

# Dividend Policy and Solvency Effects on Stock Returns of Manufacturing Companies

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## ABSTRACT

This study aimed to analyze dividend policy's effect in the proxy with Dividend Payout Ratio (DPR) and solvency in the proxy with Debt to Equity Ratio (DER) on Stock Returns of manufacturing companies listed on the Indonesia Stock Exchange from 2014 to 2018. Ratio analysis is one of the analyses used by investors to analyze a company's stock performance. This study used a quantitative method. The sampling technique used a purposive sampling method, and the sample was selected following predefined criteria. To obtain samples of 10 manufacturing companies, they were selected from a population of 144 manufacturing companies incorporated in the Indonesia Stock Exchange from 2014 to 2018. The data used in this study was financial statement data, and sources used to obtain these data were the Indonesian Capital Market Directory (ICMD) accessed from [www.idx.co.id](http://www.idx.co.id). The data analysis model used was panel data regression. This study showed that the Dividend Payout Ratio and Debt to Equity Ratio had a significant effect on stock returns.

**Keywords:** Dividend Policy, Solvency, Stock Returns.

## 1. INTRODUCTION

The manufacturing industry plays a vital role in the number of sub-sectors in the manufacturing industry that employ thousands and even millions of people in this manufacturing industry. Manufacturing is the industrial branch that applies machinery, equipment, and labor that process raw goods into finished goods that have added value and benefits for consumers.

The manufacturing industry sector is a significant component of national economic development. Based on the manufacturing sector's output contribution during Quarter I-III of 2017, which was around 20%, it indicates that the manufacturing industry sector is the leading sector that provides an immense contribution to Gross Domestic Product (GDP) compared to other sectors [1].

The manufacturing industry is one of the essential industries in developing the Indonesian economy in a better direction. However, the manufacturing industry still faces structural problems that hinder their optimization of Indonesia's potential [2]. The

manufacturing industry sector is a significant component of national economic development.

The GDP growth of the manufacturing industry, which continued to decline during 2015-2018, is inversely proportional to this sector's high investment. Recent developments in the manufacturing industry have attracted investors to invest [3]. The manufacturing industry still became an investment trend in 2018.

Based on the road map for Making Indonesia 4.0, the manufacturing industry is included in the strategic and priority category in its role in supporting the economy and is prepared to become a mainstay in the application of industry 4.0 in Indonesia. Investment in the manufacturing sector is very promising, especially in sectors with an export orientation and labor-intensive sectors, such as textiles and footwear [4].

The decline in the manufacturing industry's GDP during 2015-2018 was also followed by the decline in the average stock returns of manufacturing companies. This decline in stock returns is a central issue because stock returns are a factor that influences investors'

interest in investing in a company [5]. Low stock returns will lead to the assumption that the company has poor performance and reputation.

Some of the factors that are considered in analyzing stock returns are fundamental and technical information. Fundamental analysis is a stock analysis technique that studies a company's fundamental financial and economic facts as a measure of assessment of the company's stock price (Utami et al., 2018). Financial statements can describe the company's ability to pay dividends as positive information about the company's condition and maximize shareholder wealth without the risk of bankruptcy [6].

Besides describing dividends, financial statements can also describe the company's financial performance through financial ratios. Potential investors usually examine the company's profitability ratios, even though there is a ratio that is no less important than the profitability ratio, which is the solvency ratio. Solvency is one of the considerations that potential investors should evaluate, as solvency shows the company's ability to meet its long-term debt with its equity [7].

This study analyzed several factors to determine the variables that affect stock returns in manufacturing companies listed on the IDX in 2014-2018. This study aims to identify the dividend policy variable as measured by the dividend payout ratio and solvency measured by the debt to equity ratio.

It is expected that this study can provide input for the company's progress, especially in maximizing the company's stock returns and is also expected to be useful for the world of education as a source of information or knowledge to develop statistical science in finance.

Financial management is associated with the acquisition of assets, funding, and asset management based on some general purposes[8]. Financial management is the company owners' and management's activity to obtain the cheapest capital source and use it effectively, efficiently, and productively to earn a profit [9]. Financial management is also all company activities related to obtaining funds and managing assets based on the company's overall goals [10]. In other words, financial management is the management of how to acquire, fund, and manage assets to achieve company goals.

Financial management's objective is to maximize the firm value or maximize the prosperity of shareholders as measured by the company's stock price [10]. Moreover, the company's goal is to increase the shareholders' prosperity, as shown in the higher stock price, which is a reflection of investment decisions, funding, and dividend policies [11]. Financial management aims to make correct financial decisions, in which financial decisions are to maximize the firm value [12].

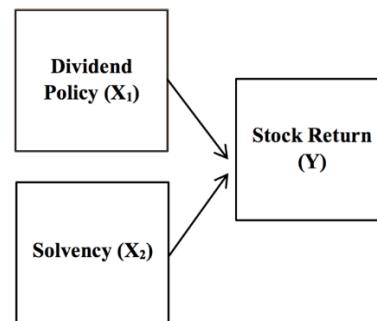
Dividend decisions are part of a company's expenditure decisions, especially those related to the company's internal expenditure. This is because the size of the dividends distributed will affect the size of the retained earnings [13].

A dividend policy is a policy to determine the amount of profit that must be paid (dividends) to shareholders and the amount of profit that must be reinvested (retained earnings). Sartono defined that the dividend policy is a decision whether the profits earned by the company will be distributed to shareholders as dividends or will be retained in the form of retained earnings for future investment financing [14].

Signaling theory explains dividends, in which an increase in dividends above the average increase is usually a signal to investors that company management predicts a good income in the future. Conversely, a decrease in dividends below the average increase is considered by investors as a signal that the company is facing difficult times in the future [15].

Ratio analysis and trend analysis are always used to determine the company's financial health and progress whenever financial statements are published. Ratio analysis compares the balance sheet elements, income statement elements, and financial ratios of one issuer and another [16]. Financial solvency is a ratio that provides a size of the extent to which fixed-income securities (debt and preferred stock) are used in a company's capital structure.

The solvency ratio measures the company's ability to meet its long-term obligations. A company that is not solvable is a company whose total debt is higher than its total assets or total equity [15]. Rational investors tend to avoid risk, but if a company uses debt in its capital structure, its investors will bear the financial risk on fig.1.



**Figure 1.** Research model

Hypotheses:

H1: Dividend Policy affects Stock Returns in Manufacturing Companies listed on the IDX in 2014-2018.

H2: Solvency affects Stock Returns in Manufacturing Companies listed on the IDX in 2014-2018.

H3: Dividend Policy and Solvency simultaneously affect Stock Returns in Manufacturing Companies listed on the IDX in 2014-2018.

## 2. METHODS

The method used in this study was a descriptive method and verification method with a quantitative approach. This study examined more deeply the effect of dividend policy and solvency on stock returns in manufacturing companies listed on the IDX in 2014-2018. This study's population was all manufacturing companies listed on the IDX for five years (all companies listed on the IDX from 2014-2018 which actively published financial statements during the year of observation). The number of manufacturing companies that went public up to 2018 was 144 companies, with 19 manufacturing sub-sectors, and a sample of 10 companies was obtained. The technique used was the purposive sampling technique, which is collecting a sample from a population with certain criteria. The criteria were as follows:

- (1) Manufacturing companies listed on the Indonesia Stock Exchange (IDX) in 2014-2018.
- (2) Manufacturing companies that published their financial summaries or statements from 2014 to 2018.
- (3) Manufacturing companies that routinely pay dividends from 2014 to 2018.

The data used in this study were secondary data in the form of published financial statements. The data analysis tools used were Microsoft Office Excel 2016 software and statistical software of Eviews 9. The analysis steps taken in this study were:

- (1) Estimation Model Selection Test (Chow Test, Hausman Test, and Lagrange Multiplier Test)
- (2) Classical Assumption Test (Normality Test, Multicollinearity Test, and Heteroscedasticity Test)
- (3) Hypothesis Test (F-Test, Coefficient of Determination Test, and t-Test)

The analysis method used in this study was panel data regression analysis with the following regression model (1).

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \epsilon_{it}$$

Where:

$Y_{it}$  = firm value variable

$\alpha$  = constant (intercept)

$\beta_1, \beta_2$  = the regression coefficient for each independent variable

$Y$  = stock return variable

$X_1$  = dividend policy variable

$X_2$  = solvency variable

$\epsilon$  = error term

$i$  = company data

$t$  = time period data

This study's panel data analysis technique can be carried out using an estimation method with three approaches, including the common effect, fixed effect, or random effect.

## 3. RESULTS AND DISCUSSION

In this section, there are two statistical analysis methods used, including descriptive analysis and verification analysis.

### 3.1 Descriptive Analysis

Descriptive statistical analysis in this study includes a general description of the condition of all the variables studied and will also be described by examining the maximum, minimum, mean, and standard deviation values. The results of the analysis are presented in the following table 1.

**Table 1.** Development of Dpr, Der, and Stock Returns of Manufacturing Companies Listed on The Idx in 2014-2018

	N	Min	Max	Mean	Std. Deviation
DPR	10	0.007000	1.459000	0.489240	0.295608
DER	10	0.340000	3.030000	0.915400	0.662208
Stock Return	10	-0.912000	1.222000	0.016880	0.343114

Based on the table above, it is known that the minimum value of the dividend policy described through the Dividend Payout Ratio (DPR) indicator is 0.007, and the maximum value is 1.459. These results show that the DPR size for the manufacturing companies as the samples of this study ranges from 0.007 to 1.459 with an average value of 0.48924 at a standard deviation of 0.295608. The average value is higher than the standard deviation, which is  $0.48924 > 0.295608$ , which means that the DPR values' distribution is good. The highest and lowest DPR occurred in the company of Multi Bintang Indonesia (1Tbk).

The minimum value of the solvency described through the Debt to Equity Ratio (DER) indicator is 0.34, and the maximum value is 3.03. These results indicate that the DER's size for the manufacturing companies that are the samples of this study ranges from

0.34 to 3.03 with an average value of 0.9154 at a standard deviation of 0.662208. The average value is higher than the standard deviation, which is  $0.9154 > 0.662208$ , which means that the DER values' distribution is good. The highest DER occurred in the Multi Bintang Indonesia Tbk company, while the lowest DER occurred in Selamat Sempurna Tbk company.

The minimum value of the stock returns is -0.912, and the maximum value is 1.222. These results show that the size of the manufacturing companies' stock returns that are the samples of this study ranges from -0.912 to 1.222 with an average value of 0.01688 at a standard deviation of 0.343114. The average value is lower than the standard deviation, which is  $0.01688 < 0.343114$ , which means that the stock returns' distribution is not good. The highest stock return occurred in the company of Branta Mulia Tbk, while the lowest stock return occurred in the company of Surya Toto Indonesia Tbk.

### **3.2 Model Selection Test Results**

Three methods can be applied to select the most appropriate model to use in managing the panel data, including the Chow Test, Hausman Test, and Lagrange Multiplier Test on table 2.

**Table 2.** Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.958080	(9,38)	0.4887
Cross-section Chi-square	10.225087	9	0.3326

Based on the table 2 above, it can be seen that the results of the Chow Test on the effect of dividend policy and solvency on stock returns produce a probability value of 0.3326 in which if the probability value  $>$  significance level of 0.05, it accepts H0 and rejects H1. The estimation model based on the Chow Test is the Common Effect Model.

**Table 3.** Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.013308	2	0.9934

Based on table 3, the hausman test results on the effect of dividend policy and solvency on stock returns in the table above show a probability value of 0.9934. This means that the probability value  $>$  significance level of 0.05 so that it accepts H0 and rejects H1. A good model to use is the Random Effect Model.

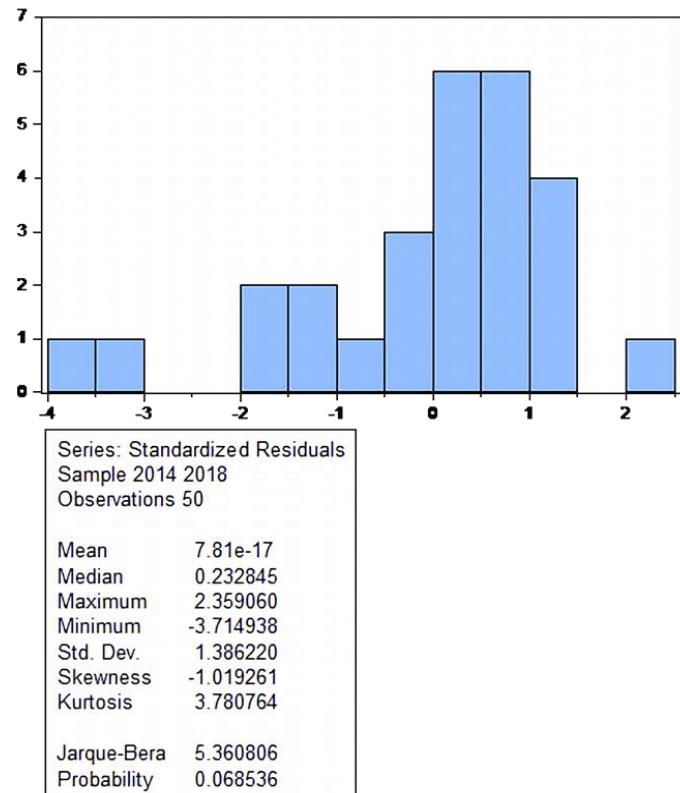
**Table 4.** Lagrange Multiplier Test Results

Test Hypothesis			
	Cross-section	Time	Both
Breusch-Pagan	0.035740 (0.8501)	17.36124 (0.0000)	17.39698 (0.0000)

Based on the table 4, the LM test results of the effect of dividend policy and solvency on stock returns show that the Breusch-Pagan probability value is 0.8501. The probability value  $>$  significance level of 0.05. Thus, it can be concluded that the best estimation model in this study is the Common Effect Model

### **3.3 Classical Assumption Test Results**

Classical assumption testing is a prerequisite for regression analysis using the OLS (Ordinary Least Square) method. The classical assumption test used in this study includes the normality test, multicollinearity test, and heteroscedasticity test shown as figure 2.



**Figure 2** Graph of normality test results

Based on the graph above, the normality test results on the effect of dividend policy and solvency on stock returns show a probability value of 0.068536. The probability value  $>$  significance level of 0.05. Thus, the results of the normality test state that the residuals are normally distributed.

**Table 5.** Results of the Correlation Analysis Between Independent Variables (X)

	X1	X2
X1	1.000000	0.234447
X2	0.234447	1.000000

Based on the table 5, the correlation value between independent variables on the effect of dividend policy

and solvency on stock returns shows a value of 0.234447. This value is  $< 0.85$ , so there is no multicollinearity in the regression model.

**Table 6.** Heteroscedasticity Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<i>C</i>	0.254660	0.061079	4.169333	0.0001
<i>X<sub>1</sub></i>	0.039564	0.097366	0.406340	0.6863
<i>X<sub>2</sub></i>	-0.047507	0.043464	-1.093028	0.2800
<i>R-squared</i>	0.025271	<i>Mean dependent var</i>		0.230528
<i>Adjusted R-squared</i>	-0.016206	<i>SD dependent var</i>		0.194292
<i>SE of regression</i>	0.195860	<i>Akaike info criterion</i>		-0.364705
<i>Sum squared resid</i>	1.802981	<i>Schwarz criterion</i>		-0.249983
<i>Log-likelihood</i>	12.11762	<i>Hannan-Quinn criter.</i>		-0.321018
<i>F-statistic</i>	0.609273	<i>Durbin-Watson stat</i>		1.561148
<i>Prob(F-statistic)</i>	0.547984			

Based on table 6, the probability value of all independent variables in the table above shows a number  $>$  significance level of 0.05, which means that the regression model has met the heteroscedasticity assumption. Therefore, it can be concluded that there is no heteroscedasticity in the distribution of data.

### **3.4 Regression Test Results Using the Common Effect Model**

Based on the test results for selecting the best model for the panel data regression, the Common Effect Model is the selected model. The following are the results of testing the Dividend Policy (DPR) and Solvency (DER) on Stock Returns using the CEM regression model on table 7.

**Table 7.** Regression Test Results Using the Common Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<i>C</i>	-0.031777	0.106966	-0.797075	0.3677
<i>X<sub>1</sub></i>	0.309280	0.732117	3.953405	0.0179
<i>X<sub>2</sub></i>	-0.120008	0.420513	-0.281909	0.0053
<i>R-squared</i>	0.887260	<i>Mean dependent var</i>		0.016880
<i>Adjusted R-squared</i>	0.869943	<i>SD dependent var</i>		0.343114
<i>SE of regression</i>	2.648952	<i>Akaike info criterion</i>		0.755962
<i>Sum squared resid</i>	5.529560	<i>Schwarz criterion</i>		0.870684
<i>Log-likelihood</i>	-15.89906	<i>Hannan-Quinn criter.</i>		0.799649
<i>F-statistic</i>	4.015993	<i>Durbin-Watson stat</i>		2.303734
<i>Prob(F-statistic)</i>	0.003698			

### **3.5 Panel Regression of the Common Effect Model**

Based on the results of the regression estimation model of the Common Effect Model shown in Table 7, the following regression can be obtained:

$$Y = -0.031777 + 0,309280X_1 - 0.120008X_2$$

Notes:

*Y* = Stock returns

*X<sub>1</sub>* = Dividend payout ratio (DPR)

*X<sub>2</sub>* = debt to equity ratio (DER)

The results of the panel regression equation above states that the constant value of this equation is -0.031777, which states that if there are no *X<sub>1</sub>* (DPR) and *X<sub>2</sub>* (DER) variables or all independent variables are constant or equal to zero, the *Y* value (stock return) is -0.031777.

The *X<sub>1</sub>* (DPR) variable's coefficient has a positive effect on *Y* (stock return) with a value of 0.309280. This means that every increase in the DPR of 1 will be followed by an increase in stock returns of 0.309280, assuming that the other independent variables are in constant condition.

The coefficient *X<sub>2</sub>* (DER) variable has a negative effect on *Y* (stock return) with a value of -0.120008. This means that every increase in the DER of 1 will be followed by a decrease in stock returns of 0.120008, with an assumption that the other independent variables are in constant condition.

### **3.6 Hypothesis Test Results**

Based on Table 7 above, it obtained an F-count of 4.015993, and the probability shows a value of 0.003698. The test results show the probability value  $<$  significance level of 0.05. Thus, it can be concluded that the independent variables (dividend policy and solvency) simultaneously affect the dependent variable (stock return).

In Table 7 above, the Adjusted R-squared test results show a value of 0.869943. These results mean that the percentage of the contribution of the effect of the independent variables on the dependent variable is 86.99%, or it can be interpreted that the independent variables can explain 86.99% of their effect on the dependent variable in the model. The remaining 13.01% is affected by other factors outside the regression model.

Based on the results of Table 7 above, the dividend policy (*X<sub>1</sub>*) variable produces a t-count value of 3.953405 and a probability value of 0.0179. The test results show the probability value  $<$  significance level of 0.05. Thus, it can be concluded that dividend policy partially has a positive effect on stock returns.

The solvency (*X<sub>2</sub>*) variable produces a t-count value of -0.281909 and a probability value of 0.0053. The test results show the probability value  $<$  significance level of 0.05. Thus, it can be concluded that solvency partially has a negative effect on stock returns.

## **4. CONCLUSIONS**

Based on the results of the study that has been carried out with descriptive and verification analysis using panel data regression analysis regarding the effect of dividend policy and solvency on stock returns of

manufacturing companies listed on the IDX in 2014-2018, it can be concluded that:

1. The development of the dividend policy level as measured using the Dividend Payout Ratio (DPR) in manufacturing companies in the observation period of 2014-2018 tends to decline, which indicates that there has been a decrease in income so that profits have decreased. The highest average value of DPR occurred in 2017. Meanwhile, the lowest average value of DPR occurred in 2018. The company with the highest DPR value during the observation year is Multi Bintang Indonesia Tbk (MLBI). Meanwhile, the company with the lowest DPR level during the observation year is Sepatu Bata Tbk (BATA).
2. The development of the level of solvency as measured using the Debt to Equity Ratio (DER) in manufacturing companies from 2014 to 2018 tends to increase, indicating that the ratio of debt is higher than the company's equity. This condition will cause serious consideration for investors because of the high risk. The lowest average value of DER occurred in 2016. The company with the highest DER value during the observation year is Multi Bintang Indonesia Tbk (MLBI). Meanwhile, the company with the lowest DER level during the observation year is Selamat Sempurna Tbk (SMSM).
3. The development of the stock returns in manufacturing companies for the observation period of 2014-2018 tends to decline, which indicates that the company's position is not performing well. Investors will reconsider their decision to invest if, after conducting an analysis, it turns out that the company cannot provide the returns they request. The highest average stock return value occurred in 2014. Meanwhile, the lowest average stock return value occurred in 2015. The company with the highest stock return during the observation year is Indo Kordsa Tbk (BRAM). Meanwhile, the company with the lowest stock return during the observation year is Surya Toto Indonesia Tbk (TOTO).
4. The results of statistical analysis obtained that the independent variables of dividend policy and solvency partially affect stock returns in this study.
5. Based on the statistical analysis results, it obtained that the dividend payout ratio (DPR) as an indicator to measure the X1 variable, which is dividend policy, has a positive and significant effect on stock returns in this study.
6. Based on the statistical analysis results, it obtained that the debt to equity ratio (DER) as an indicator to measure the X2 variable, which is solvency, has a negative and significant effect on stock returns in this study.

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