

# CAPITAL ASSET PRICING MODEL ANALYSIS IN DETERMINING RISK AND RETURN OF COMPANIES LISTED AT JAKARTA ISLAMIC INDEX (JII) OF INDONESIA STOCK EXCHANGE

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## Abstract

*Investors often made decisions made that were aimed to help them generate return for their investment while in the same time reducing possible risks of their investment. Historical data as well as current returns are part of information that were vital for investors when they try to forecast how much their security will yield in the imminent future. There are several ways to measure the kind of investment that are good and risky. This study aimed to measure and analyze companies listed in Jakarta Islamic Index (JII) at Indonesian Stock Exchange using Capital Asset Pricing Model. The sample in this study are active companies listed at JII. Based on the results of the study, it can conclude that after analyzing the companies listed at JII using Capital Asset Pricing Model, the results shows that the Beta are below 1 and shows defensive type of stocks and has overvalued return compared to their expected return for all companies based on the period observed from December 2014 to December 2015.*

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

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## INTRODUCTION

Investors often made decisions made that were aimed to help them generate return for their investment while in the same time reducing possible risks of their investment. Historical data as well as current returns are part of information that were vital for investors when they try to forecast how much their security will yield in the imminent future (Tandelilin, 2010; Fahmi, 2014). Thus, investors are keen to able to measure the expected return rate and anticipate poor investment decisions.

An investor expects a return of 15 percent but the investor also knows there's an off-chance loss of 10 percent while possible gains of up to 20 percent. Fluctuating market prices can also cause for a security to drop in price or even possibly generate greater return than what was expected. That is why investors must continuously be aware of the gains and loss that can come from their investments and realize their expected return rate may not be achievable.

There are several ways to measure the kind of investment that are good and risky, and one of it is through looking at the level of capital market and securities in the country. Capital markets can be seen as the market where people are prepared to trade stocks, bonds and other types of securities with the services of brokerage (Anoraga & Pakarti, 2003; Tandelilin, 2010; Sinarmas Sekuritas, 2015). Indonesia with the new president, Joko Widodo, is a country with prospect. With the coming of a new president is probably insinuating investors to invest because of a new hope in a new leader of a developing country like Indonesia. Investing, essentially is buying an asset that in the future is expected to be able to sell them back with a higher value. One of the main reasons we invest is to prepare for the future as early as possible through planning tailored to the needs of today's financial capability (Keown, Scott, Martin, Petty, 2001; Halim, 2005). As a matter of fact, the Indonesian people prefer to keep their money in bank in the form of savings and deposits rather than in other investment instruments (Siamat, 2004; Pratomo and Nugraha, 2009; Sinarmas Sekuritas, 2015). The level of risk that must be borne in higher capital markets made investors have to be careful in allocating funds (Sunariyah, 2004; Tandelilin, 2010).

One of the most popular model in determining the return and risk of an investment is the Capital Asset Pricing Model (CAPM). The model was founded by Sharpe (1964), Lintner (1965) and Mossin (1966) in the 1960s. The foundation of CAPM entails a concept in which a security's importance is solely on a portfolio context. CAPM stipulates how investors generally clutch onto a portfolio to avoid unsystematic risk exposure through diversification. Consequently the equilibrium rate of return of a security is determined merely on the systematic risk sized by use of its beta (Fama and French, 2003; Perold, 2004; Fama and French, 2004; Nasuha, 2014; Oke, 2013; Ruffino, 2013; Bunga, Darminto & Saifi, 2014).

Thus, the purpose of this study to analyze the CAPM method of analyzing risk and return of an investment based on the companies listed at Jakarta Islamic Index (JII) at Indonesia Stock Exchange for year observation 2015 pertinent with the new leadership in Indonesia.

## RESEARCH METHOD

In this study, the method used is descriptive where the data were collected, tabulated and analyzed and presented in a descriptive manner. The data used were secondary data derived from monthly stock price of companies listed in Jakarta Islamic Index (JII), the interest rate of Bank Indonesia (BI) and Composite Index data. The sample used in the study are 30 companies that are listed in the JII listed in Indonesia Stock Exchange as of 2015. The sample obtained from the active companies traded during the observation period of month December 2014 to December 2015. The data was analyzed using Capital Asset Pricing Model method.

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

1. Rate of Return of individual stock

$$R_i = \frac{(P_t - P_{t-1})}{P_{t-1}}$$

The data used for  $R_i$  are taken from the monthly closing price of individual stock of companies listed in Jakarta Islamic Index from December 2014 to December 2015.

2. Rate of Return of the market

$$R_m = \frac{(IHSG_t - IHSG_{t-1})}{IHSG_{t-1}}$$

The date used for  $R_m$  are taken from the monthly closing price of IHSG or Composite Index from December 2014 to December 2015.

### 3. Risk free rate of return ( $R_f$ )

The date used for  $R_f$  are taken from the monthly interest rate of Bank Indonesia Rate from December 2014 to December 2015.

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

## HASIL PENELITIAN DAN PEMBAHASAN

### *RATE OF RETURN ( $R_i$ )*

In the calculation of rate of return of investment, the data used were from monthly closing price of stock from December 2014 to December 2015. On this basis the average return on the stock of this study will be calculated based on the daily period as follows:

Table 2. Rate of Return of Investment ( $R_i$ )

No.	Code	$R_i$	No.	Code	$R_i$
1	AALI	-0.0286	16	LPKR	-0.0001
2	ADRO	-0.0537	17	LSIP	-0.0179
3	AKRA	0.0490	18	MNCN	-0.0192
4	ANTM	0.0000	19	MPPA	-0.0322
5	ASII	-0.0132	20	PGAS	-0.0552
6	ASRI	-0.0296	21	PTBA	-0.0704
7	BMTR	-0.0090	22	PTPP	0.0107
8	BSDE	0.0047	23	SILO	-0.0089
9	CPIN	0.0189	24	SMGR	-0.0252
10	ICBP	0.0046	25	SMRA	0.0047
11	INCO	-0.0484	26	SSMS	0.0252
12	INDF	-0.0186	27	TLKM	0.0083
13	INTP	-0.0052	28	UNTR	0.0003
14	ITMG	-0.0713	29	UNVR	0.0129
15	KLBF	-0.0248	30	WIKA	-0.0232

Table 1 shows each company observed that were listed in the Jakarta Islamic Index at Indonesia Stock Exchange from December 2014 to December 2015. The table shows companies with negative rate of return and also positive rate of return, and as seen in the table five companies with the highest positive return in random order as seen in CPIN (1.89%), PTPP (1.07%), and UNVR (1.29%), SSMS (2.52%) and AKRA, (4.29%) in their rate of return of investment. However there are 19 companies that shows negative return on 2015 observation period.

### **MARKET RETURN (RM)**

In this research the market return as the cumulative profit rate that reflects all shares listed on the Stock Exchange are derived from the Composite Index or Indeks Harga Saham Gabungan (IHSG) of the Indonesian Stock Exchange.

Tabel 2: Market Return (Rm)

Year	Month	IHSG	Rm
2014	December	5226.9	
2015	January	5289.4	0.0119
	February	5450.3	0.0304
	March	5518.7	0.0125
	April	5086.4	-0.0783
	May	5216.4	0.0255
	June	4910.7	-0.0586
	July	4802.5	-0.0220
	August	4442.7	-0.0749
	September	4223.9	-0.0492
	October	4455.2	0.0548
	November	4446.5	-0.0020
	December	4593	0.0330
		Rm 2015	-0.0097

Table 2 above shows that the market return of Composite Index from December 2014 to December 2015 with average market return (Rm) of -0.0097.

### **RISK FREE RATE OF RETURN (RF)**

Risk-free rate of return in this study, is the interest rate of Bank Indonesia (BI). BI Rate is regarded as a safe instrument because it is published by the government. Results on calculation of BI rate during the observation period resulted in the risk free rate of 0.0752 for the period observed as seen in table 3 below.

Table 3: Risk Free Rate of Return (Rf)

Year	Month	BI Rate	Rf
2014	December	0.0775	
2015	January	0.0775	0.0775
	February	0.0750	0.0750
	March	0.0750	0.0750
	April	0.0750	0.0750
	May	0.0750	0.0750
	June	0.0750	0.0750
	July	0.0750	0.0750
	August	0.0750	0.0750
	September	0.0750	0.0750
	October	0.0750	0.0750
	November	0.0750	0.0750
	December	0.0750	0.0750
		Rm 2015 =	<b>0.0752</b>

### **BETA ANALYSIS OF CAPITAL ASSET PRICING MODEL (CAPM)**

Beta in the concept of Capital Asset Pricing Model (CAPM) is a systematic risk. The sensitivity of the rate of profit to market changes commonly referred to as beta investments. Beta in this study using market beta calculation based on the data of Jakarta Islamic Index companies analyzed.

Table 4: CAPM Beta Analysis

Index	Beta	Ri	Rf	Rm	E (R )
JII	-0.133333	-0.0138	0.0752	-0.0097	0.06388

Based on the table 4 above it shows that companies listed in Jakarta Islamic Index in 2015 has rate of return of -1.38% with the risk free return in average of 7.52% and market return of -.0.97%. The Beta analysis shows that the type of JII stock is defensive meaning that they are not sensitive with the changes in the market. The expected return however is quite high with results of 6.388%. The analysis further compared the expected return and Ri of the company [(Ri) > E(Ri)]. The results shows there are no companies in year 2015 that exceed the expected return computed. Thus, they are overvalued or have bad return based on CAPM Analysis December 2015 to July 2016.

### **CONCLUSION AND SUGGESTION**

Based on the results of the study and after analyzing the companies listed at Jakarta Islamic Index at Indonesian Stock Exchange using Capital Asset Pricing Model, the study suggest that all stocks that are overvalued, it is recommended for investors to sell or release their stocks. Moreover, the study also noted out of 30 companies, there are 19 companies with negative return. However, the five companies with highest positive return can still be considered for to invest such as AKRA, SSMS, CPIN, UNVR and PTPP. The CAPM method analysis is suggested to be expanded by future researcher with different sectors or indexed.

### **REFERENCES**

- Anoraga, P., and P. Pakarti. (2003). Pengantar Pasar Modal. Jakarta: Rineka Cipta.
- Bunga, E.S., Darminto and M. Saifi. (2014). Analisis Metode Capital Asset Pricing Model (CAPM) sebagai Dasar Pengambilan Keputusan Investasi Saham. Jurnal Administrasi Bisnis, Vol. 17 No. 2.
- Fahmi, I. (2014). Teori Portofolio dan Analisa Investasi. Alfabeta.
- Fama, E. F., and K. R. French. (2003). The Capital Asset Pricing Model: Theory and Evidence. CRSP Working Paper No. 550; Tuck Business School Working Paper No. 03-26. Available at SSRN: <http://ssrn.com/abstract=440920> or <http://dx.doi.org/10.2139/ssrn.440920>
- Fama, E. F., and K. R. French. (2004). The Capital Asset Pricing Model: Theory and Evidence. Journal of Economic Perspectives, 18(3): 25-46.
- Halim, A. (2005). Analisis Investasi (EdisiKedua). Jakarta: SalembaEmpat.
- Keown, A. J., Scott, D. F., Martin, J. D., J. W. Petty. (2001). Dasar-dasar Manajemen Keuangan (Edisi Ketujuh). Jakarta: Salemba Empat.
- Nasuha, R. (2013). Analisa Metode Capital Asset Pricing Model Dalam Upaya Pengambilan Keputusan Terhadap Investasi Saham. Jurnal Administrasi Bisnis, Vol 5 No. 1. Universitas Brawijaya.

- Oke, B. O. (2013). Capital Asset Pricing Model (CAPM): Evidence from Nigeria. *Research Journal of Finance and Accounting*, Vol. 4. No. 9.
- Perold, A. F. (2004). The Capital Asset Pricing Model. *Journal of Economic Perspectives*, Vol. 18, No. 3, pp. 3-24. Retrieved from <http://www.personal.umich.edu/~kathrynd/JEP.Perold.pdf>.
- Pratomo, E. P., and U. Nugraha. (2009). *Reksa Dana Solusi Perencanaan Investasi di Era Modern (Edisi Kedua)*. Jakarta: PT. Gramedia Pustaka Utama.
- Ruffino, D. (2013). A Robust Capital Asset Pricing Model. Finance and Economics Discussion Series Divisions of Research & Statistics and Monetary Affairs Federal Reserve Board, Washington, D.C. Retrieved from <http://www.federalreserve.gov/pubs/feds/2014/201401/201401pap.pdf>
- Siamat, D. (2004). *Manajemen Lembaga Keuangan. Edisi Keempat*. Jakarta: Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia.
- Sinarmas Sekuritas. (2015). *Edukasi Pasar Modal*. Retrieved from <http://www.sinarmassekuritas.co.id/id/edukasi.asp>
- Sunariyah. (2004). *Pengantar Pengetahuan Pasar Modal (Edisi Keempat)*. Yogyakarta: UPP AMP YKPN.
- Tandelilin, E. (2010). *Analisis Investasi dan Manajemen Portofolio*. Yogyakarta: BPFE.