



Financial Distress and Financial Performance on Stock Return with Firm Size as Moderating Variable

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Abstract

This study analyses the factors that impact the stock return, whether financial distress, earnings (per share), and price to book value affect the stock return. The sample data used are secondary data with a sample using 28 listed manufacturing companies with a decade of 2012-2021 with a total sample of 209, with 71 data being excluded because they do not fit the criteria-the data processed with moderated regression analysis using statistic software. The statistic test showed earnings (per share), financial distress and price to book value have no impact on stock returns. This research also uses the firm size as moderating variable and the Investment Opportunity Set as the control variable. Firm size has no role in moderating the independent variables on stock returns. Investment Opportunity Set (IOS) affects stock returns.

Keywords: *Earnings (Per Share), Financial Distress, Firm Size, Price to Book Value, Stock Return*

INTRODUCTION

Indonesia has become one of the investment destinations and business development for multinational companies. Even though there is a financial recession in 2020 due to the COVID-19 pandemic, Indonesia is still attractive in the eyes of investors, and many local and foreign investors can see this in daily stock exchange transactions during the pandemic. Even when writing this article, in the second wave in 2021, the Jakarta Composite Index (JCI) did not show any significant movement. The second wave started on May 11, 2021; the index on that day closed at 5,983 until July 1, 2021, it closed at 6,005, and there was even an increase (return) of 0.36% when the second wave of the pandemic broke out. This phenomenon is different from research conducted by Libo Xu (2020) in the United States, research by Yong (2021) for the stock market in Malaysia and Singapore, research by Amuthan (2020) in India, where all of these studies state that the impact of a pandemic COVID-19 with stock returns.

The position of the JCI when the first wave of the pandemic began on January 2, 2020, was at 6,283 points. On July 1, 2021, it was at position 6,005, so Indonesia only experienced a decline of

around 4.4% in this pandemic event. Daily price movements from January 2, 2020, to July 1, 2021, show that the decline in stock returns was more severe in the first pandemic than in the second wave, which began around mid-May 2021.

The overall movement of the Jakarta Composite Index (JCI) fell by 4.4%. Still, when wave 1 occurred, the stock market was not ready, so there was a decline (around -22%) in terms of the index and decreasing income, reducing the workforce, closing branches, and other required efficiencies. This struggle to survive causes financial distress within the company; declining profits make earnings per share (EPS) decrease, followed by a decrease in book value resulting in a correction in stock returns. This phenomenon occurs not only in small companies; large companies are also affected by the economic decline during the first wave. This study also wants to show whether firm size can weaken or strengthen the influence of financial ratio variables on stock returns. The relationship between firm-level characteristics and stock returns of distressed firms has been examined and showed that distress risk is associated with size and book to market ratio (Simlai, 2014). Research conducted by Sugiyarti and Murwaningsari (2020)

states that the Altman bankruptcy prediction formula can predict the company's financial difficulties. The theory of corporate bankruptcy research existed in the 1960s. Altman defines corporate failure as a company that has submitted a company closure to the legal department located at the company's domicile. Saji's research (2018) shows that the Altman Z-Score bankruptcy prediction can predict stock returns for the stock market in India.

The year 2020 is a difficult time for the capital market to develop, which had almost reached 6,400 in mid-January 2020, was cancelled due to the outbreak of this pandemic and brought about an economic downturn so that not a few companies could not survive or went bankrupt. The researcher eagers to examine the effect of Financial Distress, Earnings per Share and Book Value on stocks to answer these questions: Does financial distress, earnings and price to book value affect stock returns? Can firm size strengthen the effect of financial distress, earnings per share and price to book value on an investor's capital gain?

LITERATURE REVIEW

Subiyantoro and Fransisca (2003) found that all research variables are essential variables in explaining stock returns. Previous research for other variables is Earning Per Share, cash flow, and stock prices, and all of these will get stronger if the company's sales increase (Eugene, 2001). A study from Wirawati (2008) found that price to book value is sufficient to be one of the predictors in stock returns than interest rate spreads. The announcement of the company's profit/loss conveys valuable information.

This study aims to prove whether these variables are linearly in line with stock returns. The researcher intends to show the influence of financial distress, and EPS with PBV on stock returns with samples before and after the pandemic. These variables affect not only during the pandemic but also during normal economic conditions. These economic factor volatilities are high during periods of market turmoil because the aggregate volatility factor's correlation with the market and momentum factors increases during crisis periods. In periods of relative market tranquillity, correlations decrease significantly (Sabbaghi, 2015).

According to a study from Wijaya (2020), firm size significantly influences the relationship between profitability and financial leverage on a company's income. As a result, only a strong form company can survive its stock price during a crisis period without falling significantly.

A strong form company should have a solid Investment Opportunity Set. Investors perceive a company with a high investment opportunity will have a long-term return as far as the investment occurs (Holiwati, 2020). This kind of information

can significantly affect the stock return. Therefore this study comprised the firm size as moderating variables and investment opportunity set into one model. In doing so, the investors or scholars could understand that firm size and investment opportunity set are essential in this condition of financial distress.

Contrary to the above research, a study from Sudirgo et al. (2019) explained the non-affecting financial distress toward stock returns in the listed manufacturing companies because the various size of the companies creates different assumptions from the investors. This also explains why the companies' earnings per share (EPS) do not influence the market ratio due to the various analysis of one's stock among the investors (Nalurita, 2016). In the situation of financial distress and earnings per share (EPS) do not influence stock returns, the price to book value also cannot be able to impact stock return since the part of its formula can be interpreted in many meaning by the investor (Prayoga & Wahyudi, 2021). Based on the above arguments, this is why this research includes the firm's size as a moderating variable that plays a role in the effect of the dependent variables on stock returns in this study and uses the Investment Opportunity Set (IOS) as a control variable as the uniqueness in this article.

Hypothesis

During declining economic conditions, it is clear that it impacts the company's profitability, and its profitability affects financial distress (Azzahra, 2021). In this condition of financial distress, companies will experience financial distress that will affect the market reaction, which will direct to a decline in stock prices; the decline in share prices will reduce stock returns (Fachrudin, 2021). This makes the writer state his first hypothesis is

H₁: Financial Distress impacts the stock return

The financial distress conditions will cause profits to decline; declining profits will reduce the earnings per share ratio. As soon as investors notice the declining earnings per share, the reaction is a sell-off because it is considered unattractive. This causes the stock price to decrease, and the decline in stock prices will be followed by stock returns (Santosa, 2019). Investors positively perceive upward earnings; hence, they hold the stocks even at a lower rate of return (Bansal, 2021). Should this event also emerge in this study will create the second hypothesis as follows:

H₂: Earning per Share impacts the stock return

The declining profit condition will affect the company's equity. The decline in the company's equity will reduce the price to book value, which will also be a concern for investors. It will minimize stock returns. Research conducted by Ristyawan

(2019) showed an influence existed between a price to book value and stock returns; this result resembles with study from Cordeiro (2018) that book value can explain the variation of stock returns and affects the capital market whether in a situation of bullish market or bearish market. Based on this, the researcher makes the third and following hypothesis:

H₃: Price-Book Value impacts the stock return

The condition of financial distress companies increases, reduced earnings per share and decreased book value makes stock returns fall not only experienced by large issuers small issuers also experience this, so it is necessary to examine in this study whether company size can strengthen or even weaken its influence on stock returns (Purwitajati, 2019). There is evidence of a negative size-profitability and positive growth-profitability relationship, suggesting that initially, profitability increases with the growth of the firm but eventually, over time, gains in profit rates reduce as size increases indicting that large size breeds inefficiency (Yadav, 2022) so how the role of firm size in moderating the financial distress, earnings per share and price to book value toward stock return produces the last hypothesis in this study as follows:

H₄: Company size can strengthen the financial distress, earnings per share and price-book value impact toward stock returns.

METHOD

The research method used is the quantitative method. The effect of independent variables will be determined on the dependent variable, and the role of moderating variables will determine whether this variable strengthens and weakens the independent variables' influence on the dependent variable. A quantitative test was carried out using statistical techniques, namely moderated regression analysis (MRA). These statistical techniques empirically detect how a variable "moderates" or influences the nature of a relationship between two other variables (Rusell, 1992). The sample data is a set of listed manufacturing companies in the year 2021, showed in the table below:

Table 1. Data Sample & Criteria

No	Criteria	Amount
1.	Manufacturing companies in this research	28
2.	Data sample from 2012-2021	280
3.	Not-Fit with this research	71
	Total	209

Source: IDX

The sample data used are secondary data with a sample using 28 manufacturing listed companies with a decade of 2012-2021 with a total

sample of 209 with 71 data being excluded because they do not meet the criteria because of the loss report in the comprehensive profit report and consistency in the regarding index.

Earnings per share (EPS) based on research from Santosa (2019), earnings per share (EPS) are calculated using the profits after tax and the average of shares outstanding. The EAT used follows the income statement published in the research year and shares outstanding.

The price to book value is measured by calculating the closing price divided by stockholder equity by the outstanding shares.

Financial Distress by using the formula from the prediction of bankruptcy Altman (1968) used is as follows:

$$Z = 1,2WOTA + 1,4RETA + 3,3ETA + 0,6MTB + 0,999STA \quad (1)$$

$$WOTA = \text{Working Cap to Total Asset} \quad (2)$$

RETA = RE to Total Asset

ETA = EBIT to Total Asset

MTB = MV of Equity to Total Debt

STA = Sales to Total Asset

Working cap (capital) to total assets, this calculation often emerges in the study of corporate distress; this formula uses the sum of net liquid assets and total assets. Working capital is defined as the net between current assets and current liabilities. Typically, companies that experience consistent operating losses will experience lower current assets in relation to total assets.

RETA stands for Retained Earnings (R/E) to Total Assets (TA). The age of the company is implicitly measured in this ratio. For example, a relatively young company may exhibit a small RE/TA figure because it does not have time to increase its cumulative earnings. Therefore, it can be said that a newly established firm is somewhat distinguished in this analysis, and they are highly likely to be categorized as bankrupt than other longer established companies.

The next component in Altman's (1968) prediction of bankruptcy is the calculation of ETA. This formula calculated the operating income, interest expenses and tax to total assets. In financial distress, the company's situation will likely show an operating loss; therefore, this formula is required as one of the predictors in the bankruptcy research.

One other important component of bankruptcy predictors is the calculation of the equity (market value) to total liabilities. This ratio will demonstrate the sufficiency of the company's equity to cope with daily operational liabilities (short and long-term).

The last ratio (STA) calculates revenue to the company's size. This ratio calculates income with

total assets to show whether the assets owned or invested by the company can play a role in increasing revenue. This common financial ratio shows the capability to produce revenue from company assets. This competitive-ability measurement condition is so critical in nowadays business competition. This individual-significant ratio is quite important. Whereas, based on a statistical significance measure, it would not appear. However, due to its unique relationship with other variables in the model, the Sales/Total assets ratio ranks second in its contribution to the model's overall distinguishing ability

Investment Opportunity Set (IOS). The measurement for this IOS is the ratio of Capital Expenditures to book value assets indicated by the company's capital expenditures divided by Total Assets (Murwaningsari & Rachmawati, 2017). The size for firm size used to represent the moderating variable is total assets.

The stock return is the dependent variable by calculating the closing price minus the opening price and dividing it by the opening price. The closing price is the research index price at the end of the research year, and the opening price is the opening index price at the beginning of the research year.

Data analysis using multiple regressions is used to analyze the magnitude of the relationship and the influence of the independent variables in this research as of below:

Model 1:

$$Rs = \alpha + \beta_1 FS + \beta_2 EPS + \beta_3 PBV + \beta_4 IOS + \ell$$

Model 2:

$$Rs = \alpha + \beta_1 FS + \beta_2 EPS + \beta_3 PBV + \beta_4 FS * Size + \beta_5 EPS * Size + \beta_6 PBV * Size + \beta_7 IOS + \ell$$

- Rs = Stock Returns
- FS = Financial Distress
- EPS = Earnings per Share
- PBV = Price to Book value
- IOS = Investment Opportunity Set
- SIZE = Size of the company

Model 1 is model research before the role of size as the moderating variable and analyzed with multiple regression analysis. Model 2 is model research where size is the moderating variable and analyzed with moderated regression analysis.

RESULT AND DISCUSSION

Statistical descriptions of the dependent and independent variables conducted for this study are as follows:

Table 2. Descriptive Statistic

V	N	Mn	Mx	ME	SD
Y1	209	-0.8	8.59	0.2521	0.95597
X1	209	0.29	2.93	1.1052	0.58833
X2	209	0.41	8.64	4.9800	1.63069
X3	209	0.05	16.49	2.7746	2.49517
K1	209	-0.69	0.62	0.0360	0.08650

Note: Y1 represents the stock return, X1 represents financial distress, X2 represents Earnings-per-Share, X3 represents Price-Book Value, and K1 represents the Investment Opportunity Set

The above figures showed that the maximum stock return (Y1) is 8,59 with a median of 0.2521; this indicates that even during a pandemic, there are still investors who can take advantage of the capital market; this happens because of the large number of new investors who took the opportunity when the price fell during the first wave. For financial distress (X1), the area varies by 0.58 based on the Altman formula (1968); this company is experiencing financial difficulties because it is below the 1.81 area on the Altman scale.

The 209 data samples have been tested and passed the validity of the data that showed in Table 3 below:

Table 3. Validity Test

V	VIF	Durbin Watson
Y1		
X1	1.098	du: 1.728
X2	1.022	dw: 2.054
X3	1.111	4-dl: 2.191
K1	1.015	

Note: Y1 represents the stock return, X1 represents financial distress, X2 represents Earnings-per-Share, X3 represents Price-Book Value, and K1 represents the Investment Opportunity Set

Based on table 3 above, all data samples are valid for further process. The data samples have passed the multicollinearity test. All the VIF numbers are below ten. This indicates no multicollinearity symptoms in the data sample. The Durbin Watson test also showed no autocorrelation among the data samples. Based on the scatterplot demonstrated that all data samples are hetero. Especially for normality tests, when the sample size is sufficiently large (> 200), this study uses 209 data samples; the normality assumption is not needed as the Central Limit Theorem ensures that the distribution of residuals will approximate normality. Therefore the data samples can be processed to the next step.

The result of regression analysis of the all independent variables and dependent variables are as follows:

Table 4. Statistical Test Result (Model 1)
 $R_s = 0.454 - 0.55FD - 0.046EPS + 0.036PBV + 2.54IOS + \ell$

Variabel	Uns B	t	Sig	Result
Constanta	0.454	1.929	0.055	
X1	-0.155	-1.366	0.173	Insignificant
X2	-0.046	-1.164	0.246	Insignificant
X3	0.036	1.349	0.179	Insignificant
K1	.754	3.700	0.000*	(+)significant
Anova	0.001*			
Adjusted R(square)	0.071*			

Note: * at significant 5%. X1 represents financial distress, X2 represents Earning-per-Share, X3 represents Price-Book Value, and K1 represents the Investment Opportunity Set.

Based on the regression results, it is shown that only IOS (K1) ($p\ 0.001 < 0.05$) accept the hypothesis. IOS and stock return are common in investor analysis; whenever a listed company increases its capital expenditure, the investors will perceive a positive response. The financial distress ($p\ 0.173 > 0.05$), EPS ($p\ 0.246 > 0.05$) and price to book value ($p\ 0.179 > 0.05$). This statistical result means the financial distress, EPS and PBV reject the hypothesis because it failed to establish a significant impact on stock returns. The first and the third hypothesis also rejected. This result is dissimilar from Tandiontong's (2017) research, which states a significant influence between financial distress and stock returns for manufacturing companies in Indonesia. The value of the ANOVA significance test is < 0.05 . This means that the model can be used in research.

This study also examines the role of firm size in moderating financial distress, earnings per share and price to book value, based on the re-run regression using the moderated variable and shows the result below:

Table 5. Statistical Test Result (Model 2)
 $R_s = 0.359 - 0.27FD + 0.049EPS + 0.073PBV + 0.047FD * Size - 0.041EPS * Size - 0.110PBV * Size + 2.652IOS + \ell$

Variabel	Uns B	t	Sig
Constanta	0.359	1.1321	0.2598
X1	-0.27	1.0601	0.2912
X2	0.049	-1.3467	0.1806
X3	0.073	-1.0723	0.2857
K1	2.652	-2.0638	0.0412*
X1X4	0.047	-1.3155	0.1908
X2X4	0.041	0.7371	0.4624
X3X4	0.11	1.4895	0.139
Anova	0.002*		
Adj R-square	0.74*		

Note: at significant in 5%. Y1 represents the stock return, X1 represents financial distress, X2 represents Earning per Share, X3 represents Price to Book Value, and K1 represents the Investment Opportunity Set. X1X4 represents the financial distress and firm size. X2X4 represents the earnings per share and firm size. X3X4 represents the price to book value and firm size.

The two tables above show an increase in adjusted R Square from 7.1% to 7.4%. Nevertheless, in model 2, it can be seen that all the three variables that have the effect of the moderating variable are not significant, so the conclusion drawn is that the size of the company has no role in the influence of finance distress, price to book value and earnings per share on the investor's capital gain. Still, in model 2, the investment opportunity set (K1, $p\ 0.0412 < 0.05$) showed significant positive effects on the stock return, and other variables did not meet the significant level.

Effect of financial distress on stock returns

The t-test for financial distress shows that financial distress does not affect stock returns. This result is in line with Sudirgo's (2019) research, where his research shows that it is not significant on stock returns. This can be seen in the phenomenon in the capital market. Even though the company publishes information to company investors in a loss condition, investors still have confidence in the issuer that the issuer will survive and recover quickly after this pandemic is over.

Effect of Earnings per Share on stock returns

The statistical tests show that earnings per share do not influence stock returns. This result aligns with Sausan's (2020) research that demonstrated EPS did not affect the stock return. This result rejects a study conducted by Charles (2015) which states that earnings per share can predict stock returns. This is also not in line with research (Utami & Murwaningsari; 2017) which states that earnings per share affect stock returns. In a normal and bullish market, investors will perceive earnings announcements made by issuers as increasing earnings per share, bringing good news so that stock returns increase but not in this financial distress situation. Investors are more likely to be more prudent in responding to the positive earnings per share announcement.

Effect of Book Value on stock returns

The statistical test shows book value does not affect stock returns. This research is not in line with Basarda's (2018) research, which produces a positive influence on stock returns and the analysis shown by Kusmayadi (2018), which results in a study of a negative effect on stock returns. Investors react differently to a company's book value disclosure in a problematic situation like today. Investors only notice the significant increase of book value emphasised by the uptrend of market value of its company, so that is why this financial distress situation failed to impact the stock returns.

Effect of Investment Opportunity Set on Stock Returns.

Investment Opportunity Set is rooted as growth fixed asset acquisition, company's asset, the scale between investment to earnings which all those factors to be fond of the long term investors, as high the Investment Opportunity Set the more interesting to the positive long-term investor reaction (Assegaf, 2016). This information will show the investor that the company has a long-term opportunity and sustainable profit. This reaction will gain trust from the investors at the company's stock price, increasing the stock return.

Conclusion

The Investment Opportunity Set (IOS) has an impact on stock returns. This result showed how important a company has investment planning and concrete strategy to survive in this financial distress situation. Other analysis results showed that earnings per share, financial distress and price to book value do not affect stock returns. Firm size is proven to have no role in the overall effect of independent variables on stock returns. Subsequent research can add IFRS application variables and non-financial aspects into subsequent studies as factors that can affect stock returns because the adjusted R square test results are negligible. This research implies that investors are expected to pay attention to investment strategies made by issuers and interpret the market reaction correctly because it is proven that Investment Opportunity Set positively affects stock returns.

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