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# THE EFFECT OF RISK MANAGEMENT DISCLOSURE, INSTITUTIONAL OWNERSHIP, AND MACROECONOMIC SENSITIVITY TO FINANCIAL DISTRESS IN SHIPPING COMPANIES ON THE INDONESIA STOCK EXCHANGE (IDX)

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**Abstract**
This research is a quantitative research that aims to determine the effect of Risk Management Disclosure, Institutional Ownership, and Macroeconomic Sensitivity on Financial Distress at shipping companies on the Indonesia Stock Exchange (IDX). The data used is panel data of shipping companies on the Indonesia Stock Exchange (IDX), for the period 2016 - 2020. The research was carried out in two stages, first testing the potential financial distress score of the sample with the Modified Altman Z-Score model. Second, testing the effect of risk management disclosure, Institutional Ownership, and Macroeconomic Sensitivity on financial distress with Logistics Regression using the Eviews program and a significance level of 5%. The results of the first stage of testing obtained that the potential score for the modified Altman model was an average of 44.12% of shipping companies on the IDX from 2016-2020, in the distress area zone. The second stage, namely the disclosure of Risk Management, Institutional Ownership, and Macroeconomic Sensitivity, namely the sensitivity of exchange rates, inflation, interest rates, and oil prices, simultaneously affect financial distress. Partially, risk management disclosure and interest rate sensitivity have a significant effect on financial distress, while Good Corporate Governance, exchange rate sensitivity, inflation, and oil prices have no effect.

**Keywords**: Financial Distress, Risk Management Disclosure, Institutional Ownership, Macroeconomics Sensitivity.



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## INTRODUCTION

Indonesia is an archipelagic country with a geopolitical location covering 17,000 large and small islands stretching from Sabang to Merauke along the equator. The function of sea transportation is very important for the Indonesian economy. The shipping and shipping industry is experiencing ups and downs when the Indonesian government is accelerating the implementation of the Sea Toll project and making Indonesia a maritime axis. One of the factors causing the sluggishness of the shipping transportation industry is the existence of government rules or policies, which prohibit the export of raw materials which causes a decrease in the number of transportation services.

High price volatility and operating cycles make risk management one of the important issues in strategic management in the shipping industry. The shipping industry is a service industry that earns revenue from domestic and foreign cargo transportation and domestic and foreign transport services. It is estimated that the shipping market deals with about 90% of trading volume worldwide (Alan Branch, 2013). Global shipping routes have connected countries with countries, as well as continents through trade and economic relations (Tulyakova et all, 2019). From the financial statements of shipping companies on the Indonesia Stock Exchange (IDX), out of 20 shipping companies listed on the Indonesia Stock Exchange, in 2016, 10 companies posted their operating net profit with a loss position, in 2017 10 companies lost money, in 2018 there were 8 companies with loss-making positions, in 2019 there were 9 losses, and in 2020 there were 8 companies losing money from 19 companies. There were regional restrictions due to the Covid-19 pandemic, which caused a decrease in export-import activities so the demand for shipments fell.

Faradila & Aziz (2019) stated that the criteria for companies that experience financial distress are: (1) several years of obtaining a negative operating net profit; (2) stop the payment of dividends; and (3) undergo a major restructuring or termination of business. According to (Haider et all, 2015) since the financial crisis of 2008, bankruptcies among companies operating in the shipping industry have become commonplace. Lizal revealed 3 Basic Models of Bankruptcy/Trinity Causes Financial Hardship (Rohiman & Damayanti, 2019). First, the Neoclassical model creates financial distress and bankruptcy in the company due to poor allocation of resources (assets) in the company's operating activities. Secondly, a financial model in which the company's asset mix is correct but the financial structure is not good due to the limited liquidity of the company. Third, the corporate governance model, where the company has the correct mix of assets and financial structure, but is not managed properly and efficiently. Liou and Smith revealed that macroeconomic conditions are also another aspect that can cause financial distress (Kholisoh & Dwiarti, 2020).

Research that predicts financial distress, namely (Jumaizi & Tuzaka, 2021), examines financial problems and predicts the occurrence of financial distress in 6 shipping companies on the IDX using the Altman Z-Score model. Hasi research (Agustin et al, 2019) shows that liquidity, leverage, and profitability have a significant effect on financial distress. (Luthfiyanti & Dahlia 2020) revealed that the application of risk management to companies affects financial distress. (Lelu & Thamrin, 2021), reveals the influence of corporate governance characteristics on financial distress. Research (Damayanti & Kusumaningtias, 2020) shows that independent directors and audit committees have a positive effect on financial distress. Meanwhile, institutional ownership, managerial ownership, and independent commissioners do not affect financial distress. Other factors that affect financial distress are macroeconomic conditions such as interest rates, exchange rates, and inflation as conducted (Danaswari, 2020). The results of the study showed that the variables of exchange rate sensitivity, inflation sensitivity, interest rate sensitivity, and world crude oil price sensitivity did not affect financial distress. Research (Rohiman & Damayanti 2019), examining external factors on financial distress shows that the results of inflation research partially have no significant effect on financial distress, exchange rates partially have a significant effect on financial distress, and partial exchange rates do not have a significant effect on financial distress.

Based on these studies with diverse results, it is necessary to conduct research on financial distress in shipping companies because of the uniqueness of the industry and the impact that will occur if there is a decline in the shipping industry. Therefore, the purpose of this study is to see the influence of the application of risk management, institutional ownership, and macroeconomic sensitivity to financial distress that is being faced by shipping on the IDX in the 2016-2020 period.

## LITTERATURE STUDY

Previous research can be used as a reference, basic clue, and consideration used as a frame of mind in a study. Jumaizi and Eliya Tuzaka (2021) tested the prediction of financial distress of marine transportation service companies on the IDX. Ade Elza Surachman (2021) tested the prediction of financial distress of Transportation Companies on the IDX in 2019-2020. Elisabeth Juliana Lelu and Hakiman Thamrin (2021) examined the influence of corporate governance characteristics on financial distress. Maria Hendriani, Dean Subhan Saleh, and Rika Kartika (2021) predict textile and garment companies on the Indonesia Stock Exchange in the 2016-2018 period that experience financial distress. Nur Khalizah Luthfiyanti and Lely Dahlia (2021) examined the impact of implementing corporate risk management as an effort to avoid financial distress. Novita Dwi Damayanti (2020) examined the influence of corporate governance on corporate financial problems in the infrastructure, utilities, and transportation services sectors on the IDX in 2015 and 2017. Resa Meita Ary Putri, Hadi Paramu, and Intan Nurul Awwaliyah (2020) examined profitability ratios, solvency ratios, cash flow ratios, activity ratios, and cash positions to have an influence on financial distress in subsector, transportation, utilities, and infrastructure service companies in 2013 - 2018. Satrio Ardi, Desmintary, and Fitri Yetty (2020), researched liquidity, leverage, and profitability influence financial distress. Ratu Icha Agustin, Yul Tito Permadhy, and Sri Mulyantini (2019) examined the effect of liquidity, leverage, and profitability on financial distress. Sabrina Firdausi Rohiman and Cacik Rut Damayanti (2019) tested the influence of external factors including inflation, exchange rates, and exchange rates on financial distress in IDX-listed companies. Sheilla Priyatnasari and Ulil Hartono (2019) examined factors that affect companies in the trade, services, and investment sectors in financial distress conditions. Sumani (2017) tested financial ratios such as current ratio (CR), return on assets (ROA), total assets turnover (TATO), debt to asset ratio (DAR), and sales growth (GROWTH) to influence macroeconomic factors such as exchange rate sensitivity and interest rates, as well as their impact on financial distress predictions in Indonesian primary sector companies. Jubedah, Ivan, and Abdul Razak (2016) examined how the value of companies in the Indonesian textile industry can be influenced by financial performance, capital structure, and macroeconomic factors. Jane Jing Haider, Zhirong Ou, and Stephen Pettit (2015) research predicting shipping company failures and their financial performance. Savera Helena and Muhammad Saifi's research (2018) aims to find out that Good Corporate Governance influences financial distress.

Tandiontong (2016) states that company owners should delegate company control to professionals because they have better skills regarding company management. Creating a contract model between two or more parties, according to Jensen and Meckling, is the goal of agency theory, which is a version of game theory (Tandiontong, 2016). The company in carrying out its business activities has two main objectives, namely: First, short-term goals to make a profit. Second, the long-term goal is to improve the welfare of the company's owners. In signal theory, it can be interpreted as a company's signal to investors, which can be directly observed or requires more in-depth research, which can be either a negative signal or a positive signal (Rahmayani & Anggraini, 2021). This theory is the impact of the emergence of information asymmetry between managers and parties who have interests that are seen through financial statements (Putra & Jubaedah, 2016). Based on signal theory, this research will examine how the influence of risk management disclosures, institutional ownership, and macroeconomic sensitivity on the financial distress of shipping companies on the IDX, which will give signals to company owners and investors.

### Financial Distress

Financial distress is a situation where a company faces a decline in its financial condition before it eventually becomes bankrupt. According to Plat and Platt, the company is said to experience financial distress when experiencing conditions such as termination of employment, interest coverage ratio, non-payment of dividends, negative operating net profit, cash flow lower than the company's long-term liabilities, changes in equity prices, termination of operations by the government and restructuring is required, having technical violations in debt and having negative EPS (Kholisoh & Dwiarti 2020). Damodaran stated that financial distress can be caused by two factors, internal in the form of company fundamentals and external in the form of macroeconomic conditions (Kholisoh & Dwiarti, 2020). Most of the financial ratios used are profitability, leverage, liquidity, solvency, and activity (Kholisoh & Dwiarti, 2020).

**Risk Management**

Risks arise from the uncertainty that occurs from the presence of events that may result in losses; This event can happen or not, but if it happens, it can result in losses. The risks faced by companies are divided into two categories, namely financial (credit, market, and operational risk) and non-financial (operational environmental risk, reputation, legal, money laundering, technology, strategic, and control) (Amalendu Ghosh, 2012). Enterprise risk management (ERM), according to COSO, is a process carried out by the board of commissioners/supervisors, management (board of directors), and other staff members, carrying out company-wide strategy arrangements designed to identify potential events that may affect the company and manage those risks wisely to ensure the achievement of company goals (Luthfiyanti & Dahlia, 2020).

**Institutional Ownership**

An institution is an organization that has a purpose to invest. One type of investment is stocks. The two types of institutional investors are active investors and passive investors. Active investors are investors who are directly involved in the activities of the company. Passive investors are less likely to influence managerial choices. Ownership of shares by other institutions, including banks, securities companies, insurance companies, and other institutions. Leveraging institutional ownership can help reduce inter-agency conflicts. (Ramadan, 2018) states "Institutional ownership is a percentage of the number of shares owned by other institutions outside the company of at least 5% of the company's total shares".

**Exchange rate**

The price of a country's currency when it is exchanged for foreign currency from another country is called the exchange rate (Windasari 2015). The exchange rate will always fluctuate inherently, a currency appreciates when its value against another currency rises. However, money depreciates when the value of a currency decreases compared to the value of another currency (weakens). For countries, the value of the currency at a given time is very important. The cost of a country's goods for foreign consumers is determined by the exchange rate and prices of local products, which have an impact on the country's exports. Taufik's research (2016) states that the strengthening of the rupiah can increase the potential for financial distress (Rohiman & Damayanti, 2019).

**Inflation**

Sukirno (2013) states that inflation is a process of rising prices that occur in an economy," Boediono stated that inflation cannot be said to be due to an increase that occurs widely to increase prices for other goods and there is no increase in one or two goods (Salim and Fadilla, 2021). According to Pohan (2008), inflation is a continuous increase in prices in all groups of goods and services, the increase does not have to be in the same percentage (Rando et al, 2021). Nopirin (2016) states that inflation is a process of increasing the prices of goods and services that occurs continuously, this increase does not have to be in the same percentage, and this increase may not be simultaneously but mainly an increase occurs continuously in a certain period (Primandari, 2018).

**Interest Rate**

Boediono (1994,) states the interest rate is the price of the investment funds used, which is an indicator to determine whether to make an investment or save (Rohman, 2021). The interest rate, according to Keynes's theory, is a manifestation of money. There are several ways to the concept of interest rates. One of the Indicators of Interest Rates is to use SBI based on the theory of (Siamat D, 2014): "Through the use of SBI, Bank Indonesia can indirectly influence the interest rate in the money market by announcing the Stop Out Rate (SOR). SOR is the interest rate received by BI on interest rate bids from bidders.

**Oil Price**

There are several types of crude oil traded, including West Texas Intermediate (WTI), Brent Bland, Russian Export Blend, and OPEC Basket price. The global oil spot price is used to determine the price of crude oil globally, and usually West Texas Intermediate is the oil price used as a global benchmark (WTI). High-quality crude oil with low sulfur content is called West Texas Intermediate (WTI). The barrel serves as the standard unit of measurement of crude oil in the international market, while the US dollar serves as a medium of exchange. The US dollar is used as a medium of exchange for international trade in crude oil partly because of the widespread familiarity of the US dollar.

**Research Models**

The framework of thought in this research can be formulated as follows:

1. Effect of Risk Management Disclosure on Financial Distress

Poor financial performance of the company can cause financial difficulties. According to (Brigham et. All, 2014), one of the reasons why businesses need to manage their risk exposure effectively is to prevent financial distress from arising. Thus, the formulation of the research hypothesis is as follows:

**H1: Corporate Risk Management Disclosures affect Financial Distress**

2. The Effect of Institutional Ownership on Financial Distress

Companies experiencing financial difficulties can be reduced by establishing corporate governance mechanisms, through institutional ownership. In line with the research (Elisabeth Juliana Lelu et all, 2021) which examines the influence of good corporate governance characteristics, especially in the field of supervision through institutional ownership of financial distress, therefore the hypothesis of this study, namely:

**H2: The application of institutional ownership affects financial distress**

3. Effect of Exchange Rate Sensitivity on Financial Distress

Currency exchange rates can affect the financial condition of a company, especially companies that conduct international trade. The relationship between exchange rate and financial distress based on previous research (Firdausi et al, 2019) states that the exchange rate partially has a significant effect on financial distress, thus the hypothesis of this study is:

**H3: Exchange Rate Sensitivity affects Financial Distress**

4. Effect of Inflation Sensitivity on Financial Distress

The rising selling price of goods and services can result in a decrease in consumer purchasing power, and cause a decrease in sales as a result of a decrease in profits received by the company. Inflation can cause companies to experience financial distress. This is supported by previous research conducted (Oktarina 2018) which has concluded that inflation negatively affects financial distress. Thus the hypothesis of this study is:

**H4: Inflation Sensitivity Affects Financial Distress**

5. Effect of Interest Rate Sensitivity on Financial Distress

The interest rate is one of the macroeconomic instruments used to regulate the economy in a country. The relationship between Interest Rate Sensitivity and Financial Distress based on research (Sudaryo et al. 2020) states that inflation partially has a significant effect on financial distress, thus the hypothesis of this study is:

**H5: Interest Rate Sensitivity affects Financial Distress**

6. Effect of Crude Oil Price Sensitivity on Financial Distress

For shipping companies, rising oil prices have the potential to increase costs, thereby reducing profits and can increase the risk of experiencing financial distress. The relationship between Crude Oil Price and Financial Distress in this study is thought to affect financial distress, thus the hypothesis of this study is:

**H6: Crude Oil Price Sensitivity Affects Financial Distress**

## RESEARCH METHODOLOGY

### Research Variable Indicators

The independent variables in this study are Risk Management Disclosure, Institutional Ownership, and Macroeconomic Sensitivity (proxied by exchange rate sensitivity, inflation, interest rates, and crude oil prices) while the dependent variables to this research are Financial Distress, which is measured by the following indicators:

1. Financial Distress is measured using the binner number notification from the bankruptcy prediction criteria in non-manufacturing companies of the Altman Z-Score model, namely: the Z-Score value < 1.10 companies classified as companies that experience Financial Distress are given a value of 1 (Financial Distress). Meanwhile, companies classified as companies that are non-financial distress are given a value of 0.
2. Disclosure of Enterprise Risk Management (Variable X1) using 108 disclosure criteria of eight aspects of the COSO ERM Framework. A value of 1 is given for each Enterprise Risk Management disclosure item, and a value of 0 when not revealed, namely:

$$ERMDI = \frac{Number\ of\ Disclosed\ Items}{108\ Items\ of\ Disclosure}$$

3. Institutional Ownership / KI (Variable X2) is measured by a percentage of the number of institutional shares divided by the total number of shares outstanding, namely for teaching social and emotional intelligence, the author cited a successful program based on three main theories: (a) cognitive behavior, (b) transactional analysis, and (c) responsible assertion to enable greater empathy and social-awareness in building adolescents' success for the future.

$$KI = \frac{Number\ of\ shares\ owned\ by\ institutional\ x\ 100\%}{Total\ number\ of\ shares\ outstanding}$$

4. Macroeconomic Sensitivity (Exchange Rate, Inflation, Interest Rates, and Oil Prices), calculation of macroeconomic sensitivity indicators is calculated by regressing each macroeconomic variable to the company's stock return with the following regression equation:

$$Y = a + \beta\, n\, Xn + e$$

Further, Information:

Y = Return on shares per month
β n = The company's sensitivity to each of the macroeconomic variables
Xn = Macroeconomic Variables (Exchange rate, Inflation, Interest Rate, and Oil Price)
a = Constant
e = Variables outside the model

**Data Analysis Methods**

The data analysis method used in this research is a quantitative analysis technique, where this research is carried out in two stages of analysis methods, such as:

1. Analysis of the financial distress potential score using the Altman Z-Score Modification.
2. Logistic regression, free variables are a mixture of continuous (metric) and categorial (non-metric) variables. By using logistic regression, there is no need to assume the normality of the free variable data.

**Logistic Regression**

Logistic regression does not assume a linear relationship between dependent and independent variables, dependent variables must be dichotomous (2 variables) whereas independent variables do not have the same diversity between groups of variables, and categories in independent variables must be separate from each other or exclusive. In the logistic regression test, the following stages of testing were carried out (Ghozali, 2018):

1. Descriptive Statistics, provides a broad overview of the characteristics of each research variable such as the calculation of the mean, median, minimum, and maximum values.
2. Statistical Data Testing, Ghozali (Ghozali 2018, pp 332-334) put forward four tools used in logistic regression analysis, namely: (1) Assessment of the Entire Model (Overall Model Fit) (2) Testing the Feasibility of the Regression Model (Goodness of Fit Test) (3) Coefficient of Determination (Nagelkerke R Square) (4) Classification Matrix.
3. Formed Logistic Regression Model In this study, bound variables are the variables of two groups: the financial distress group and the healthy company group. The regression equation used to see the effect of disclosure of risk management, institutional ownership, and Macroeconomic Sensitivity (Exchange Rate Sensitivity, Inflation, Interest Rates, and Crude Oil Prices) on Financial Distress is as follows:

$$ln\frac{p\,(Financial\ Distress)}{1-p\,(Financial\ Distress)} = \alpha + \beta 1.X1it + \beta 2.X2it + \beta 3.X3it + \beta 4.X4it + \beta 5.X5it + \beta 6.X6it + \varepsilon$$

Information:

$\mathbf{ln}\frac{p}{1-p}$ = Log of comparison between financial distress and non-financial distress opportunities
X1 = Risk Management Disclosures indek i time t
X2 = Institutional Ownership i time t.
X3 = Exchange Rate Sensitivity i time t
X4 = Exchange Rate Sensitivity i time t
X5 = Variable Interest Rate Sensitivity i time t
X6 = Variable Oil Price Sensitivity i time t
β = Regression Coefficient
α = Constant
ε = error

4. Hypothesis Test, which is used in logistic regression, such as the Wald Test (Partial Test t) and the Omnibus Tests of Model Coefficients Test (Simultaneous Test F)

## RESULT AND DISCUSSION

### Analysis of Potential Bankruptcy

The first stage in analyzing the condition of the shipping company is to find the Z-score value by using a modified Altman Z-Score. The results are then classified based on predetermined values, namely Z > 2.60 companies grouped in "safe zone" companies, values of 1.10 < Z < 2.60 are grouped in "gray zone" companies, and Z values < 1.10 are classified with "distress zone".

**Table 1.** Algorithm Shipping Company Bankruptcy Classification Prediction Table in Percentage 2016 – 2020

| No | Bankruptcy Prediction | Year | | | | |
|---|---|---|---|---|---|---|
| | | 2016 | 2017 | 2018 | 2019 | 2020 |
| 1. | *Financial Distress* | 42,1% | 47,3% | 42,1% | 57,8% | 31,6% |
| 2. | *Grey Area* | 52,6% | 36,8% | 31,5% | 15,8% | 36,8% |
| 3. | *Safe Area* | 5,3% | 15,9% | 26,4% | 26,4% | 31,6% |

The table above shows that 31.6% - 57.8% or when on average 44.18% from 2016 to 2020 shipping companies in this study entered into a state of financial distress. Companies included in the grey area category were 15.8% - 52.6% or when on average 34.2% from 2016 to 2020 shipping companies in this study were categorized in grey areas. Companies that fall into the safe area category are 5.3% - 31.6% or an average of 21.12% from 2016 to 2020.

### Logistic Regression Analysis

#### 1. Descriptive Statistics

From testing panel data on sample data that will be carried out logistic regression analysis in 20 companies in the period 2016 - 2020 the results of descriptive statistical analysis on these data are as follows. Variable-dependent financial distress data with an average value of 0.351064 from the data shows that 35% of all shipping company data in this test, entered into financial distress because variable financial distress is a dummy variable. In the MRISK independent variable data, the average value is 0.499409 and the standard deviation from MRISK is 0.107156, the mean is greater than the standard deviation, so the mean can be used as a representation of the overall MRISK data. Independent variable data KEP_INSTITUSI have a mean of 0.755047 and a standard deviation of KEP_INSTITUSI of 0.158021, the mean value is greater than the standard deviation, the mean that can be used as a representation of the KEP_INSTITUSI. The SKURS independent variable data has an average value of -2.08E-05 and the SKURS standard deviation of 0.105390, the mean is smaller than the standard deviation, and the data in the SKURS variable varies. The SINFLATION variable data has a mean of -3.096762, the standard deviation from SINFLATION is 15.05131, the mean value (average) is smaller than the standard deviation, and the SINFLATION variable varies. The data of the independent variable SSUKUBUNGA mean is -0.081176, and the standard deviation of SSUKUBUNGA is 0.564203, the mean is smaller than the standard deviation, and the variable SSUKUBUNGA varies. The SHARGAMINYAK independent variable data has a mean of -0.000613 and a standard deviation of 0.008683, the mean is smaller than the standard deviation, and the SHARGAMINYAK variable varies.

#### 2. Goodness of Fit

**Table 2.** Goodness of Fit

| No | Goodness of Fit | Test Tools | Test Result |
|---|---|---|---|
| 1 | Hosmer and Lemeshow | Prob. Chi- Sq (8) | 0,9103 |
| 2. | Overal Model Fit | Prob. (LR Statistic) | 0.0000 |
| 3. | Uji Multicolenearitas | Multicolenearitas | < 0,80 |

The goodness of fit can be done with the Hosmer and Lemesshow Models where the calculation results produce Prob. Chi-Sq (8) / significant is 0.9103 greater than 0.05. With a 95 percent confidence rate, logistic regression in this research could explain the research data. The Overall Model Fit test shows that the statistical LR probability value is 0.0000 < α = 0.05, which shows that independent variables together affect financial distress. The multicollinearity test is used as an evaluation of whether there is a strong relationship between independent variables, from the results of the multicollinearity analysis, a correlation between MRISK and KEP_INSTITUSI, EXCHANGE RATE, SINFLATION, SSUKUBUNGA and SMINYAK < 0.80 was obtained which showed that multicollinearity did not occur.

### 3. Logistic Regression Results

After conducting Goodnest of fit, a panel data logistic regression test is carried out as produced in the table below:

**Table 3.** Logistic Regression

| Variable | c | MRisk | KEP_ Institusi | SKurs | SInflasi | SSuku Bunga | SHarga Minyak |
|---|---|---|---|---|---|---|---|
| Coefficient Value | 11,766 | – 27,457 | 1,2674 | - 165,74 | – 0,0127 | 9,186879 | 2,444 |

Thus, the model of the logistic regression equation that is formed is as follows:

Yit = 11,76603 – 27,45753 MRISKit + 1,267458 KEP_INSTITUSIit - 165,7471 SKURSit – 0,012706 SINFLASIit + 9,186879 SSUKUBUNGA it + 2,444214 SMINYAKit

In this comprehensive analysis of the factors influencing financial distress in shipping companies, a range of significant insights has been uncovered. Firstly, the constant value of 11.76603 serves as a baseline, indicating that when all independent variables, namely MRISK, KEP_INSTITUSI, SKURS, SINFLATION, SSUKUBUNGA, and SMINYAK, remain at zero, the financial distress value remains constant at 11.76603.

Delving deeper into the specific variables, MRISK emerges as a crucial factor. Its negative coefficient of -27.45753 signifies that a mere 1% reduction in MRISK translates into a substantial 27.45753% decrease in financial distress. This observation suggests that the disclosure of risk management practices has an adverse effect on financial distress in shipping companies. In essence, the lower the disclosure regarding risk management, the more likely it is for financial distress to escalate.

On the other hand, KEP_INSTITUSI, with its positive coefficient of 1.267458, presents an interesting dynamic. A 1% increase in KEP_INSTITUSI is associated with a 1.267458% rise in financial distress. This finding implies that higher institutional ownership actually increases the potential for bankruptcy in shipping companies. This phenomenon may be attributed to the presence of significant losses that even augmented capital from institutional ownership cannot offset.

Another noteworthy variable is SKURS, where a negative coefficient of -165.7471 indicates that a 1% decrease in currency exchange rates leads to a substantial 165.7471% reduction in financial distress. Essentially, companies that are more sensitive to fluctuations in exchange rates tend to experience lower financial distress.

Similarly, SINFLATION displays an intriguing pattern. With its negative coefficient of -0.012706, a 1% decrease in SINFLATION results in a decrease in financial distress by 0.012706%. This observation implies that companies sensitive to inflation are more likely to reduce their financial distress levels.

Moving on to SSUKUBUNGA, the positive coefficient of 9.186879 highlights its significance. A 1% increase in SSUKUBUNGA is linked to a substantial 9.186879% rise in financial distress. Companies that are particularly responsive to changes in interest rates tend to experience heightened financial distress.

Finally, the variable SMINYAK exhibits a positive coefficient of 2.444214. This suggests that a 1% increase in SMINYAK leads to a 2.444214% increase in financial distress. In essence, companies that are highly sensitive to fluctuations in crude oil prices tend to face intensified financial distress.

These findings shed valuable light on the intricate dynamics of financial distress in shipping companies, offering essential insights for stakeholders in this sector to make informed decisions and mitigate risks effectively.

## 4. Hypothesis Test

a. Wald Test/ Partial Test/ Z-Test

The wald test serves to determine the presence or absence of the influence between independent variables on the dependent variable partially. Wald / partial test results on logistic regression in this study are as follows:

**Table 4.**
Wald Test/Partial Test

| Variable | MRisk | Kep_Institusi | Skurs | SInflasi | SSukuBunga | SHargaMinyak |
|---|---|---|---|---|---|---|
| Probability | 0.0000 | 0.6099 | 0.8499 | 0.5335 | 0.0308 | 0.9561 |

From the wald test the significance value of MRISK and SSukuBunga < 0.05. Thus, MRISK and SSukuBunga partially have a very significant effect on financial distress in shipping companies on the IDX. Meanwhile, the significance value of Kep_Institusi, SKurs, SInflation and Currency > 0.05, which means that the variables Kep_Institusi, SKurs, Sinflation, and SMinyak partially do not affect financial distress.

b. F Test

In this study, the F test serves to determine whether all independent variables have a simultaneous effect on dependent variables. Based on the results of the logistic regression process, F-statistics 69.24074 and a significance of 0.0000 means < 0.05 so that it can be explained that the variables MRISK, KEP_INSTITUSI, SKURS, SINFLATION, SSUKUBUNGA, SMINYAK together affect financial distress.

## CONCLUSION

Using the Modified Altman Z-Score model, it can be seen that 31.6% - 57.8% or when on average 44.12% of the period 2016 - 2020 shipping companies in this study fall into the category of distress area. Financial distress is partially affected by risk management disclosures and interest rate sensitivity. Financial distress in this research is not partially influenced by institutional ownership, exchange rate sensitivity, inflation and oil prices. Thus, the recommendations that can be suggested are: for shareholders and investors, this research can be used to find out indicators that affect the potential for financial distress in shipping companies, namely by knowing the disclosure of company risk management and interest rate sensitivity has a significant influence on financial distress. For the shipping industry to avoid potential bankruptcy to better implement risk management and be able to anticipate factors of changes in interest rates.

For academics, this research can be used as a reference in researching the next financial distress where the test results show that the variables of risk management disclosure and interest rate sensitivity have a significant influence on financial distress in shipping companies listed on the IDX in the period 2016 - 2020. For regulators/governments, to create an economic atmosphere in the macroeconomic sector that is conducive so that the shipping industry can grow well, by maintaining the value of interest rates so that the shipping industry in Indonesia can avoid potential financial distress.

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