

How Fundamental Analysis and Technical Analysis Determining the Stock Price: Case Study of Mining Company Listed on the Indonesia Stock Exchange

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Abstract—This study aims to determine the magnitude of the influence of fundamental analysis and technical analysis of stock prices. Fundamental analysis in research is measured using price earnings ratio (PER). Technical analysis in research is measured using trading frequency and trading volume. The stock price in the study is measured using the closing price at the end of the year. The study used data of mining sector companies in Kompas 100 index which listed in Bursa Efek Indonesia (BEI) year 2013-2015 as many as 10 company samples taken by using nonprobability purposive sampling method. The method of analysis used in this research is multiple linear regression analysis. The conclusion of the hypothesis is done by observing the coefficient of determination and regression, taking into account the significant test result that is T-Test and F-Test 5 percent significance level, performing classical assumption test such The result of the research shows that the variable of fundamental analysis which is calculated using price earnings ratio indicator does not have an effect on stock price, technical analysis variable with trade frequency indicator and trading volume influence to stock price, and fundamental analysis and technical analysis have influence to stock price.

Index Terms—Fundamental analysis, technical analysis.

I. INTRODUCTION

Indonesia is a country rich with natural resources. It is supported by the fact that Indonesia is known as the second biggest coal exporter in the world, second biggest tin producer in the world and the owner of 12% world nickel reserve. Mining industry has been receiving a significant attention from the central and local government of Indonesia. As we can see by ourselves that the mining industry gives a significant amount of income to the nation. The industry itself has been growing rapidly from time to time. We can see that from the number of mining company listed on the Indonesia Stock Exchange. In the 2013, mining sector in Indonesia was experiencing a decrease in stock price following the decreasing of world price of mining commodity. Especially in Indonesia, it was worsen by the uncertainty of Indonesian Law on mining since the issuance of UU RI No. 4 2009 about Mineral and Coal Mining replacing UU RI No. 11 1967 about the Principle Conditions of Mining. Stock's price performance was

decreased, responding to government policy which was assessed unsupportive to the local mining industry. Stock's price index on mining sector starts decreasing on April and May. Stock's price index in mining sector even reached the level of 2804.1 on February. However, the index went through a 6.6% decrease (MoM) on April and 19.9% (MoM) on May. Thus, since the beginning of October 2013, the stock's price index of mining sector decreased by 29.2% (www.financeroll.co.id, 2013).

Mining company has always been investor's favorite on capital market, until this day. It is proven by the significant improvement on the index which reached 53.35%, beating the composite stock index, which only reach 17.37% on the same period. One of the supporting factor in trusting the market is investor perception toward stock price fairness. According to [1], there are two approaches in stock price valuation, which are fundamental analysis and technical analysis. Fundamental analysis attempt to predict stock price in the future by estimating the value of fundamental factors affecting stock price in the future and then apply it into the correlation of the variable so it can find the prediction of the stock price. This research uses price earning ratio (PER) as a part of fundamental analysis, because PER is an indicator of market's trust toward the prospect of company's growth, thus most of the investor pay more attention to PER. According to [2] fundamentally, this ratio is being watched by investor because a company with high PER shows a high market value as well. A previous research conducted by [3] shows that PER partially does not affect the price stock of textile companies listed on Indonesia Stock Exchange (IDX). It is different with a research conducted by John (2015) which shows that PER significantly affecting the stock price. This research chooses trading frequency as the proxy from technical analysis variable. the reason behind this decision is because trading frequency is an indicator to measure the activity of transaction amount of a stock. The increases of trading frequency will cause increases of stock price [4]. Besides trading frequency, this research also use trading volume as a part technical analysis variable. Trading volume is an indicator for measuring investor's intention in buying a stock. An increasing trading volume will be followed by an increase in stock price. In which trading volume is low, it will cause a decrease in stock price [4]. Despite this finding, a research conducted by [1] obtained a result in which, stock price is not affected by trading volume. However, another research is conducted by [5] shows that trading volume does have an effect toward stock price.

Based on the Table I, the growth of PER in mining sector from 2013-2015 is decreasing. During that period, it

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decreased from 18.53 to 7.52. With this condition company is not able to manage their asset properly so the price of the stock decreased from 4726 to 1437. Meanwhile, trading frequency is experiencing a different condition from PER. Trading frequency improved from 227 to 526 on the same period. It shows that mining company's stock is still actively traded. It is contradicting with finding from [2] which stated that increase in trading frequency will affect stock price positively.

TABLE I: MEAN OF PRICE EARNING RATIO (PER), TRADING FREQUENCY, AND TRADING VOLUME, MINING COMPANY KOMPAS 100 INDEX LISTED ON IDX

Research Variable	Satuan (X)	Year		
		2013	2014	2015
PER	Times (X)	18,53	16,887	7,52
Trading Frequency	Times (X)	227	411	526
Trading Volume	Shares	5.989	8.855	9.022
Stock Price	Rupiah	4.726	3.942	1.437

In the same period, we also can see that the average of trading volume also has an increase. It increase from 5989 to 9022, it shows that investors are still interested in buying stocks from mining sector. However, increase in trading volume does not affect the stock price [6], contradictive with the theory previously mentioned.

Looking at the development of mining sector in Indonesia especially in terms of stock price movement in the capital market which fluctuate actively and the phenomenon above, it motivates the researcher to conduct a further research entitled "How Fundamental Analysis and Technical Analysis Determining the Stock Price: Case Study of Mining Company Listed on The Indonesia Stock Exchange".

A. Problem Identification

- 1) How does Price Earning Ratio (PER) affect the stock price of mining company in the KOMPAS 100 index listed on Indonesia Stock Exchange (IDX) during the period of 2013-2015?
- 2) How does Trading Frequency affect the stock price of mining company in the KOMPAS 100 index listed on Indonesia Stock Exchange (IDX) during the period of 2013-2015?
- 3) How does Trading Volume affect the stock price of mining company in the KOMPAS 100 index listed on Indonesia Stock Exchange (IDX) during the period of 2013-2015?
- 4) How does Price Earning Ratio (PER) Trading Frequency, Trading Volume simultaneously affect the stock price of mining company in the KOMPAS 100 index listed on Indonesia Stock Exchange (IDX) during the period of 2013-2015?

B. Research Framework

H1: There is influence of Price Earning Ratio (PER) to

the stock price of mining company in the KOMPAS 100 index listed on Indonesia Stock Exchange (IDX) during the period of 2013-2015.

H2: There is influence of Trading Frequency to the stock price of mining company in the KOMPAS 100 index listed on Indonesia Stock Exchange (IDX) during the period of 2013-2015.

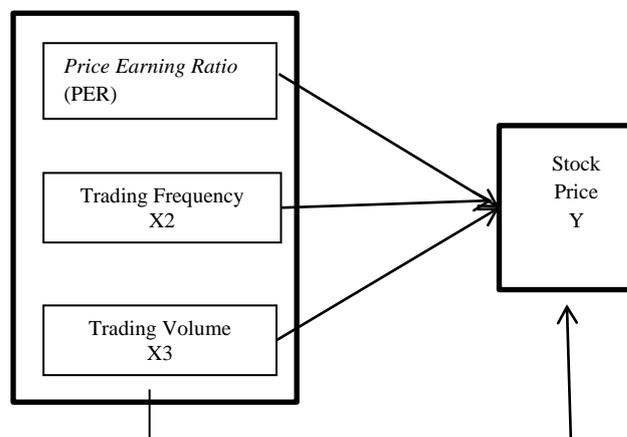


Fig 1. Research Paradigm.

H3: There is influence of Trading Volume to the stock price of mining company in the KOMPAS 100 index listed on Indonesia Stock Exchange (IDX) during the period of 2013-2015.

H4: There is influence of Price Earning Ratio (PER) Trading Frequency and Trading Volume simultaneously to the stock price of mining company in the KOMPAS 100 index listed on Indonesia Stock Exchange (IDX) during the period of 2013-2015 (Fig. 1).

C. Research Object

- 1) Companies that are indexed on Kompas 100 that is listed on Indonesia Stock Exchange during the period of 2013-2015.
- 2) Companies that always on the Kompas 100 index during the period of 2013-2015.
- 3) Companies that always publish annual report every year during the period of 2013-2015.

II. RESULTS AND DISCUSSION

A. Multicollinearity Test

TABLE II: MULTICOLLINEARITY TEST RESULT

	PER	Trading Frequency	Trading Volume
PER	1.000000	-0.330520	-0.299252
Trading Frequency	-0.330520	1.000000	0.331179
Trading Volume	-0.299252	0.331179	1.000000

Based on the data shown in Table II and Table III, we can see that there is no value greater than 0.90 or <0.90, it means that there is no multicollinearity among those three variables.

TABLE III: OPERATIONAL VARIABLES

No	Variable	Indicator	Concept	denomination	Scale
1	Stock Price (Y)	Stock price traded on the market	Measurement tool to assess company's performance	Rupiah (Rp)	Ratio
2	Price Earning Ratio (PER) (X1)	Stock price divided by <i>earning per share</i> (EPS)	PER = $\frac{\text{Stock Price}}{\text{Earning per share (EPS)}}$	Times (X)	Ratio
3	Trading Frequency (X2)	Number of transaction in a period	Measurement tool of company to assess the activity of a stock	Times (X)	Ratio
4	Trading Volume (X3)	Number of traded shares divided by outstanding shares	Volume = $\frac{\sum \text{traded share s}}{\text{outstanding shares}}$ Measurement tool for company to assess whether investors use the information they have to buy or sell the stocks k	(Shares)	Ratio

The equation is $Y = a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e$

B. Heteroscedacity Test

TABLE IV: HETEROSCEDACITY TEST RESULT

Heteroskedasticity Test: White

F-statistic	0.717557	Prob. F(3,26)	0.1111
Obs*R-squared	1.448588	Prob. Chi-Square(3)	0.0732
Scaled explained SS	1.678330	Prob. Chi-Square(3)	0.9821

Based on the Table IV, we can conclude that the regression model does not have a heteroscedacity problem. It is shown by the value of Obs*R-Square which is 0.00732. It is bigger than 0.05.

C. Chow Test

Chow Test is conducted to find the best model between Common Effect model or Fixed Effect Model.

TABLE V: CHOW TEST RESULT

Redundant Fixed Effects Tests

Equation: Untitled

Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	101.235798 (7,22)		0.0000
Cross-section Chi-square	115.325555	6	0.0000

According to the result of test in Table V, the value of Cross-Section F is 101.235798 with the P-Value is 0.0000. Because P-Value is lower than 5%, Fixed Effect model is chosen.

TABLE VI: HAUSMAN TEST RESULT

Correlated Random Effects – Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1162.333897	2	0.0000

D. Hausman Test

This test is conducted to choose a better model between Fixed Effect Model or Random Effect Model.

According to the Table VI the Chi-Square is 1162.333897 with P-Value 0.0000. Because P-Value is lower than 5%, then the Fixed Effect is chosen.

III. RESULT ANALYSIS

As shown in Table VII, hypothesis testing is used to determine whether the effect of X to Y is significant.

TABLE VII: DATA PANEL REGRESSION ANALYSIS

Method: Panel Least Squares

Date: 02/11/17 Time: 20:42

Sample: 2013 2015

Periods included: 3

Cross-sections included: 10

Total panel (balanced) observations: 30

Variable	Coefficien	t	Std. Error	t-Statistic	Prob.
C	3.707153	0.647178	5.728181	0.0000	
PER	0.008291	0.003566	1.325074	0.0789	
Trade Frequency	1.169095	0.239812	4.875052	0.0000	
Trade Volume	-1.041966	0.115741	-9.002564	0.0000	

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.796154	Mean dependent var	2.999025
Adjusted R-squared	0.772633	S.D. dependent var	0.723113
S.E. of regression	0.344802	Akaike info criterion	0.831871
Sum squared resid	3.091094	Schwarz criterion	1.018698
Log likelihood	-8.478072	Hannan-Quinn criter.	0.891639
F-statistic	33.84907	Durbin-Watson stat	1.566636
Prob(F-statistic)	0.000000		

1) The effect of PER on Stock Price

Based on the result of the data processing, the P-Value is

0.0789, which means higher than α (5%). So, we can conclude that PER does not have an effect to Stock Price.

2) The effect of Trade Frequency on Stock Price

Based on the result of data processing, the P-Value is 0.0000 which means lower than α (5%). So, we can conclude that Trade Frequency has an effect to Stock Price.

3) The effect of Trade Volume on Stock Price

Based on the result of data processing, the P-Value is 0.0000 which means lower than α (5%). So, we can conclude that Trade Volume has an effect to Stock Price.

4) The effect of PER, Trade Frequency and Trade Volume on Stock Price

Based on the result of the data processing, the value of Prob(f-statistic) is 0.000000 which means lower than α (5%). So, we can conclude that PER, Trade Frequency and Trade Volume simultaneously has an effect to Stock Price.

IV. CONCLUSION

- 1) Price Earning Ratio (PER) does not have a significant effect toward stock price of mining company indexed in Kompas 100 during the period 2013-2015. If there is no significant effect from PER to stock price, then stock price is hard to predict.
- 2) Trading frequency does have a significant effect toward stock price of mining company indexed in Kompas 100 during the period 2013-2015. The existence of significant effect from trading frequency to stock price is an indicator that its contribution to stock price movement in the future is significant and follows a certain path and repetitive.
- 3) Trading volume does have a significant effect toward stock price of mining company indexed in Kompas 100 during the period 2013-2015. An increase in trade volume reflecting an increase in supply and demand a stock, which contributing to stock price movement in

the future.

- 4) Pice Earning Ratio, Trading Frequency and Trading Volume simultaneously have a significant effect toward stock price. Thus, those three variable have a contribution in predicting price in the future.

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