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The Hierarchy Level of Strategy: A Bankruptcy Prediction of the Company using the Altman Z-Score Method in the Coronavirus Disease Period (An Empirical Study on Manufacturing Companies of Various Industry Sub-Sectors Listed in Indonesia Stock Exchange in the 1st Quarter and the 2nd Quarter in 2020)

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Abstract- Coronavirus disease (COVID-19) weakens many business sectors, including the corporate sector. This research uses quantitative method with explanation theory. Thus, researchers are interested in finding out whether there are differences and influence of financial conditions in the 1st and 2nd Quarter of 2020 on manufacturing companies of various industry sub-sectors listed in Indonesia Stock Exchange. This research utilized the Altman Z-Score method. In addition, method of analysis used multicollinearity and binary logistic regression, which data sources were from financial reports in the 1st quarter and the 2nd quarter of 2020 with a sample of 36 x 2 = 72 observations; utilizing purposive sampling technique. The results showed that there was no difference in financial conditions in the 1st quarter and the 2nd quarter. However, there was a significant effect on the variables studied. Therefore, the Altman Z-Scores method is proven to be able to predict financial bankruptcy of manufacturing companies of various industry sub-sectors. Additionally, this research provides a contribution for companies carrying out hierarchical strategies to gain a competitive advantage.

Keywords: *Coronavirus disease, manufacturing companies, Competitive advantage.*

INTRODUCTION

WHO first announced the existence of a corona virus pandemic when it received a report that there was an unknown virus in Wuhan City, China on December 31, 2019. This virus is infecting many people and spreads very quickly, even causing death. Thus, President Joko Widodo on March 2, 2020 made an announcement for the first case of the corona virus in Indonesia. Not long after that, on March 11, 2020, WHO and President Joko Widodo announced the Coronavirus disease (COVID-19) as a global pandemic. Reporting from Waldometers,

there are 121 countries with 126,042 people infected as of March 12, 2020. Tedros Adhanom Ghebreyesus, WHO Director-General, predicts that corona virus cases will continue to increase (Tedros Adhanom Ghebreyesus, 2020).

Furthermore, the rapid spread of COVID-19 is indicated by the number of victims that has increased every day from March to August 2020. This condition requires the government to implement the habit of washing hands, wearing masks, working from home using internet facilities or online systems, as an attempt to stop the spread of COVID-19. Referring to Government Regulation No. 21 of 2020, the government implements physical distancing which is strengthened by the imposition of Large-Scale Social Restrictions (LSSR). The implementation of LSSR certainly has an impact on limiting the economic movement of the community, including private and government sectors. In this case, office operating hours are also limited which of course will significantly disrupt (or are expected to disrupt) the activities of many entities that have an impact on the world economy, including Indonesia.

Moreover, many activities are carried out using the internet, including office work, education sector, and business processes for buying and selling transactions. Sri Mulyani Indrawati, Minister of Finance of the Republic of Indonesia, claimed that there are 4 sectors contaminated and have the potential to adversely affect economic conditions: the household sector, the MSME sector (Micro, Small and Medium Enterprises), the Corporate Sector (such as manufacturing, trade, transportation and accommodation, hotels and restaurants), and the banking sector. She added that the disruption to the activities of the corporate sector is basically caused by the pressure of the COVID-19 outbreak causing a decline in business performance, massive layoffs, and threat of bankruptcy.

Additionally, it is initially thought that the corporate sector would experience pressure in the supply chain, which then lead to pressure in terms of trade and public activity. This is supported by information conveyed by the Head of the Central Bureau of Statistics, Suharyanto (2020), that data in the first quarter of 2020 showed that the economy grew 2.97 percent. However, in the 2nd quarter of 2020, the economy contracted minus 5.32 percent. It was due to the fact that almost all business entities contracted with losses in the form of decreased revenue due to the COVID-19 pandemic. Referring to the aforementioned condition, the researchers decided to conduct a study entitled: "The Hierarchy Level of Strategy: A Bankruptcy Prediction of the Company using the Altman Z-Score Method in the Coronavirus Disease Period (An Empirical Study on Manufacturing Companies of Various Industry Sub-Sectors Listed in Indonesia Stock Exchange in the 1st Quarter and the 2nd Quarter in 2020)".

1.2. Research Problems

This study discusses the following research problems:

1.) Is there a difference between Financial Condition of the 1st Quarter (Q1) and the 2nd Quarter (Q2) in 2020?
2.) Is there a significant influence between Financial Condition of the 1st Quarter (Q1) and the 2nd Quarter (Q2) in 2020?
3.) What strategies should be taken so that the company's financial condition does not get worse?

1.3. Aims of Research

This research aims to answer research problems and the following hypotheses:

1. H01: There is no difference between Financial Condition of Q1 and Q2 in 2020.

H11: There is a difference between Financial Condition of Q1 and Q2 in 2020.

2. H02: There is no significant influence between Financial Condition of Q1 and Q2 in 2020.
   H12: There is a significant influence between Financial Condition of Q1 and Q2 in 2020.
3. To find out the strategies which should be taken so that the company's financial condition does not get worse.

2. LITERATURE REVIEW

In this research, signaling theory is important for developing a model. Here, the capital structure is the signal conveyed by a manager to the market. A manager needs to communicate to investors if he/she believes that a company has good prospects and wants its shares to increase. A manager is able to use more debt as a more credible signal. That a company is confident about its future prospects can be indicated by its increased debt. Investors are expected to pick up on signals that the company has high-quality prospects. Factors influencing capital structure include: Asset Structure (Brigham & Houston, 2006); and Company Size (Brigham & Houston, 2006). Importantly, a deteriorating financial condition, occurring before liquidation or bankruptcy, is known as financial distress (Platt & Platt, 2002). Edward I Altman is a researcher who proposes a Z-Score analysis model for the first time. also known as Multiple Discriminant Analysis (MDA). Altman's MDA formula can be called Altman Z-Score Original. The formula for Altman Z-Score Original Model (for go public manufacturing companies) is (Altman, 1968):

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

In which: X_1 = working capital to total assets; X_2 = retained earnings to total assets; X_3 = earnings before interest and taxes to total assets; X_4 = market value of equity to book value of total debt; X_5 = sales to total assets; Z = Over All Index. Z score is basically the total index of multiple discriminant analysis function. There are Z-score cut-off values that can explain whether the company will experience failure in the future. The cut off value is divided into 3 categories (Altman, 1968):

a. $Z < 1.81$. The company is included in a financial distress category.
b. $1.81 < Z < 2.67$. It is unclear whether the company is healthy (in a grey area).
c. $Z > 2.67$. The company is not in a financial distress category.

Altman revised the developed model as an adjustment so that this bankruptcy prediction model is not only applicable to go public manufacturing companies but can also be applied to companies in the private sector. The old model experienced a change in one of the variables used. Altman changed Market Value of Equity numerator in X4 to Book Value of Equity since private company did not have a market price for its equity. He also changed the coefficient value of everything used (Rahayu et al., 2016). The model of Altman model is called Revised Altman Z-Score, with the formula (for non-public manufacturing companies) (Altman, 1993):

$$Z = 0.717X_1 + 0.847X_2 + 3.107X_3 + 0.420X_4 + 0.998X_5$$

In which: X_1 = working capital to total assets; X_2 = retained earnings to total assets; X_3 = earnings before interest and taxes to total assets; X_4 = book value of equity to book value of total debt; X_5 = sales to total assets;

Z = overall index
Referring to Z-Score, the following is a categorization of bankrupt and healthy companies (Altman, 1993):
a. Z < 1.23. The company is included in a financial distress category.
b. 1.23 < Z < 2.90. It is unclear whether the company is healthy (in a grey area).
c. Z > 2.90. The company is not in a financial distress category.

Distress is firstly defined by Chen et al. (1995) as a condition in which the total value of claims of creditors is more than liquidation of total assets of a company. Happening continuously, it may cause bankruptcy or liquidation. Therefore, depending on credit and liquidity, financial distress is usually related to bankruptcy possibility (Hendel, 1996). There are 3 conditions that need to be understood in finances of a company:

1. From Decline to Crisis

In general, companies have evolving and dynamic economic life cycle, while a physiological state which could be managed by a company is actually a crisis. Crisis, however, is for the most part anticipated with a phase of pre-decline. Its concept is assimilated by proposed systematization, bringing consolidated decline as a consequence. Different and multiple factors may be the causes that may occur individually or, more often than not, in combination (Whitaker, 1999). As noted above, the decline is determined by many factors. Damodaran (2009) highlighted factors causing financial decline. In this case, the corporate crisis is considered a decline. Researchers emphasized that crisis began when businesses were unable to generate value, thus reducing entity value (Guatri, 1992; James, 2009). Here are factors representing causes of decline according to Damodaran (2009):

a. Stagnant or declining revenue. The company's inability to increase revenue over a long period of time is the clearest sign that it is in decline. It is an indicator of the weakness of the operation. The income pattern applies to both the companies analyzed and the whole sector, thereby omitting definition that earnings weaknesses are caused by weak management (and thus can be corrected by establishing advanced management team).
b. Shrinking or negative margins. Stagnant or decreasing revenue of a company is often accompanied by shrinking operating margins. This is because some companies lose their pricing power and some companies lower prices so that revenues do not continue to fall. It then causes negative operating income, added by one-time sale of assets or profits.
c. Asset divestitures. Assets owned by declining companies are occasionally more beneficial for others who are able to use them in better procedures. This support the fact that declining companies tend to experience asset divestment than those which have been established for a long time. The chance of divestment is bigger in case them having major debt, encouraged by a willing to prevent default.
d. Big payouts—dividends and stock buybacks. Growth investments (existing assets, having possibility to produce positive cash flow and divest assets that generate cash inflows) are rarely had by declining companies. It is, however, reasonable that they need to pay big amounts of dividends which are in some points more than their earnings, as well as to buy back shares; it is when they do not have much debt to be concerned.
e. Financial leverage—the downside. It is not surprising that many companies have experienced a decline due to stagnant revenues, declining assets, and enormous debt burdens. Most of the debt may be accrued when

the company is in a healthier life cycle phase and on terms that do not match the current one. Apart from these difficulties, companies are very likely to face additional problems in debt repayment as usually lenders will provide more stringent terms.

There are basically four stages process of companies changing from decline to crisis, in a more evolutionary outlook (Guatri, 1995): (1) Incubation, indicated by declining economic balance; (2) Significant period loss and decreasing inner value of the entity; (3) Cash flows are affected by average profitability, while greater difficulty in borrowing is evidenced by decreased trustworthiness; and (4) Crisis exploitation, which causes serious internal and external effects in terms of financial level, managerial, and economic.

Internal and external crises have been distinguished by some experts. According to Lohe and Calabro` (2017), internal crisis tends to cause sharp decline due to factors which specifically come from companies, worsen by deviations. In terms of managerial point of view, this distinction is more practical considering that, referring to market viewpoint, the objective is to determine whether it is exogenous risk or specific entity issues which cause a crisis. Confirmed by some empirical studies, financial distress cannot be determined by only one of the two (internal or external factors), which one giving more contribution (Andrade & Kaplan 1998; Maksimovic & Phillips, 1998). IDW (2012) advocated that it is very substantial to comprehend wise response towards current situation leading to a crisis. The response or reaction will be wider and faster if the crisis occurs in a deeper and longer period of time. Decline occurs predominantly not only due to one reason. Thus, solutions are made based on various kinds of areas. Grant (2010) added that a prolonged decline can lead to a strategic and financial response.

2. From Crisis to Financial Distress

In order to make classification of studies on financial distress prediction, Outecheva (2007) has classified some of its descriptions. Here, researchers identify three different approaches:

a. Event-oriented definitions (Andrade and Kaplan 1998). It considerably relates financial distress with failure of completing its responsibility (Glen and Singh 2005). Furthermore, financial distress, in predictive analysis, refers to incompetence to protect current liabilities with current monetary assets. However, insolvency of cash flow is not considered a permanent collapse;
b. Process-oriented definition (Purnanandam, 2005). An idea that underlining this idea is that there is an intermediary phase between financial health (solvency) and financial illness (bankruptcy) called financial distress. It indicates that the company needs to conduct some reactions, otherwise bankruptcy may occur. This approach is frequently used in research on restructuring measures and operations.
c. Technical definitions. Fedele and Antonucci (2015), in this case, believed that some literatures following this approach provide definitions in quantitative terms for financial distress, embracing that considerable liquidity emergence is marked by financial indicators. By this approach, financial distress is connected with whether there is non-achievement (or achievement) of predetermined ratio. An assumption was made by Andrade and Kaplan (1998) that there is correspondence between financial distress with the very first year. The company usually has interest expense bigger than EBITDA and intends to reorganize its debt. Accordingly, since this approach focuses more on the past, which can be a criticism, an important point is that interim analysis is able to support predictive examinations and offer a developmental phase. It is necessary to make analysis of financial distress signs which are mostly shown by most of the time ratios.

Nigam and Boughanmi (2017) strongly advocated that a company is able to be considered experiencing economic distress when "the current net worth of the problematic company's business as viability is less than the value of the assets broken up and sold separately". This results in a company being unfit and has to be liquidated. Regardless of the approach used, Walter (1957) stated that insolvency shows that a company does not have a capability to fulfill its ongoing responsibility. This concept is related to "technical insolvency". Altman and Hotchkiss (2010), by this approach, stated that insolvency is essentially interchangeable with financial distress. Description of failure declared by Beaver (1966) corresponds with insolvency concept being revealed. Several researchers have made some examinations on possible relationship between average profitability and financial distress. Hendel (1996) added that insolvency possibility, in other situations is possible to define financial distress.

3. From Financial Distress to Bankruptcy

According to Geng et al., (2015), bankruptcy occasionally appears due to financial distress. This kind of relationship efficiently indicates the concept of business economy arising out of financial distress into legal insolvency regime. In this case, bankruptcy is a disturbing tool to solve a financial problem for a business, considering that operations have clearly ceased at a significant cost (Laitinen, 2013; Markwardt et al., 2016). Bankruptcy has been discussed by some scholars who claimed that it is not the most excellent legal solution to the crisis. For many situations, operation layoffs are bound to disrupt the company, which can return greater assets to the company (Ball & Foster, 1982).

Another important point is that "reorganization theory" offers deep roots in study of business economics and aims to maintain social functioning of a company which requires in-depth analysis of potential alternatives to corporate death (Altman & Hotchkiss 2006). Failure tends to be more in an economical concept. It has a willing to underlie that average profitability in a company is irreversibly and significantly more than realized rate of return on investment. In other words, the characteristics of benefits are far from covering associated costs. It has been concluded by some research that variables and financial indicators are not the most substantial aspects to make a prediction toward bankruptcy (Blanco-Oliver et al., 2015). Much of research included in this literature tends to include an idea of financial distress in the broader area of financial risk and/or management (Altman et al., 2010).

Aforementioned terms definitely refer to the connection with responsibilities acquired by third parties. It suggests that there is a bigger chance of experiencing financial distress for a company with bigger debt. Several experts attribute levels of debt to corporate bankruptcy or default. Several studies have focused on the creditworthiness of SMEs, considering that small companies have smaller internal capital (Altman & Sabato, 2005). Life sustainability is a principle with a high degree of popularity among bookkeepers, auditors, and accountants (Fremgen, 1968).

Some of the literature that has studied company bankruptcy includes:

1. Weiss (1990). He found that direct bankruptcy costs are predicted by average 1-6.6% market value of equity by the time before filing for bankruptcy at the closing of fiscal year added by 3.1% of the book value of debt.
2. Altman (1984a). Indirect costs were defined as lost profits and sales, which according to Alman, were generated by unwillingness of customers to build a business with companies that have potential of

bankruptcy, expanded expenses of conducting business (for example large amount of debt and bad relationship with suppliers), and at some points financially unsafe. He studied 19 bankrupt industrial and retail companies at the period of 1970–1978. There were 7 large-scale industries experiencing bankruptcy from the early 1980s in the 2nd group. At the end, he finally discovered 10.5% average indirect costs calculated ahead of bankruptcy. The average direct and indirect costs were 16.7% of the company value. It signifies a large bankruptcy cost.

3. Taillard (2013) followed Andrade and Kaplan's methodology to deduce the indirect costs of financial distress using fifteen large companies experiencing financial distress which were susceptible to asbestos litigation around 2000. He, remarkably, discovered that distress created a net profit of 5 to 35% of the company value.
4. Opler and Titman (1994) recognized an issue of reverse causality in studies that attempted to link financial distress and decreased performance. Their approach was to make identification of stressed industries experiencing economic stress based on negative industry sales growth and an average stock return under –30%. In that industry, they investigated whether highly leveraged companies prior to the start of the stress period had different rates than their more conservative, financed correspondent.
5. Ciliberto and Schenone (2012). They conducted study on various product market outcomes by involving 31 airlines that made submission in the period of 1992-2007. Those airlines were found having canceled approximately 25% routes before experiencing bankruptcy and 21% decreasing average flight frequency. Besides, it was also discovered that bankrupt airlines lowered their prices to 3.1%, and after inception they increased it by 5%. They used 21 airlines' quarterly data from 1997 to 2008.
6. Phillips and Sertsios (2013). They discovered that financial distress can be indicated by declining prices. Results further demonstrated that service quality increased bankruptcy but decreased in financial distress, which was determined the total of by flight delays and mishandled bags. It showed that airlines grew customer retention and bankruptcy suggesting that airlines were investing in customer retention and reputation in bankruptcy.
7. Hotchkiss and Mooradian (2004). The most significant difference from prior research is that larger companies, which became more prominent in later sample years, performed better on this accounting measure. However, even for the larger companies in the updated sample, more than two-thirds of companies underperformed in similar industries up to five years after bankruptcy, and more than 18% of sample companies had negative operating income in the year following its inception.
8. Denis and Rodgers (2007) also studied post-bankruptcy operating performance. They discovered that reorganizing operations at the time of bankruptcy was connected with higher industry-adjusted operating performance and bigger possibility of emergence.
9. Chaterine M. Daily (1994) discussed the contribution of behavioral, environmental, financial/accounting, and legal approaches to bankruptcy. Challenge faced by organizational researchers today covers integration of these diverse perspectives, especially those applied to strategic studies.
10. Monteiro et al. (2019) conducted an in-depth investigation of a series of reorganization plans by public companies in Brazil. Their findings indicated that the increase in a company performance is positively associated with a good diagnosis of factors causing crisis, a clear definition of company resources, and a clear identification of company's competitive strength. They also found that absence of a sound industry analysis is a critical condition for failure of reorganization plans.

11. Sheppard (1994) reviewed several strategy variables and investigated the paths most likely to hold the greatest potential for changing the likelihood of a company failure. An exploratory model was developed to study the effects of a company and business level strategy, as well as interorganizational strategy and cooperative finance. A significant and consistent positive relationship was found between viability and number of relationships between company organizations in the form of relationships between directors. A significant and consistent negative relationship was found between viability and corporate financial leverage.
12. James (2016) predicted theoretically, which was then tested in a research of publicly traded companies from 1980-1999. Intangible assets and assets that can be efficiently sold in bankruptcy positively affect likelihood that a company will file a contract and reset it in a few years. Furthermore, unfavorable execution contracts with key stakeholders, an area previously unexplored, positively affect the likelihood of the company filing and rearranging in bankruptcy.
13. Sosa (2014) showed when product performance volatility generates volatility in company-level outcomes, de novo corporates can cap negative consequences through bankruptcy, an alternative that is extremely costly for established companies (both incumbents and diversifiers) due to their complex company structure.
14. Dawley et al. (2002) showed the usefulness of viewing bankruptcy reorganization as a different choice situation, in which companies have various levels of strategic choices. They are determined largely by their supply of reusable resources, and face varying degrees of environmental constraints. Only companies with relatively high strategic choice or low environmental constraints benefit from refocusing action.
15. Sudarsanam and Lai (2001) conducted a research on corporate turnaround from financial distress and finally provided some strategies to effect corporate recovery. However, there is still very little research looking into general applicability and effectiveness of these strategies. They tested the effectiveness of the strategy and identified factors underlining effectiveness (impact of time), intensity and strategy implementation on company recovery. They also examined a sample of 166 potentially bankrupt UK companies taken from 1985 to 1993 and tracked their turnaround strategy for a three-year period of distress. This strategy included operational, asset, managerial and financial restructuring.
16. Moulton and Thomas (1993) examined the proposed bankruptcy strategies and some alternative perspectives of their costs and benefits followed by an empirical study of the results of 73 bankruptcies and subsequent reorganization attempts. Evidence suggested that there are few successful reorganizations. Bankruptcy is a costly response to financial distress, and management choices in bankrupt companies are severely constrained by forces outside the company. Firm measure rules all other components in foreseeing success in completing the reorganization handle.
17. Elias (2004) conducted a research and found that companies have a social obligation beyond maximizing shareholders' value. This research analyzed the impact of high-profile a company bankruptcy on discernment of company social duty. The results showed that students generally perceived company social responsibility to be more important to the profitability and long-term success of the company and less important to the short-term success of media advertising of company wrongdoing.
18. Fathonah (2017), the results of his research show that the composition of the independent board of commissioners has a significant negative effect on financial distress. Meanwhile, institutional ownership, managerial ownership and the audit committee, respectively, have negative, positive and positive effects on financial distress, but not significant.

19. Yen et al. (2011), shows results introduces a framework for classifying ERP errors into logical categories that provide insights for solution derivation. This study uses a mismatch classification method to obtain appropriate measures as a solution to ERP errors based on their nature or specificity.

Hierarchy Level of Strategy

The business definition strategy is a pattern of actions and allocating resources to achieve organizational goals. This strategy is usually divided according to the organizational level, is shown in Figure 1. The lower layer strategy comes from a broader top-level strategy. The level of detail increases, and the planning time frame decreases from top to bottom at the hierarchical level. At the highest level is corporate strategy. A strategy identified with the business, market, or industry in which the organization competes and the distribution of resources among those businesses. The four fundamental corporate strategies are concentration, vertical integration, concentric diversification, and conglomerate diversification (Pearce II & Robinson, 2009).

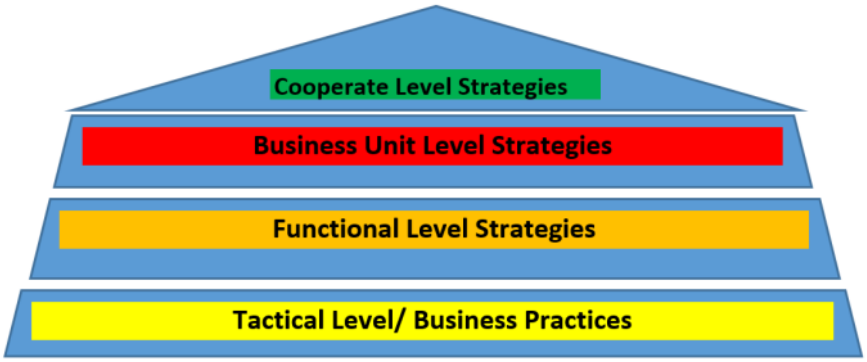

Figure 1. Hierarchy Level of Strategy
Source: Pearce et al. (2000) and Yen et al. (2011).

Strategic management is a series of managerial decisions and actions (Wheelen & Hunger, 2004) resulting from the process of formulating and implementing plans (Pearce & Robinson, 2005) in order to achieve the goal of competitive advantage. Hierarchical strategy is a branch of science studied in strategic management (Solihin, 2012). Potter (1989) believed that there are 3 strategies for a corporation consisting of several business units, including:

1. Grand Strategy

Grand strategy (corporate strategy) is a branch of science studied in strategic management (Solihin, 2012). According to Wheelen and Hunger (2004), there are 3 types of grand strategy:

1. Growth Strategies. There are 3 kinds of growth strategies: vertical integration, horizontal integration, and diversified integration. Here, the company develops business activities both concentrated in the current industry (vertical integration by Barney & Hesterly, 2008) and diversifies with new industries outside the industry that has been the company's business domain (horizontal integration by Wheelen & Hunger, 2004). Besides, a diversification strategy is a process to add one or more new businesses to a company's business portfolio that is different from the company's current line of business. Thus, a diversified company is a

company consisting of 2 or more different businesses.

2. Stability Strategy. Stability strategy is characterized by the continuation of the company's operations with its current activities (Wheelen & Hunger, 2004) without any significant changes in the company's business management. This strategy consists of:

a. Pause with Caution Strategy. In this strategy, the company decides to stop continuing its growth strategy business growth exceeds previous estimates. It results in the company no longer able to manage the company effectively.

b. No Change Strategy. This strategy does nothing new. In other words, the company prefers to continue its current operations and activities since changes in the external environment in the future are relatively predictable.

3. Retrenchment strategy. This strategy is carried out when a company has various weaknesses in several products or all products so that the company cannot gain a competitive advantage which results in poor company performance. This is reflected in the continuous decline in sales and profit. This business shrinkage strategy is divided into several types:

a. Turnaround Strategy. When a company chose this strategy, it emphasizes making improvements to operational efficiency as the main problem due to too high overhead costs from various unnecessary activities or from high production costs (Wheelen & Hunger, 2004).

b. Divestment Strategy. This strategy is carried out by selling a company to other companies at a better selling price for the shareholders. It is conducted as an attempt to make sure that employees can still work for the company after it is sold (Wheelen & Hunger, 2004). This strategy is chosen if the company has a very weak competitive position, in which if it is left for longer, then the company value will decrease. This strategy is chosen if the company sees better business opportunities in other industries.

c. Bankruptcy / Liquidation Strategy. This strategy is chosen when a company is declared bankrupt and must undergo liquidation. It is when the company is no longer able to fulfill its obligations to creditors. Liquidation can be taken in 2 ways: 1) voluntary liquidation (liquidation that is done voluntarily); and 2) compulsory liquidation (liquidation determined by court).

2. Business strategy

This strategy is created at the business, divisional, or product level. It focuses on increasing the competitive position of the company's products or services in a particular industry or market segment. A manager at the division level will develop a plan at the business level that includes long-term goals of business unit enabling achievement of corporate goals as well as creation of a strategy and control structure at the divisional business unit level. There are 3 types of this strategy:

a. Cost Leadership. This strategy includes the lowest costs than other companies in an industry. The company's cost advantages can come from various sources such as advantages of economies of scale, application of appropriate technology, having access to more profitable raw materials than competitors, low selling prices but still getting a margin than competitors and low costs that hinder the entry of potential competitors in the same industry.

b. Differentiation. This strategy is carried out by the company to have a unique value for consumers in certain dimensions of the products produced so that consumer needs can be met. This differentiation can be conducted in terms of the product itself, order delivery system, or marketing approach.

c. Focus. Choosing this strategy, the company will select one or several segment groups in an industry. They then develop strategies suitable for those segments that are not being served well by other competitors with a wider market coverage. Porter (1998) divided the focus strategy into two parts: cost focus and differentiation focus. Cost focus will try to reach customers who have a need for products at a lower cost in an industry that cannot be served well by other companies with a wider market scope. Conversely, differentiation focus will try to reach customers who are not well served by other companies by offering products or services that are different from competitors.

3. Functional strategy

This strategy is used at the functional level, where managers oversee each of the organizational functions such as the production, accounting, marketing, and human resources functions in a business division of a corporate company that develops plans at the functional level. Functional strategy is a strategy made by each function of the company organization (for example, marketing strategy, financial strategy, production strategy) as an attempt to create better competence than competitors. It is expected that it will enhance competitive advantage to achieve divisional and corporate goals. Hill and Jones (2004: 110) claimed that the goal to be achieved through the implementation of strategy at the functional level is to increase the company's operational effectiveness so that it can gain advantages in terms of cost efficiency, product quality, innovation and ability to respond to customer needs.

METHODOLOGY

This research is a quantitative research with explanatory characteristics based on theory. The data used were secondary data taken from the financial reports of subsector companies listed in Indonesia Stock Exchange including metal and allied products sub-sector (16 companies), machinery and heavy equipment sub-sector (5 companies), automotive and components sub-sector (13 companies), electronics sub-sector (3 companies) and cable subsector (7 companies). The total population in this study were 44 sub-sector companies. Quantitative method aimed to maximize objectivity and replication, generalize research findings and was usually more related to predictions (Harwell, 2011). The research method used in this study is an associative method with a causal relationship. The associative method is research that asks about the relationship between two or more variables, while the causal relationship is a causal relationship (Sugiyono, 2012). Sampling was conducted using purposive judgment sampling (Edison, 2018). It means that companies sampled had to meet the following criteria:

1. Companies must be listed on Indonesia Stock Exchange in a row and may not be out of the list within the previous 3 years including 2020.
2. Companies publish online versions of their financial reports within the previous 3 years including 2020.
3. All item accounts in financial statements presented do not have a value of '0' in 2020.
4. Parameters for all the proxy values required in this research variable are in the period of Q1 and Q2 in 2020 (January 2020 until June 2020) at financial report non audited annual year.

There were 36 companies from the total sub-sectors that meet these 4 criteria. This research included panel data research; data which have a large number of companies (cross section) and were analyzed within a certain period of time (time series). Thus, number of samples in this study was 36 x 2 = 72 observations. Data obtained

in this study were secondary data (Sekaran, 2014), which were collected from literature books, online journals, online mass media and financial reports of companies from Indonesia Stock Exchange 2020. There were two data analysis methods to test hypotheses: multicollinearity analysis and binary logistic regression analysis. Multicollinearity test (correlation analysis) aimed to test whether the regression model found a correlation between independent variables. A good regression model should not have a correlation between independent variables. In this research, assumption of multivariate normal distribution cannot be fulfilled by discriminant analysis since independent variable was a mixture of continuous (metric) and categorical (non-metric) variables. In this case, it could be analyzed with logistic regression analysis because the assumption of data normality on the independent variables was not required. Therefore, logistic regression was used if multivariate normal distribution assumption was not met (Ghozali, 2016).

Logistic regression analysis can be divided into 2 forms: binary logistic (for 2 categories) and multinomial logistic (for more than 2 categories). In this research, researchers used binary logistic regression by having 2 categories, including financial distress (coded = 0) and green area (coded = 1). Data measurement scale used in this study was all independent variables which were ratio, and dependent variable which was nominal consisting of the value of financial distress (coded = 0) with a value of $Z < 2.67$, while green area (coded = 1) with Z value > 2.67. Additionally, method used in this research was the Altman Z-Score Original, with the following formula (for go public manufacturing companies) (Altman, 1968):

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

In which: X_1 = working capital to total assets; X_2 = retained earnings to total assets; X_3 = earnings before interest and taxes to total assets; X_4 = market value of equity to book value of total debt; X_5 = sales to total assets; Z = Over All Index. The Z value was the overall index of multiple discriminant analysis function. There were Z-value cut-off figures that could explain whether the company would experience failure in the future. The cut off value was divided into 3 categories (Altman, 1968):

a. $Z < 1.81$. The company is included in a financial distress category.
b. $1.81 < Z < 2.67$. It is unclear whether the company is healthy (in a grey area).
c. $Z > 2.67$. The company is not in a financial distress category.

4. RESULTS AND DISCUSSION

Results

Table 1: Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	WCTA	.659	1.517
	RETTA	.702	1.424
	EBITTA	.556	1.798
	MVEBVT	.978	1.023

	STA	.783	1.278

a. Dependent Variable: ZSCR

Table 2: Dependent Variable Encoding

Original Value	Internal Value
0	0
1	1

Table 3: Iteration History[a,b,c]

Iteration		-2 Log likelihood	Coefficients Constant
Step 0	1	98.922	-.222
	2	98.922	-.223

a. Constant is included in the model.

b. Initial -2 Log Likelihood: 98.922

c. Estimation terminated at iteration number 2 because parameter estimates changed by less than .001.

Table 4: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-.223	.237	.885	1	.347	.800

Table 5: Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	WCTA	19.099	1	.000
		RETTA	24.357	1	.000
		EBITTA	34.195	1	.000
		MVEBVT	.705	1	.401
		STA	7.979	1	.005
	Overall Statistics		40.768	5	.000

Table 6: Omnibus Tests of Model Coeffiecients

		Chi-square	df	Sig.
Step 1	Step	98.922	5	.000
	Block	98.922	5	.000
	Model	98.922	5	.000

Table 7: Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.000	6	1.000

Table 8: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	.000[a]	.747	1.000

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Table 9: Classification Table[a]

Observed		Predicted			
		ZSCR		Percentage Correct	
		0	1		
Step 1	ZSCR	0	40	0	100.0
		1	0	32	100.0
	Overall Percentage				100.0

a. The cut value is .500

Table 10: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	WCTA	113.006	11313.176	.000	1	.992	1.196E+49	.000	.
	RETTA	57.325	2735.016	.000	1	.983	787166466670167 9000000000.000	.000	.
	EBITTA	52.193	4228.251	.000	1	.990	464765866977781 70000000.000	.000	.
	MVEBVT	48.566	2985.276	.000	1	.987	123634493896789 1400000.000	.000	.
	STA	-724.990	105922.048	.000	1	.995	.000	.000	.
	Constant	-146.752	5873.531	.001	1	.980	.000		

a. Variable(s) entered on step 1: WCTA, RETTA, EBITTA, MVEBVT, STA.

Table 11: Correlation Matrix

		Constant	WCTA	RETTA	EBITTA	MVEBVT	STA
Step 1	Constant	1.000	-.438	-.601	-.705	-.715	.211
	WCTA	-.438	1.000	-.101	.326	-.059	-.861
	RETTA	-.601	-.101	1.000	-.052	.535	.008

	EBITTA	-.705	.326	-.052	1.000	.491	.045
	MVEBVT	-.715	-.059	.535	.491	1.000	.213
	STA	.211	-.861	.008	.045	.213	1.000

Discussion

In this research, analysis was carried out by comparing Block 0: Beginning Block and Block 1: Method = Enter processes. Following are Interpretation and Analysis:

1. Multicollinearity Test. It was to see whether there was a correlation between independent variables in regression model. A good regression model should not have a correlation between independent variables. The condition that there is no multicollinearity can be seen from Tolerance Value > 0.10 and VIF < 10.
2. Iteration History was used to determine a regression model better at predicting, provided that the value of –2 log likelihood in Block 1: Method = Enter was less than the value of Block 0: Beginning. It can be concluded that the regression model of Block 1: Method = Enter was better to predict. It can be seen from the value of Block 0: Beginning 98.922, while the value of Block 1: Method = Enter was generally below 98.922. It can also be seen in the attached data or supporting data in this study.
3. Omnibus Test of Model Coefficient. The difference between the value of -2 Log Likelihood Block 0 Beginning 98.922 with -2 Log Likelihood Chi-Square with df (30-5-1 = 24) at Alpha 0.05 was 42.55697, less than 98.922. It could identify that independent variables could have a real influence on the model. In other words, the model was declared Fit. Besides, the significance level on Omnibus Test of Model Coefficient <0.05 can be said that simultaneously the independent variables used in this study had an effect on the dependent variable.
4. Contingency Table for Hormer and Lemeshow Test. It aimed to assess the fit of the model (Goodness of Fit). There were 2 stages:

a. Testing hypotheses; if Alpha is greater than 0.05, H0 is accepted and H1 is rejected. It can be seen from significance levels of hosmer and lemeshow test which were greater than 0.05, meaning that there was no difference between the financial distress and the green area.
b. The model is declared good if the chi-square value = 0 and the significance level value> 0.05. In the hosmer and lemeshow test tables, it was obtained that the chi-square = 0 and the significance level value of 1.000 which supported that H0 was accepted while H1 was rejected.
c. Goodness of Fit 2 Log Likelihood test was done by using one of the Cox and Snell R2 and Nagelkerke R2 values. Cox and Snell R value was 74.7 % or 100% Nagelkerke R2, meaning that independent variables tested in this study contributed between 74.7% and 100% to the company's financial condition.

5. Classification Table. It was applied to determine accuracy of observed predictions between 2 different circumstances with the following conditions: Classification was based on 2 opposite states of difference in the SPSS Process; the first block was Block 0 or Beginning Block and the second block was block 1 (Block 1 Method = Enter). Financial condition observed through 5 independent variables in this study had the same high presentation between the 1st quarter and the 2nd quarter during COVID-19 pandemic.
6. Variable in Equation. The 5 (five) significance values of these independent variables included: X_1 = working capital to total assets; X_2 = retained earnings to total assets; X_3 = earnings before interest and taxes to total assets; X_4 = market value of equity to book value of total debt; X_5 = sales to total assets; all values were close to 1. Since the significance value exceeded median value (0.05), each of these 5 variables had a

significant effect on changes in the company's financial condition in the 1st quarter and 2nd quarter during COVID-19 pandemic.

7. The binary logistic regression equation, from data processing, obtained:

$$\text{Ln}\frac{p}{1-p} = -146.752 + 113.006 + 57.325 + 52.193 + 48.566 - 724.990$$

8. Variables x1 and x5 in this research provided the largest increase for companies experiencing financial distress and those in the grey area. Companies under research could still survive until the 2nd quarter, but these 5 variables can be used as determinants to predict bankruptcy (recession) in the coming year.
9. Correlation Matrix. It is to see whether it moves in the same direction as variable Y. The relationship between independent variables is generally positive or in the same direction as variable Y, so that the assumption of multicollinearity was fulfilled and the binary logistic regression equation was valid to use.
10. Referring to the results of data processing, the company needs to carry out three hierarchical strategies including corporate strategy, business strategy, and functional strategy.

5. CONCLUSION

The following are some conclusions referring to the results obtained:

1. Answering the hypothesis testing in which no difference is found between the predicted and observed financial conditions during COVID-19 pandemic. Additionally, there is a significant influence between the Q1 and Q2 Financial Conditions during COVID-19 pandemic.
2. Each of the 5 independent variables in this research has a significant influence simultaneously and partially on changes in the company's financial conditions during COVID-19 pandemic. Therefore, these variables can be used as variables in determining bankruptcy of a company. Based on existing data, there are several companies experiencing bankruptcy, but these companies can still operate even though profits have continued to decline. They can still be supported by assets, sales, accounts receivable or other income.
3. Variables x1 and x5 in this research provide the greatest increase for companies experiencing financial distress and those in the grey area during COVID-19 pandemic. The companies under research can still survive until the 2nd quarter, but these 5 variables can be used as determinants to predict bankruptcy (recession) in the coming year.
4. Here is binary logistic regression function obtained in this study:

$$\text{Ln}\frac{p}{1-p} = -146.752 + 113.006 + 57.325 + 52.193 + 48.566 - 724.990$$

   Binary logistic regression function indicates that if working capital to total assets and sales to total assets decrease, a company's financial condition will decline. If retained earnings to total assets and earnings before interest and taxes to total assets and market value of equity to book value of total debt increase, the company's financial condition will increase.
5. The appropriate strategy for the company to do is corporate strategy, business strategy, and functional strategy.

Based on the research results, here are some recommendations that can be given:

1. The Altman Z-Score formula used is the appropriate formula for companies engaged in go public manufacturing industry. Thus, researchers recommend that companies, especially those engaged in industry, should consider the 5 independent variables in this research (X_1 = working capital to total assets; X_2 = retained earnings to total assets; X_3 = earnings before interest and taxes to total assets; X_4 = market value of equity to book value of total debt; X_5 = sales to total assets;) to indicate level of decline and bankruptcy of an industrial company during COVID-19 pandemic. The researchers observed that from the calculation of the 5 independent variables, there were several companies experiencing a decline in terms of profits, working capital, assets, market value, sales value and increased debt. However, until the 2nd quarter of 2020, the company was still able to survive. According to researchers' observations, many companies under research experienced financial distress, in this case the code number 0 (zero), which is 55% and the remaining 45% is in the green area.
2. In order to extend the runway of companies, researchers suggest companies to implement a Bankruptcy or Liquation Strategy by holding companies by merging or acquiring mining companies so that the value chain between suppliers can be controlled. Companies also should not need to import raw materials. After that, companies can implement a horizontal integration strategy and business differentiation strategy, by which they are expected to be able to produce eco-friendly products using technology, for example creating frames and engines of 2-wheeled and 4-wheeled motor vehicles with electric fuel, or creating communication products such as cell phones which are capable of displaying live television broadcasts, cinema films, playing songs and other entertainment without a connection to a power cable and can be broadcast via mobile phones without using other auxiliary machines. Thus, the concept of CSR as a company that produces eco-friendly products can be fulfilled.
3. Companies need to implement a functional strategy and cost leadership by making improvements to operational efficiency through integrated governance with company plans and objectives, business processes by placing superior human resources (having expertise or skills, innovative, creative, positive impact thinking, good personality). In addition, companies also need to improve their business production processes, financial reporting and marketing strategies. All of these are integrated into good governance in accordance with the desired plans and objectives. Besides, technology should also be used in order to cut the chain of activities causing inefficient costs both in operations and producing goods. Importantly, companies need to secure data from data hackers. Last but not least, restructuring of accounts receivable to third parties experiencing financial distress and debt restructuring if the company is experiencing financial distress need to be carried out.
4. Strategies recommended in this study should be implemented immediately, especially for companies experiencing a decline to a crisis condition and from a crisis to a financial distress. Otherwise, it is more likely to affect economic condition of a country, particularly Indonesia. Meanwhile, companies that have gone bankrupt are advised to implement these strategies to start a new business activity.
5. Muchly, Micro, Small and Medium Enterprises have contracted due to the impact of the Corona Virus, through this research trying to improve Indonesia's economic conditions from the upstream sector with the thought that if the upstream economic sector is repaired then the downstream economic sector will automatically revive. Financial improvements in the upstream economy sector to give the biggest positive contribution impact and a good signal for the Indonesian economic growth. So that companies operating in

the territory of Indonesia are on location to find out what products and businesses are produced and carried out in the country.

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