CAPITAL ASSET PRICING MODEL AN ANALYSIS TO DETERMINE RISK AND RETURN OF INVESTMENT OF COMPANIES AT ENERGY SUB SECTOR AT INDONESIA STOCK EXCHANGE

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Abstract

The economic development of a country is a country's goal to pursue. There are many ways that can be done to measure it, and one way to know is by knowing the level of development of capital markets and securities industries in the country. This study aimed to measure and analyze energy sub sector of the Infrastructure, Utility and Transportation Sector at Indonesian Stock Exchange using Capital Asset Pricing Model. The sample used is active companies in stock transaction, such as: KOPI, LAPD, PGAS and RAJA listed in energy sub sectors. Based on the results of the study, after analyzing the energy sub sector of the Indonesian Stock Exchange using Capital Asset Pricing Model, the study suggest that all four stocks are overvalued, it is recommended for investors to Sell or release the stock such as: KOPI, LAPD, PGAS and RAJA.

Keywords: *Capital Asset Pricing Model, Return of Investment, Risk of Investment*

INTRODUCTION

The economic development of a country is a country's goal to pursue. There are many ways that can be done to measure it, and one way to know is by knowing the level of development of capital markets and securities industries in the country. In fact, the Indonesian people still prefer to keep their funds in the banking instruments in the form of savings and deposits than in investment instruments in the form of fixed income and stocks, although investment instruments offer higher returns than bank instruments (Siamat, 2004; Pratomo and Nugraha, 2009; Sinarmas Sekuritas, 2015). Looking at the downturn in the capital market in 2015, Indonesia is a country brimming with hope with the new president changes his economy cabinet and given economic packages in 2015 and hopeful so that the economic package can help the economy. The new strategy in the economy by the president are in hope insinuating investors to invest. In investing surely an investor will look on performance of the company and the return of investment and risk of investment that follows the investment (Sudana, 2002; Walsh, 20016; Fraser and Ormiston, 2008; Tandelilin, 2010; Hartono, 2014; Hery, 2014; SinarmasSekuritas, 2015; Fahmi, 2015).

The method of Capital Asset Pricing Model (CAPM) provide precise predictions about the relationship between the risk of an asset with the expected return as seen in previous research (Fama and French, 2003; Fama and French, 2004; Oke, 2013; Ruffino, 2013). This study aims to analyze the energy sub sector using Capital Asset Pricing Model from August 2015 to July 2016 as pertain to the economy packages given.

RESEARCH METHOD

The method of the study is descriptive, the data were collected, analyzed and presented descriptively. The data used were secondary data derived from monthly stock price, the interest rate of Bank Indonesia (BI) and Composite Index or Indeks Harga Saham Gabungan (IHSG) data. The sample used in the study are companies that are listed in the Energy sub sector listed in Indonesia Stock Exchange with company code as follows: KOPI, LAPD, PGAS and RAJA. The sample obtained from the active companies traded during the observation period of month August 2015 to July 2016. The data was analyzed using Capital Asset Pricing Model method and SPSS software.

The Capital Asset Pricing Model analyze three indicators, they are:

1. Rate of Return of individual stock

$$Ri = \frac{(Pt - Pt\text{-}1)}{Pt\text{-}1}$$

The date used for Ri are taken from the monthly closing price of individual stock from August 2015 to July 2016.

2.Rate of Return of the market

$$Rm = \frac{(IHSGt - IHSGt\text{-}1)}{IHSGt\text{-}1}$$

The date used for Rm are taken from the monthly closing price of IHSG or Composite Index from August 2015 to July 2016.

3. Risk free rate of return (Rf)

The date used for Rf are taken from the montly interest rate of Bank Indonesia Rate from August 2015 to July 2016.

The data then used to calculate the risk of investment using Beta (systematic risk) and the return of investment using expected return (E(Ri)) formula to determine investment decision..

HASIL PENELITIAN DAN PEMBAHASAN

RATE OF RETURN OF INVESTMENT (Ri)

Stock Price used is closing stock price at the end of the observation. So if investors buy or sell transaction on this day, the price will be obtained will be known on stock announcement the next day, so the publication shares do every day can give an indication to the investors to make a decision to buy or sell. On this basis the average return on the shares of this study will be calculated based on the daily period as follows:

Table 1. Rate of Return of Investment (Ri)

Month	KOPI	Ri	LAPD	Ri	PGAS	Ri	RAJA	Ri
Aug-15	835		50		2780		895	
Sep-15	800	-0.0419	50	0.0000	2530	-0.0899	850	-0.0503
Oct-15	790	-0.0125	50	0.0000	3000	0.1858	875	0.0294
Nov-15	710	-0.1013	50	0.0000	2655	-0.1150	815	-0.0686
Dec-15	710	0.0000	50	0.0000	2745	0.0339	775	-0.0491
Jan-16	705	-0.0070	50	0.0000	2405	-0.1239	595	-0.2323
Feb-16	710	0.0071	50	0.0000	2635	0.0956	685	0.1513

Mar-16	710	0.0000	50	0.0000	2615	-0.0076	810	0.1825
Apr-16	690	-0.0282	50	0.0000	2620	0.0019	800	-0.0123
May-16	705	0.0217	50	0.0000	2480	-0.0534	850	0.0625
Jun-16	715	0.0142	50	0.0000	2340	-0.0565	208	-0.7553
Jul-16	705	-0.0140	50	0.0000	3290	0.4060	206	-0.0096
Ri KOPI		-0.0147	Ri LAPD	0.0000	Ri PGAS	0.0252	Ri RAJA	-0.0683

Table 1 show each company observed that were listed in the Energy sub sector of the Infrastructure, Utility and Transportation Sector at Indonesia Stock Exchange from August 2015 to July 2016. The table shows companies with negative rate of return such as KOPI (0.0147) and RAJA (-0.0683) and also positive rate of return, such as PGAS (0.0252). In the case of LAPD, they have 0 rate of return since the have stagnant stock price of 50 rupiah every month during the observation period.

MARKET RETURN (RM)

The market rate of return are used in the computation of Capital Asset Pricing Model method. Market return is the cumulative profit rate that reflects all shares listed on the Stock Exchange in this case Composite Index or Indeks Harga Saham Gabungan (IHSG).

Tabel 2: *Market Return (Rm)*

Date	IHSG	Rm	Date	IHSG	Rm
Aug-15	4509.60		**Feb-16**	4,770.95	0.0338
Sep-15	4223.90	-0.0634	**Mar-16**	4,845.37	0.0156
Oct-15	4455.18	0.0548	**Apr-16**	4,838.58	-0.0014
Nov-15	4446.45	-0.0020	**May-16**	4,796.86	-0.0086
Dec-15	4593.00	0.0330	**Jun-16**	5,016.64	0.0458
Jan-16	4615.16	0.0048	**Jul-16**	5,215.99	0.0397
Semester 1		0.0054	Semester 2		0.0208
Rm = 0.0138					

Table 2 above shows that the market return of Composite Index from August 2015 to July 2016 with average market return (Rm) of 0.0138.

RISK FREE RATE OF RETURN (RF)

The risk free rate of return is the compensation value of the fund deferred consumption, but not to assume the risk. In this study, the risk-free rate of return is the interest rate of Bank Indonesia (BI) or BI Rate. BI Rate is regarded as a safe instrument because it is published by the government.

Table 3: Risk Free Rate of Return (Rf)

Date	BI Rate	Rf	Date	BI Rate	Rf
Aug-15	7.50%	0.0750	**Feb-16**	7.00%	0.0700
Sep-15	7.50%	0.0750	**Mar-16**	6.75%	0.0675

Oct-15	7.50%	0.0750	**Apr-16**	6.75%	0.0675
Nov-15	7.50%	0.0750	**May-16**	6.75%	0.0675
Dec-15	7.50%	0.0750	**Jun-16**	6.50%	0.0650
Jan-16	7.25%	0.0725	**Jul-16**	6.50%	0.0650
Sem 1		0.0745	Sem 2		0.0671
Rf = 0.0705					

The table 3 above shows the results on calculation regarding BI rate during the observation period resulted in the risk free rate of return of 0.0705 for the period observed.

CAPITAL ASSET PRICING MODEL (CAPM) ANALYSIS

Mitra Energi Persada Tbk d.h Kopitime Dot Com Tbk (KOPI)

The Capital Asset Pricing Model (CAPM) Analysis in on KOPI comprised on analysis in 1 year and 1st semester and 2nd semester of observation period from August 2015 to July 2016.

Table 4. *KOPI CAPM Analysis*

KOPI	Beta	Ri	Rf	Rm	E (R)
1 year	0.4086	-0.0147	0.0705	0.0138	0.0936
Sem I	0.3788	-0.0325	0.0745	0.0054	0.1007
Sem II	0.0661	0.0001	0.0671	0.0208	0.0701

The table 4 above shows that the observation period 1 year concluded in Beta of 0.4086 which means that KOPI has defensive type of stock. The rate of return of investment (Ri) is negative (-0.0147) and the stock were overvalued when compared Ri with Expected Return of 0.0936, which means the stock is not a good stock to invest that are also seen in 1st & 2nd Semester of observation period.

Leyand International Tbk d.h Lapindo International Tbk (LAPD)

The Capital Asset Pricing Model (CAPM) Analysis in on LAPD comprised on analysis in 1 year and 1st semester and 2nd semester of observation period from August 2015 to July 2016.

Table 5. *LAPD CAPM Analysis*

LAPD	Beta	Ri	Rf	Rm	E (R)
1 year	0.0000	0.0000	0.0705	0.0138	0.0705
Sem I	0.0000	0.0000	0.0745	0.0054	0.0745
Sem II	0.0000	0.0000	0.0671	0.0208	0.0671

The table 5 above shows that the observation period 1 year concluded in Beta of 0, Rate of Return Investment (Ri) of 0. This indicates that there is no activities in LAPD stock investment which means the stock is not a good stock to invest that are also seen in 1st & 2nd Semester of observation period.

Perusahaan Gas Negara Tbk (PGAS)

The Capital Asset Pricing Model (CAPM) Analysis in on PGAS comprised on analysis in 1 year and 1st semester and 2nd semester of observation period from August 2015 to July 2016.

Table 6. *PGAS CAPM Analysis*

PGAS	Beta	Ri	Rf	Rm	E (R)
1 year	2.6793	0.0252	0.0705	0.0138	0.2222
Sem I	2.1573	-0.0218	0.0745	0.0054	0.2326
Sem II	3.5772	0.0643	0.0671	0.0208	0.2326

The table 6 above shows that the observation period 1 year concluded in Beta of 2.6793 which means that PGAS has aggressive type of stock. The rate of return of investment (Ri) is positive (0.0252), however the stock were overvalued when comparing Ri with Expected Return of 0.2222, which means the stock is not a good stock to invest that are also seen in 1st & 2nd Semester of observation period.

RAJA

The Capital Asset Pricing Model (CAPM) Analysis in on RAJA comprised on analysis in 1 year and 1st semester and 2nd semester of observation period from August 2015 to July 2016.

Table 7. *RAJA CAPM Analysis*

RAJA	Beta	Ri	Rf	Rm	E (R)
1 year	-1.3414	-0.0683	0.0705	0.0138	-0.0055
Sem I	0.5279	-0.0742	0.0745	0.0054	0.1110
Sem II	-7.7330	-0.0635	0.0671	0.0208	-0.2907

The table 7 above shows that the observation period 1 year concluded in Beta of -1.3414 which means that RAJA has aggressive type of stock. The rate of return of investment (Ri) however is negative (-0.0683) and the stock were overvalued when comparing Ri with Expected Return of -0.0055, which means the stock is not a good stock to invest that are also seen in 1st & 2nd Semester of observation period.

CONCLUSION AND SUGGESTION

Based on the results of the study and after analyzing the energy sub sector of the Infrastructure, Utility and Transportation sector at Indonesian Stock Exchange using Capital Asset Pricing Model, the study suggest that all four stocks are overvalued, it is recommended for investors to Sell or release the stock such as: KOPI, LAPD, PGAS and RAJA. The CAPM method analysis is suggested to be expended by future researcher with different sectors or indexed.

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