THE EFFECT OF CONSUMER PRICE INDEX AND EXCHANGE RATE ON NET ASSET VALUE OF SHARIA MUTUAL FUNDS IN INDONESIA IN 2019-2023

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ABSTRACT

This study examines the impact of macroeconomic factors, specifically the Consumer Price Index (CPI) and exchange rates, on the performance of Islamic mutual funds from 2019 to 2023. Data was sourced from the Financial Services Authority (OJK) for Islamic mutual fund net asset values (NAV) and the Central Statistics Agency (BPS) for CPI and exchange rate data. The analysis was conducted using the Vector Error Correction Model (VECM) with e-views 12 SV software. The results show that the CPI significantly affects the NAV of Islamic mutual funds in the long term, with a t-statistic value of 4.05228, higher than the t-table value of 2.0024655. Similarly, the exchange rate also impacts on NAV with a t-statistic of 7.02911, which is greater than the t-table value. In the short term, however, the CPI (t-statistic value 0.91235) and exchange rate (t-statistic value 0.96057) do not significantly influence the NAV. These findings suggest that while exchange rates and inflation may not have an immediate effect, they can impact Islamic mutual funds' NAV in the long run. Investment managers should consider adjusting strategies by selecting inflation-resistant assets or diversifying portfolios based on long-term economic trends.

Keywords: CPI, Exchange Rate, NAV

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INTRODUCTION

Investing helps grow money for future goals, like children's education, by sacrificing some assets for future profits. These assets are situated in the capital market, where various investments, including mutual funds, are managed. According to Law No. 8 of 1995, mutual funds gather money from investors to invest in securities portfolios managed by professionals (Andriani, 2020).

Sharia mutual funds are a type of Sharia investment that can be used in addition to developing the stock market. where the principles of sharia mutual funds are relied on the Al-quran and hadith. So, they are free from usury, maysir, and ghoror and free from various misfortunes such as speculation, additional profit and unclear (Sepdiana, 2019). Sharia mutual funds, defined in the MUI Fatwa Number 20/DSNMUI/IV/2021, operate according to Islamic principles. They are based on agreements between the asset owner (Shohibul Mal), the investment manager, and the client.

Before investing, it's important to monitor the capital market's performance. One way to evaluate a Sharia mutual fund is by checking its Net Asset Value (NAV), which reflects the fund's total assets after expenses, helping investors assess its potential value (Setiawan & Qudziyah, 2021). In its circulation flow form period to period, the NAV of Sharia mutual funds face fluctuations as shown in the table below:

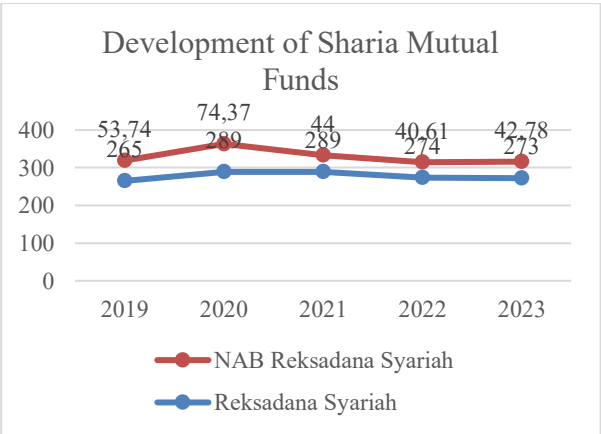

Figure 1. Circulation of Sharia Mutual Funds

Source: Financial Service Authority (OJK), 2024

A decline in the NAV of Islamic mutual funds can result from internal and external factors like macroeconomic conditions, interest rates, money supply, and inflation. NAV indicates the value of each unit, reflecting the investment worth for unit holders (Fitriyani, 2020). Since July 2022, Indonesia's inflation rate has risen due to supply chain disruptions and post-pandemic monetary policies, causing market volatility. This impacts the asset management and NAV of Sharia mutual funds (Bank Indonesia, 2022).

Post-pandemic monetary policies, global inflation, and factors like Federal Reserve rate hikes affect currency exchange rates and foreign investment in Sharia mutual funds. The rupiah has weakened, reaching 16,160 IDR per USD (Bank Indonesia, 2023). Fluctuating exchange rates negatively impact corporate performance, especially in exports and imports. While currency devaluation can boost export competitiveness, it raises production costs for companies relying on imports. For Sharia mutual funds, exchange rate volatility affects the performance of portfolios with foreign investments.

The Consumer Price Index and currency exchange rates that fluctuate have a complex and non-linear consequences on the NAV of Islamic Mutual Funds, making investment managers have to be careful in managing their Islamic Mutual Fund portfolios. Global inflation that has spread to the domestic economy affects the production expenses and the charges of goods and services, thereby affecting the purchase and sale decisions by the asset manager of sharia mutual funds and concerning the NAV, as well as changing the value of offshore assets owned by sharia mutual funds. The 2019-2023 period, marked by economic recovery and policy changes, provides insights into how Islamic mutual funds adapt during crises and recoveries, helping to understand market

dynamics during global economic challenges.

MATERIAL AND METHODS

This study adopts a quantitative approach, as it involves using numerical data and statistical methods for analysis. The data analysis techniques employed are Vector Autoregression (VAR) and Vector Error Correction Model (VECM), utilizing the E-Views 12 software for computation. The research is associative. The data sources for this study are secondary data obtained from existing sources or previous research in the form of time series data covering the period from 2019 to 2023. Specifically, data on the total Net Asset Value of Sharia Mutual Funds were sourced from the Financial Services Authority website. In contrast, the Central Statistics Agency website retrieved data on the exchange rate and Consumer Price Index (CPI). All variables were collected as monthly time series data spanning 2019 to 2023. Additionally, this study employs the documentation method for data collection, using secondary data from articles, journals, and books related to the research. These sources consist of processed and published data made available by relevant institutions.

RESULTS AND DISCUSSION

Stationarity Test

Testing the unit roots using the stationary test is necessary for estimating the economic model using time series data in this study. It is carried out by testing the unit roots at the level. The purpose of this test is to determine whether the time series data used is stationary or not. To conduct a stationary test, the augmented dickey fuller (ADF) test is used, and a significant level of alpha or error of 5% is used. To perform the stationarity test, the augmented dickey fuller (ADF) test is used, and an alpha or error level of 5% is used. Looking at the probability value of the ADF t-statistic, the level of stationarity of the data can be determined. It can be stated that the data is stationarity if the ADF value is greater than the MC test Kinnon's crucial value (Fathurrahman & Al-Islami, 2023).

Table 1. Present the result of the unit root test all the variables are not stationary at the level

Variable	ADF		Critical Mc. Kinnon 5%	
	Level	1st Difference	Level	1st Difference
LNKURS	-1.249215	-8.475788	-2.913549	-2.913549
LNIHK	-2.022294	-7.655914	-2.911730	-2.912631
LNNAVRSDS	-1.806616	-6.791978	-2.911730	-2.912631

Source: Processed Data (E-Views 12)

Based on the stationarity test table with the ADF test at the level above, using a critical value of 5 %, the ADF value of t-statistics for exchange rate, consumer price index and net asset value of shariah mutual funds is greater than the critical value. With the ADF t-statistic value of the exchange rate of -1.249215 < -2.913549, then the ADF t-statistical consumer price index value is -2.022294 < -2.911730, and the net asset value of shariah mutual funds value is -1.806616 < -2.911730. So, it can be said that the exchange rate, consumer price index and net asset value of shariah mutual funds are not stationary at this level.

Table 2. Stationary Data at 1st difference

Variable	ADF	
	Level	1st Difference
LNKURS	0.6470	0.0000
LNIHK	0.2814	0.0000
LNNAVRSDS	0.3739	0.0000

Source: Processed Data (E-Views 12)

Referring to the table above, to find out whether the data is stationary at the test level, that is by comparing the probability value with the error level or 5% error (p-value <5%). In the data above, all

variables are exchange rate, consumer price index, and net asset value of shariah mutual funds are stationary at the first different levels.

VAR Stability Test

The VAR stability test is conducted to test the lag that affects the actual data. The results of the VAR test that has been combined with the error correction model is not stable, then the conclusion obtained from impulse responses and variance decomposition becomes invalid. The stability of the VAR model used can be seen from the inverse root characteristic of the AR polynomial. This can be seen from the modulus value in the AR roots table. If all AR roots values are below 1, then the VAR model is stable (Febrianti et al., 2021).

Table 3. Stability Test of VAR

Lag	Modulus
1	0.674933
2	0.674933
3	0.362598
4	0.362598
5	0.352104
6	0.237859

Source: Processed Data (E-Views 12)

The Stability test results show that all modulus values are below 1 if the modulus value in a lag is more than 1 then the lag shows unstable results in processing the VAR model. Based on the results above, it can be concluded that up to lag 6 can affect the net asset value of sharia mutual funds in the VAR stability test. This stability condition can show valid IRF and FEVD test results, so VAR fulfills the stability requirement.

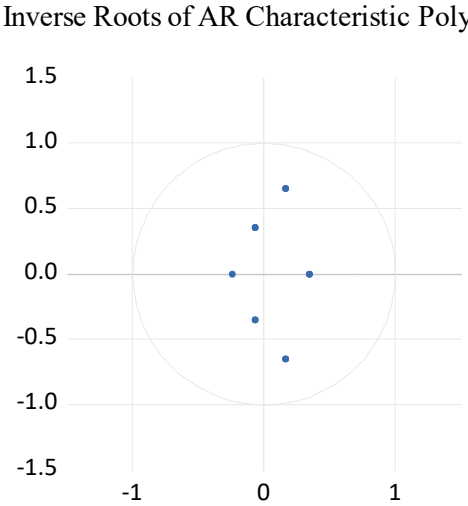

Figure 2. Circle of units in the Stability Test of VAR

The figure above is the results of the VAR stability test which shows that there are no roots outside the unit circle, which means that the VAR meets the stability requirements.

Optimal Lag Test

Optimal lag test to determine autocorrelation problem that shows how long one variables reaction is to another. Test results can be determined based on several criteria including of Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criterion (SC), and Hannan Quinnon (HQ) (Patriamurti et al., 2019).

Table 4. Optimal Lag Determination

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1093.557	NA	8.72e+13	40.61321	40.72371*	40.65583
1	-1091.875	3.114437	1.14e+14	40.88426	41.32625	41.05472
2	-1067.217	42.92270*	6.43e+13	40.30434*	41.07783	40.60265*
3	-1064.917	3.749026	8.32e+13	40.55247	41.65746	40.97862
4	-1058.388	9.914153	9.26e+13	40.64399	42.08048	41.19799
5	-1054.106	6.026032	1.13e+14	40.81875	42.58673	41.50059

*indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5 % level)
FPE: Final Prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Source: Output Data (E-Views 12)

Based on the picture above the results of the optimum lag test are lag 2 with a value of AIC is 40.30434 is the smallest lag after 0, or it can be seen from the most asterisk (*) signs.

Cointegration Test

Cointegrations test occurs when there are variables that are not stationary. Data cointegration is the result of the combination of non-stationary variables eliminating the cause of non-stationary differences between each research variable. However, from an economic perspective, two or more variables are considered cointegrated if the variables have a long-term relationship or are in equilibrium (Astuti & Prasetyanto, 2022). The test developed by Johansen can be used to determine the cointegration with trace statistics and max-eigenvalues statistics are shown in the following table:

Table 5. Cointegration Test

Hypothesized No. of CE (s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob. **
None*	0.543199	76.24389	29.79707	0.0000
At most 1*	0.279977	32.36745	15.49471	0.0001
At most 2*	0.220824	13.97302	3.841465	0.0002
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level *denotes rejection of the hypothesis at the 0.05 level **MacKinnon-H aug-Michelis (1999) p-values				

Source: Output E-views 12

To determine the amount of cointegration can be known if the trace statistic value exceeds the critical value (trace statistic > critical value). In the research results from the table above shows two cointegrations, namely at r = 0 where the trace statistic value 0f 76.24389 is greater than 32.36745 as the critical value and r =1 where the trace statistic value of 29.79707 is greater than 15.49471 as the critical value. Additionally, cointegration is value indicated by a probability of less than 0.05. its mean that H0 is rejected, and the alternative hypothesis is cannot be rejected. In other words, the variables used have a long-term relationship (cointegration) between one other.

Vector Error Correction Model (VECM) Test

The VECM test can be performed if there are stationary data at the difference level having a cointegration relationship (Tamba & Hukom, 2024). This VECM test is carried out to see between one variable and another in the long term and short term. Therefore, the VECM can be said to be influential if the t-statistic value is greater than t-table, which indicates that there is a significant variable that affects the Y variable. The function to find the t-table in excel is as follows: =TINV(probability,deg_freedom). And for this study, the t-table value is 2.002465, which is generated from the following function results: **=**TINV(0.05,57) = 2.002465.

Table 6. Long-Term VECM Estimation results

Cointegrating Eq:	CointEq1
D(NAVSMF (-1))	1.000000
D(IHK (-1))	3724.529 (919.120) [4.05228]
D(KURS (-1))	111.6937 (15.8920) [7.02911]
C	-1589.551

Source: output E-Views 12

The table above describes the cointegrating equation (CointEq1) where D(NAVSMF(-1)) is the coefficient of this variable set to 1.000000 as a reference in the cointegrating equation. That is, changes in the NAV of equity mutual funds are used as a basis for assessing the long-run relationship with other variables. D(IHK(-1)) is the coefficient of the one-time difference consumer price index (CPI) variable is 3724.529, with a standard error of 919.120 and a t-statistic of [4.05228]. This indicates that there is a significant positive relationship between CPI and

equity fund NAV in the long run. That is, a 1 unit increase in CPI will be associated with an increase of approximately 3724.529 units in the NAV of equity funds, given that this relationship is significant (t-statistic > 1.96). and D(KURS(-1)) is the coefficient of the one-time-difference exchange rate variable is 111.6937, with a standard error of 15.8920 and a t-statistic of [7.02911]. This indicates that there is a positive and highly significant relationship between KURS and equity fund NAV in the long run. A 1-unit increase in the exchange rate will be associated with an increase of approximately 111.6937 units in the NAV of equity mutual funds.

The results of the long-term table above indicate that the consumer price index and exchange rate variables have a significant effect on the NAV of sharia mutual funds in the long run because the variable t-statistic value is greater than the t-table. Where the t-statistic value of the consumer price index of 4.05228 is greater than t-table of 2.0024655 and the exchange rate of 7.02911 is greater than 2.0024655.

Table 7. Short-Term VECM Estimation results

Error Correction	D(NAVSMF, 2)	D(IHK, 2)	D(KURS, 2)
CointEq1	-0.81371	-4.11E-05	-0.01287
	(0.0.5341)	(4.5E-05)	(0.00178)
	[-1.52340]	[-0.92087]	[-7.21413]
D(NAVSMF(-1),2)	-0.51376	3.01E-05	0.008860
	-0.13993	(0.00012)	(0.00467)
	[-3.67162]	[0.25757]	[0.189581]
D(NAVSMF(-2),2)	-0.23574	5.74E-05	0.002060
	-0.13709	(0.00011)	(0.00458)
	[-1.71961]	[0.50115]	[0.45002]
D(IHK(-1),2)	235.2364	-0.567378	48.75441
	(257.837)	(0.21546)	(8.61152)
	[0.91235]	[-2.63339]	[5.66154]
D(IHK(-2),2)	258.7912	-0.269333	13.31418
	(234.295)	(0.19578)	(7.82523)
	[1.10455]	[-1.37567]	[1.70144]
D(KURS(-1),2)	4.478537	0.003809	0.523949
	(3.47075)	(0.00290)	(0.11592)
	[1.29037]	[1.31318]	[4.51992]
D(KURS(-2),2)	1.179525	0.002568	0.108892
	(3.391416)	(0.00284)	(0.11336)
	[0.24752]	[0.90552]	[0.96057]
C	39.82874	-0.000908	0.878686
	(911.963)	(0.76206)	(30.4587)
	[0.04367]	[-0.00119]	[0.02885]

Source: Output E-Views 12

In contrast to the long term, in the short term, the results of the study show that in the variable the t-stat value (-3.67162 and -1.171961) for both lags are significant because the absolute value is greater than the t-table value (2.0024655). this means that in the short-term D (NAV of Sharia mutual funds) has an effect but the negative sign indicates a negative effect which implies that the NAV of Sharia mutual funds have a significant negative effect on its variable. For the variable D (CPI) the t-stat values (0.91235 and 1.10455) in both lags show insignificant values because the t-stat value is smaller than the t-table value. This means that changes in the CPI in the previous period do not significantly affect the NAV of Sharia mutual funds in the short term.

In the short term, it shows that the movement of the consumer price index

(CPI) does not have a significant influence on the Net Asset Value (NAV) of Sharia mutual funds. This is because the performance of Sharia mutual funds tends to be more influenced by the performance of Islamic instruments which are the main components of their portfolios, such as sukuk and shares of Islamic companies as well as general capital market conditions, including investor sentiment and market volatility, also play an important role in determining the performance of Sharia mutual funds. In addition, global events such as the COVID-19 pandemic and geopolitical tensions that occurred in the 2019-2023 period have created high uncertainty in the financial markets, thus affecting the performance of Sharia mutual funds (IMF, 2020).

The t-stat on the variable D(KURS(-1),2) for the third (5.66154) and fourth (4.51992) columns shows a significant value because it is greater than the t-table. This indicates that changes in the exchange rate in the first lag have a significant influence on the NAV of the sharia mutual funds variable in the short term, for D(KURS(-2),2), the t-stat (0.96057) is smaller than t-table, so it not significant in influencing the NAV of sharia mutual fund.

Analysis of the 2019-2023 period shows that fluctuations in the rupiah exchange rate do not have a significant impact on the performance of Sharia mutual funds in the short term. The Sharia mutual fund portfolio's composition, which focuses mainly on domestic assets in rupiah, can be a cause of this. Thus, Sharia mutual funds are relatively protected from the risk of foreign exchange rate fluctuations. This shows that a domestic market-oriented investment strategy can be the right choice for investors who want to minimize risk due to exchange rate instability (KSEI, 2024).

Impulse Response Function (IRF)

IRF analysis explains the impact of changes in one variable on another, which in this analysis is not only in the short term, but can be analyzed for several periods of time ahead as long-term information (Gunarto & Wulansari, 2021). This analysis can see the response of the long-term dynamics of each variable if there is a certain shock impulse response function analysis also serves to see how long the effect occurs. The horizontal axis indicates the period in years, while the vertical axis indicates the response value in percentage.

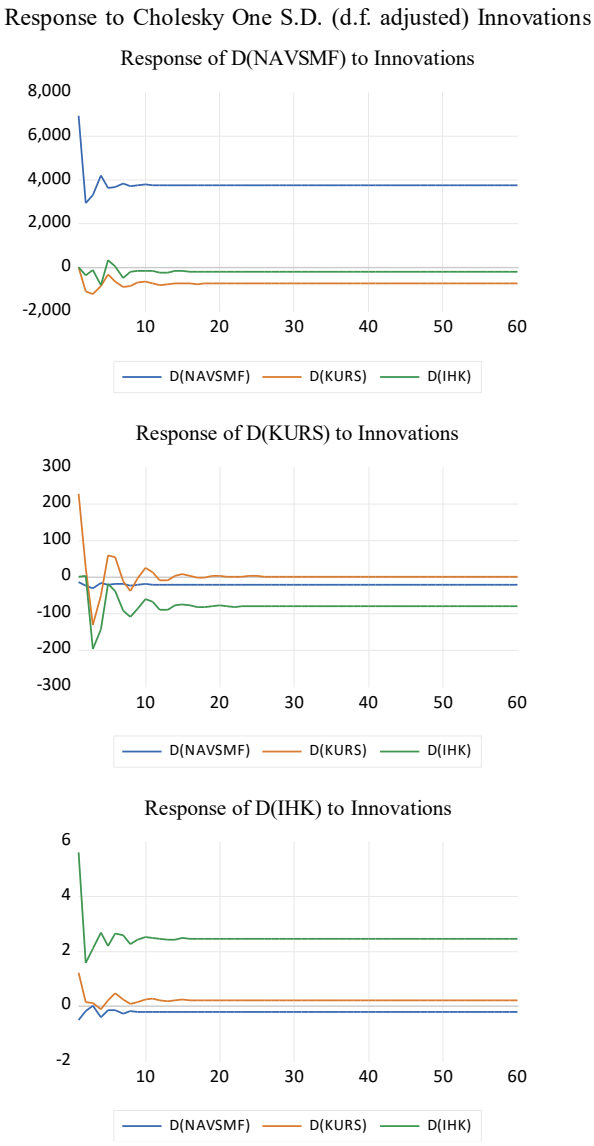

Figure 3. IRF (Impulse Response Function) graph between variables NAV of sharia mutual funds, cpi and exchange rate
Source: Data Processed Output E-Views 12

The chart above describes the effect of shocks on the NAV of sharia mutual funds from the variables Consumer Price Index, and exchange rate. The Net Asset Value of sharia mutual funds is at a very

high level throughout time, indicating that most of the variance of this endogenous variable was analyzed. This means that other factors may be more dominant in influencing this endogenous variable. The Consumer Price Index and exchange rate have a relatively small contribution to the variance of the net asset value of sharia mutual funds, indicating that the direct influence of the two exogenous variables, namely the Consumer Price Index and the exchange rate, on the endogenous variable, namely the NAV of sharia mutual funds, is not very significant, and the contribution of the two exogenous variables tends to be stable over time. This indicates that the relationship between these variables is quite consistent in the period analyzed.

The 60-period IRF analysis of the response of NAV of sharia mutual fund to shocks is as follows: from the graph above, the response of NAV of sharia mutual fund from itself in the first quarter is quite large, namely 6901,159. although in the second quarter the response of Islamic mutual fund NAV experienced a considerable decline to 2921,516 until in the fourth quarter it increased again to 4188,289, but in the fifth quarter to the 60th quarter, the response of Islamic mutual fund NAV to shocks from itself experienced little fluctuation and tended to be stable. The response of Islamic mutual fund NAV to the exchange rate tends to be negative, meaning that if there is a shock of 1 standard deviation from the exchange rate, the Islamic mutual fund NAV will experience a negative reaction to the exchange rate value.

While the response of the NAV of Sharia mutual fund to CPI in the first period to the fourth period experienced a negative reaction, in the fifth and sixth periods the response of Islamic mutual fund NAV to CPI shocks increased by 287.2602 in the fourth period and 4.679841 in the fifth period. Until the 60th period tends to experience negative shocks, which means that shocks to the NAV of Islamic mutual funds to the CPI tend to be weak and only increase in some periods.

Then, the 60-period IRF analysis of the exchange rate response to the shock is as follows: The response of the exchange rate to shocks in the NAV of Islamic mutual funds tends to be negative. This means that if the exchange rate experiences a shock of 1 standard deviation, it will react negatively to the NAV of Islamic mutual funds. The response of the exchange rate from itself strengthened in the first quarter at 224.7047 and decreased in the second quarter to 24.33882 and continued to decline until the fourth quarter, and in the fifth and sixth quarters, it increased again and in the 21st period to the 60th period continued to experience a corresponding decline. As well as the response of the exchange rate to the CPI also experienced shocks that tended to be negative, which only increased in the second period by 1.042745.

Then the 60-period IRF analysis of the CPI response to shocks is as follows: The CPI response to the NAV of Islamic mutual funds tends to be negative, which means that if the CPI experiences a shock of 1 standard deviation, it will react negatively to the NAV of Islamic mutual funds. The CPI response to the exchange rate fluctuates in each quarter, with the largest shock in the first quarter of 1.200366 and the smallest quarter in the fourth quarter of -0.141454. and the CPI response itself also fluctuates with the largest quarter in the first quarter of 5.603410 and the smallest quarter in the second quarter of 1.555766.

FEVD (Forecast Error Variance Decomposition)

This method provides an overview of the relative importance of each variable in the VAR (VECM) system due to the shock. Either in the current or future period (Setiyoningsih, 2022).

Table 8. FEVD test results for the variable NAV of Sharia Mutual Funds in the 1-10 periods

Variance Decomposition of D(NAVSMF)				
Period	S. E.	D(NAVSMF)	D(KURS)	D(IHK)
1	6901.159	100.0000	0.000000	0.000000
2	7584.488	97.63022	2.112748	0.257031
3	8368.034	95.77361	3.985776	0.240615
4	9432.922	95.08458	3.969533	0.945888
5	10117.75	95.52450	3.572717	0.902785
6	10778.11	95.66953	3.534901	0.795567
7	11285.57	95.32028	3.769827	0.909894
8	12102.46	95.21505	3.925592	0.859362
9	12682.38	95.29206	3.907709	0.800230
10	13246.72	95.41980	3.829964	0.750231

Source: Data processes Output E-Views 12

The table above explains each variable's contribution to the dependent variable's variability, D(NAVSMF), in percentage terms. In the first period, D (NAVSMF) accounts for 100% of its variability, while D(KURS) and D(IHK) do not contribute. This is common because, at the beginning of the period, the dependent variable usually explains all of its variability. And in periods 2 to 10 D(NAVSMF)'s contribution to its variability gradually decreases from 97.63% in period 2 to 95.42% in period 10. This decline indicates that overtime, the influence of other factors (i.e., D(KURS) and D(CPI) becomes more significant.

Then on the other variables, the effect of D(KURS) increases from 0% in the first period to about 3.82% in the 10th period. This indicates that over time, the exchange rate variability starts to affect the dependent variable D(NAVSMF) significantly. and the effect of D(CPI) also increases, although not as much as the effect of D(KURS), from 0% in the first period to 0.75% in the 10th period. This suggests that inflation is starting to have a small but consistent influence on the variability of D(NAVSMF).

Therefore, D(NAVSMF) is the dominant factor influencing itself throughout all periods, although its contribution decreases slightly overtime. And D(KURS) starts to exert a significant influence on the variability of D(NAVSMF) after a few periods, indicating that changes in currency exchange rates can affect NAV of Sharia Mutual Funds in the medium to long term. And D(CPI) has the least influence among all variables, but its contribution that inflation affects NAV of sharia mutual funds. This analysis shows the relationship dynamics between the variables over time, where the impact of the exogenous variables (exchange rate and inflation) starts to show on the dependent variable after some period.

Table 9. FEVD test results for the variable Exchange Rate in the 1-10 period

Variance Decomposition of D(KURS)				
Period	S. E.	D(NAVSMF)	D(KURS)	D(IHK)
1	225.2991	0.526935	99.47307	0.000000
2	228.0029	1.730626	98.26728	0.002092
3	331.4967	1.758230	62.55807	35.68370
4	366.6056	1.701558	53.23112	45.06732
5	372.3387	2.058402	53..94868	43.99291
6	378.7682	2.297676	54.09564	43.60669
7	391.3048	2.458017	50.80930	46.73268
8	409.8662	2.649021	47.27172	50.07926
9	420.1901	2.820617	45.00168	52.17770
10	426.0579	2.995430	44.05278	52.95179

Source: Data Processed Output E-Views 12

In the first period, D(KURS) accounts for 99.47% of its variability, while the contribution from D(NAVSMF) is 0.53%, and D(CPI) makes no contribution. This is common in the early period, where the dependent variable explains most of its variability. And in Periods 2 to 10 contribution of D(NAVSMF) to the variability of D(KURS) increases gradually from 0.53% in the first period to 2.99% in the 10th period. This shows that over time, the variability of the NAVSMF starts to affect the exchange rate, albeit on a relatively small scale.

And D(KURS)'s contribution to its variability decreased from 99.47% in the first period to 44.05% in the 10th period. This decrease indicates that the influence of other variables (especially D(CPI)) becomes more significant in explaining the variability of KURS over time. The influence of D(CPI) on the variability of D(KURS) increases significantly from 0% in the first period to 52.95% in the 10th period. This indicates that inflation (CPI) has a growing influence on the variability of the LESS in the long run.

Initially, the variability of the currency exchange rate (KURS) is mostly explained by itself, but over time, the influence of inflation (CPI) becomes increasingly dominant. This suggests that in the long run, the Consumer Price Index becomes a more important factor in influencing the exchange rate than itself, while the effect of inflation on the exchange rate becomes stronger over time, indicating that changes in inflation have a significant impact on the exchange rate over a longer period. Although the effect of NAVSMF increases over time, its contribution is relatively small compared to Consumer Price Index and exchange rate. This suggests that the NAVSMF has a smaller role in influencing currency rate variability. This analysis indicates that in the short term, the exchange rate is more influenced by itself, but in the long term, inflation becomes a more dominant factor in influencing exchange rate movements.

Table 10. FEVD test results for the variable Consumer Price Index in the 1-10 period

Variance Decomposition of D(IHK)				
Period	S. E.	D(NAVSMF)	D(KURS)	D(IHK)
1	5.754149	0.818955	4.351760	94.82929
2	5.965542	0.875326	4.095736	95.02894
3	6.321504	0.779604	3.671094	95.54930
4	6.880513	1.063143	3.141074	95.79578
5	7.220519	1.020553	2.937339	96.04211
6	7.706468	0.937205	2.933476	96.12932
7	8.135110	0.963227	2.704605	96.33217
8	8.442552	0.953292	2.515892	96.53082
9	8.779032	0.941651	2.350658	96.70769
10	9.134887	0.936744	2.240610	96.82265

Source: Data Processed Output E-Views 12

The table above shows that in the first period, D(CPI) accounts for 94.82% of its variability. This indicates that in the initial period, the variability of CPI is largely explained by itself. D(NAVSMF) accounts for 0.82% and D(COURSE) accounts for 4.35% of the CPI variability. This suggests that in the early period, the influence of NAVSMF and KURS on the CPI was relatively small. And the period 2 to 10 D(NAVSMF) contribution to CPI variability remains relatively stable, in the range of 0.77% to 1.06% throughout the period 1 to 10. This indicates that the NAVSMF has a small and relatively constant influence on the Consumer Price Index.

The contribution of D(CPI) to Consumer Price Index variability tends to decrease over time, from 4.35% in the first period to 2.24% in the 10th period. This suggests that the effect of the exchange rate on inflation has slightly decreased over a longer period. D(CPI) remains the dominant factor explaining its variability,

with the contribution increasing from 94.82% in the first period to 96.83% in the 10th period. This suggests that in the long run, inflation tends to be influenced by internal factors or other variables not included in the model.

Over time, inflation tends to be more influenced by itself, which is why it can be concluded. This could indicate that inflation in the long run has a self-sustaining component or is governed by strong internal factors. The effect of the exchange rate on inflation is quite significant at the beginning of the period, but its contribution decreases over time. This could mean that in the short run, changes in the exchange rate have a larger impact on inflation, but the impact declines in the long run. Also, the contribution of NAVSMF to inflation is tiny and stable, indicating that this variable does not have a significant influence on inflation in the observed period. Overall, the FEVD results show that inflation CPI is mostly influenced by internal factors or itself, with the effect of the exchange rate being significant in the beginning but diminishing over time, and the effect of NAV of Sharia Mutual Funds being tiny.

Grager's Causality Test

Grager's causality test is a test to determine the casual relationship between variables by looking at the probability value. And it can be determined that causality occurs if between variables the probability value is less than the real level of five per cent (Was'an, 2022).

Table 11. The result of Grager's Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
KURS does not Granger Cause IHK	58	0.25113	0.7788
IHK does not Granger Cause KURS		1.01286	0.3701
NAVREKSADANASYARIAH does not Granger Cause IHK	58	1.20918	0.3065
IHK does not Granger Cause NAVREKSADANASYARIAH		0.16071	0.8520
NAVREKSADANASYARIAH does not Granger Cause KURS	58	0.57241	0.5676
KURS does not Granger Cause NAVREKSADANASYARIAH		0.55579	0.5769

Source: Output Data E-Views 12

From the above results, it can be seen that the causal relationship between each variable Statistically, the exchange rate does not significantly affect the CPI, and vice versa the CPI does not affect the exchange rate. This evidenced by the probability value of 0.05 which is smaller than 0.77 and 0.37. And NAV of sharia mutual funds do not significantly affect the CPI, and vice versa the CPI does not affect the NAV of sharia mutual funds, this evidenced by the probability value of 0.05 which is smaller than 0.31 and 0.85, and NAV of sharia mutual funds does not significantly affect the exchange rate, and vice versa the exchange rate does not affect the NAV of sharia mutual funds. This is evidenced by the probability value of 0.05 which is smaller than 0.57 and 0.58. so, the null hypothesis is rejected because there are no variables that have a causal relationship with other variables.

CONCLUSION AND IMPLICATION

Based on the analysis used in this research, then it can be decided that in 2019-2023 the CPI and the exchange rate on the NAV of Islamic mutual funds have the following results: The CPI on the NAV of Sharia mutual funds have a significant positive effect in the long term. While in the short-term, the CPI has no effect on the NAV of Sharia mutual funds. The Exchange rate on the NAV of Sharia mutual funds has a significant positive effect in the long term. While in the short-term, the exchange rate has no effect on the NAV of Sharia mutual funds.

Based on the conclusions that have been described, the researchers suggest that further research still has room for further development. By expanding the range of research, researchers can provide a more accurate and comprehensive picture of the relationship between macroeconomic variables and the performance of Islamic mutual funds. In addition, suggestions for indicating investors that the results of this study have practical implications that can be directly applied by investors in making investment

decisions. Portfolio diversification is a classic strategy to reduce risk, while market timing is an attempt to benefit from market movements. It's important to remember that market timing is a challenging strategy that requires a complete comprehension of the market.

Therefore, this study can provide a solid foundation for further research and valuable recommendations for Islamic mutual fund investors. By understanding the relationship between macroeconomic variables and Islamic mutual fund performance, investors can make better investment decisions and manage risk effectively.

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