

Comparative Analysis of SCAPM

Wenny Adistyanningrum¹
Masters of Management FEB
Jember University
Jember

Nurhayati², Novi Puspitasari³
Masters of Management FEB
Jember University
Jember

Abstract:- The researchers have several differences of opinion regarding the most optimal SCAPM mathematical formula and predict returns on Islamic stocks. This study aims to compare the 3 SCAPM models with a proxy for Inflation, Zakat and SBIS so that the most optimal model and better explanatory power can be predicted in predicting stock returns. The sampling technique used was purposive sampling and obtained 13 shares. Data analysis is done by calculating the Mean Absolute Deviation (MAD), Mean Square Error (MSE) and the coefficient of determination through simple regression. Research proves that the Value Mean Absolute Deviation (MAD) and Mean Square Error (MSE) SCAPMI, SCAPMZ and SCAPMSBIS have the same result. Whereas SCAPMZ has the best explanatory power among the three SCAPM models as well as being better than the CAPM. Investor Islamic and conventional can use modeling SCAPMZ by proxy zakat in predicting the return stock.

Keywords:- SCAPM, Stock, Zakat, Return.

I. INTRODUCTION

Bank Muamalat was founded in 1991 as the first Islamic bank in Indonesia to be an early marker of sharia-based financial development. In 1998 there was a refinement of UU number 7 1992 to UU number 10 1998 which explains that there is a conventional banking system and Islamic banking system. Indonesian people have alternatives in choosing services from financial institutions both conventional and sharia-based.

Sharia investment in Indonesia has experienced rapid growth and development in recent years, thus providing opportunities for investors to choose Sharia-based investment securities. To bridge the capital market investors who choose sharia-based types of shares, the Jakarta Islamic Index was formed on July 3, 2000. The Jakarta Islamic Index itself is one of the stock indexes that calculates the average stock price index for sharia-based types of shares. The JII which was formed in collaboration with the Jakarta Stock Exchange and PT Danareksa Investment Management aims to support the establishment of the next Sharia Capital Market which was launched on 14 March 2003 in Jakarta.

JII serves as a guide for investors who want to invest in shares while remaining subject to Islamic regulations. In the Jakarta Islamic Index there are 30 shares that are considered not violating the principles of sharia and will be

evaluated every six months. In investing an investor will be faced with two things, namely the expected return and the risk that will be faced. Risk in Islam is recognized even must exist in every investment. Islam does not recognize risk-free investment because there will be additions that can contain ribawi elements. The concept of risk and uncertainty is also often compared to the concept of gharar in Islamic law. The concept of gharar (uncertainty) has an interpretation of inaccuracy and inadequacy of information available to the contracting party (Muhammad, 2014).

In 1987, Cyril and Ri'fat modified the Sharia-based CAPM known as the Shari'a Compliant Asset Pricing Model (SCAPM) by eliminating risk-free rates in mathematical analysis. They assumed that in the sharia principle, there were no riskless benefits. This is supported by Selim research (2008) which compares Islamic risk and return and conventional risk. This study examines the application of Islamic finance, specifically musyarakah, compared to conventional asset valuation models. One of the results of his research shows that without accounting for inflation, and in contrast to the fixed interest rate determined in advance, the strategy of maximizing returns with minimum risk in musyarakah financing implies an optimum zero risk - free rate.

Ashker (1987) did modify against the CAPM by using the percentage of Zakat which amounted to 2.56% (Percentage Zakat / 1 - Percentage Zakat) as a substitute for the risk free rate. Because a Muslim is obliged to spend Zakat on his income of 2.5% so the risk-free return is equal to the percentage of Zakat / 1 - the percentage of Zakat. Sheikh (2010) examined the relationship between debt and Nominal Gross Domestic Product (NGDP), thereby replacing risk free with NGDP. According to him, investor returns depend on two components, namely the NGDP growth rate and the risk premium measured through beta related to benchmarks. Derbali et. al (2017) said that the assumptions on Risk-Free return are theoretical and allegations that are impossible to simulate on the financial markets.

Hanif (2011) proposes the inflation rate to replace risk free on the CAPM and is of the view that inflation can be used as a variable or proxy to replace risk free because inflation can be used as a benchmark for investing without risk dependent. Because the real value of the Rf reflects the time value of money, its use is prohibited sharia, while there is no prohibition on the use of inflation charges so that these variables can be used in predicting returns on investment. This is based on the needs of investors in

analyzing the security price model that refers to sharia values to be integrated with the sharia financial system.

Effendi (2016) conducted a study by comparing three SCAPM models using zakat proxies, inflation, and without risk free of Jakarta Islamic Index stocks. It was found that SCAPMs that use inflation have higher volatility compared to other SCAPMs. Hal shows that the model SCAPM more favorable inflation accompanied by a greater risk, according to the classical principle of high risk high return. The optimal model is found in this inflation SCAPM if it is used to obtain a more optimal return of return rate. Suggestions for investors who want to invest in the capital market, this model can be a reference in order to get maximum profit.

Quthbi (2017) uses SBIS (Bank Indonesia Syariah Certificates) to replace the risk free component based on interest. Derbali et al. (2017) developed a new SCAPM mathematical model by integrating zakat, refining returns and excluding short sales. Based on the results of a study of 10 stock samples, it was found that SCAPM is suitable and reliable in investigating the relationship between risk and return on the Islamic stock market.

The researcher intends to explore various SCAPM models previously studied to be compared with each other so as to produce the most optimal SCAPM model for investment determination. The purpose of this study is to analyze the SCAPM model which is more optimal and has the best explanatory power in predicting sharia stock returns in the Jakarta Islamic Index (JII). This research is useful for investors as input in making optimal investment decisions, for academics as new additional information for academic world and for issuers as input for internal evaluations of company performance.

Return is a reward for the courage of investors to bear the risk of the investment made. According to Jones (2002: 124), stock returns consist of:

- Yield, i.e. cash flow or cash flow that is paid periodically to shareholders, usually in the form of dividends
- Yield, i.e. cash flow or cash flow that is paid periodically to shareholders, usually in the form of dividends.
- Capital gain, or capital loss, which is the difference between the stock price at the time of purchase and the stock price at the time of sale. Capital gain if the share

price at the end of the period is higher than the initial price, while capital loss, vice versa.

CAPM itself has been criticized in several studies on risk-free loans, because investors only focus on risk and returns in one portfolio period to maximize the value of their investments (Elbannan, 2015). In the CAPM model, there are assumptions of the CAPM model used with the aim of simplifying the CAPM model (Hartono, 2010), namely:

1. All investors have the same time horizon. Investor's wealth can be maximized by maximizing the utility of hope in the same period of time;
2. All investors make investment decisions based on consideration of the expected return value and the standard deviation of returns from their portfolio;
3. All investors have expectations that are uniform (homogeneous expectation) of the input factors, such as the return expected, a variant of returns and covariance between the return - the return of securities used for portfolio decisions. This assumption implies that with the prices of securities, certain risk-free interest rates and by using the same portfolio inputs, each investor will produce the same efficient frontier,
4. All investors are allowed to lend their funds or borrow funds at an unlimited risk-free interest rate,
5. Individual investors are allowed to make short sales (short sale) as desired,
6. All assets can be broken into smaller pieces without limits. Investors can still make investments with the smallest value and conduct sales and purchase transactions of assets at prices that apply at any time
7. All assets can be marketed perfectly liquid or quickly at the current price;
8. Transaction fees are not applied so that the sale or purchase of assets is not subject to transaction fees;
9. No inflation occurred;
10. Personal income tax is not enforced so investors have the same choice to get capital gains or dividends
11. Investors as price takers. The price of an asset cannot be influenced by individual investors by buying and selling these assets. The price of the asset is determined by the overall investor open n individual investors and
12. The capital market is in a balanced condition (equilibrium). The implication of this assumption is that all investors will choose a market portfolio, which is a portfolio that contains all the assets in the market and this market portfolio is an optimal portfolio of risk assets, which are in the efficient frontier according to Markowitz.

No	Company name	Company Code
1	Adaro Energy Tbk	ADRO
2	AKR Corporindo Tbk	AKRA
3	Astra International Tbk	ASII
4	Bumi Sepong Damai Tbk	BSDE
5	Indofood Sukses Makmur Tbk	INDF
6	Kalbe Farma Tbk	KLBF
7	Perusahaan Gas Negara (Persero) Tbk	PGAS
8	Semen Indonesia (Persero) Tbk	SMGR
9	Summarecon Agung Tbl	SMRA
10	Telekomunikasi Indonesia (Persero) Tbk	TLKM
11	United Tractors Tbk	UNTR
12	Unilever Indonesia Tbk	UNVR
13	Wijaya Karya (Persero) Tbk	WIKA

Table 1:- Company samples in the JII Index for the 2014-2018 period
 Source: <http://www.idx.co.id> (data processed)

Capital gain , or capital loss , which is the difference between the stock price at the time of purchase and the stock price at the time of sale. Capital gain if the share price at the end of the period is higher than the initial price, while capital loss , vice versa.

The CAPM equation model explains that the expected return is the risk free rate plus the beta times the risk premium. Mathematically it can be written as follows (Sharpe in Hanif, 2011):

$$R_j = R_f + \beta_j (R_m - R_f)$$

Information:

- R_j = Expected return of securities j
- R_m = average return on a market portfolio
- B_j = beta securities
- R_f = Risk Free Rate (SBI rate)

II. METHODOLOGY

The research method used is quantitative with a type of explanatory (causal). Exploratory according to Sugiyono (2008) is a method of research conducted on large and small populations, but the data studied is data from samples taken from these populations so that relative events, distribution and relationships between variables are found . Quantitative research is demanded to use numbers, ranging from data collection, interpretation of the data, as well as the appearance of the results.

The population of this study is the Shares registered in the Jakarta Islamic Index (JII) Determination of the sample in this study is carried out randomly (non probability sampling) with a purposive sampling method which is

done by taking samples from the population based on certain criteria, namely as follows:

1. Sharia companies listed on the Jakarta Islamic Index in the period of December 2013 to November 2018;
2. Never delisted from JII during the study period, namely 2014-2018;
3. Having complete financial statements published during the research period, 2014-2018 .

In this study several variables were used with the definition and measurement scale as follows:

1. Stock Realization Return (R_i)

Stock Realization Return (R_i) is obtained from the difference between the stock price i in period t minus the stock price i before period t then the results are divided by the stock price i before period t . Return the stock can be calculated using the formula (Jogiyanto, 2014):

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

Information:

- R_i = Return Realization
- P_t = share price in period t
- P_{t-1} = Share price in period t-1

2. Systematic Risk of Stocks

Beta is a coefficient that measures the change in the return stock (R_i) as a result of changes to return the market (Jogiyanto, 2014). Beta stocks can be calculated by the formula (Husnan, 1994):

$$\beta_i = \frac{\sigma_{im}}{\sigma_m^2}$$

Information :

- β_i = Beta Security
- σ_{im} = Covariance return of the I security with market return
- σ_m^2 = Market return variance

3. Market Return (R_m)

In this study, the market index used is the Jakarta Islamic Index (JII), market returns can be calculated by:

$$R_m = \frac{JII_t - JII_{t-1}}{JII_{t-1}}$$

Information :

- R_m = Market Return
- JII_t = JII period t
- JII_{t-1} = JII period t-1

4. Inflation rate

In calculating the level of inflation, this study uses changes in the Consumer Price Index

$$N = \frac{CPI_t - IJK_{t-1}}{CPI_{t-1}}$$

Information :

- N = Inflation
- CPI_t = period Consumer Price Index t
- CPI_{t-1} = Consumer Price Index period t-1

5. SBIS and SBI

SBIS is used to replace the SBI proxy as Risk Free Rate with the following formula:

$$\text{Average monthly SBIS rate} = \frac{(\text{SBIS rate}_1 + \dots + \text{SBIS rate}_n) / n}{12}$$

$$\text{Average monthly SBI rate} = \frac{(\text{SBI rate}_1 + \dots + \text{SBI rate}_n) / n}{12}$$

6. Zakat

The formula used to calculate Zakat is as follows (Ashker, 1987):

$$\text{Zakat} = \frac{\text{Zakat rate}}{(1 - \text{Zakat rate})} = \frac{2,5\%}{(1 - 2,5\%)} = 2.56\%$$

7. Shari'a Compliant Asset Pricing Model Inflation (SCAPMI)

The model used in this approach can be formulated as follows (Hanif, 2011):

$$R_j = N + [R_m - N] \beta_j$$

Information:

- R_j = Expected return of securities j
- R_m = average return on a market portfolio
- B_j = beta securities
- N = inflation

8. Shari'a Compliant Asset Pricing Model SBIS (SCAPMSBIS)

The model used in this approach can be formulated as follows (Quthbi, 2017):

$$RRR = SBIS + (R_m - SBIS) \beta_i$$

Information:

- RRR = Required Rate of Return
- R_m = Market Return
- β_i = systematic risk
- SBIS = rewards of Bank Indonesia Sharia Certificates

9. Shari'a Compliant Asset Pricing Model of Zakat (SCAPMZ)

The model used in this approach can be formulated as follows (Ashker, 1987 in Hanif, 2011):

$$K_e = Z + (R_m - Z) \beta_j$$

Information:

- K_e = Expected Return
- R_m = expected market portfolio return
- β_j = systematic risk
- Z = Zakat of 2,56 % (Ashker in Hanif, 2011)

10. Capital Asset Pricing Model (CAPM)

The model used in this study is (Sharpe in Hanif, 2011)

$$R_j = R_f + \beta_j (R_m - R_f)$$

Information:

- R_j = Expected return of securities j
- R_m = average return on a market portfolio
- B_j = beta securities
- R_f = Risk Free Rate (SBI rate)

The stages of data analysis in this study are as follows:

- Calculate the Expected Return of each SCAPM Model namely SCAPMI, SCAPMZ and SCAPMSBIS
- Calculate the Mean Absolute Deviation (MAD) and Mean Square Error (MSE)

The formula for calculating MAD and MSE are :

$$MAD = \frac{\sum |R_i - E(R_i)|}{n}$$

$$MSE = \frac{\sum (R_i - E(R_i))^2}{n}$$

- Calculate the coefficient of determination (Adj. R^2)

III. RESULTS AND DISCUSSION

A. Results

Variable	Min	Max	The mean	Std Dev
Inflation	-0.0045	0.0246	0.0035	0.0046
Zakat	0.0256	0.0256	0.0256	
SBIS	0.0044	0.0060	0.0054	0,0005
SBI	0.0035	0.0065	0.0051	0.0011
Average Stock Return	-0.0063	0.0226	0.0063	0.0065
Market Return	-0.0875	0.0701	0.0033	0.0353
Beta	-1,4195	.3863	-0.0024	0.4408

Table 2:- Description of Statistics

Source: Data processed

In Table 2, Inflation has a minimum value -0, 0045 and a maximum value of 0.0246. The mean and standard deviation of inflation are 0, 0035 and 0.0046, respectively. Zakat has a constant minimum, maximum and mean value of 0.256. The Bank Indonesia Syariah Certificate (SBIS) level has a minimum value of 0, 0044 and a maximum value of 0.0060. The mean and standard deviation of the SBIS are 0, 0054 and 0,0005, respectively.

The minimum and maximum value of Bank Indonesia Certificate Levels are 0, 0035 and 0.0065, respectively. While the Mean Value and Standard Deviation are 0, 0051 and 0.0011. Average Stock Return has a minimum value of -0.0063, a maximum value of 0.226, a mean value of 0.0063 and a standard deviation value of 0.353. JII stock returns have a minimum value of -0,075 and a maximum value of 0,0701. And has a mean value of 0, 0033 and a standard deviation of

0.0353. Minimum and maximum beta values are -1, 4195 and 0.3863, respectively. While the mean and standard deviation are -0,0024 and 0.4408.

Table 3 shows that the value of linear Expected Return (E (Ri)) with a systematic risk level (beta) means that the higher the Expected Return, the higher the risk. TLKM, UNVR and WIKA shares had the highest expected return of 0.0044, while UNTR shares had the smallest expected return of 0.0022 .

Table 3 shows that JII stocks that are classified as undervalued based on the SCAPMI model are ADRO (0.0030), ASII (0.0039), BSDE (0.0036), KLBF (0.0039), SMGR (0.0028), SMRA (0.0043), TLKM (0.0044) , UNTR (0.0022), UNVR (0.0044) and WIKA (0.0044). While the stocks that are classified as overvalued are AKRA (0.0038), INDF (0.0030), and PGAS (0.0028) .

No	Company Code	Stock Return (Ri)	Market Return (Rm)	Beta	Inflation	SCAPMI
1	ADRO	0.0082	0.0033	-0,1035	0.0035	0.0030
2	AKRA	0.0011	0.0033	-0,1403	0.0035	0.0038
3	ASII	0.0060	0.0033	0.1459	0.0035	0.0039
4	BSDE	0.0040	0.0033	0.0838	0.0035	0.0036
5	INDF	0.0021	0.0033	.3863	0.0035	0.0031
6	KLBF	0.0052	0.0033	.1884	0.0035	0.0039
7	PGAS	-0.0063	0.0033	0.0728	0.0035	0.0028
8	SMGR	0,0009	0.0033	0.3227	0.0035	0.0028
9	SMRA	0.0079	0.0033	.1675	0.0035	0.0043
10	TLKM	0.0108	0.0033	0.1235	0.0035	0.0044
11	UNTR	0.0091	0.0033	-0,2205	0.0035	0.0022
12	UNVR	0.0096	0.0033	0.1457	0.0035	0.0044
13	WIKA	0.0075	0.0033	0.2132	0.0035	0.0044

Table 3:- SCAPMI's Expected Return

Source: website <http://yahoo.finance.com> (data processed)

Expected return using the SCAPMZ model requires a Zakat level variable obtained from the annual zakat value of 2.56% divided by 12 months in the amount of 0.0021 (0.21%) per month . Stock beta is obtained from the covariance between the returns of shares and return the market divided by the variance of return the market. Table 4 shows that the amount of Expected Return (E (Ri)) of each stock offset the level of systematic risk (beta). TLKM and UNVR shares had the highest expected return of 0 , 0031 , while UNTR shares had the smallest expected return of 0,0008 .

Shares are said to be overvalued if they have an Expected Return that exceeds Realization Return , while

shares that are categorized as undervalued have an Expected Return under Realization Return . An investor is more like when the difference between the Expected Return and Realization Return small it indicates that the models used in predicting Return Shares fairly accurate.

JII shares that are classified as undervalued as known from Table 4.10 are ADRO (0.0016), ASII (0.0025), BSDE (0.0022), KLBF (0.0025), SMRA (0.0029), TLKM (0.0031), UNTR (0,0008), UNVR (0.0031) and WIKA (0.0030). While the stocks that are classified as overvalued are AKRA (0 , 0024), INDF (0.0017), PGAS (0.0014) and SMGR (0.0014)

No	Company Code	Stock Return (Ri)	Market Return (Rm)	Beta	Zakat	SCAPMZ
1	ADRO	0.0082	0.0033	-0,1035	0.0021	0.0016
2	AKRA	0.0011	0.0033	-0,1403	0.0021	0.0024
3	ASII	0.0060	0.0033	0.1459	0.0021	0.0025
4	BSDE	0.0040	0.0033	0.0838	0.0021	0.0022
5	INDF	0.0021	0.0033	.3863	0.0021	0.0017
6	KLBF	0.0052	0.0033	.1884	0.0021	0.0025
7	PGAS	-0.0063	0.0033	0.0728	0.0021	0.0014
8	SMGR	0,0009	0.0033	0.3227	0.0021	0.0014
9	SMRA	0.0079	0.0033	.1675	0.0021	0.0029
10	TLKM	0.0108	0.0033	0.1235	0.0021	0.0031
11	UNTR	0.0091	0.0033	-0,2205	0.0021	0,0008
12	UNVR	0.0096	0.0033	0.1457	0.0021	0.0031
13	WIKA	0.0075	0.0033	0.2132	0.0021	0.0030

Table 4:- SCAPMZ Expected Return
Source: website <http://yahoo.finance.com> (data processed)

No	Company Code	Stock Return (Ri)	Market Return (Rm)	Beta	SBIS	SBIS SCAPM
1	ADRO	0.0082	0.0033	-0,1035	0.0054	0.0048
2	AKRA	0.0011	0.0033	-0,1403	0.0054	0.0057
3	ASII	0.0060	0.0033	0.1459	0.0054	0.0058
4	BSDE	0.0040	0.0033	0.0838	0.0054	0.0054
5	INDF	0.0021	0.0033	.3863	0.0054	0.0049
6	KLBF	0.0052	0.0033	.1884	0.0054	0.0057
7	PGAS	-0.0063	0.0033	0.0728	0.0054	0.0047
8	SMGR	0,0009	0.0033	0.3227	0.0054	0.0046
9	SMRA	0.0079	0.0033	.1675	0.0054	0.0061
10	TLKM	0.0108	0.0033	0.1235	0.0054	0.0063
11	UNTR	0.0091	0.0033	-0,2205	0.0054	0.0041
12	UNVR	0.0096	0.0033	0.1457	0.0054	0.0063
13	UNVR	0.0096	0.0033	0.1457	0.0054	0.0063

Table 5:- Expected Return SCAPMSBIS
Source: website <http://yahoo.finance.com> (data processed)

Based on Table 5, JII stocks that are undervalued based on the SCAPMI model are ADRO (0.0048), ASII (0.0058), SMRA (0.0061), TLKM (0.0063), UNTR (0.0041) and UNVR (0.0063) and WIKA (0.0063). While the stocks that are classified as overvalued are AKRA (0.0057), BSDE (0.0054), INDF (0, 0049), KLBF (0.0057), SMGR (0.0046), and PGAS (0.0047). Table 5 shows that TLKM, UNVR and WIKA shares have the highest expected return of 0, 0063, while UNTR shares have the smallest expected return of 0.0041.

The results of calculating MAD values can be seen in Table 6. that there is no difference in MAD values between SCAPMI, SCAPMZ and SCAPMSBIS with a value of 0.0557. This shows that there is no difference in accuracy between each model. So that SCAPMI, SCAPMZ and SCAPMSBIS are appropriate to be used to calculate Expected Return because it has the same accuracy in predicting Stock Returns.

No	Company Code	MAD SCAPMI *	MAD SCAPMZ *	MAD SCAPMSBIS *
1	ADRO	0.0738	0.0738	0.0738
2	AKRA	0.0615	0.0610	0.0611
3	ASII	0.0327	0.0329	0.0329
4	BSDE	0.0477	0.0475	0.0474
5	INDF	0.0402	0.0403	0.0402
6	KLBF	0.0375	0.0374	0.0374
7	PGAS	0.0779	0.0781	0.0779
8	SMGR	0.0557	0.0557	0.0556
9	SMRA	0.0814	0.0816	0.0815
10	TLKM	0.0406	0.0408	0.0407
11	UNTR	0.0541	0.0539	0.0540
12	UNVR	0.0339	0.0341	0.0341
13	WIKA	0.0873	0.0868	0.0867
	AVERAGE	0.05 57	0.05 57	0.05 57

Table 6:- Value Mean Absolute Deviation (MAD)
Source: Data processed

No	Company Code	MSE SCAPMI *	MSE SCAPMZ *	MSE SCAPMSBIS *
1	ADRO	0.0095	0.0096	0.0096
2	AKRA	0.0059	0.0058	0.0058
3	ASII	0.0018	0.0019	0.0019
4	BSDE	0.0039	0.0038	0.0038
5	INDF	0.0029	0.0029	0.0029
6	KLBF	0.0020	0.0020	0.0020
7	PGAS	0.0133	0.0133	0.0133
8	SMGR	0.0060	0.0060	0.0060
9	SMRA	0.0112	0.0113	0.0112
10	TLKM	0.0026	0.0026	0.0026
11	UNTR	0.0052	0.0051	0.0051
12	UNVR	0.0023	0.0023	0.0023
13	WIKA	0.0122	0.0121	0.0121
	AVERAGE	0.0061	0.0061	0.0061

Table 7:- Value Mean Square Error (MSE)
Source: Data processed

Mean Square Error (MSE) is the average difference between the square of the predicted stock return and the return that occurred. In his research, Andri (2010)

suggested that a model that has a smaller MSE means more precise / accurate than a model that has a larger MSE.

Based on Table 7, can be known that there is not erdapat difference between the MSE between SCAPMI, SCAPMZ and SCAPMSBIS with a value of at 0,0061. This shows that there is no difference in accuracy between each model. So that SCAPMI, SCAPMZ and SCAPMSBIS are appropriate to be used to calculate Expected Return because it has the same accuracy in predicting Stock Returns .

The results of the calculation of the value of the coefficient of determination (Adjusted R ²) in Table 7, it appears that among SCAPMI, SCAPMZ and SCAPMSBIS,

the value of the lowest coefficient of determination is SCAPMSBIS with a value of 0.0232, where the explanatory power shown Excess Return Market to SBIS by 2 32% .

The SCAPMI Determination Coefficient value is 0.2338, meaning that Excess Return Market to Inflation is able to explain the JII Stock Return variable of 23.38%, while as much as 76.62% is explained by other factors outside the research. SCAPMZ has the highest explanatory power among the three SCAPM models which is 24 , 14 % as well as higher than the CAPM which is only 24.02% .

No	Company Code	Adj R squared SCAPMI	Adj R squared SCAPMZ	Adj R squared SCAPMSBIS	Adj R squared CAPM
1	ADRO	.1320	.1160	0.0090	0.1210
2	AKRA	0.0390	0.0340	0.0510	0.0310
3	ASII	0.5390	0.5400	0.0080	0.5420
4	BSDE	0.3650	0.3810	0.0270	.3760
5	INDF	0.3310	0.3390	0.0090	0.3370
6	KLBF	.3720	0.3980	0.0270	0.3950
7	PGAS	.1540	0.1640	0.0030	0.1660
8	SMGR	0.1940	0.1930	0.0000	0.1950
9	SMRA	0.2910	0.3100	0.0400	0.3040
10	TLKM	.2000	.2110	0.0290	0.2060
11	UNTR	0.0850	0.0730	0.0030	0.0780
12	UNVR	0.2050	0.2130	0.0310	0.2090
13	WIKA	0.1330	0.1660	0.0640	0.1620
	AVERAGE	0.2338	.2414	0.0232	0.2402

Table 8:- Determination Coefficient Value
Source: Data processed by PASW Statistics 18

B. Discussion

The results of calculating MAD values can be seen in table 6 that there is no difference in MAD values between the three SCAPM models that is equal to 0 , 0557 . The smaller MAD, the higher the level of accuracy because the expected return is not far from the actual return . Models that have a smaller MAD value are considered to have greater accuracy (Premananto and Madyan, 2004).

Based on the results of MSE calculations in Table 7 it can be seen that there is no difference in MSE values between the three SCAPM models with a value of 0 , 0061 . Andri (2010) suggests that a model that has a smaller MSE means more precise / accurate than a model that has a larger MSE.

In the results of this study, the MAD and MSE SCAPMI, SCAPMZ and SCAPMSBIS values have the same value so that it shows that SCAPMI, SCAPMZ and SCAPMSBIS are appropriate to be used to calculate Expected Return because they are equally accurate in predicting Stock Returns .

Based on the results of the Determination Coefficient analysis in Table 8, it was found that SCAPMZ has the

highest explanatory power among SCAPMI, SCAPMZ and SCAPMSBIS which is 24.14% as well as higher than the CAPM which is only 24.02%. These findings are in accordance with Ashker Research (1987) who built a framework of conventional CAPM in valuing assets by replacing Risk Free Rate with Zakat Rate of 2.56% on asset valuation. Widianingsih (2019) also found that SCAPM with Zakat factor can be used as an alternative in calculating Expected Return using sharia principles.

Excess market returns to Zakat at SCAPMZ are increasingly high, indicating that the model is able to explain Stock Returns in the market and is more accurate in explaining variations in returns.

These results indicate that the SCAPMZ model is worthy of being used as a tool to calculate Stock Returns by both shariah investors and conventional investors because Explanatory Power Excess Returns to Zakat on Stock Returns outperform CAPM. These results are consistent with Premananto and Madyan's (2004) research that market returns can be used by investors in predicting stock returns. Investors also need to consider the performance of other companies (issuers and risks) and macroeconomic conditions in predicting stock returns.

Expected Return calculation through SCAPMZ has accommodated the value of Zakat can provide alternative options for investors who want to know the value of the investments made but still subject to sharia principles. Obligation to issue zakat which can purify oneself from misbehavior, greed, selfishness and the like for the acquisition of return on investment, train the soul to give thanks to Allah SWT, control yourself from an excessive attitude of loving wealth and foster a blessing on investments made. SCAPMZ is recommended to be used by investors so that they can understand the meaning of the assets they invest (Nailufarh: 2008).

Nailufarh (2008) also states that every asset invested has a zakat obligation, so that if the asset is idle it will be eroded by zakat. So that Muslims are encouraged to actively invest and carry out their zakat obligations because of the possibility of greater returns on these investments.

As in the following verse:

"Whoever wants to give a loan to Allah, a good loan (to spend his wealth in the way of Allah), then Allah will multiply the payment to him by many times many, and Allah narrows and gives (rizki) and to Him is returned". (Qur'an, Al-Baqarah : 245)

In this verse gives a description that the assets owned must not be deposited and the zakat must be issued in accordance with Islamic regulations so as not to undermine the assets that have been owned. Zakat cleanses the treasures of the Gharar and adds to the blessings of these treasures.

According to Hazny (2017), in Islamic finance, Zakat is influenced by moral values and Islamic restrictions on investment. Hazny argues that Zakat is a deduction from Expected Return of assets. Zakat literally means cleansing, but in reality acts as a religious tax, which is calculated from the excess wealth of a person and has been owned within a year.

Excess Return Market to Inflation in SCAPMI of 23.38% has explanatory power compared to SCAPMZ, which is in accordance with the results of Masithoh's research (2017) that in the ICAPM model excess market return to inflation does not affect the return of Islamic stocks. Research Randolph, Christopher and Tuomo (2004) explains that CAPM that uses inflation has failed to control the compensation requested by investors.

The results of this study are also not in line with the research of Hanif (2011); Sadaf and Andleeb (2014); Effendy (2016) and Febrianto and Rachman (2016) who found the view that inflation is feasible to be used as a proxy for Risk Free Rate in the model built because the Inflation SCAPM has the same volatility as the CAPM so that it can be used as an alternative for Muslim investors as well as being able to save from the ban religion but still get the same advantages and disadvantages as other investors (non-Islamic investment). There is a similar pattern between SCAPM with inflation factors

and CAPM so that Muslim investors should use the inflation component to replace the Risk Free Rate.

The results of this study indicate that the SCAPMSBIS explanatory power has the lowest value that is equal to 0, 0232 . This is contrary to the results of research from Husein and Hasanah (2016) and Quthbi; Hasanah and Maspupah (2017); Quthbi (2017) uses the SBIS Rewards (Bank Indonesia Sharia Certificate) as a substitute for the reference interest rate issued by Bank Indonesia and does not use inflation in accordance with the CAPM Basic Assumptions.

This research is able to show that the SCAPMZ model with the zakat proxy has the largest Explanatory Power , but the difference in Explanatory Power value of each model is only a little, so that it can be a biased assessment for investors. The small difference in explanatory power can make investors doubt the reliability of SCAPM and do not want to switch to using SCAPM in predicting stock returns .

IV. CONCLUSION

This study aims to compare the three SCAPM models to see which is more optimal and to find out the explanatory power of the three SCAPM models when compared to the CAPM. The results of this study can obtain several conclusions including:

- SCAPM models namely SCAPMI, SCAPMZ and SCAPMSBIS are both accurate and optimal in predicting stock returns. So that the three investors can be chosen in determining the optimal investment .
- SCAPM which has the highest explanatory power is SCAPMZ as well as surpassing CAPM. Investors are recommended to use SCAPMZ because it has better results.

V. SUGGESTION

This research is able to show that the SCAPM Model with zakat proxy has the largest Explanatory Power , but the difference in ability to explain each model is only a little, so that it can be a biased assessment for investors. The small difference in explanatory power can make investors doubt the reliability of SCAPM and are reluctant to switch to using scapm in predicting stock returns. Future studies can use other proxies as a substitute for Risk Free Rate in SCAPM modeling so as to enrich the comparative results of the application of each SCAPM model that can be an alternative for investors in predicting Sharia Stock Returns . Other proxies that can be used as alternatives include NGDP (Shaikh, 2010) and integration of Return Purification, Zakat, and the exception of Short Sales (Derbali et. Al , 2017). Future studies can also enrich the findings of the SCAPM Modeling using Multiple Regression Analysis

REFERENCES

- [1]. Arikunto, Suharsimi. 2013. *Prosedur Penelitian: Suatu Pendekatan Praktik*. Jakarta: PT. Rineka Cipta.
- [2]. Ashker, A.A.E. 1987. *Islamic Business Enterprise*. London: Croom Helm Limited.
- [3]. Cyril, T and Ri'fat, K. 1987. The Shari'ah and Its Implications for Islamic Financial Analysis: An Opportunity to Study Interactions Among Society, Organization and Accounting. *The American Journal of Islamic Social Sciences*, 4 (1), 101-115.
- [4]. Derbali, A, Khaldi, A dan Jouini, F. 2017. Shariah-compliant capital asset pricing model: new mathematical modeling. *Journal of Asset Management*, Volume 18, No 7, 527-537.
- [5]. Effendi, Kharisya Ayu. 2016. Optimalisasi Shari'a Compliant Asset Pricing Model terhadap Rate of Return pada Jakarta Islamic Index. *Jurnal Manajemen*, Volume 20, No 3, 370-386.
- [6]. Elbannan, Mona A. 2015. The Capital Asset Pricing Model: An Overview of The Theory. *International Journal of Economic and Finance*. International Canadian Center of Science and Education) 7, no. 1, 222.
- [7]. Fama, E.F., & French, K. R. 1992. The cross section of Expected Stock Returns. *The Journal of Finance*, Vol 67 No. 2 427-465.
- [8]. Febrianto, Igo & Rachman Artie Arditha. 2016. Islamic Capital Asset Pricing Model: Sebuah Analisis Perbandingan. *Jurnal Ilmiah ESAI* Vol. 10, No 1.
- [9]. Gaspersz, Vincent. 2004. *Production Planning and Inventory Control*. Jakarta: PT. Gramedia Pustaka Umum.
- [10]. Ghozali, Imam. 2013. *Aplikasi Analisis Multivariate dengan Program SPSS*. Edisi Ketujuh. Semarang: Badan Penerbit Universitas Diponegoro.
- [11]. Halim, Abdul. 2013. *Analisis Investasi*. Edisi Kedua. Jakarta: PT Salemba Empat.
- [12]. Hanif, M. 2011. Risk and Return under Shari'a Framework: An Attempt to Develop Shari'a Compliant Asset Pricing Model (SCAPM). *Pakistan Journal of Commerce and Social Sciences*, 5(2), 283-292.
- [13]. Hanif, M & Dar, A. 2011. Comparative Testing of Capital Asset Pricing Model (CAPM) and Shari'a Compliant Asset Pricing Model (SCAPM): Evidence from Karachi Stock Exchange Pakistan. *Middle Eastern Journal of Scientific Research, Forthcoming*.
- [14]. Hartono, Jogiyanto. 2016. *Teori Portofolio dan Analisis Investasi*. Edisi Ke 10. Yogyakarta: BPFE.
- [15]. Hazny, M.H., Hasim, H.M., & Yusof, A.Y. 2017. Mathematical Modelling of a Shariah-Compliant Capital Asset Pricing Model. *Journal of Islamic Accounting and Business Research*
- [16]. Horne, J.C. Van & Wachowics, J. Martin. 2009. *Fundamentals of Financial Management, 13th edition*. New Jersey: Prentice Hall Inc.
- [17]. Husnan, Suad. 2015. *Dasar-dasar Teori Portofolio dan Analisis Sekuritas, Edisi ke 5*. Yogyakarta: UPP AMP YKPN
- [18]. Rakhmat, Jalaluddin. 2016. *Metode Penelitian Komunikasi, Edisi Ke 16*. Bandung: PT Remaja Rosdakarya.
- [19]. Jones, S.P. 2016. *Investment: Analysis and Management*, 13th Edition. England: John Wiley & Sons, Inc.
- [20]. Keown, Arthur J. 2017. *Financial Management: Principles and Applications, 13th edition*. New Jersey: Prentice-Hall Inc.
- [21]. Lintner, J. 1965. *The Valuation of Risk Assets and Selection of Risky Investment in Stock Portofolio and Capital Budgets*. Review of Economics and Statistics, Vol.47, pp. 13-37.
- [22]. Lubis, M. Arif Fadhillah. 2015. Prinsip Dasar Muamalah Keuangan Syariah (Maliyah). *Wahana Islamika Jurnal Studi Keislaman*, Volume 1, No. 1, 1-25.
- [23]. Markowitz H.M. 1952. Portofolio Selection. *Journal of Finance*, Vol. 7, No. 1, pp. 77-91.
- [24]. Masithoh, Latifuzzarah. 2017. Pengujian Validitas Capital Asset Pricing Model (CAPM), Islamic Capital Asset Pricing Model (ICAPM) dan Arbitrage Pricing Theory (APT) dalam memprediksi Return Saham Syariah di Jakarta Islamic Index (Periode tahun 2012-2016). *Skripsi*. Universitas Islam Negeri Syarif Hidayatullah.
- [25]. Muhammad. 2016. *Manajemen Keuangan Syari'ah: Analisis Fiqh dan Keuangan*. Yogyakarta: UPP STIM YKPN.
- [26]. Nailufarh, Qurratul A'yun. 2008. Analisis Portofolio Pendekatan Capital Asset Pricing Model (CAPM) dan Model Markowitz Efficient Portofolio (MEP) sebagai Preferensi Investor Terhadap Pemilihan Saham di Pasar Modal Indonesia. *Balance Economics, Bussiness, Management and Accounting Journal* Th. V No. 8.
- [27]. Nawawi, H. Hadari & Martini H. Mimi. 1996. *Penelitian Terapan*. Yogyakarta: Gajah Mada University.
- [28]. Premananto, G.C. & Madyan M. 2004. Saham Industri Manufaktur sebelum dan sesudah masa Krisis Ekonomi. *Jurnal Penelitian Dinamika Sosial*, Vol. 5, No. 2, 152-139.
- [29]. Purwanto E.A. & Sulistyastuti, D.R. 2017. *Metode Penelitian Kuantitatif, Untuk Administrasi Publik dan Masalah-masalah Sosial*. Yogyakarta: Gava Media
- [30]. Quthbi, Zainul Hasan. 2017. Analisis Saham Syariah Efisien dengan Pendekatan Shari'a Compliant Asset Pricing Model (SCAPM) pada Jakarta Islamic Index (JII). *Ekonometrika: Jurnal Ekonomi Islam*, Volume 8, No. 1, 131-147.
- [31]. Sadaf, R and Andleeb, S. 2014. Islamic Capital Asset Pricing Model (ICAPM) *Journal of Islamic Banking and Finance*, Vol. 2, No. 1, pp. 187-195
- [32]. Selim, T. H. 2008. An Islamic capital asset pricing model. *Humanomics*, 24(2), 122- 12. Economics Project Publication Co-Sponsored by University of East.
- [33]. Sharpe. 1964. Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk. *Journal of Finance*, Vol. 19, pp. 425-442.

- [34]. Sharpe, W. F. 1966. Mutual fund performance. *The Journal of Business*, 39(1), 119-138
- [35]. Sharpe et al., 2005. *Investasi*. Edisi Keempat. Jakarta: Indeks Kelompok Gramedia.
- [36]. Shaikh, S.A. 2010. Corporate Finance in an Interest free economy: An alternate approach to practiced Islamic Corporate Finance. *Journal of Islamic Banking and Finance*.
- [37]. Sugiyono. 2013. *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Bandung: Alfabeta
- [38]. Tandelilin, Eduardus. 2010. *Portofolio dan Investasi: Teori dan Aplikasi*. Yogyakarta: Kanisius.
- [39]. Treynor. 1961. *Market Value, Time and Risk*. Unpublished manuscript. Dated 8/8/61, No. 95-209. Diakses pada 12 Oktober 2019 , 10:02 WIB. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2600356
- [40]. Widianingsih, Yuni P. N. 2019. Analysis of Capital Asset Pricing Model According to shariah Principle: Indonesian Evidence. *International Journal of Economics, Business and Accounting Research (IJEBAR)* vol. 3 No 3, 171-184.