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## COMPARISON ANALYSIS BETWEEN INTRINSIC VALUE AND MARKET PRICE OF TELECOMMUNICATION COMPANY IN INDONESIA STOCK EXCHANGE

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**Abstract:** *The objectives of the research are to compare the intrinsic value and stock price of telecommunications and information company in Indonesia. The sample of this study is PT TLKM as it is one of the largest providers of telecommunication services companies in Indonesia. We use descriptive and quantitative analysis to analyze the difference between its intrinsic value and stock price. The data is the monthly data from the period March 2013 to July 2016. The Intrinsic value of PT.Telkom in 2013, 2014, and 2016 are less than the market price while Intrinsic value of PT.Telkom in 2015 is more than the market price. These imply that stock of PT.Telkom are overvalued in 2013, 2014, and 2016, whereas stock is undervalued in 2015.*

**Keywords:** *Intrinsic Value, Stock Price, Market Capitalization Rate, Capital Asset Pricing Model.*

### 1. INTRODUCTION

Each stock has an intrinsic value, which is an estimate of its true value as calculated by a fully informed analyst based on accurate risk and return data, and a market price, which is the value in the market based on perceived but possibly incorrect information as seen by the marginal investor (Brigham and Houston, 2007).

Actual stock prices are easy to determine, while intrinsic values are difficult to estimate. Different analysts with different data and different views of the future of firm will generate different estimates on the intrinsic value for any given stock. Investing would be easy, profitable, and almost riskless if we knew all stocks' intrinsic values. Even it is difficult,



intrinsic values can be estimated, and we can never be sure whether it is right. But with using complete data we will get more accurate result.

The actual stock price tended to move up and down with the estimated intrinsic value, but investor optimism and pessimism, along with imperfect knowledge about the intrinsic value, led to deviations between the actual prices and intrinsic values.

Therefore, to determine the intrinsic value there is a requirement to use a model to calculate the intrinsic value accurately. In this research we will calculate the intrinsic value and compare it to firm's stock price, therefore, we can analyze whether the stock is undervalued or overvalued. We choose to calculate the value of PT Telekomunikasi Indonesia Persero Tbk (PT TLKM) which is a company that engages in the field of information and communication, as well as providing a range of services and the telecommunications network in Indonesia. PT TLKM became one of the companies with higher promising stock return in the future.

Based on this background, we conducted a research entitled "Comparative Analysis between Intrinsic Value and Stock Price of Telecommunication Company in Indonesia Stock Exchange". The result of this research can be used as a consideration for investors in making decision about capital market investment.

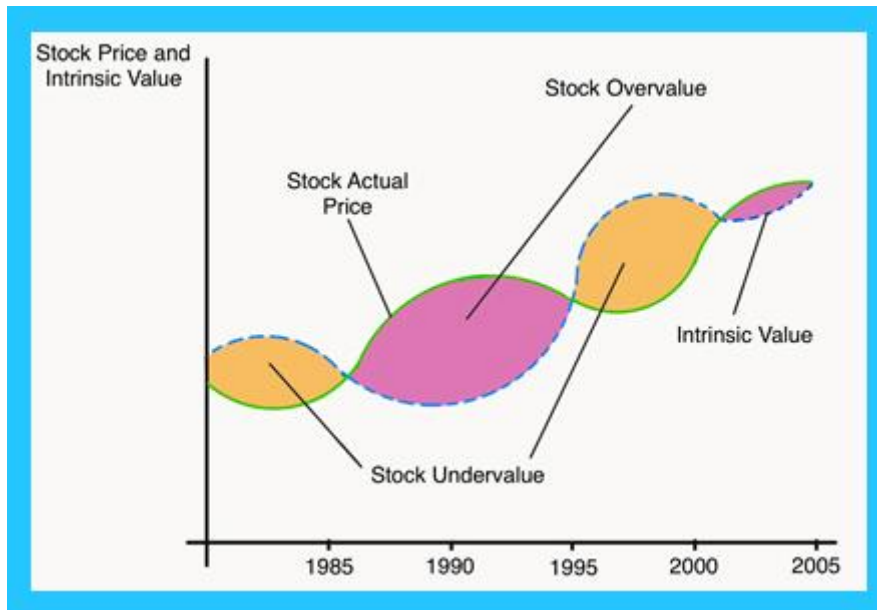
## **2. LITERATURE REVIEW AND PREVIOUS STUDIES**

### **Theory**

#### **A. Intrinsic Value**

Intrinsic value is an estimation of a stock's "true" value based on accurate risk and return data. The intrinsic value can be estimated but not measured precisely. Management's goal should be to take actions designed to maximize the firm's intrinsic value, not its current market price. Maximizing the intrinsic value will maximize the average price over the long run but not necessarily the current price at each point in time (Brigham and Houston, 2007).

If a stock's actual market price is equal to its intrinsic value, then, the stock is said to be in equilibrium. Market prices can and do differ from intrinsic values. Management should provide information that helps investors make accurate estimates of the firm's "true" intrinsic value, which will keep the stock price closer to its equilibrium level over time.



**Figure 1 Stock Price and Intrinsic Value**

Source : Brigham and Houston (2007)

## B. Models for Assessing the Value of a Firm

For estimating intrinsic value, we need to calculate expected return first. The model to predict expected stock return is Capital Asset Pricing Model (CAPM). This model was developed by Treynor, Sharpe, Lintner, and Mossin in the early 1960s. CAPM explains the relationship between the risk and returns on risky assets. Based on the calculation, when stock market prices are at equilibrium levels, the rate of return that investors can expect to earn on a security is  $r_f + \beta [E(r_M) - r_f]$ . This is the return that investors will require of any other investment with equivalent risk (Bodie, Kane, and Marcus, 2013). Meanwhile, the model to predict perceived stock return is the holding period return which is the return on a stock investment comprises cash dividends and capital gains or losses, or it could be written as  $(Div_1 + P_1 - P_0)/P_0$ . If a stock was priced correctly, it will offer investors a fair return, which is the true return will equal to the perceived stock return. An overpriced stock will give the true return greater than the perceived stock, and vice versa.

The figure 2 illustrates true return and perceived return. Managerial actions combined with economic conditions, determine investors' returns. The "perceived" means what investors would expect, if they had limited information about the company while the "true" means that the returns and risk which investors would expect if they had all the information about the company. Intrinsic value estimates "true" value of stock calculated by a fully informed analyst based on accurate risk and return data, whereas a market price is the value of stock



in the market based on perceived but possibly incorrect information as seen by the investor. When perceived return is equal to actual return, this implies that the equilibrium has reached. When the fundamental balances were reached, therefore, the stock is correctly priced (Brigham and Houston, 2007).

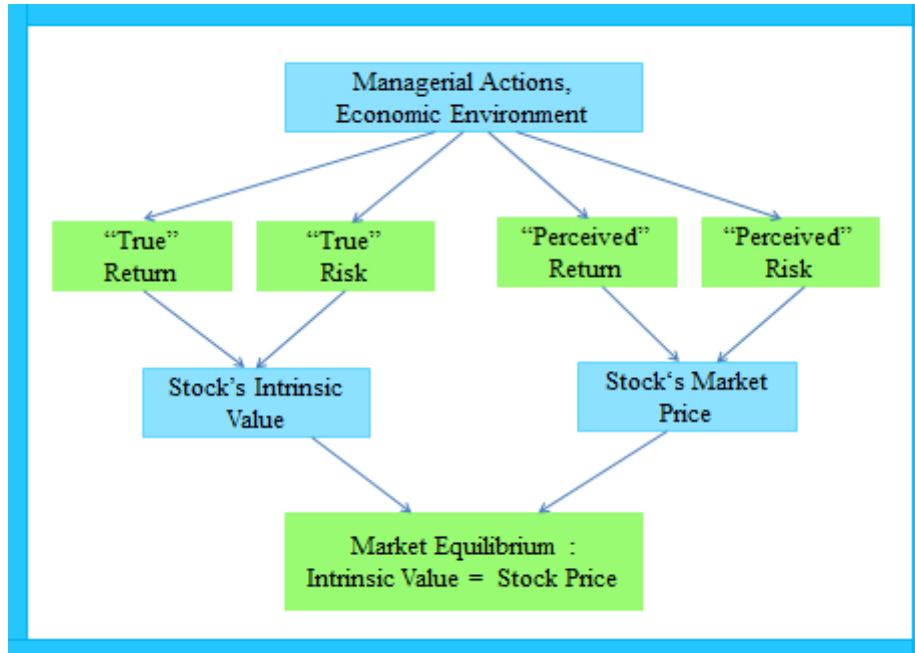


Figure 2 Determinants of Intrinsic Values and Stock Prices

## 2.2. Previous Studies

A brief review of the earlier studies below explains the estimation of intrinsic value and comparison with its stock price. Gottwald focused to analyze the correlation between the stock price and its intrinsic value using fundamental analysis framework. First, fundamental analysis was characterized, focusing on the stock's intrinsic value. Based on recent empirical researches, as cited from the paper, there are important factors that influence the correlation, which is the ratio between stock price and its intrinsic value. The ratio was used to identify overvalued and undervalued stocks and to predict the expected yield of stocks in the future. Statistical analysis of stock prices and its intrinsic values from selected capital market help the investor in making decision about the investment and the optimal way of investing.

Study of Kiranga (2013), examine the relationship between the intrinsic values and market values of sixty-one listed firms in Nairobi Security Exchange using the simple linear regression analysis. The result shows a positive relationship between intrinsic values and market values, confirmed by bivariate Pearson's correlation. The stock prices, whether it's



underpriced, overpriced, or correctly priced, can be determined by using intrinsic value as well as the investment decision related to the firm's stock.

Bradshaw (2000) found the evidence of correlation between stock price and stock's calculated intrinsic value, as the stock can be undervalued, over valued, or correctly valued. The result signals the investor whether to buy or to sell the stocks. Bradshaw use a residual income valuation model to find intrinsic value estimation for a broad range of reliable calibrations of the model parameters.

Gunawan, Dionysis, Kurnianto, and Utami (2017) show that the result is dominated by undervaluation; it makes up more than 74% of overall data (65% in ASRI, 78% in BSDE, and 81% in SMRA). This is no surprise, for property and real estate businesses are prone to underpricing. Holding period return of these stocks are higher than return valued by CAPM. Furthermore, the data shows that in events of great decrements in value (such as in June 2013), the holding period returns fall even lower than the CAPM returns. If the company shows series of negative returns, thus, resulting in price falling deeper than the intrinsic value.

### 2.3. Conceptual Framework

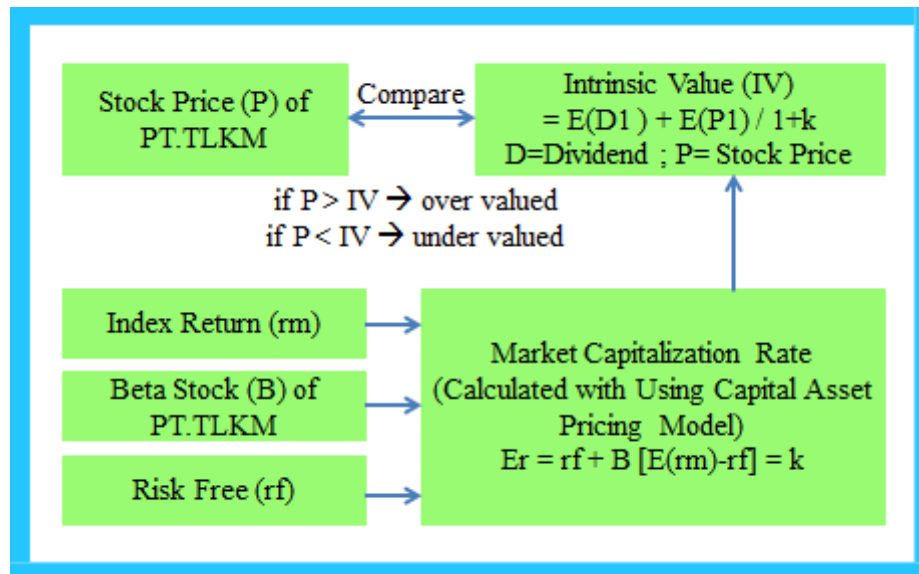


Figure 3 Conceptual Framework

## 3. RESEARCH METHOD

### 3.1. Data Collection Method

The data used in this research is secondary data. Researchers collected data in the form of the company's stock price, dividend, the price of the stock Index LQ 45, the BI rate, and beta



shares of PT TLKM which became the object of research, from the official websites. As for the BI rate data acquired through Bank Indonesia official website, namely, [www.bi.go.id](http://www.bi.go.id). For the beta of the stock data obtained through the official website, called [www.pefindo.com](http://www.pefindo.com). Meanwhile, the company's stock price data and the price of the stock index LQ45 are obtained through Indonesia stock exchange official website, namely, [www.idx.co.id](http://www.idx.co.id). The data is the monthly data from the period of March 2013 to July 2016.

### 3.2. Sample and Population

The population of this study is all telecommunications and information companies in Indonesia, and the sample is PT Telekomunikasi Indonesia Persero Tbk (PT TLKM), which is the largest provider of telecommunication services in Indonesia. We were also considering the degree of liquidity and the market capitalization value. The stock index used in this research is the LQ45 stock index that comprised of forty-five most liquid companies in Indonesia.

### 3.3. Variables Measurement

The variables in this study are intrinsic value and stock price of PT TLKM.

#### 1. True Expected Return

This research uses Capital Asset Pricing Model (CAPM) approach to determine expected stock return. CAPM approach is an asset pricing model used to calculate return (Fama, 2004) using the following formula:

$$E(r) = r_f + \beta[E(r_m) - r_f]$$

Where :  $r_f$  is risk free rate ;  $\beta$  is risk rate of the stock ;  $r_m$  is market return

#### 2. Intrinsic Value

The following is the formula to determine intrinsic value.

$$V_0 = \frac{E(D_1) + E(P_1)}{1 + k}$$

For holding period H, formula for intrinsic value of firm equal to present value of all expected future dividend.

$$V_0 = \frac{D_1}{1 + k} + \frac{D_2}{(1 + k)^2} + \dots + \frac{D_H + P_H}{(1 + k)^H}$$

Where : D is dividend; P is stock price ; and k is market capitalization rate or return calculated by applying CAPM, E(r).



### **3.4. Method of Data Analysis**

Data were analyzed to answer the problem statements.

#### **Descriptive and Quantitative Analysis**

Descriptive analysis will be provided to complement the explanation and give the insight on the observed phenomena, while the quantitative analysis will be provided for comparing between stock price and intrinsic value. The data were processed using Capital Asset Pricing Model (CAPM) formula to observe the market capitalization rate (true expected return of PT TLKM) and the formula of intrinsic value.

## **4. RESULTS AND ANALYSIS**

### **4.1. Descriptive Analysis**

This study compares stock price and intrinsic value. To calculate intrinsic value we need to determine expected return by using CAPM formula. Factors effect the share return are the market return (return of LQ45 Index), risk free rate, and beta stock (in appendix).

LQ45 Index provides the market with an index that represents 45 of the most liquid stocks. The LQ45 Index covers at least 70% of the stock market capitalization and transaction values in the regular market. A stock was able to be included into the LQ45 index for several factors. The stocks should have been listed at the IDX for at least 3 months, the liquidity and market capitalization factor, also the financial condition and the prospect of growth of the companies.

Risk free rate proxied by BI Rate that reflects the monetary policy stance adopted by Indonesian Central Bank and is announced to the public by the Board of Governors of Bank Indonesia on monthly meeting.

Beta stock is an indicator that shows the level of risk of the stock against the level of market risk. Investors can use the beta stocks to assess the sensitivity of a stock with a market risk, so that they can obtain information about the direction of the movement of stock prices. In Indonesia, beta stock report is made to provide additional information to capital market participants, which called PEFINDO Beta Stock. For the fundamentalist investors, PEFINDO Beta Stock may use as an element to calculate the fair value of stocks based on Capital Asset Pricing Model (CAPM) definition. For technical analysts investors, the information contain in the PEFINDO Beta Stock report may provide additional information related to stocks' systematic risk compare to Jakarta Composite Index.



The stock price in this study uses monthly time period data, which starts from the month of March 2013 to July 2016 shows in table 1.

**Table 1 Stock Price of PT TLKM (in IDR)**

Month/Year	2013	2014	2015	2016
January	9700	2275	2830	3340
February	10750	2325	2935	3250
March	11000	2215	2890	3325
April	11700	2265	2615	3550
May	11050	2575	2845	3700
June	11250	2465	2930	3980
July	11900	2650	2940	4230
August	2200	2665	2870	
September	2100	2915	2645	
October	2350	2750	2680	
November	2175	2825	2930	
December	2150	2865	3105	

Based on the table 1, the shares price of PT TLKM in the short term was very fluctuated. This impacts the company's return of each month. However, from July to August of 2013, the shares price of firm was drastically decreased from IDR 11,900/share to IDR 2,200/share. This was caused by the action of firm, which breakdown the shares value nominal (stock split) with the ratio 1:5, on 28 August 2013. This action was taken to attract investors to buy more stocks by its affordable price, thus it would increased Telkom's return.

The decision made by firm may be said to have a positive impact in accordance with the desired expectations. From table 1, it can be seen that the overall price of the shares of PT TLKM for the long term, from year to year, has increased. Especially in the stocks return in 2016 which had positive trend indicated that the price of its shares will give higher return for investors.

#### **4.2. Quantitative Analysis**

##### **The Calculation of Expected Return Using the CAPM Formula**

CAPM Formula is used to find the value of the company's required stock return, by including the stock price index, risk free rate, and beta stocks into the formula. Table 2 shows the results of the expected stock return, using CAPM Formula. From this table, in the CAPM Return column, it can be seen that the value of the expected return fluctuates from time to time. The lowest value of the expected return occurred in August 2015, that is -0.05994. The





rate of return from CAPM formula is negative, which means investors would suffer losses from stock investments in August 2015, amounting to 5.99%. As for the highest required return occurred in July 2016 was as much as 0.067054, meaning investors profit from stock investments for the month was 6.70%.

Stock investment in PT TLKM in 2014 was experiencing positive majority returns, investors only experienced one negative return which was in October 2014. As in 2013, investors experienced 7 months of 10 months positive returns. By 2015 the rate of return on stocks showed positive results at the beginning of the year, then begin to fall in April to September with the lowest return in August and subsequent return improved in the October. The first semester in 2016 also shows the expectation of a good investment, only one negative return on the early semester of 2016, which in May as much as 1.01%.

**Table2 Expected Return (True Return) Calculated using the CAPM Formula, in 2013-2016**

Month	Expected Return from CAPM (True Return, in %) in 2013	Expected Return from CAPM (True Return, in %) in 2014	Expected Return from CAPM (True Return, in %) in 2015	Expected Return from CAPM (True Return, in %) in 2016
January		4,888	1,728	2,041
February		4,551	3,365	5,069
March	5,173	5,236	1,694	3,141
April	3,319	4,525	-0,870	0,886
May	3,709	2,666	-3,074	-1,014
June	-4,378	1,178	-5,815	3,004
July	1,097	4,813	-2,233	6,705
August	-2,800	2,837	-5,994	
September	2,843	2,330	-3,947	
October	4,380	-1,440	6,334	
November	-1,149	2,997	1,025	
December	-1,069	2,001	1,119	

Based on the analysis above, it can be concluded that 2014 was a good year to invest in PT TLKM. As for worst year was 2015. The growth of investment in shares of firm in 2014,



appreciated by the Indonesia Stock Exchange with stock issuers awarding The Best in Capital Market Awards 2014.

From the PT TLKM's stock performance in the 2013 and 2014 showed consistently positive results. This achievement can be acquired not apart from the seriousness of the firm's business which is conducted in accordance with the business portfolios such as by doing business portfolio transformation, from telecommunications companies into Telecommunication, Information, Media, Edutainment and Services.

### The Intrinsic Value

**Table 3 Comparison of Intrinsic Value with Its Stock Price of PT.Telkom**

Year	Stock Price [P]	Dividend [d]	Market Capitalization Rate [k]	Intrinsic Value	Compare Stock Price and Intrinsic Value
2013	7360.42	102.40	1.11	3536,882	Overvalue
2014	2865	-	3.05	707,4074	Overvalue
2015	3105	94.64	-0.56	7271,909	Undervalue
2016	3980	156.14	2.83	1079,932	Overvalue

The intrinsic value of PT.Telkom in 2013, 2014, and 2016 are less than the market price while intrinsic value of PT.Telkom in 2015 is more than the market price. These imply that stock of PT.Telkom are overvalued in 2013, 2014, and 2016, whereas stock is undervalued in 2015. Stocks of PT.Telkom have good responds from the market.

By comparing intrinsic value and market price, if market price greater than intrinsic value can indicate that investors believe the company has excellent future prospects for growth and expansion and finally increasing future profits. Companies which consistently have high profit typically have market prices greater than intrinsic values as strong investment demand will lead to possible over valuation. On the other hand, if intrinsic value greater than market price indicates that the market doesn't know exactly that firm has enough assets to generate future profits and cash flows. But, this undervaluation is giving investors an opportunity to buy shares of the company for less than its stated book value.

## 5. CONCLUSIONS AND SUGGESTIONS

### 5.1. Conclusions

The conclusions of this research are:

1. The intrinsic value of PT.Telkom in 2013, 2014, and 2016 are less than the market price while intrinsic value of PT.Telkom in 2015 is more than the market price. These



imply that stock prices of PT.Telkom are overvalued in 2013, 2014, and 2016, whereas stock price in 2015 is undervalued.

## **5.2.Suggestions**

1. The researchers'suggestion for further study is to increase the amount of company sample and the time period.
2. The company management should provide comprehensive information to stockholders in order to make more accurate estimation on the firm's intrinsic value.

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## APPENDIX

**Table 4 Return of Index, Risk Free Rate, and Beta Stock in 2013**

Month, 2013	Return of Index	Risk Free Rate	Beta Stock
March	4.77%	5.750%	0.58825
April	1.95%	5.750%	0.63975
May	2.53%	5.750%	0.6334
June	-9.28%	6.000%	0.679
July	-1.04%	6.500%	0.71675
August	-6.62%	6.750%	0.7145
September	1.23%	7.250%	0.7315
October	3.44%	7.250%	0.754
November	-3.72%	7.500%	0.771
December	-3.50%	7.500%	0.779

**Table 5 Return of Index, Risk Free Rate, and Beta Stock in 2014**

Month, 2014	Return of Index	Risk Free Rate	Beta Stock
January	4.17%	7.500%	0.785
February	3.78%	7.500%	0.7935
March	4.67%	7.500%	0.8
April	3.72%	7.500%	0.78625
May	1.36%	7.500%	0.787
June	-0.95%	7.500%	0.74825
July	3.99%	7.500%	0.765
August	1.44%	7.500%	0.76975
September	0.87%	7.500%	0.779667
October	-3.41%	7.500%	0.8198
November	2.38%	7.625%	0.8825
December	1.80%	7.750%	0.9665



**Table 6 Return of Index,Risk Free Rate, and Beta Stockin 2015**

Month, 2015	Return of Index	Risk Free Rate	Beta Stock
January	1.71%	7.750%	0.997
February	3.34%	7.500%	0.9945
March	1.67%	7.500%	0.99625
April	-0.94%	7.500%	0.992
May	-3.14%	7.500%	0.99425
June	-6.08%	7.500%	0.9805
July	-2.89%	7.500%	0.93675
August	-7.27%	7.500%	0.9135
September	-5.21%	7.500%	0.9005
October	6.21%	7.500%	0.9006
November	0.14%	7.500%	0.88
December	0.16%	7.500%	0.869

**Table 7 Return of Index,Risk Free Rate, and Beta Stockin 2016**

Month, 2016	Return of Index	Risk Free Rate	Beta Stock
January	1.25%	7.250%	0.8682
February	4.78%	7.000%	0.871
March	2.45%	6.750%	0.8392
April	-0.32%	6.750%	0.82975
May	-2.68%	6.750%	0.823
June	1.82%	6.500%	0.7478
July	6.77%	6.500%	0.76667