Macroeconomic Determinants of NAV (Composite Stock Price Index as Variable Z)

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Abstract:

The interplay between financial institution like mutual fund investment manager is essential for financial and economic stability. This study aims to analyze the direct effect of macroeconomic determinants on net assets value (NAV) of equity funds as well as through Composite Stock Price Index (CSPI) as intervening variable. We used interest rate (Bank Indonesia 7-day repo rate), Consumer Price Inflation (CPI), Rupiah currency rate as macroeconomic factors. This research consists of 12 conventional equity funds investment management agent listed in Financial Services Authority (OJK) statistical data, from the period from 2015 to 2019. The data used in this study were analyzed using partial least square and carried out with the help of software WarpPLS 6.0. The novelty of our work is to identify the Composite Stock Price Index (CSPI) as the mediating variable for the relationship of three exogenous variables on NAV respectively. Our results show that a sharp increase in interest rate triggers reduction of Net Asset Value of equity funds. Both variables inflation and currency rate index do not affect significantly on NAV. Only the effect of inflation on the net asset value (NAV) of equity funds can not be mediated by CSPI.

Keywords:
Interest rate, Inflation, Currency rate, Net Asset Value, Composite Stock Price Index.

1. Introduction

Mutual funds are one of the financial instruments that are developing in the capital market trading. The development of mutual fund products in recent years has been very dynamic, marked by the increasing number of mutual funds issued by investment managers, through the types of sharia mutual funds and conventional mutual funds. In Indonesia, regulations related to mutual funds are regulated in Law No. 8 of 1995 article 1 paragraph 27 concerning the capital market.

The performance of equity funds can be seen from the Net Asset Value (NAV). NAV is a number of assets after deducting existing liabilities. Meanwhile, NAV per unit of participation is the total value of net assets divided by the number of units of participation (shares issued) in a certain period. In assessing the performance of conventional equity mutual funds, investors refer to the performance of the composite stock price index (CSPI). Equity funds are chosen because they are more volatile than bonds or other types of funds because most of their portfolio is invested in fluctuating shares (Hermawan, 2016). Equity funds invest at least 80% in pure equity securities.

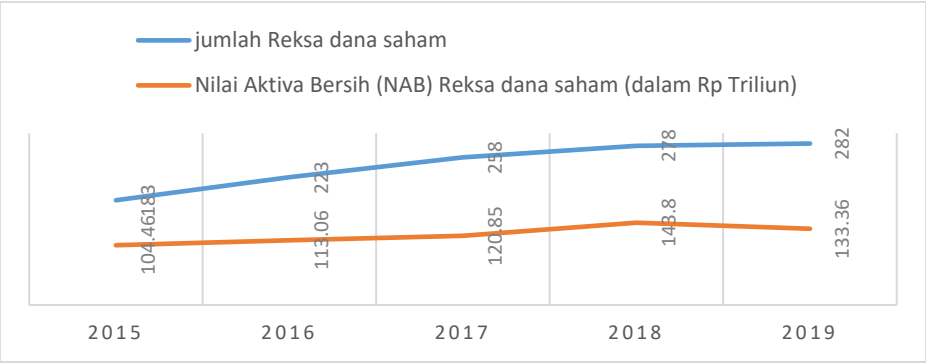

Figure 1. The Development of Equity Mutual Funds and its NAV (source: Financial Services Authority of Indonesia processed by author)

Several major macroeconomic variables that give big impact on the growth in NAV are GDP growth, (un)employment rate, currency rate, inflation, interest rate, stock prices and house prices. There is vast and significant empirical evidences that confirm countercyclical behaviour of the NAVs. The economic sluggish in a country would likely to decrease the employment rates, lower available income, and borrowers have greater difficulties in servicing their debts. Large strand of the literature has been devoted to analysing key macroeconomic determinants of NAVs. The value of the currency shows the price of the currency when it is exchanged for other currencies in Hermanto et al (2013) study. If the Rupiah depreciates or weakens, the price of foreign goods will become expensive and imports will weaken. When interest rates rise, stock prices will fall and the capital market will be bearish and vice versa if interest rates decline, stock prices will rise and the capital market will be bullish. The increase in the CSPI reflects the company's performance in the conventional capital market that has the potential to obtain greater revenue. This can be used as a benchmark by investors in investing. Pradhipta, 2015; Rahmah, 2011; Setyarini, 2015 in their study present that CSPI has a positive effect on the NAV's. According to Septiana and Al Arif (2020) also show CSPI had a positive impact of mutual funds performance. However, Dragotă et al. (2016) present real interest rate has weak significant effect on the size of the mutual fund industry.

Interest rate is a driving force for investors to invest, the movement can strengthen investment when the interest rate decreases so that all investments are diverted into the capital market. Along with that, the performance of a company will increase so that the value of shares also increases. The interest rates and the spread between bank deposits and money market funds is expected generate great influence on the demand of money market and short-term bond mutual funds. Klapper et al. (2004) claim that this spread is likely to affect equity mutual funds in cases when real returns are much higher than real interest rates and if their volatility is low.

The economic growth factor can also be assessed from the inflation rate (INF) or the increase in the price of goods that occurred in the country. An increase in the price of one or two goods alone cannot be called inflation unless the increase is widespread or results in an increase in the price of other goods. If inflation increases, the general price of goods in a country also increases. When the price of goods increases, people's purchasing power decreases and leads to an economic slowdown.Inflation is the cause of a decline in public purchasing power in general, because in times of inflation real public income will decline.

The currency rate is one indicator in making the decision to place funds in investing in mutual funds. Fluctuations in the value of the Rupiah against a stable foreign currency will greatly affect the investment climate in the country, especially the capital market (Hifdzia, 2012). When the exchange rate of IDR against USD weakens, the price of foreign goods will be expensive and import sector will weaken. This situation will have an impact on the decline in firm performance so the stock prices will also fall. When stock prices fall, it will result in a decrease in NAV shariah mutual fund. Setyorini (2015) found that the currency rate had a positive and significant effect on NAV shariah mutual fund. This means that if the currency rate increases, the NAV shariah mutual fund will increase and vice versa. Another researcher, Ali (2011) stated that the rupiah currency rate had a negative and significant effect on NAV shariah mutual fund. This means that if the exchange rate increases, the NAV shariah mutual fund decreases and vice versa. The results of research conducted by Ali (2011) and Setyarini (2015) show that there are inconsistencies in research results to strengthen the theory, so it is necessary to re-examine. Study from Ferson and Kim (2012) show that currency rates are good predictors of fund flows. Also, Kopsch et al. (2015) find that the currency rate, households' expectations regarding inflation, and outflows from mutual bond funds. All these variables have some predictive powers on mutual fund flows in Sweden.

According to Sholihat et al (2015) the composite stock price index (CSPI) has an influence on equity funds. The theory explains that if the CSPI rises, the net asset value (NAV) also increases and if the CSPI decreases, the net asset value (NAV) also decreases, this occurs because the CSPI is a reflection of stock investment that shows stock prices on the stock effect. In different study Jank (2012) investigates the effect of mutual fund flows and the real economy and finds support for the information-response hypothesis, it means that the returns of stock market and mutual fund investors flows normally react to macroeconomic situation. Then study from Kopsch et al. (2015) finds that the currency rate and outflow are positively related to the flow of capital to stock market mutual funds in Sweden. Other study from Qureshi et al. (2016) also finds the equity and balanced mutual fund flows and market returns have a positive causal relationship, fund flows are positively related with contemporaneous market volatility in five ASEAN countries over the period 2001 to 2015. The portfolio of equity funds in the form of shares is also traded on the stock exchange. In the interest rate, inflation, and currency rates of IDR can affect the net asset value variable (NAV) of equity funds, and the composite stock price index (IHSG) is assumed to be an intervening variable to determine the direct and indirect effects of the interest rate variable, inflation, and the

currency rate of Rupiah to net asset value (NAV) of equity fund with the aim of knowing the development of mutual funds in order to attract other investors.

1.1 Objectives

Our study aims to fill the gap in the existing literature and to provide empirical evidence on the relationship of macroeconomic factors and NAV of equity fund with mediating effect of CSPI variable in Indonesia over the period of 2015 – 2019. The study contributes to the body of literature in several ways. Firstly, we provide additional insights into the understanding of the determinants of mutual fund flows by adding a number of macroeconomic variables to our empirical model. Then we complement previous studies, that some previous studies are conducted in developed country, and we try to investigate the phenomena in developing country like Indonesia, where some previous studies are using shariah mutual fund, here we use specific mutual fund is equity fund. In order to achieve the aim of study following objectives were defined:

- To analyze NAV of equity fund in Indonesia
- To predict the effect of macroeconomic variables on NAV of equity fund in Indonesia
- To test the mediating effect of CSPI in the relationship of each macroeconomic factor on NAV of equity fund
- This study contributes to the extends of the practice of mutual fund investment in emerging market like Indonesia
- To provide insight to investors who will invest in conventional equity funds, to take into account macroeconomic factors

2. Literature Review

2.1 Macroeconomic factors

According to Bloomenthal (2020) macroeconomic factor is an influential fiscal, natural, or geopolitical event that broadly affects a regional or national economy. Macroeconomic factors include the Consumer Price Index (CPI), unemployment, gross domestic product (GDP), stock market index, corporate tax rate and interest rates (World Bank Group, 2015)

2.2 Interest Rate

In the official website of Bank Indonesia interest rate is defined as policy interest rates that reflect the attitude or monetary policy set by the Indonesian bank and announced to the public. Gumilang and Herlambang (2016) find that interest rates affect Net Asset Value by 99.4%, which means it has a strong influence on NAV. Then then Ovi (2020) show that Bank Indonesia 7 Day Repo Rate has a negative effect with a probability value of 0.0365 on NAV's.

2.3 Inflation

According to Tandelilin (2012) inflation is a tendency to increase prices of overall products. High inflation reduces the level of real income that investors get from investments. The definition of inflation according to Bank Indonesia is a general and continuous increase in prices. An increase in the price of one or two goods alone cannot be called inflation unless the increase is widespread or results in an increase in the price of other goods. If inflation increases, the general price of goods in a country also increases. When the price of goods increases, people's purchasing power decreases and leads to an economic slowdown. If people's purchasing power decreases, so will the ability to pay debtors to return the principal and interest costs that are their obligations to the bank. Study from Kopsch et al. (2015) find households' expectations regarding inflation has predictive power over mutual fund flows. People will prefer to hold money in cash, rather than investing in uncertain conditions due to the rate of inflation fluctuations (Putong, 2003).The principle of calculating inflation based on Consumer Price Index Inflation (CPI) data is as follows:

$$\text{Inflation (CPI)} = \frac{(CPI_t - CPI_{t-1}) \times 100\%}{CPI_{t-1}}$$

Remaks:
CPI_t = Consumer Price Index in the period t
CPI_{t-1} = Consumer Price Index in the period before t

2.4 Rupiah Currency Rate

Currency rate is the amount of domestic money needed, namely the amount of rupiah needed to obtain a unit of foreign currency (Sukirno, 2015 : 39). The currency rate policy has a large influence on the company's transaction

activities, especially companies that depend on imports and are oriented to foreign markets According to Tandelilin (2012: 344) the Rupiah (Rp) exchange rate is a positive signal for an economy experiencing inflation and a decline in the Rupiah exchange rate will also have an impact on the rising costs of imports of raw materials and equipment needed by issuers, the magnitude of the currency rate will affect the price of goods traded, as well as affect the amount of investment, rising production costs, and then many issuers who have foreign debt if the Rupiah rate decreases it will increase the debt burden borne by the issuer because they have to pay with a stronger US dollar but the Rupiah weakens so that the exchange rate is large. Setyorini (2015) found that the currency rate had a positive and significant effect on NAV shariah mutual fund. Other finding, from Ali (2011) stated that the rupiah currency rate had a negative and significant effect on NAV shariah mutual fund. In calculating the Rupiah currency rate the following calculations are used:

$$\Delta ER = \frac{ER\ (t) - ER\ (t-1)}{ER\ (t-1)} \times 100\%$$

Remarks:
ΔER = the change of USD to IDR's rate
$ER\ (t)$ = USD to IDR's currency rate in t period
$ER\ (t-1)$ = USD to IDR's rate in t-period

2.5 Composite Stock Price Index (CSPI)

According to Hadi (2015) the stock price index is an indicator in showing stock price movements and describing market trends in market conditions entering or leaving the business. Stock investors in the Indonesia Stock Exchange (IDX) are fully drawn to the fluctuation of the CSPI because the value of its stock portfolio generally determined by the volatility of this index. Intuitively, most shares or portfolio stocks move in the direction of the index movement. The stock price index is affected by general macroeconomic conditions such as risk-free interest rates, currency rates, trade balance, the reserves foreign exchange and inflation. When the condition of the balance sheet surplus, more foreign investment will come in, this will leverage the rupiah to strengthen or the USD exchange rate to decline. Some of the foreign models will be invested in stock portfolios so that they have a positive effect on the stock market and its index. According to Septiana and Al Arif (2020) also show CSPI had a positive impact of mutual funds performance. However, Dragotă et al. (2016) present real interest rate has weak significant effect on the size of the mutual fund industry.

The following CSPI calculations can be done with the formula:

$$CSPI = \frac{Market\ value}{Base\ value}\ x\ 100\%$$

2.6 Investment

There are several definitions of investment put forward by various experts on the notion of investment. According Jogiyanto (2010) defines investment is the delay in consumption now to be used in efficient production during certain periods. In general terms of investment is an activity of placing funds in a certain period in the hope of earning income and / or increasing the value of investment.

2.7 Mutual fund

According to Law No.8 of 1995 article 1 verse 27 mutual funds are a container used to collect funds from the community of investors to subsequently be invested in securities portfolios by investment managers.

2.7.1 Net Assets Value

One indicator to measure the performance of mutual funds is net asset value. Net asset value (NAV) is a number of assets after deducting existing liabilities Net Asset Value (NAV) or often also referred to as Net Assets Value (NAV) is a measure of mutual fund performance. The investment performance of mutual fund portfolio management is generally reflected in the Net Asset Value (NAV) of the poor performance of investment portfolio managed. The following formula for calculating NAV:

$$NAV_i = \frac{NAV\ (t) - NAV\ (t-1)}{NAV\ (t-1)} \times 100\%$$

Remarks:

NAV_i = Change in Net Asset Value of conventional eqity funds
$NAV\ (t)$ = Net Asset Value of conventional equity funds in period t
$NAV\ (t-1)$ = Net Asset Value of conventional equity funds in –t

Based on our explanation above, we proposed the following hypotheses:

a. H1: Interest rate has a positive and significant effect on the NAV of equity funds
b. H2: CSPI can mediate the relationship between the interest rate and the NAV of equity funds
c. H3: Inflation rate has a positive and significant effect on the NAV of equity funds
d. H4: CSPI can mediate the relationship between inflation and the NAV of equity fund
e. H5: The currency rate has a positive and significant effect on the NAV of equity funds
f. H6: CSPI can mediate the relationship between the currency rate and the NAV of equity funds

3. Research Method

In this study, using exogenous and endogenous variables. Exogenous variables are variables that are often referred to as stimulus, predictor, and antecedent variables. Exogenous variables in this study are: Interest rate (X1), inflation (X2), and currency exchange rate (X3). While endogenous variables are often referred to as output variables, criteria, and consequences. Endogenous variables in this study are: Net Asset Value (NAV) of conventional Equity Funds (Y). Intervening variables are often called interrupting variables or between independent variables and dependent variables. Intervening variables in this study are: composite stock price index (CSPI) (Z). In this study statistical data analysis was measured using WarpPLS software version 5.0. PLS analysis is done by evaluating the outer model and inner model.

4. Data Collection

This study uses a quantitative approach. The method for sample selection used in this study is the purposive sampling method, which is a sampling technique that considers certain factors (Anshori and Iswati, 2009: 105). The criteria used in sampling for this study are as follows: a) Conventional equity funds that have been registered with the Financial Services Authority and are still declared active during the research period, namely in 2015-2019. b) Conventional equity funds that have the highest Net Asset Value during the 2015-2019 study period. The following sample data has been obtained by the author as many as 12 conventional stock mutual funds. The place for this research is 12 conventional equity funds that have been registered at the Financial Services Authority on the website https://reksadana.ojk.go.id/ for the 2015-2019 period.

5. Results and Discussion

5.1 Numerical Results

In general descriptive statistics only provide a description or descriptive of the actual data state of the data. The analytical tool used in this study is the mean (mean) and standard deviation. From table 1, the maximum value for interest rate is 7,5% and its minimum value is 4,2%. Inflation rate variable, the maximum value is 3,6% and the minimum is 2,7%. In the currency rate of Rupiah against USD, the maximum value is 0,109 and the minimum -0,040. For CSPI rate, the maximum value is 6,357 and the minimum value is 4,593. Then in NAV of equity fund, the maximum value is 4,391 and the minimum is 0,256.

Table 1. Descriptive Statistic Result

Variable	Indicator	N	Min	Max	Mean	St.Deviation
Interest Rate	Interest rate	60	0,042	0,075	0,055	0,012
Inflation	Bank of Indonesia 7-day repo rate	60	0,027	0,036	0,031	0,003
Currency rate	Rp against USD	60	-0,040	0,109	0,024	0,058
CSPI	IHSG	60	4,593	6,357	5,571	0,703
NAV of Equity Fund Conventional		60	-0,825	4,391	0,256	0,959

5.2 Statistical Model and Variable Measurement

Partial least square (PLS) model is performed to test hypothesis. Initially author test the modeling model, consisting of inner model and outer model, the conceptual framework is determined as follows:

Evaluation of the Measurement Model (Outer Model)

In the evaluation step of the outer model, three criteria are performed, namely convergent validity, discriminant validiity and composite reliability. Here are the results of data processing:

Table 2. Result Output Combined loading and cross-loading

Variable	Interest rate (X1)	Inflation rate (X2)	Currency rate (X3)	CSPI (Z)	NAV (Y)	SE	P-Value
X1	(1.000)	0.000	0.000	0.000	0.000	0,091	<0,001
X2	0.000	(1.000)	0.000	0.000	0.000	0,091	<0,001
X3	0.000	0.000	(1.000)	0.000	0.000	0,091	<0,001
Z	0.000	0.000	0.000	(1.000)	0.000	0,091	<0,001
Y	0.000	0.000	0.000	0.000	(1.000)	0,091	<0,001

Source: WarpPLS 6.0 (2020) output

Based on the table 2, the results of data processing for all indicators have a Loading value of 1,000> 0.70, which means they have met the criteria, p-value also meets the criteria, which has a value of 0.001 <0.05. And the standard error values below 0.5 or 0.4 and do not have a negative value.

Another measurement of convergent validity is to look at the value of AVE. The results of the AVE in table 3 are greater than 0.50 which means that 50% or more of the variance of the indicator can be explained

Table 3. Result of AVE Value

Average Variance Extract			
Latent Variable	AVE	Criteria	Description
X1	1,000	>0,50	Meets *convergent validity*
X2	1,000	>0,50	Meets *convergent validity*
X3	1,000	>0,50	Meets *convergent validity*
Z	1,000	>0,50	Meets *convergent validity*
Y	1,000	>0,50	Meets *convergent validity*

Discriminant validity can be assessed from cross loading measurements with constructs. The method by looking at loading into other constructs The output results of data processing below are presented in tabular form as follows:

Table 4. Value of loading latent constructs of indicators and to other constructs

	Interest rate (X1)	Inflation rate (X2)	Currency rate (X3)	CSPI (Z)	NAV (Y)	Description
Interest rate	1,000	0,000	0,000	0,000	0,000	Meets *discriminant validity*
Inflation rate	0,000	1,000	0,000	0,000	0,000	
Currency rate	0,000	0,000	1,000	0,000	0,000	
CSPI	0,000	0,000	0,000	1,000	0,000	
NAV	0,000	0,000	0,000	0,000	1,000	

From table 4, all variables meet the criteria of discriminant validity, with a loading value of 1,000 each, whose loading value is greater than other constructs.

Table 5. Result Output Correlations among Latent Variabel

	Interest rate (X1)	Inflation rate (X2)	Currency rate (X3)	CSPI (Z)	NAV (Y)

Interest rate	(1,000)	0,019	0,859	0,034	-0,052
Inflation rate	0,019	(1,000)	0,463	-0,733	-0,164
Currency rate	0,859	0,463	(1,000)	-0,467	-0,138
CSPI	0,034	-0,733	-0,467	(1,000)	0,176
NAV	-0,052	-0,164	-0,138	0,176	(1,000)

Based on the results of the table 5, data processing using AVE criteria method, all indicators can be said have met the criteria of discriminant validity. The next test is a construct reliability test that can be measured by 2 criteria, namely composite reliability and Cronbach's alpha. A construct can be declared reliable if the composite reliability value> 0.70.

Table 6. Output latent variabel coefficiens

	Interest rate (X1)	Inflation rate (X2)	Currency rate (X3)	CSPI (Z)	NAV (Y)
R - Squared				0,957	0,111
Composite reliab	1,000	1,000	1,000	1,000	1,000
Cronbach's Alpha	1,000	1,000	1,000	1,000	1,000
Avg. Var. Extrac	1,000	1,000	1,000	1,000	1,000
Full Collin. VIF	1841,943	77,834	2440,656	333,007	1,041
Q – Squared				0,998	0,051

It can be concluded that all construct variables are said to be reliable because they have a composite reliability value of 1,000, which indicates that > 0.70 and for cronbatch's alpha it has a value of 1,000 which is > 0.60. The next stage is an explanation of the structural evaluation (inner model) which includes a model fit test (model fit), path coefficient, and R^2

Table 7. Model Fit Indices

	Index	*p-value*	Criteria	Description
APC	0,284	0,005	<0,05	Accepted
ARS	0,534	<0,001	<0,05	Accepted
AVIF	562,065		< 5	Rejected
	Good if < 5			

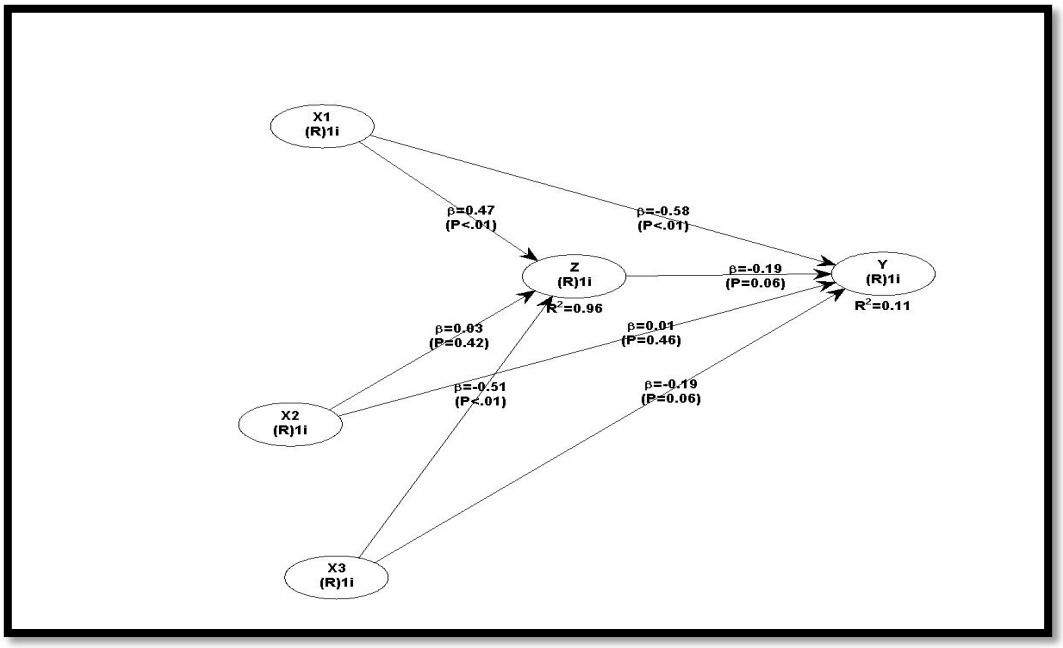

Figure 2. Conceptual Model

5.4 Validation and Hypothesis Test Results

Testing this hypothesis to prove the truth of the alleged research or hypothesis. The results of correlations between constructs are measured by looking at the path coefficient and its significance level which are then compared with the research hypotheses contained in chapter two. The level of significance used in this study was 5%. The following is a picture of a research model and the results of the effect sizes obtained based on data processing:

Table 8. Hypotheses Test Result

CRITERIA	Variabel	Interest rate (X1)	Inflation (X2)	Currency Rate (X3)	CSPI (Z)	NAV (Y)
Path Coeffient	Interest Rate					
	Inflation					
	Currency rate					
	CSPI	0,471	0,027	-0,515		
	NAV	-0,668	0,007	-0,096	-0,188	
P-value	Interest Rate					
	Inflation					
	Currency rate					
	CSPI	<0,001	0,416	<0,001		
	NAV	<0,001	0,479	0,222	0,063	
Effect Size's for path	Interest Rate					
	Inflation					
	Currency rate					
	CSPI	0,467	0,021	0,512		
	NAV	0,132	0,001	0,018	0,037	

This test uses a path analysis (path analysis) that has been made by researchers. The WarpPLS version 6.0 program can simultaneously generate complex structural models, so that it can produce path analysis results in one regression. The basis for decision making is that:

P-value ≥ 0.05, then Ho is accepted

P-value ≤ 0.05 then Ho is rejected and Ha is accepted.

The following is a hypothesis test proposed as follows:

1) Hypothesis Test 1
   P-value = < 0.001, it is < 0.05 then Ho is rejected or Ha is accepted. The path coefficient on this variable is -0,668 which means that the interest rate variable is negative and significant effect on NAV. Every 1 percent increase in the interest rate value, the NAV value will increase by -0.668.
2) Hypothesis Test 2
   P-value = <0.001, it is < 0.05 then Ho is rejected or Ha is accepted. Variable CSPI can mediate the relationship between the interest rate and NAV of conventional equity funds. The path coefficient in this variable is 0,471, it means every 1 percent increase in the CSPI as mediating effect, the NAV value will increase by 0,471.
3) Hypothesis Test 3
   P-value = 0.479> 0.05 then Ho is accepted or Ha is rejected. Inflation rate does not have a significant effect on the NAV of conventional equity funds. The path coefficient in this variable is 0,007, it means every 1 percent increase in inflation rate value, the NAV value will increase by 0,007.
4) Hypothesis Test 4
   P-value = 0.416> 0.05 then Ho is accepted or Ha is rejected. Variable CSPI cannot mediate the relationship between inflation and NAV of conventional equity funds. The path coefficient in this variable is 0,027, it means every 1 percent increase in inflation rate value, the NAV value will increase by 0,027.
5) Hypothesis Test 5
   P-value = 0.222, it is > 0.05 then Ho is accepted or Ha is rejected. The currency rate variable does not have a significant effect on the NAV of conventional equity funds. NAV of conventional equity mutual funds. The path coefficient in this variable is -0,096, it means every 1 percent increase in the currency rate, the NAV value will increase by -0,096
6) Hypothesis Test 6
   P-value = < 0,001, it is < 0.05 then Ho is rejected or Ha is accepted. Variable CSPI can mediate the relationship between the currency rate on the NAV of conventional equity mutual funds. The path coefficient on this variable is -0,515, it means every 1 percent increase in the CSPI value as mediating effect, the NAV value will increase by -0,515 which means that the CSPI variable is negative and significant.

5.5 Discussion

Hypothesis 1 (H1): Interest rate has a positive and significant effect on the NAV of equity funds
The result show that the interest rate has a significant effect on the NAV of conventional equity funds. The path coefficient is negative 0.668, every 1 percent increase in the interest rate value, the NAV value will increase by -0.668. and the F^2 value is 0.132 which means that the interest rate variable with the reference interest rate indicator affects the NAV of conventional equity funds by only 13.2% and the rest 86.8% is influenced by other variables. Interest rates are the most important part of making an investment if interest rates are high, the community will choose to put their funds in investments that generate more profits when rising interest rates such as investing in banks, whether saving or deposits and resulting in investments in the stock market diverted to investment in banking. This can make equity mutual funds less attractive to investors who impact on the decline in the net asset value of equity funds. In this case interest rates do not always go up, so mutual fund shares also increase. But conversely, interest rates can also have a negative effect, which means that if interest rates rise, the net asset value of equity mutual funds will decline.

Hypothesis 2 (H2): CSPI can mediate the relationship between the interest rate and the NAV of equity funds
Based on the results of the study it was found that the CSPI mediated the relationship between the interest rate and the NAV of conventional equity funds. The result of p-value for this variable is <0.001, which means that the CSPI variable can mediate the relationship between the interest rate and the NAV of equity funds. This is because the p-value <0.05, the value of the path coefficient has a positive value of 0.471, every 1 percent increase in the CSPI as mediating effect, the NAV value will increase by 0,471. and an F^2 value of 0.467, which means that the CSPI variable mediates the relationship between the interest rate and the NAV of equity fund, amounting to 46.7% because the value of F^2 is greater than other variables that affect it. Interest rates are generally used as investment decisions by investors. If interest rates increase, investors will tend to shift their funds from stock investments to banking investments such as savings and deposits. On the other hand, when interest rates decline, the costs required to hold cash are also high. So investors prefer to use their funds to buy shares (Nuraini, 2018). When there is a surge in demand for shares, the stock price also increases on the IDX and can also affect the increase in stock mutual funds because 80% of the stock mutual fund portfolio is invested in stocks. Another reason is that

the CSPI can mediate the relationship between the interest rate and the net asset value of equity mutual funds because in conditions of rising interest rates, if investors want to buy shares, it is the shares owned by banking issuers and stock mutual funds owned by banking issuers that need to be observed, because in the long term, experienced an increase in stock interest rates and bank-owned equity mutual funds still provide high returns. This caused the CSPI to increase and the net asset value of equity funds also increased despite the increase in interest rates.

Hypothesis 3 (H3): Inflation rate has a positive and significant effect on the NAV of equity funds
Based on the results of the study found that inflation does not have a significant effect on NAV conventional equity fund. The p-value result in this variable is 0.479, which means that inflation has no significant effect on the NAV of conventional equity funds. This is because the p-value is greater than 0.05, the value of the path coefficient is 0.007 and the F^2 value is 0.001, which means that the inflation variable with the CPI indicator for the NAV of conventional equity funds is only 0.1% and the rest 99.9% influenced by other variables**.** In general, inflation is an increase in the price of goods and services from year to year, an increase in inflation will have a negative impact on companies which will increase production costs and debt which can endanger the economy. However, investor interest in investing in conventional equity mutual funds has not wavered despite an increase in inflation because investments in equity mutual funds will provide returns even though there will be a decline, stock mutual funds that continue to provide high returns because the average net asset value of conventional equity mutual funds is still higher by 25.62% per year than inflation.

Hypothesis 4 (H4): CSPI can mediate the relationship between inflation and the NAV of equity fund
Based on the results of the study it was found that the CSPI cannot mediate the relationship between inflation and the NAV of conventional equity funds. The p-value for this variable is 0.416, which means that the IHSG variable cannot mediate the relationship between inflation and the NAV of equity fund. This is because the p-value >0.05, the value of the path coefficient is positive at 0.027 and the value of F^2 at 0.021 and 0.001, which means that the IHSG variable cannot mediate the relationship between inflation on the NAV of equity fund by 2.1% and 97.9 % because the value of F2 is greater than other variables that affect it. Rising Inflation will impact on rising production costs of the company and if the company's production costs are higher than the price sold, the company's profits will fall, although an increase in sales cannot cover large profits. If this happens, it will affect the company's shares which also declined due to rising inflation. Inflation rate in the study period was still in the low category, so investors were welcomed by the strengthening of the CSPI, especially for investing in the capital market, especially stocks, which made the net asset value of equity funds also increased along with the strengthening of the CSPI and investors' interest in investing did not change and continued to invest. in the stock market which resulted in stock prices increasing and the impact on increasing the net asset value of equity mutual funds.

Hypothesis 5 (H5): The currency rate has a positive and significant effect on the NAV of equity funds
Based on the results of the study it was found that the Rupiah exchange rate did not have a significant effect on the NAV of conventional equity funds. The p-value for this variable is 0.222, which means that the Rupiah exchange rate has no significant effect on the NAV of conventional equity funds. This is because the p-value is greater than 0.05, the value of the path coefficient is negative -0.096 and the F^2 value is 0.018 which means that the Rupiah exchange rate variable with the exchange rate indicator against the NAV of conventional equity funds is only 1.8% and the rest 98.2% is influenced by other variables. The fluctuation of the exchange rate does not determine the interest of investors who invest their funds in equity mutual fund instruments. That is because the possibility of equity fund investors do not consider the yields of the exchange rate too much when investing in equity funds. Another cause of the Rupiah exchange rate does not have a significant effect is because of the lack of foreign investors investing in equity funds in Indonesia and few foreign investment instruments such as foreign exchange so that changes in exchange rates do not affect the net asset value of equity funds. The results of this study are in accordance with previous research by Wahyuningtyas and Hartono (2016) who found that the rupiah currency rate had no significant effect on the NAV of mutual funds.

Hypothesis 6 (H6): CSPI can mediate the relationship between the currency rate and the NAV of equity funds
Based on the results of the study it was found that the CSPImediated the relationship between the Rupiah exchange rate and the NAV of conventional equity funds. The result of p-value for this variable is <0.001, which means that the CSPI variable can mediate the relationship between the Rupiah exchange rate and the NAV of equity funds. This is because p-value <0.05, negative path coefficient is -0.515 and F^2 values are 0.512, which means that the CSPI variable mediates the relationship between the Rupiah currency rate against the NAV of equity fund which is 51.2% because the F^2 value is greater than other variables that affect it. Depreciation of the Rupiah has a negative effect on the national economy which ultimately degrades the performance of shares in the capital market and

also impacts on the decline in the net asset value of equity funds because 80% of the mutual fund portfolio is invested in shares. This means that investors must pay attention to monetary policies related to interest rates and exchange rates, because the two policies are interrelated to maintain the stability of the country's economy determined by the central bank. When the Rupiah exchange rate against foreign currencies strengthens, many investors will invest in stocks because the strengthening of the currency indicates that the economy is in good condition.

6. Conclusion

Our research of the linkages between macroeconomic and NAVs and the mediating effect of CSPI attributes to investment in equity mutual fund. The paper is based on descriptive and econometric analyses. According to our descriptive study, economic activity is highly correlated with the trends of NAVs. As we saw from the data, in the period of positive economic growth 2015-2019, inflation and interest rates are low and stable. As we can see, there is a strong connection between interest rates and NAV from investment activities as well the contribution of CSPI to intervene the relationship within it. Unfortunately, we were not able to find the strong correlation between inflation and NAVs either with currency rate. When we connect the currency rate variable with CSPI, there is strong mediation relationship with NAVs. Our research also contributes to investors who will invest in conventional equity funds, macroeconomic factors such as the interest rate, inflation, and the rupiah exchange rate are necessary to take into account, so that later investing in equity funds can provide maximum returns and make the CSPI as a reference for investing because there is a link between the CSPI and mutual funds. For further research, it is suggested to examine the influence of other macroeconomic factors as well as institutional factors of mutual funds, also using wider sample such as different type of mutual fund, lastly it is expected that the results of this study can add to the development of knowledge related to macroeconomic factors and stock investment**.**

References

Abdillah, Willy dan Jogiyanto. 2015. *Partial Least Square (PLS) Alternatif Structural Equation Modeling (SEM) dalam Penelitian Bisnis*. Hal 194-197. Ed.1. Yogyakarta: ANDI.

Ali, Kasyfurrohman. 2012. Pengaruh Makroekonomi Terhadap Reksadana Syariah, dalam IQTISHODIA, Jurnal Ekonomi Islam Republika, Kamis 23 Agustus

Badan Pusat Statistik. Tingkat Inflasi. http://www.bps.go.id.

Bank Indonesia. Data BI Repo Rate. http://www.bi.go.id.

Bursa Efek Indonesia. Data IHSG. http://www.idx.co.id

Bloomenthal, A., Macroeconomic Factor, available: Macroeconomic Factor Definition (investopedia.com), 2020

Dragota, I.M., Tatu-Cornea, D., Tulbure, N. 2016. Determinants Of Development Of The Mutual Fund Industry. A Socio-Cultural Approach. Journal of Prague Economic Paper. DOI: 10.18267/j.pep.572

Ferson, W. E., & Kim, M. S. (2012). The factor structure of mutual fund flows. International Journal of Portfolio Analysis and Management, 1(2), 112-143.

Gumilang, Y.N.L dan Herlambang Leo. 2017. Faktor-Faktor Yang Mempengaruhi Nilai Aktiva Bersih Reksadana Manulife Syariah Sektor Amanah. Jurnal Ekonomi Syariah Teori dan Terapan Vol.4 No.2.

Hadi, Noor. 2015. Pasar Modal. Yogyakarta: Graha Ilmu.

Hermanto, Bambang and Astuti, Definta, The Impact of Macroeconomic on the Financial Performance of the Microfinance Institutions in Java Island, Indonesia (March 14, 2013). Universitas Indonesia, Graduate School of Management Research Paper No. 13-08, Available at SSRN: https://ssrn.com/abstract=2233203 or http://dx.doi.org/10.2139/ssrn.2233203

Hermawan, Denny dan Wiagustini. 2016. Pengaruh Inflasi, Suku Bunga, UkuranReksa Dana, dan Umur Reksa Dana Terhadap Kinerja Reksa Dana. E-Jurnal Manajemen Unud, 5 (5), hal.3106-3133

Hifdzia, Rahmi. 2012. Pengaruh Variabel Makro Ekonomi Terhadap Perkembangan NAB Reksa dana Syariah di Indonesia Tahun 2009-2011. Jakarta: Skripsi Fakultas Ekonomi dan Bisnis, Universitas Islam Negeri Syarif Hidayatullah

Jank, S. (2012), "Mutual fund flows, expected returns, and the real economy", Journal of Banking & Finance, Vol. 36 No. 11, pp. 3060-3070.

Klapper, L., Sulla, V., Vittas, D. (2004). The Development of Mutual Funds around the World. Emerging Markets Review, 5(1), 1–38. DOI: 10.1016/j.ememar.2003.12.001.

Kopsch, F., Song, H. -S., and Wilhelmsson, M. 2015. Determinants of mutual fund flows. Managerial Finance, 41 (1), 10 – 25. Doi:10.1108/mf-06-2013-0161

Mahfud Sholihin., dan Dwi Ratmono 2013. Analisis SEM-PLS dengan WarpPLS 3.0. Penerbit: Andi

Otoritas Jasa Keuangan. Data NAB Reksa dana. http://www.ojk.go.id

Ovi, Ariyanti. 2020**.** The Effect of SBSN, ISSI, Inflation and BI 7 DAY REPO Rate Toward Net Asset Value of Islamic Mutual Funds in 2016-2019. Journal of Islamic Business and Economic Review. Vol. 3 No.

Pradhipta, A. (2015). *Pengaruh Alokasi Aset, Tingkat Risiko dan IHSG Terhadap Kinerja Reksa Dana Saham yang Terdaftar di BAPEPAM-LK*. Universitas Negeri Yogyakarta

Putong, Iskandar. 2003. *Pengantar: Ekonomi Mikro dan Makro*. Edisi Kedua. Jakarta:Ghalia Indonesia

Qureshi, Fiza, Kutan, Ali M., Ismail, Izlin, Gee, Chan Sok. Mutual funds and stock market volatility: An empirical analysis of Asian emerging markets Emerging Markets Review Volume 31, June 2017, Pages 176-192

Rahmah, L. (2011). *Pengaruh SBIS, IHSG, dan Nilai Tukar Rupiah Terhadap Nilai Aktiva Bersih Danareksa Syariah Berimbang*. UIN Syarif Hidayatullah Jakarta

Septiana, Ficky and Al Arif, M. Nurrianto. Determinants of Net Asset Value of Islamic Mutual Funds in Indonesia. JURNAL EKONOMI DAN PERBANKAN SYARI'AH (2020) Vol 12 (1): 1-11. DOI: 10.24235/amwal.v1i1.5443

Setyarini, F. D. (2015). *Pengaruh SBIS, Inflasi, Nilai Tukar Rupiah, Jumlah Uang Beredar dan IHSG Terhadap NAB Reksa Dana Syariah*. UIN Sunan Kalijaga Yogyakarta

Sholihat, Fatharani, AR, Moch Dzulkirom dan Topowijono. 2015. Pengaruh Inflasi, Tingkat suku bunga sertifikat bank indonesia syariah, indeks harga saham gabungan terhadao tingkat pengembalian reksadana syariah (studi pada bursa efek indonesia pada 2011-2013). Jurnal Administrasi Bisnis, Vol. 21, No.1

Sukirno, S. (2015). *Teori Pengantar Makro Ekonomi, Edisi ketiga.* Jakarta: Rajawali Pers.

Tandelilin, Eduardus,2012. *Analisis Investasi dan Manajemen Portofolio*. Toeri dan Aplikasi. Yogyakarta: BPFE

Wahyuningtyas R, Hartono Dwi B. 2016. The Effect Of Bank Indonesia Certificates, Composite Stock Price Index And Exchange Rate On Mutual Fund Performance For Period Of 2012-2014. Journal of Management Sciences & Education Vol. 5(4). www.ajmse.leena-luna.co.jp. Di akses pada 28 November 2019.

World Bank Group (2015), Kenya Economic Update, available: www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2015/10/14/090224b08314473e/1_0/Rendered/PDF/Kenya0economic0public0participation.pdf access August 2020

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Appendices

Conventional Equity Fund	Year	Interest rate	Inflation	Currency rate (Rp)	CSPI	NAV
DANA EKUITAS ANDALAN	2015	0,075	0,033	0,109	4,593.01	-0,410573538
	2016	0,047	0,03	-0,027	5,296.71	3,429154234
	2017	0,042	0,036	0,008	6,355.65	0,763532516
	2018	0,06	0,031	0,070	6,194.50	-0,63746098
	2019	0,05	0,027	-0,040	6,329.31	-0,308673266
	2015	0,075	0,033	0,109	4,593.01	-0,448577004

BATAVIA DANA SAHAM	2016	0,047	0,03	-0,027	5,296.71	0,284799679
	2017	0,042	0,036	0,008	6,355.65	-0,610793927
	2018	0,06	0,031	0,070	6,194.50	-0,352498097
	2019	0,05	0,027	-0,040	6,329.31	4,390983764
Reksa Dana Bnp Paribas Ekuitas	2015	0,075	0,033	0,109	4,593.01	0,535586554
	2016	0,047	0,03	-0,027	5,296.71	0,176176239
	2017	0,042	0,036	0,008	6,355.65	0,615514365
	2018	0,06	0,031	0,070	6,194.50	-0,69407061
	2019	0,05	0,027	-0,040	6,329.31	-0,69407061
REKSA DANA BNP PARIBAS INFRASTRUKTUR PLUS	2015	0,075	0,033	0,109	4,593.01	0,092757752
	2016	0,047	0,03	-0,027	5,296.71	0,185746428
	2017	0,042	0,036	0,008	6,355.65	0,349401663
	2018	0,06	0,031	0,070	6,194.50	0,396224963
	2019	0,05	0,027	-0,040	6,329.31	-0,82519868
REKSA DANA MANDIRI SAHAM ATRAKTIF	2015	0,075	0,033	0,109	4,593.01	-0,170758113
	2016	0,047	0,03	-0,027	5,296.71	-0,123860981
	2017	0,042	0,036	0,008	6,355.65	0,208015507
	2018	0,06	0,031	0,070	6,194.50	0,132561594
	2019	0,05	0,027	-0,040	6,329.31	0,077651542
REKSA DANA BNP PARIBAS PESONA	2015	0,075	0,033	0,109	4,593.01	0,200027042
	2016	0,047	0,03	-0,027	5,296.71	0,215481642
	2017	0,042	0,036	0,008	6,355.65	-0,155093749
	2018	0,06	0,031	0,070	6,194.50	-0,253764683
	2019	0,05	0,027	-0,040	6,329.31	0,071703999
Panin Dana Maksima	2015	0,075	0,033	0,109	4,593.01	0,496182211
	2016	0,047	0,03	-0,027	5,296.71	0,399556814
	2017	0,042	0,036	0,008	6,355.65	0,361980931
	2018	0,06	0,031	0,070	6,194.50	0,158991647
	2019	0,05	0,027	-0,040	6,329.31	-0,753570138
Reksa Dana Schroder 90 Plus Equity Fund	2015	0,075	0,033	0,109	4,593.01	0,270805494
	2016	0,047	0,03	-0,027	5,296.71	0,679095155
	2017	0,042	0,036	0,008	6,355.65	-0,153846796
	2018	0,06	0,031	0,070	6,194.50	0,78150744
	2019	0,05	0,027	-0,040	6,329.31	-0,54345803
Reksa Dana Schroder Dana Prestasi	2015	0,075	0,033	0,109	4,593.01	0,032316645
	2016	0,047	0,03	-0,027	5,296.71	0,683283447
	2017	0,042	0,036	0,008	6,355.65	-0,182062235
	2018	0,06	0,031	0,070	6,194.50	-0,152940053
	2019	0,05	0,027	-0,040	6,329.31	0,256700748
Reksa Dana Ashmore Dana Ekuitas Nusantara	2015	0,075	0,033	0,109	4,593.01	1,357075778
	2016	0,047	0,03	-0,027	5,296.71	-0,389244435
	2017	0,042	0,036	0,008	6,355.65	-0,451278586
	2018	0,06	0,031	0,070	6,194.50	0,265922484
	2019	0,05	0,027	-0,040	6,329.31	4,003854424
REKSA DANA SCHRODER DANA PRESTASI PLUS	2015	0,075	0,033	0,109	4,593.01	-0,136313507
	2016	0,047	0,03	-0,027	5,296.71	-0,038760237
	2017	0,042	0,036	0,008	6,355.65	-0,124751749
	2018	0,06	0,031	0,070	6,194.50	0,325711844
	2019	0,05	0,027	-0,040	6,329.31	0,49123132
Reksa Dana Schroder Dana Istimewa	2015	0,075	0,033	0,109	4,593.01	0,100278507
	2016	0,047	0,03	-0,027	5,296.71	0,460352733
	2017	0,042	0,036	0,008	6,355.65	0,469785568
	2018	0,06	0,031	0,070	6,194.50	0,026032365
	2019	0,05	0,027	-0,040	6,329.31	-0,53804855