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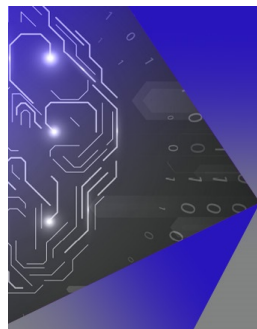
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Factors Affecting Stock Price of Maritime Companies in Indonesia

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Abstract. The sea transportation or maritime industry is a strong force for Indonesia which consists of several islands; meanwhile, business in this field has great potential to be developed, especially in the capital market. Therefore, this study examines four predictors that affect stock prices in maritime companies listed on the Indonesia Stock Exchange in 2013 – 2019. The hypothesis was formulated using panel data regression analysis tools with the least square dummy variable technique. The results showed that profitability and financial leverage are robust predictors of the hierarchical regression parameters, while the firm size and market value are not proven as predictors. This study presents the originality of the stock prices determinant in the maritime industry to guide investors' decisions and company management to optimize firm value.

INTRODUCTION

Indonesia is a maritime country as it geographically consists of a large sea area of approximately a quarter of the total landmass and several islands. Meanwhile, sea transportation is needed to support people or goods between islands and contributes significantly to the Indonesian economy. This industry shows positive business prospects nationally or internationally and multiplies economic growth [1,2].

The maritime company has great potential and is a strong driving force for the Indonesian economy. To develop the business, maritime companies need a production factor, namely capital acquired through retained earnings, issuance of shares, and liabilities such as bonds [3]. The company conducts an initial public offering to the Indonesia Stock Exchange to obtain capital from the equity side by issuing shares. In contrast, the capital market provides opportunities for investment and capital formation for business development. Consequently, trading and investing are carried out in the capital market by buying and selling shares [4].

Investors purchase shares and expect returns in dividend yields or capital gains [5,6]. According to [7], capital gains on stocks as an investment instrument provide the highest average return among state bonds and gold instruments. To acquire an optimal return in the form of capital gains, investors need to pay attention to the factors that affect the company's stock price, which is analyzed with two approaches, namely, fundamental and technical

analysis. Furthermore, inefficient market conditions and stock prices are reflected in the available information, which is relevant for fundamental analysis [8].

Several studies have been conducted to examine the factors that affect companies' stock price in Indonesia. A study by [3] found that dividend payout ratio and market value were predictors of Indonesia's stock prices of deposit money bank in Nigeria, while [9] reported that price to book value ratio, return on equity, sales growth, size, cement consumption, exchange rate, and market value is determinants of stock prices for construction companies in Indonesia. Furthermore, [10] found that financial performance, firm size, and corporate social responsibility disclosure are determinants of stock prices for food and beverage companies in Indonesia.

Therefore, this study aims to examine the factors that affect stock prices in the market; meanwhile, the justification for choosing the factors, namely profitability, firm size, financial leverage, and market value, is based on the proxies of predictors that are presumed to affect financial ratios in fundamental analysis. Moreover, the variables and the proxies tested are general and relevant to other industries. These predictors are postulated and are expected to bring originality to the maritime industry in Indonesia. Meanwhile, one of the variables often tested as a predictor of stock prices, namely dividend policy, is omitted because very few maritime companies distribute dividends, making it impossible to analyze.

LITERATURE REVIEW

According to the market efficiency hypothesis, a market is said to be efficient when individual and institutional investors cannot obtain abnormal returns. These conditions apply after risk adjustment using existing trading strategies. Therefore, the prices formed in the market reflect the available information. In an efficient market, the prices reflect the available information regarding an asset or security. Meanwhile, the concept of an efficient market shows how quickly the information affects the market, as reflected in changes in security prices. This information is then empirically tested for its effect on changes in stock prices [3,8].

Shares are interpreted as a certificate of company ownership; meanwhile, the stock price describes the stock market in a certain period and is determined by market participants through supply and demand in the capital market. Stock prices affect shareholder wealth, indicating a company's strength, and describe the future cash flow. Furthermore, the rise or fall of stock prices reflects the success of the company's management in running the business. Stock prices are constantly changing due to expectations of demand and sales of shares; therefore, to predict stock prices inefficient market conditions, the fundamental approach is prioritized by observing the financial, environmental, and managerial factors [3, 11, 12].

Profitability is the ability to generate profits and signal investors about a company's performance. The higher the company's profitability level, the greater the attraction to investors and the lower the demand for shares. In addition, the higher the level of demand for stocks, the higher the price and vice versa [8, 10, 11, 13]. Therefore, profitability is presumed to positively affect stock prices [8,10].

Firm size is an indicator of the broad basis of the company's interests. The larger the size, the higher the impact on the smaller companies. The size describes the performance of the business carried out to obtain investor responses and determine the firm's value. A high level of the firm value indicates higher competitiveness and generates positive responses from investors, thereby increasing share value [9,11]. Therefore, the firm size is assumed to positively affect stock prices [9].

Financial leverage is fixed expenses to increase earnings per share of common stock. Meanwhile, the use of debt is expected to increase the company's assets and improve business operations to enable higher profits. However, continuous use poses a risk as the company is charged with a huge interest on debt to allow for bankruptcy. This condition decreases the company's ability to generate profits and has implications for stock prices [14, 15]. Therefore, it is suspected that financial leverage has a negative effect on stock prices [14, 15].

The market value indicates the amount of rupiah that investors have to pay to earn a profit of Rp. 1 and is proxied by the price to earnings ratio (PER). In addition, it determines the level of company risk to the industry average and the effect on stock prices at a particular time. A high market value attracts investors to buy shares, increasing the price and investment opportunity [3, 11]. Therefore, the market value assumedly positively affects stock prices [3].

METHODS

The sample used in this study included maritime companies listed on the Indonesia Stock Exchange (IDX) between 2013 – 2019. It were selected using purposive sampling [16] with established criteria that the company does not

experience delisting and initial public offering during the study period and has complete financial statements to meet the needs of variable proxies. Among the 14 maritime companies listed on the IDX as of 2020, 12 qualified as samples. Meanwhile, samples were taken quarterly during the study period. Hence, a total of 336 were collected.

This study used five variables, where four exogenous variables were tested against one endogenous. Table 1 presents the variables and the proxies to be tested [3,5,6,8–10,14,15,17].

TABLE 1. Variables and their proxies

Variable	Proxy	Formulation	Expected Sign
Stock Price	Market Stock Price	SP $= \text{stock price at the end of each quarter per } y$	----
Profitability	Earning Per Share	$EPS = \frac{\text{Net Income}}{\text{Outstanding Shares}}$	(+)
Firm Size	Total Assets	$TA = \text{natural logarithmic transformation of total assets}$	(+)
Financial Leverage	Debt to Equity Ratio	$DER = \frac{\text{Total Liability}}{\text{Total Equity}}$	(-)
Market Value	Price to Earnings Ratio	$PER = \frac{\text{Stock Price}}{\text{Earning Per Share}}$	(+)

The data analysis was carried out using panel data regression [18, 19], which is a relevant technique used for data conditions consisting of a cross-section (i) and *time series* (t) Elements. The statistical analysis selects the best econometric model with the Chow, Hausman, and Lagrange multiplier tests. Furthermore, the best parameter estimation techniques were determined, including the common-effects model approach with the ordinary least square, the fixed-effect model approach with the least square dummy variable, and the random-effect model with the generalized least square technique. The robustness checking was then performed by forming a hierarchical regression to observe the consistency of the influence direction and the significance of the predictor in each parameter formed [5, 20]. Data analysis was performed using the E-Views version 10 program.

The hierarchical panel data regression model formed is:

$$SP_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 TA_{it} + \beta_3 DER_{it} + \beta_4 PER_{it} + \varepsilon_{it} \quad (1)$$

$$SP_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 TA_{it} + \beta_3 DER_{it} + \varepsilon_{it} \quad (2)$$

$$SP_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 TA_{it} + \varepsilon_{it} \quad (3)$$

$$SP_{it} = \beta_0 + \beta_1 EPS_{it} + \varepsilon_{it} \quad (4)$$

where, $SP_{i,t}$: stock price, proxied by the market stock price of the company i at t time; $EPS_{i,t}$: profitability proxied by earnings per share of the company i at t time; $TA_{i,t}$: company size proxied by the natural logarithmic transformation of total assets of the company i at t time; $DER_{i,t}$: financial leverage proxied by the debt-to-equity ratio of the company i at t time; $PER_{i,t}$: market value proxied by price to earnings ratio of the company i at t time; β_0 : parameter constant; $\beta_{1..4}$: the effect coefficient of exogenous variables on endogenous variables; $\varepsilon_{i,t}$: regression model error of the company i at t time.

RESULT AND DISCUSSION

The data were obtained quarterly between 2013 – 2019 with a total sample of 336. A negative value on EPS indicates that the profit condition obtained by the company is negative or in a loss condition. In contrast, a negative DER value indicates that the total equity condition is negative due to the extremely high total liabilities. These extreme conditions were used to investigate the abnormal behavior of stock prices.

TABLE 2. Descriptive Statistic

Variable Proxy	Obs.	Max	Min	Mean	St. Dev.
SP	336	14850.000	50.000	684.893	1428.210
EPS	336	1222.740	-322.663	28.599	174.232
TA	336	23.247	16.061	21.057	1.434
DER	336	6.955	-1.945	1.182	1.347
PER	336	2205.880	4925.860	41.827	357.930

TABLE 3. Chow Test

Parameter	Cross-Section Chi-Square (Statistic)	d.f.	p-value
Hierarchical Model 1	99.355044	11	0.0000
Hierarchical Model 2	99.323682	11	0.0000
Hierarchical Model 3	82.397045	11	0.0000
Hierarchical Model 4	105.224345	11	0.0000

The likelihood analysis begins with the Chow test for the four hierarchical models, which produced a chi-square cross-section p-value of $0.0000 < 5\%$; hence, it was concluded that the fixed effect was the best econometric model. Furthermore, the Hausman test was carried out, and the results are presented as follows.

TABLE 4. Hausman Test

Parameter	Cross-Section Random (Chi-Square Statistic)	d.f.	p-value
Hierarchical Model 1	21.097383	4	0.0003
Hierarchical Model 2	22.724489	3	0.0000
Hierarchical Model 3	8.566328	2	0.0138
Hierarchical Model 4	14.535365	1	0.0001

The Hausman test for the four-parameter estimates formed, showed that the p-value for the hierarchical model 1 chi-square cross-section was $0.0003 < 5\%$, for hierarchical model 2 was $0.00000 < 5\%$, hierarchical model 3 was $0.0138 < 5\%$, and for hierarchical model 4 was $0.0001 < 5\%$. Therefore, it was concluded that the fixed effect is the best econometric model. Furthermore, the goodness of fit test was carried out using the coefficient of determination, simultaneous, and partial tests [21].

TABLE 5. Hierarchical Panel Data Regression Analysis using Least Square Dummy Variable

Proxy of Predictor	HM 1	HM 2	HM 3	HM 4
Constant	***15200.290 (2103.744)	***15155.940 (2093.970)	***10371.040 (1806.385)	***545.512 (44.365)
EPS	***3.626 (0.341)	***3.631 (0.340)	***4.050 (0.333)	***4.880 (0.309)
TA	***-679.137 (97.730)	***-677.185 (97.308)	***-465.450 (85.556)	
DER	***-268.455 (63.564)	***-266.923 (63.206)		
PER	-0.030 (0.115)			
R ²	0.740	0.740	0.725	0.700
Adj-R ²	0.727	0.728	0.714	0.689
F-Statistics	***60.580	***65.091	***65.312	***62.733

Note: Figures in parenthesis are standard errors. Using one-tailed statistics, (***) coefficient is significant at 1 percent level, (**) at 5 percent level, and (*) at 10 percent level.

The coefficient of determination test on the four parameters formed was 72.7% for hierarchical model 1, 72.8% for hierarchical model 2, 71.4% for hierarchical model 3, and 70% for hierarchical model 4. Therefore, the model was declared to be fit because the values obtained were relatively significant in a hierarchical manner and described the behavior of each exogenous variable in the endogenous parameters. In contrast, the value of 100% was obtained for the behavior of other variables that affect the endogenous variables but were not tested on the model formed. The simultaneous testing of the four parameters with the F-test produced a significant p-value at the 1% level. These results prove that the four parameters are fit and are at least affected significantly by one variable. In the partial test, the T-test was carried out by observing the direction of influence and significance of one-tailed at the level of 1%, 5%, and 10%.

Profitability had a significant positive effect at the level of 1% robustly. Therefore, the assumption that profitability has a positive effect is proven. This result aligns with previous studies conducted by [8,10]. For investors, profitability is a primary reference for stock selection as an investment instrument; the higher the profit earned by the company, the greater the investors' interest to buy shares. Meanwhile, a high level of stock interest further increases stock prices; this argument is based on the hypothesis development.

Firm size did not have a positive effect on stock prices. Therefore, the assumption that firm size influences stock prices positively is not proven. This study aligns with the results obtained by [9]. The firm size in this phase is suspected to be declining and without innovation; therefore, the business performance was low. Although the company's size is large, the performance and general value tend to decrease significantly, leading to a decrease in competitiveness with competitors and negative implications on stock prices [11,13]

Financial leverage significantly affects stock prices robustly in HM 1 and HM 2 with a significance level of 1%, proving the assumption that stock price is influenced by financial leverage in line [14,15]. This condition allows the company to be aggressive in growth with the source of capital from debt; meanwhile, companies with high debt usually depend on third parties to settle imposed obligations and are therefore avoided by investors. This causes the demand for shares to decline and negatively affects stock prices [11].

Based on the results, market value does not affect the hierarchical parameters; therefore, the assumption that market value influences stock prices is not proven. This result is in line with previous studies [22, 23], indicating that the signal in the form of stock prices issued to obtain company profits of Rp. 1 is not sensitive to the level of demand for shares. Consequently, investors tend to pay attention to other factors to predict stock prices.

CONCLUSION

Profitability and financial leverage in maritime companies are robust predictors of stock prices of maritime companies in Indonesia. In addition, the market value was not proven to affect stock prices, while company size has a negative effect. These results show the business condition and the specific predictors for this industry. However, this study did not examine other factors that influence stock prices commonly studied in other sectors. Also, it did not analyze the determinants of stock prices by testing mediation and moderation to develop a conceptual framework with high complexity.

Therefore, further studies are needed to examine other factors presumed to affect maritime companies' share price and even develop mediation and moderation tests. Developing sophisticated analysis and shaping tools is also needed to produce a robust model. Furthermore, dynamic panel data regression needs to be developed to determine the effect of the previous period's stock price on the current year [24–26].

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