



The Influence of Fundamental Analysis and Technical Analysis Towards the Prediction of Stock Price With Dividend Policy as Moderating Variable

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ABSTRACT

The aim of the research is to find out the relationship between fundamental analysis and technical analysis towards stock price. Fundamental analysis is interpreted by debt to equity ratio, earnings per share, current ratio, and return on assets. Technical analysis is interpreted by volume of trade and The Composite Stock Price Index. Furthermore, by applying dummy variable, dividend policy is applied as moderation variable to test the relationship between fundamental analysis towards the stock price as well as technical analysis towards the stock price. The population of the research is banking companies listed in IDX in 2019-2022. Technical analysis applied double regression analysis and moderated regression analysis (MRA) using SPSS 26. The finding of the research stated that technical analysis and fundamental analysis influence the stock price. Company policy to share dividend for the stock holders was proven to influence the relationship between those variables.

INTRODUCTION

Investment has become one of the most important factors in an economic growth of a country in integration era nowadays. Generally, investment is classified into two types; financial investment and real investment. Financial investment is more popular nowadays, because it is considered as more practical and easier (Puneeth et al., 2021). The profits of financial investment are liquid funds, and can be withdrawn anytime, easy to avoid the pressure of global crisis anytime. Investor can invest financial investment in stock market and financial market (Beyaz et al., 2018).

Financial market is one of the most interesting findings in this era (Shah et al., 2019). It has significant effect towards many fields such as business, education, employment, technology and economic (Hiransha et al., 2018). Furthermore, stock market is beneficial for the economy towards investment development in a country. Finally, the fast growing and developing investment will become the motor of the economy (Beyaz et al., 2018).

Financial market provides a unique platform for trading and investing; trading can be done from any devices connected to the internet. With the rise of stock market, people have opportunities to increase their investments in many ways. Moreover, it contributes to emerge various funds such as mutual funds, hedge funds, and index fund for the people as well as institutions to invest their funds according to the preferred risk (Shah et al., 2019).

The easy access was suspected to be the reason of the developing investments in Indonesia. This can be seen from the stock market movement, according to Indonesian Stock Exchange (IDX), market capitalization on December 28th 2022 9,509 trillion rupiahs or rising 15,2 percent compared to the end of year position in 2021; which was 8,256 trillion rupiahs. Before, the market cap of Indonesian stock market hit the new record, which was 9,600 trillion rupiahs on December 27th 2022 (H. K. Dewi, 2023). The significant rise can also be seen from the number of the investors of Indonesian Stock Exchange. In 2019, the number of the investors was 2,484,354 increasing to become 10,311,152 at the end of 2022 with the highest increase that reached 92.99% from 2020 to 2021 (KSEI, 2022)

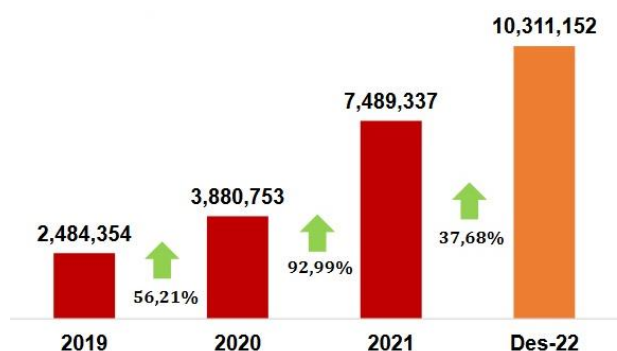


Figure 1. number of capital market investors

The existence of the stock market in Indonesia is one of the most important factors in the national economic development; it has been proven that many industries and companies apply this institution as a media to absorb investments

and media to strengthen their funds position (Muklis, 2016). One of the industrial sectors with the best prospect is banking sector (Riyantoko et al., 2020).

Stock market has significant role in the economy of a country; this is because stock market has several functions; they are: as a saving function, wealth function, liquidity function dan credit function (Rita et al., 2023). Stock market as a saving function is managed directly by Indonesia Stock Exchange (IDX). The development of stock market in Indonesia can be seen from the index of the growth indicator; in Indonesia, the index is Indonesia Composite Index (ICI).

There are six industrial sectors with the increase of the stock price according to Industrial Classification IDX-IC. The increase of non-primer consumer sector is the highest; that is 2.3%. The second and the third positions are transportation and logistics sector and infrastructure sector which increased 1.36% and 1.17%. In the other hands, the other five sectors were corrected; energy sector was corrected minus 0.79%, the deepest among all which made energy sector became the sector with the highest decrease. It followed by technology sector and financial sector which 0.25% and 0.24%. The correction of ICI was influenced by the weakening of the banking and coal stocks (Annur, 2023).

Banking is a foundation that support the economic stability, become an important financial pillar of a country (Gründler et al., 2023), termasuk Indonesia. Banks in Indonesia play a key role in supporting economic activities, including providing loan for the company and personal, as well as facilitate financial transactions (Ismamudi et al., 2023). Therefore, the movement of stock price in banking sector has significant impact towards financial market and economy in general.

Stock market is one of the popular investment instruments in the world. Mostly, investors often find out a method or strategy which can help them to predict stock price movement to take better investment decision. In this effort, fundamental analysis and technical analysis become two approaches that are applied in general (Puneeth et al., 2021). Technical analysis is a tool of analysis to predict the trend of stock price movement in the future by analyzing historical price. Fundamental analysis, in the other hands, is an analysis technique by considering various elements, including company performance, competitors, industrial analysis, macro economy, and market analysis. Fundamental analysis is one of the variables that affected the decrease of the stock price. Fundamental analysis is a progress to observe and evaluates the variables that support the fluctuation of asset price in financial report (Rai et al., 2023).

The aim of this research is to see both sides: fundamental analysis as well as technical analysis. Hopefully, this research can give more holistic approach towards stock trading as well as decreasing the risk because of the dependency towards one approach only. For example, if fundamental analysis indicates that a stock has a good intrinsic value, but technical analysis shows a strong decrease trend, investor is likely to be more mindful before deciding to buy the stock.

Furthermore, as a novelty, this research attempted to include dividend policy variable to moderates the relationship between technical analysis and fundamental analysis towards the stock price of the banking sector. Dividend

policy is a topic that is argued by the academics. This is because dividend policy is important by manager, creditor and investor (Jahfer & Mulafara, 2016). Investor concerns on dividend policy because dividend is a source income from company investment. Moreover, dividend policy is a way to evaluate the company performance. Ainun (2019), stated that dividend policy is an important funding policy for the company and affect the stock price.

THEORETICAL REVIEW

Signalling theory

Signalling theory is an effect that occurred as a result of financial report notification which is captured by the user, especially stock market investors. Financial information generates an effect which will be capture as a signal by the stock market investors as an opportunity or a thread in the future of the investment prospects that will be carried out. Therefore, signalling effect is a result of new information from financial report, and not based on the current issue (Penman, 2013).

Fundamental analysis

Fundamental analysis is an analysis that refers to the market condition that perhaps will decrease in a certain time. Hopefully fundamental analysis can take advantage of the declining market situation to buy the securities and sell in a bull market (Li & Mohanram, 2019). Fundamental analysis focuses on the value of intrinsic market. If the market price is under the intrinsic value, it means that the market is undervalued and it has to be bought and vice versa. If we compare the profit towards the stock price in a decade, we will find a similarity between both of them; that is when the performance increases, the stock price increase too and if the performance decreases, the stock price decreases (Kojoh, 2023).

There are several researches that had been conducted to evaluate the effectiveness and the impact of fundamental analysis to predict stock price. Several of the previous research showed that fundamental analysis can provide long-term beneficial information, especially for long-term investor that concern more in company's intrinsic value (Edet et al., 2023). The research also showed that fundamental factors such as profit per stock, income growth, and macro-economy factors affected stock price (Agrawal et al., 2019). The research of (Rezeki et al., 2022) in a banking company in the period of 2015-2019 found that, statistically, ROA, DER, EPS, Inflation, Money Exchange Rate and BI Rate variables gave significant effect towards the stock price.

The different result was found by Christina et al. (2021), in a utility and transportation sector company listed in Indonesian Stock Exchange in 2016-2019, fundamental analysis (current ratio) did not have significant effect towards the stock price. ROA also did not have significant effect towards the stock price in sub-sector transportation and energy companies in Indonesia Stock Exchange in 2016-2018 (R. S. Dewi & Rangkuti, 2020). The result of the research is not in accordance with signal theory stated by Yusmanianti et al. (2023), fundamental

factor ought to be a signal for the investors to predict the condition of a company, in fact, cannot predict the change of the stock price.

H1: The implementation of technical analysis towards the prediction of stock market in banking sector companies.

Technical analysis

Differ from fundamental analysis which concerns on the spreadsheet and financial report, technical analysis observes everything that is reflected by the stock price (Krantz, 2023). Technical analysis according to Krantz (2023) concerns on: the graphic of stock price, trading pattern, and the average of movement. The predominance of technical analysis is providing information about the trend and the pattern of stock price movement which can assist the investors in making investment decision. However, the weakness of technical analysis is not considering fundamental factor of the company that affect the stock price, such as financial performance and market condition. Moreover, technical analysis also provide inaccurate signal, especially if it is used as the only method to predict the stock price (Putri & Kurniati, 2023).

There are several researches that had been conducted to evaluate the effectiveness and the impact of technical analysis to predict the stock price. Some of the previous research showed that fundamental and technical variable (volume of stock trading) has significance impact towards the stock price of the hospitality company listed in IDX (Irpand & Prasetyanta, 2020). With different measurement models, Zhong & Hitchcock (2021) explained that the prediction of stock price by combining technical index, fundamental characteristic, and sentiment analysis of text data to predict stock price has accuracy up to 66,18%.

The different result was found by Christina et al. (2021), in a utility and transportation sector companies listed in Indonesia Stock Exchange 2016-2019, technical analysis (Indonesia Composite Index and Trading Volume) did not have significant effect toward the stock price. Moreover, it was found that Indonesia Composite Index (ICI) negatively affected and did not have significant effect towards stock price, whereas Trading Volume (TV) positively affected and did not have significant effect towards stock price (Dewi & Rangkuti, 2020).

H2: The implementation of fundamental analysis towards the prediction of stock price of banking sector companies.

Dividend policy

Dividend policy is the amount of cash money shared by the company to the stock holders. Dividend policy can be determined trough two important elements; first the decision to pay dividend to the stock holders and the second is to defend the profit to be re-invested for the future projects. Companies are responsible to balance the needs to maximize the wealth of the company owners with the needs to provide enough funds for the projects for the company growth, which has a main role as a mechanism to control administrative opportunism

(Kanakriyah, 2020). In this research, dividend policy is determined by *dummy variable*; to share or not to share dividend.

H3: Dividend policy moderates the impact of fundamental analysis towards the prediction of stock price of banking sector companies.

H4: Dividend policy moderates the impact of technical analysis towards the stock price of banking sector companies.

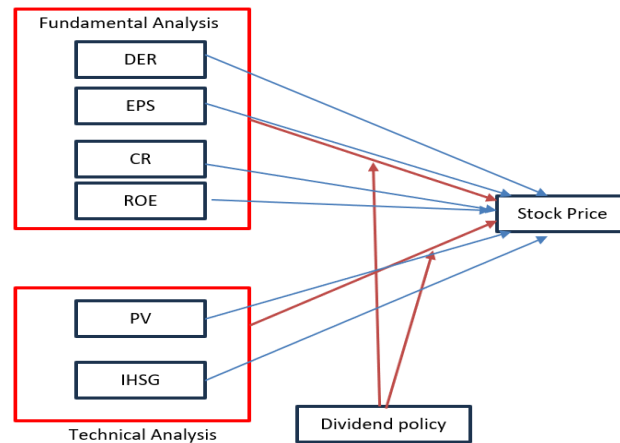


Figure 2. Research Model

METHODOLOGY

This research was done by applying quantitative approach using banking companies as the object of the research. There are 30 banking companies as the research sample with the criteria that those companies are listed in Indonesia Stock Exchange (IDX) and published annual financial report in 2019-2022. After the reduction of outlier data, 79 samples are obtained to answer the hypothesis questions.

RESULTS

Descriptive Statistic

Table 1. Descriptive Statistic

	N	Mean	Std. Deviation
DER	79	1,6329	0,61706
EPS		6,6838	0,37005
CR		4,2565	1,35198
ROE		2,8084	0,65857
IHSG		7,2509	0,5332
TV		16,1296	2,18427
Stock price		7,0787	1,15657

On Table 1, the average and deviation standard can be seen from every variables. There are 79 tested samples after outlier data reduction whereas

dividend policy variable is measured in dummy variables. Therefore, the description of research data applied frequency statistics.

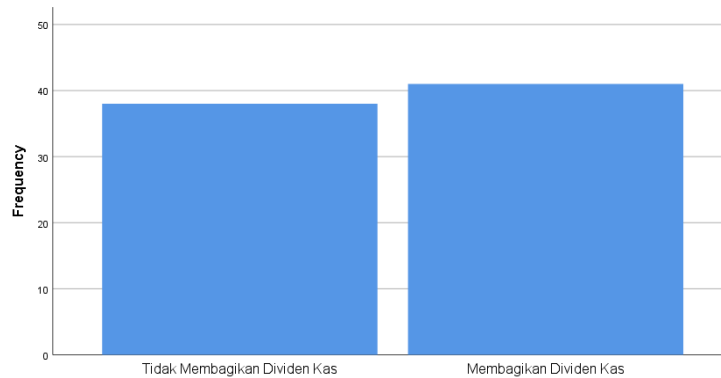


Figure 3. Descriptive Statistic: Dividend policy

The data of Figure 3 above showed the data of the companies that did not share the dividend (score 0) 38 companies or 48.1%; whereas the data of the companies shared the cash dividend (score 1) 41 companies or 51.9%. This information showed that banking companies that share and did not share the cash dividend is balance. The main reason that the bank did not share the dividend is a progressive hearing loss.

Multiple Regression Analysis

The similarity of the model is the impact of *debt to equity ratio, earnings per share, current ratio, the return on equity, composite stock price index and trading volume* towards the stock price. The following is the similarity of double regression used in this research.

Table 2. Multiple Regression Analysis

Model	B	T	Sig.
(Constant)	18,733	1,697	0,094
DER	-0,297	-2,321	0,023
EPS	-1,279	-5,440	0,000
CR	0,152	2,535	0,013
ROE	-0,819	-6,100	0,000
IHSG	-0,453	-0,296	0,768
TV	0,121	3,356	0,001

The result of regression test that is shown in Table 2 above showed the similarity of double regression obtained as follow:

$$\text{Stock Price} = 18.733 - 0.297X_1 (\text{DER}) - 1.279X_2 (\text{EPS}) + 0.152X_3 (\text{CR}) - 0.819X_4 (\text{ROE}) - 0.453X_5 (\text{IHSG}) + 0.121X_6 (\text{TV}) \dots\dots\dots (1)$$

Constant value obtained is 18,733 it means that if independent variable increase one unit in average, therefore dependent variable also increase 18,733

Moderated Regression Analysis
Fundamental Analysis

Table 3. MRA – Fundamental Analysis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	65.300	4	16.325	30.945	.000 ^b
Residual	39.038	74	.528		
Total	104.338	78			

The basis for the decision making in F test is if significance <0.05, it can be considered that there is a significant effect. The output of SPSS result showed significance value 0.000 <0.05. Therefore, it can be concluded that DER, EPS, CR, ROE variable has significant effect towards Stock Price Variable simultaneously. Hypothesis 1 is accepted.

The analysis of dividend policy moderates the impact of fundamental analysis towards the prediction of the stock price of banking sector companies.

SSRT : 39.038

SSR1 : 15.827

SSR2 : 13.936

SSRG : (SSR1 + SSR2) = 15.827 + 13.936 = 29.736

N1 (Number of samples that did not share dividend) : 38

N2 (Number of samples that share dividend) : 41

The calculation of F_{calculation}:

$$F_{\text{calculation}} = \frac{(SSRT-SSRG)/k}{(SSRG)/(n1+n2-2k)} \dots\dots\dots (2)$$

$$F_{\text{calculation}} = \frac{(39.038 - 29.736)/5}{(29.736)/(38 + 41 - 10)}$$

$$F_{\text{calculation}} = \frac{1.860}{0.430} = 4.325$$

Based on Table 3 as well as F calculation above, the analysis result is obtained that the value of F calculation is 4.325, whereas F Table df=(alpha 5%;k;n1+n2-2k) or (0.05; 5; 69) is 2.35, the value of F calculation (4.325) > F table (2.35). Therefore, it can be concluded that dividend policy moderates the impact of fundamental analysis towards the stock price. Therefore, hypothesis 3 is accepted.

Technical Analysis

Table 4. MRA - Technical Analysis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	7.904	2	3.952	3.115	.050 ^b
Residual	96.434	76	1.269		
Total	104.338	78			

The basis for the decision making in F test is if significance <0.05, it can be considered that there is a significant effect. The output of SPSS result showed significance value $0.050 \leq 0.05$ with F calculation $3.115 >$ from F table 3.11. Therefore, it can be concluded that Combined Stock Price Index and trading volume have significant impact towards Stock Price Variable simultaneously. Hypothesis 2 is accepted.

The analysis of Dividend Policy moderates the impact of technical analysis toward the prediction of stock price of banking sector companies

$$\begin{aligned}
 SSRT & : 96.434 \\
 SSR1 & : 29.238 \\
 SSR2 & : 27.914 \\
 SSRG & : (SSR1 + SSR2) = 29.238 + 27.914 = 57.152 \\
 N1 \text{ (Number of samples that did not share dividend)} & : 38 \\
 N2 \text{ (Number of samples that share dividend)} & : 41
 \end{aligned}$$

The calculation of $F_{\text{calculation}}$

$$F \text{ calculation} = \frac{(SSRT - SSRG)/k}{(SSRG)/(n1+n2-2k)} \dots\dots\dots (3)$$

$$F \text{ calculation} = \frac{(96.434 - 57.152)/2}{(57.152)/(38 + 41 - 4)}$$

$$F \text{ calculation} = \frac{10.641}{0.762} = 25.775$$

Based on Table 4 and the calculation of F calculation above, the result of the analysis obtained if the value of F calculation is 25.775, whereas the F Table $df=(\alpha 5\%;k;n1+n2-2k)$ or $(0.05; 3; 75)$ 2.73, the value of F calculation (25.775) > F table (2.73). Therefore, it can be concluded that dividend policy moderates technical analysis toward stock price. Therefore, hypothesis 4 is accepted.

DISCUSSION

Based on the research findings, investors in Indonesia can state the information of financial performance which contributes in positive effect toward stock price as consideration in stock investment. It shows that the indicator of financial performance in financial report has basic impact in stock price determination. Moreover, the broaden knowledge of the investors and management about the importance of issuing the indicator of financial performance for banking sector companies in the research sample, parameter impact of financial performance can be broader to the investors preference in banking sector and their investment direction in the future (Almagtome & Abbas, 2020).

Fundamental analysis is proven helpful for the investors to determine the potential of the long-term growth of the company, not only short-term price movement (Rezeki et al., 2022). This is important for the investors to apply long-term investment and look for the growth of their investment value from time to time. It can change the short-term strategy of the investors in Indonesia become long-term investment by focusing on the preference of the clients which also depend on long-term company reputation.

In the impact of technical aspect, this research concluded that technical analysis that focuses on trading volume is important to understand the stock price movement. Trading volume shows the number of stocks sells in a certain period and provides an important outlook about the power and the validity of the trend of price (Zhong & Hitchcock, 2021). When the stock price increases and trading volume increases, it showed that the increase trend is supported by the strong buying interest. The high volume confirmed that more investors buy the stocks, strengthen increasing trend. It also can be assumed that high volume mostly shows high level of panic or enthusiasm in the market. High volume is likely to occur in main market turning point, such as peak or base stock price.

However, the use of Combined Stock Price Index as a choice to determine the main factor in predicting the stock price did not accurately proved. Combined Stock Price Index does not have significant impact toward the stock price. Several things that are assumed as the factors are the value of Combined Stock Price Index which fluctuate and change daily. Combined Stock Price Index on December 31st in the same year cannot be considered as the reference for the Combined Stock Price Index for the whole year. Moreover, Combined Stock Price Index can be affected by excessive factors that cannot be identified. Therefore, the value is unpredictable. Therefore, a single factor of Combined Stock Price Index cannot be considered as reference for the investors in stock investment in banking sector companies in Indonesia.

Based on this research, technical analysis in general and especially trading volume analysis can provide precious outlook to predict the stock price movement. Therefore, the analysis of fundamental aspect is beneficial as reference for the investors to invest in banking sector companies in Indonesia. Of course, corporation is needed.

The research also proves that company policy to share dividend to the stock holders has significant impact toward fundamental analysis applied in predicting

the stock price. Investors and analyst have to consider dividend policy of the company while practicing fundamental analysis and predict the stock price. Moreover, the change in company's dividend policy has significant impact toward fundamental analysis and the prediction of the stock price from time to time.

The announcement of dividend sharing, especially those which are unpredictable, mostly followed by significant market reaction. Dividend announcement that is more than what has been predicted caused the significant increase of the stock price. In the other hands, less dividend sharing or even the policy of not sharing the dividend caused the decrease of the stock price. In general, the policy of dividend sharing is an important element in fundamental analysis which has significant impact toward the investors' perception about the value and the future prospect of the company.

This research proves that dividend sharing by banking sector company strengthen the relationship between trading volume and Combined Stock Price Index toward the stock price. The announcement of dividend sharing is mostly followed by significant change of stock price. When a company announces the increase of the dividend sharing, the stock price is likely increase because of positive sentiment of the market. In the other hands, less dividend sharing or the policy of not sharing the dividend caused the decrease of the stock price. Technical trader observes the reaction of the price to look for the opportunity of trading.

Dividend policy affected stock trading volume. The announcement of high dividend sharing or the unpredictable dividend mostly increases trading volume because a lot of investors reacted towards the news. The increase of trading volume can provide additional confirmation towards the price movement which analyzed technically. Dividend policy can influence market sentiment in general. Positive sentiment because of the increase of the dividend sharing creates strong buying momentum which can be seen in the price graph. This sentiment is reflected in trading pattern and the volume which is analyzed by technical traders.

CONCLUSIONS AND RECOMMENDATIONS

Several conclusions based on this research are: fundamental analysis has significant impact towards the stock price. It means that higher the score of fundamental analysis will be implemented by the higher stock price of banking sector companies. It also applied in every aspects of fundamental analysis tested; they are: DER, EPS, CR, and ROA. Therefore, a good score of each instrument can be applied as consideration by the investors to predict the stock price of banking sector companies.

Technical analysis is also proven to have significant impact toward the stock price. It means that higher the score of fundamental analysis will be implied by higher stock price of banking sector companies. However, there is a difference between the results of technical aspect tested. Trading volume has significant impact towards stock price and vice versa, Combined Stock Price Index does not have significant impact towards the stock price of banking sector companies.

Dividend policy influences the relationship between fundamental analysis and the stock price. Therefore, in banking sector companies that shares the cash dividend for the stock holders, the relationship of the interaction between fundamental analysis and the stock market increase significantly. The last, dividend policy also influences the relationship between technical analysis and the stock price. Therefore, in banking sector companies that shares the cash dividend for the stock holders, the relationship of the interaction between technical analysis and the stock market increase significantly.

FURTHER STUDY

After the research was done, the researchers suggested some points for further research: applying different component whether from technical or fundamental aspects. For example: equity component in fundamental analysis and macro-economy in technical analysis as well as the application machine learning and analysis model of different stock prices as a comparative tool to predict the stock price, for example: CNN-BiLSTM-AM, ARIMA, LSTM, and SVR. Moreover, the comparison between conventional and sharia can be conducted as well.

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