

# Analysis of Fundamental and Technical Factors to Stock Price on Residential Property Sector Companies Listed in Indonesia Stock Exchange

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**Abstract-** This paper aims identifying dominant factor of fundamental and technical factors to stock price of residential property sector at Indonesia Stock Exchange. This study is explanatory research with a quantitative approach to determine the influence of independent variables to dependent variable. Data used is panel data model which are 17 companies listed in residential property sector at Indonesia Stock Exchange during 2010-2015. Data processing uses SEM PLS method. The results show that stock prices of residential property sector at Indonesia Stock Exchange influenced by fundamental and technical factors. Indicators that reflects fundamental factors are ROA, NPM and total asset turnover, while indicator of technical factors is past stock prices. The dominant indicator of fundamental factors is ROA which has the biggest loading factor. Then the dominant indicator of technical factors is past stock prices as only this indicator reflects technical factor.

**Index Terms-** firm fundamental, macroeconomics, property sector, stock prices

## I. INTRODUCTION

Capital market is an indicator economic progress for each country and also to support economic development state. Capital market has strategic roles as source of funding for the business world. Along with developing economy in Indonesia, more companies need greater capitals thus the companies decided to become a go-public company in Indonesia Stock Exchange (IDX).

Capital market could be one alternative to investors which it could be considered to invest in financial assets. The main objective of investing is to obtain return. To get maximum return, investors should analyze information to determine which company could obtain maximum return of capital implanted.

Stock prices in capital market continuously fluctuate as affected by internal and external factors thus investors should know the exact information to determine investment decisions. In analyzing stock prices, there are two approaches: fundamental and technical analysis (Kodrat & Indonanjaya 2010). Cohen *et al* (2011) found that investors used fundamental analysis more often than using technical analysis. It indicated using fundamental analysis for long term period investment and technical analysis for short term period investment.

Fundamental analysis discerns the problems from broad perspectives. These perspectives are from economic analysis,

industry analysis, and company analysis. On the other hand, technical analysis could predict stock prices in the future. Basically technical analysis uses stock prices movements and volume transactions in the past to predict stock price in the future.

The property is a sector which has an important role for the economy of a country. The growth property sector stipulates economic growth in society. Sectoral indices movement for property sector was at -6,47% in 2015. Property sector was being dropped in 2015 comparing in 2014 which it was at 55,76% (IDX 2015). The Indonesia government conducted decreasing BI rate policy however stock prices in property sector was decreasing.

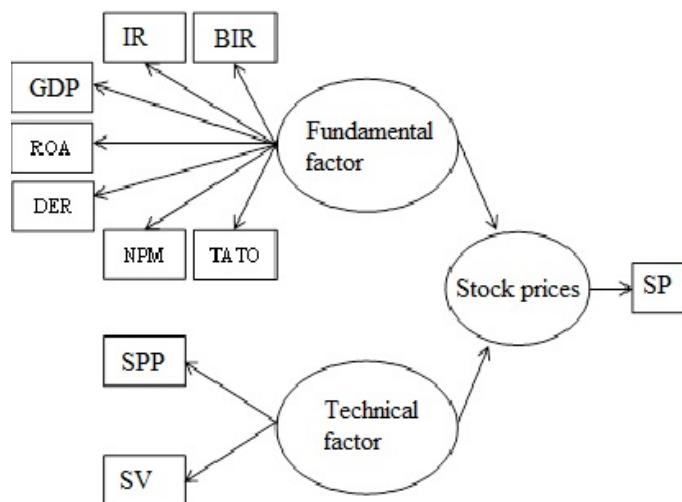
The property market capitalization increased in 2011-2015 from 4% to 8% (IDX 2015). Increasing capitalization property indicated property sector has good potential sector to invest. The potential market property, specially real estate (residential) in Indonesia, increases continuously and encourage property companies to grow. Investors need information to determine which stock market would be invested by observing fundamental and technical factors to stock prices. Thus it is necessary to study about fundamental and technical factors to stock prices on property sector companies listed in Indonesia Stock Exchange.

## II. RESEARCH METHODOLOGY

This study included exploration research to examine the relationship of a variable to other variables. The research objects are property companies listed in Indonesia Stock Exchange. Those would be analyzed the influence of fundamental and technical factors to stock prices. Dependent variable is stock price (SP) property sector companies. Independent variables are inflation rate (IR), Bank of Indonesia rate (BIR), gross domestic bruto (GDP), return on assets (ROA), debt equity to ratio (DER), net profit margin (NPM), total asset turnover (TATO), stock volumes (SV) and stock prices in the past (SPP). The framework for this research represents on Figure 1.

The data in this study are secondary data. Data are combination of time series and cross sectional data. Quantitative data used historic data from the companies financial statement during 2010-2015. The population was selected at companies property industry in Indonesia listed in Indonesia Stock Exchange. The samples were chosen by purposive sampling based on some criterions. The criterions are:

- 1) The companies engaged in property sector



**Figure 1 Framework of the research**

- 2) The companies listed in Indonesia Stock Exchange (IDX) during 2010-2015 continuously
- 3) The companies issued financial statements quarterly during this period

Based on these criterions, the samples were obtained seventeen companies which represented on Table 1. To process data, Microsoft Excel 2010 and SmartPLS 3 are used. The variables and indicators show at Table 2.

**Table 1 The sample companies**

No	Name of the company	No	Name of the company
1	AlamSutera Realty Tbk	10	Gowa Makassar Tourism Development Tbk
2	Bhuwanatala Indah PermaiTbk	11	PerdanaGapuraprimeTbk
3	Bukit Darmo Property Tbk	12	Jaya Real Property Tbk
4	Sentul City Tbk	13	KawasanIndustriJababekaTbk
5	Ciputra Development Tbk	14	LippoCikarangTbk
6	Ciputra Property Tbk	15	LippoKarawaciTbk
7	Ciputra Surya Tbk	16	DanayasaArthatamaTbk
8	Intiland Development Tbk	17	SuryamasDutamakmurTbk
9	Duta Pertiwi Tbk		

**Table 2 Variables and Indicators in this research**

Laten variables	Indicators	Definitions of indicators
Economic fundamental	a. Inflation rate b. BI rate c. Gross domestic bruto	Percentage of the consumer price index which for a year. Interest rates issued the central bank The total value of goods and services produced by various production line in the territory of a state after a certain period $ROA = \frac{\text{net profit after taxes}}{\text{total assets}}$
Fundamental company	a. ROA b. DER c. NPM d. TATO	$ROA = \frac{\text{net profit after taxes}}{\text{total assets}}$ $DER = \frac{\text{long term debt}}{\text{stock holders equity}}$ $NPM = \frac{\text{profit}}{\text{sales}}$ $TATO = \frac{\text{sales}}{\text{Total activa}}$
Technical	a. Stock volume b. Stock prices in the past	Stock volume quarterly Stock prices the last period
Stock price	Stock prices	Closing price in the period quarterly

### III. RESULTS AND DISCUSSION

#### A. Analysis of the Early Model

The latent variables in this study are fundamental and technical factors. The study analysed using SmartPLS 3 and the early model represents at Figure 2. Figure 2 showed fundamental variable reflected by inflation rate (IR), Bank of Indonesia rate (BIR), gross domestic bruto (GDP), return on assets (ROA), debt equity to ratio (DER), net profit margin (NPM) and total asset turnover (TATO). Technical variable is reflected by stock volumes (SV) and stock prices in the past (SPP). The model was analysed in first iteration then obtained its loading factor for each indicators. The loading factor should be higher than 0,6. If the

loading factor were below 0,6, it should be taken out and analysed in second iteration.

Final model showed at Figure 3 and the loading factor of indicator is higher than 0,6. The indicators of final model are ROA, NPM, TATO and stock prices in the past. These indicators are valid in measuring construct variable (Ghozali 2008).

ROA and NPM indicators denote profitability ratios. These ratios proved that these could reflect fundamental variable and valid. The findings fit with the theory that profitability ratio is the most determined by the investors (Munawir 2007). In this study, ROA loading factor is 0,836 and NPM loading factor is 0,782.

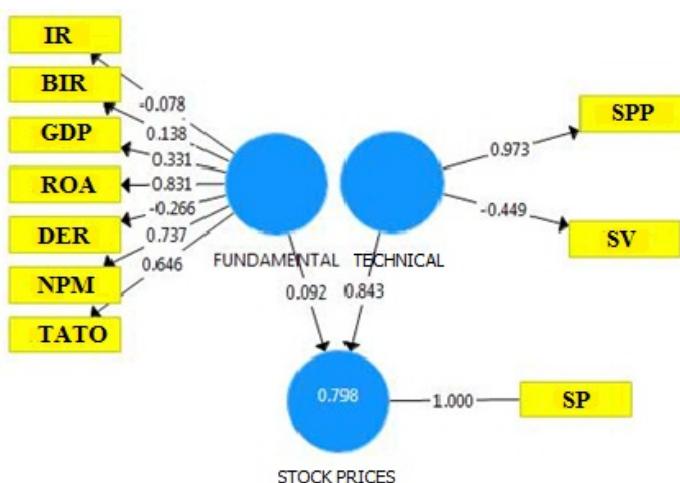


Figure 2 Early model

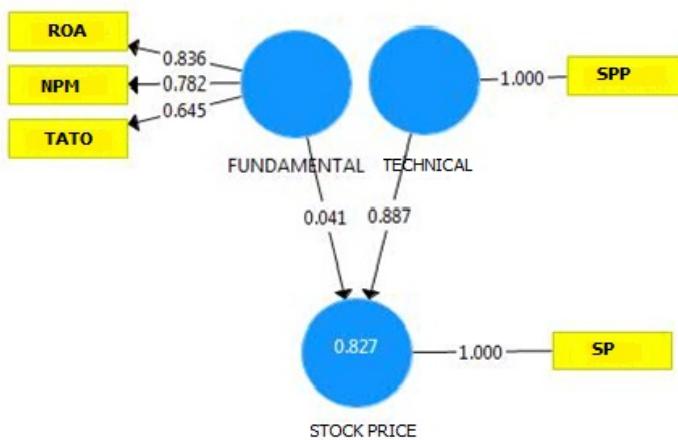


Figure 3 Final model

ROA measures efficiency the companies in managing their assets to profits. This ratio helps the management and the investors to see how well the companies managing the assets to become profit. The higher ratio, the investors more interest as this indicates the companies managing the assets to obtain the greater incomes. Positive ROA usually indicates profit trend

increasingly. ROA very useful to compare the companies in one industry.

Property industry has great assets than other industries as this industry contains physical assets or real assets, such as houses, bulidings, apartments, lands etc. Management needs to manage effectively and efficiently. The assets to obtain the profits in order to the investors interest at property industry. ROA is good

if it is higher than 2% (Lestari & Sugiharto 2007). Kennedy (2003) found out that ROA is positive and significant to stock return.

Activity ratio could be used to predict how much the capital the companies needed. For example, to increase sales the companies need additional assets. Activity ratio allows the analyst to estimate the companies necessary and to assess the companies capability to obtain the assets needed to maintain the assets growing. According Azhari, Rahayu and Zahroh (2016) found out that TATO is not significant to stock prices.

Stock prices in the past could reflect the technical latent variable with the loading factor 1. The results proved that stock prices in the past influenced to stock prices in the future. According Wulandary, Sumiyati and Susano (2009); Sappar, Suhadak and Raden (2015); also Bowonugraha (2007) found out that stock prices in the past had dominant influence to stock price variance. This indicates the investors use stock prices in the past more to determine investment decisions.

**Table 3 Outer loading value**

	FUNDAMENTAL	TECHNICAL	STOCK PRICE
<b>ROA</b>	0.836		
<b>NPM</b>	0.782		
<b>TATO</b>	0.645		
<b>STOCK PRICE IN THE PAST</b>		1	
<b>STOCK PRICE</b>			1

Validity showed that the examination could be valid if it is consistent measuring what is should be measured. This is displayed by average variance extrated (AVE). AVE of fundamental is 0,575, AVE of technical is 1 and AVE of stock prices is 1. These values are higher than standard value (0,5).

#### C. Evaluation Structural Model

Structural model or inner model described the relationship between latent variables. In this study is to see the direct relation between fundamental latent variable to stock prices variable and also technical latent variable to stock price variable.  $R^2$  criterion of endogen latent variable showed how much variance from endogen latent variable could be explained by exogen variables. Endogen variable in this study is stock price variable. Stock prices variable that influenced by fundamental and technical variables obtained 0,827  $R^2$ . Stock prices variable could be

#### B. Evaluation Outer Model

Outer model is evaluating the relation between latent variables with their indicators. Outer reflective model analysis could be evaluated by convergent validity evaluation, discriminant validity and reliability. Convergent validity is evaluated by three steps: first the loading factor for each indicator, second composite reliability, last average variance extracted (AVE) (Yamin & Kurniawan 2011).

Table 3 showed the loading factors ROA, NPM, TATO, stock prices in the past and stock price are higher than 0,6. These indicators had correlation with their constructs and these are valid. The results showed fundamental variables is explained by ROA, NPM and TATO. This indicates the consistency of investors expectation who is looking for profitability companies first before deciding investment in stock market.

explained by fundamental and technical variables by diversity 82,7% and the rest 17,3% was explained by the other variables that not inclued in this study. The value of  $R^2$  refers to Chin in Yamin and Kurniawan (2011) are strong.

Table 4 showed ouput of bootstrap. The criterion p-value is smaller than 0,05 that showed there are significant influence. The relationship between fundamental and stock prices variables have 0,035 p-value. It indicates there are impact between each other variable. Based on t-value, fundamental variable and stock price variable is 2,109 which t-value is higher than t-table [ $|t\text{-value}| > t\text{-table}$  (1,96)]. This value is positive and the value is 0,041. It indicates that fundamental variable impacts significantly to stock price variable in this study.

**Table 4 Output bootstrap of final model**

	Original sample	Average sample	Standarddeviation	t-value	p-value
Fundamental → stock price	0.041	0.041	0.019	2.109	0.035
Technical → stock price	0.887	0.888	0.032	28.112	0.000

#### IV. CONCLUSION

Stock prices in property industry listed in IDX 2010-2015 were influenced by fundamental factor and technical factor. Indicators of fundamental variable are ROA, NPM and TATO. While indicator of technical variable is stock prices in the past. The dominant indicator of fundamental is ROA and the dominant indicator of technical is stock prices in the past as their loading factor value are the greatest among each latent variable. Adjusted  $R^2$  is 0,827 that showed exogen variables explained endogen variable is good.

The relation of tecnical variable and stock prices variable show there are impact between each other as p-value (0,000) is smaller than 0,05. T-value (28,112) is higher than t-table (1,96). The value is positive and the value is 0,887. It indicates that technical impacts significantly to stock prices variable in this study. Both fundamental variable and technical variable could increase stock price as their value are positive.

## V. SUGGESTION

In the future research, researcher could add sum of samples and the period of time. Adding samples is better to representation for a bigger population, in order to the next study could represent all sectors in IDX. Analysing data could determine time series aspect with using panel data regression or vector autoregression.

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