that there were no companies that were delisted from the stock exchange in 2021, but several companies received special notations from the Indonesia Stock Exchange, including: PT Asia Pacific Investama Tbk (MYTX), PT Asia Pacific Fibers Tbk (POLY), and PT Sri Rejeki Isman Tbk (SRIL) because the latest financial statements have negative equity. In addition, a special notation was also given to PT Pelangi Indah Canindo Tbk (PICO) due to a request for postponement of debt payment obligations (PKPU).

Conclusion

The following are conclusions that can be drawn based on the results of the analysis and also the discussion that has been described in the previous chapter: 1). Calculations of financial condition carried out by the Springate and Altman methods on manufacturing companies listed on the Indonesia Stock Exchange in 2016-2020 show that the Springate method groups 282 samples into the healthy category and another 283 into the distress category. While the Altman method groups 235 samples into the healthy category, 136 samples into the gray zone category, and 194 others into the distress category. 2). The results of the comparison of the two methods show that the Springate method gives results with a greater consistency value, namely 370 consistent samples and 195 inconsistent samples, while the Altman method recorded 340 consistent samples and 225 inconsistent samples. 3). Not all manufacturing companies experience positive stretches during the pandemic, judging by the numbers and results of the S-Score and Z-Score calculations. Companies that are able to survive with sound financial conditions are large and well-known companies. In addition, manufacturing companies in the pharmaceutical sector appear to have improved in their financial condition, because quite a lot of people are more concerned about health during the pandemic.

The results of this study are expected to contribute to academics and science using the Springate and Altman methods in predicting the bankruptcy of manufacturing companies in Indonesia. Some suggestions that can be given are as follows:

This study shows that the Springate method is a more consistent method than the Altman method in calculating distress performed on manufacturing companies in Indonesia. By predicting bankruptcy, company management can perform early detection of the company's financial condition so that top management and decision makers can take anticipatory actions and develop better strategies so that companies can get out of distress.

This study also has useful results for shareholders and prospective shareholders in detecting the possibility of company bankruptcy. Investors and potential investors can make more careful considerations when choosing which company to fund so that it will be useful to anticipate losses when choosing a company that has a high probability of going bankrupt.

Further research can use company data from other broader industrial sectors besides manufacturing sector companies and using a larger number of companies or a longer period of time. Further research can make comparisons of other financial distress methods which are newer than the Springate and Altman methods.

BIBLIOGRAFI

Advenia Elisabeth. (2021, Juli 27). From www.idxchannel.com: https://www.idxchannel.com/economics/manufaktur-tetap-menggeliat-saat-pandemi-ekonom-kimia-dan-farmasi-paling-pesat

Altman, E. I., Zhang, L., & Yen, J. (2007). Corporate Financial Distress Diagnosis in China. *Salomon Center Working Paper,* (November)

Astrid Faidlatul Habibah. (2022, Februari 7). From www.antaranews.com: https://www.antaranews.com/berita/2688377/bps-5-sektor-dominasi-kontribusi-pdb-ri-kuartal-iv-2021

Bimo Aryo Seto. 2021. Penggunaan Model Altman Z-Score, Springate, Zmijewski, dan Grover Dalam Memprediksi *Financial Distress.* Jawa Timur: Universitas Pembangunana Nasional "Veteran"

Bursa Efek Indonesia, 2022. Indonesian Stock Exchange. Diakses 19 Januari 2022, http://www.idx.co.id/.

Danang Sugianto. (2021, Juli 18). From finance.detik.com: https://finance.detik.com/berita-ekonomi-bisnis/d-5648250/bagaimana-pengusaha-memandang-ppkm-darurat-diperpanjang

Ferbianasari, Hilda Nia. (2012). Analisis Penilaian Financial Distress menggunakan Model Altman Z Score pada Perusahaan Kosmetik Yang Tercatat di Bursa Efek Indonesia. Surabaya: Universitas Negeri Surabaya.

Malaika. 2019. Analisis Tingkat Akurasi Prediksi Kebangkrutan Metode Altman Z-Score, Springate, Ohlson Dalam Kondisi *Financial Distress*. Yogyakarta: Universitas Kristen Duta Wacana

Marisa Fitriani, Nurul Huda. 2020. Analisis Prediksi *Financial Distress* Dengan Model Springate (S-Score) pada PT Garuda Indonesia Tbk. Nusa Tenggara Barat: STIE Bima

Prianto Budi Saptono. (2014, April 18). From www.transformasi.net: http://www.transformasi.net/articles/read/156/psak-1-penyajian-laporan-keuangan.html

Rahmat. 2020. Analisis *Financial Distress* Menggunakan Model Altman Z-Score, Springate, Zmijewski, Grover dan Penilaian Kesehatan Bank Metode Camel. Bandung: STIE Ekuitas

Reni Lestari. (2021, November 07). From ekonomi.bisnis.com: https://ekonomi.bisnis.com/read/20211107/257/1462947/industri-manufaktur-nantikan-momentum-pertumbuhan-akhir-tahun

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Reni Lestari. (2021, Desember 29). From ekonomi.bisnis.com: https://ekonomi.bisnis.com/read/20211229/257/1483121/menperin-beberkan-kunci-manufaktur-bertahan-di-tengah-covid-19

Rully R Ramli. (2021, Juli 14). From Kompas.com: https://money.kompas.com/read/2021/07/14/125547126/bi-cermati-dampak-ppkm-darurat-ke-dunia-usaha

Sarbapriya Ray. 2011. "Assessing Corporate Financial Distress in Automobile Industry of India: An Application of Altman's Model".Research Journal of Finance and Accounting, Vol 2. No 3.