TheEffectofInflation, IndonesiaCrudePrice,andIndonesiaShariaStock Index on Sharia MutualFunds in Indonesia: AMultidimensional Analysis andVECMApproach

ABSTRACT

This study intends to determine the short-term andlong-term effects of Inflation, Indonesia crude price, Indonesiashariastockindex onshariamutualfundsinIndonesia.Thisresearchutilizedsecondarydata from January 2014 - December 2023sourcedfrom the Financial ServicesAuthority, Central Agency on Statistics,MinistryofEnergyandMineralSourcesoftheRepublicofIndonesia.Thisstudyuseslongrun and short run VECM tests. Results of the long-run VECM estimates indicate that the Inflation variable andtheIndonesianshariastockindexhavealong-termsignificantpositiveeffectonIslamicmutualfunds in Indonesia. While the Indonesian crude price has a long-term significant negative effect on Islamic mutual fundsinIndonesia. The short run VECM estimation resultsshowthat there are novariablesthat affectIslamicmutualfundsinIndonesia. Granger causality test revealsthecausal relationshipbetween various variables on Islamic mutual funds. The conclusions obtained can be used as a reference for potential investors in making investment decisions for the short and long term.

Keywords: Inflation; Indonesia Sharia Stock Index; Indonesia Crude Price; NAV Sharia Mutual Funds; VECM.

1. INTRODUCTION

Islamic mutual funds are a type of financial instrument in the capital market, as defined in fatwa no. 20/DSN-MUI/IV/2001. These funds adhere to Islamic sharia principles and are governed by contracts between investment managers and investment users, with the shahib al-mal acting as the owner of the assets. The popularity of Islamic mutual funds in Indonesia as an investment option is evident from the substantial growth in nett asset value, which has reached IDR 42.78 trillion, and the significant increase in the number of Islamic mutual funds, which now stands at 273 as of 2023. Sukirno, as cited in Sukma et al. (2023), identifies several macroeconomic factors that can influence the performance of Islamic mutual fund nett asset value (NAV). These factors include inflation, the exchange rate of the Indonesian rupiah, money supply, Sharia Bank Indonesia Certificates (SBIS), BI 7 Days Repo Rate, Islamic securities (sukuk), Jakarta Islamic Index (JII), consumer price index, return, risk level, and the price of gold and Indonesian crude oil. Investment managers frequently take into account the fluctuations of various macroeconomic elements while making investment choices.

Hence, this study aims to examine the impact of macroeconomic variables, specifically inflation, Indonesian crude oil prices, and the Indonesian Sharia stock index, on Islamic mutual funds, as shown by their nett asset value.

Comment [MM1]: Net is the correct spelling

Inflation is the persistent rise in costs of goods and services, resulting in a decline in people's ability to buy things. According to Fitriyani et al. (2020), this indicates that higher prices do not necessarily align with higher revenues. In Indonesia, inflation exerts a substantial influence on the rate of investment expansion. Continued inflationary trends have a detrimental impact on investors, since it leads to a persistent increase in the cost of investing. On the other hand, as inflation drops, the expense of investment also decreases. Hence, the stability of the inflation rate is of utmost importance in fostering investment growth in Indonesia.

Research undertaken by Nofrianto and Yutegi (2022) indicates that the pandemic has caused a delay in economic activity and led to decreased returns for Islamic investment instruments, namely the nett asset value (NAV) of Islamic stock mutual funds. Factors such as the Jakarta Islamic Index (JII), trading volume, and mutual fund age experience a negative impact as compared to inflation and exchange rates. In their study, Adrian &Rachmawati (2019) found that inflation has a partial effect on the nett asset value (NAV) of Islamic mutual funds. Conversely, Alifa&Ferli (2022) discovered that inflation has a beneficial impact on the growth of fixed-income mutual fund performance. Higher inflation affects the performance of fixed-income mutual funds.

Research by Sholeha&Fadhlillah (2023) and Kurniawan (2019) aimed to investigate the impact of inflation on the NAV of Sharia Mutual Funds, motivated by the need to understand how macroeconomic factors influence Islamic finance products. Their findings indicate that inflation positively affects the NAV of Sharia Mutual Funds, supported by findings from Sumantyo&Savitri (2019) in both Indonesia and Malaysia. However, contrasting results were found by Budhijana (2023) and Ardana (2023), who showed that inflation negatively impacts the NAV, aligning with research by Hermawan&Wiagustini (2016). Several studies, including Miha& Laila (2017), Sukarno &Herlianto (2022), and Aldiansyah et al. (2021), concluded that there is no influence of inflation on the NAV of Sharia Mutual Funds, supported by Alim et al. (2021) and Hasanah et al. (2020), which indicate no long-term relationship between inflation, interest rates, and exchange rates on Islamic mutual funds. Similarly, Azzahra&Arianti (2021) and Benget (2021) found no impact of inflation on the NAV.

The objective of exploring Indonesia's crude oil prices and their impact on mutual funds was driven by the need to comprehend the effects of commodity price fluctuations on financial markets. Rising oil prices lead investors to choose the capital market, thereby increasing equity mutual fund returns. External events like global oil tariff increases and movements in global stock indices, as well as events like the Subprime Mortgage crisis, influence investor behavior and returns (Muhammad Farid, 2014, cited in Hasibuan et al., 2019). Miha& Laila (2017) and Othman et al. (2015, cited in Rifai&Achmad, 2020) found that Indonesia's crude oil price affects the NAV of Sharia Mutual Funds in the long term, though Nugraha et al. (2023) found no evidence of short-term effects. The Indonesia Sharia Stock Index (ISSI) reflects corporate performance and influences the NAV of Sharia Mutual Funds, with increased corporate earnings encouraging higher returns (Aldiansyah et al. 2021; Sulistiyowati& Barnard, 2016). However, Adiputro&Sutrisno (2020) found that the performance of Sharia Mutual Funds from 2015 to 2019 was negatively affected by the ISSI.

Given the mixed findings in the literature and the significant role of inflation, crude oil prices, and stock indices in financial markets, it is essential to conduct a comprehensive study that simultaneously examines these factors. By employing the Vector Error Correction Model (VECM) approach, this study seeks to provide a more nuanced understanding of the dynamic relationships among these variables and their collective impact on Sharia mutual funds in Indonesia. This comprehensive analysis is crucial for investors, policymakers, and financial managers to make informed decisions in the rapidly evolving economic landscape.

2. MATERIALSANDMETHODS

This research is intended to measure the effect of inflation, Indonesia's crude price, and the Indonesian Islamic stock index on Islamic mutual funds proxied by net asset value. It is possible to compare the long-term and short-term effects using the Vector Error Correction Model (VECM). In addition, this research uses the VECM Granger causality method to see how the variables interact causally. This research relies heavily on secondary sources of information to make it easier to compare past results with current trends. by using secondary data from January 2014 to December 2023, with data obtained from the Financial Services Authority (2023), the Ministry of Energy and Mineral Resources of the Republic of Indonesia (2024), and the Central Bureau of Statistics (2024), which results in a robust analytical framework. This analysis aims to provide a comprehensive discussion of the short-term and long-term impacts.

2.1 ModelSpecification

Simpleequationestimationmodel:

$$NAV = f(INF, ICPISSI)$$

Theeconometricmodelcanbewrittenasfollows:

$$NAV_i = \beta_0 + \beta_1 INF_i + \beta_2 ICP_i + \beta_3 ISSI_i + \varepsilon$$

Theeconometricmodelistransformedintologsand Thegeneralformofthisstudyisasfollows

Comment [MM2]: Logs not lags

$$LogNAV_i = \beta_0 + \beta_1 INF_i + \beta_2 LogICP_i + \beta_3 LogISSI_i + \varepsilon$$

Where $\beta_0$is a constant, $\beta_1\beta_2$ $\beta_3$regression coefficient, i represents the *time series* from January 2014 toDecember 2023 and e is the error rate. NAV represents the net asset value of Islamic mutual funds, Inf means inflation, ICP (Indonesia crude price) and ISSI is the Indonesian Sharia stock index.

2.2 VariablesDescriptionandTheirMeasures

The dependent variable of this research is Islamic mutual funds proxied by NAV (net asset value). The independent variable consists of Inflation, Indonesia crude price, and Indonesia Sharia stock index.

2.3 EstimationTechniques

Theanalyticaltool usedistheVECMtest whichutilizesEviews12. Itisintendedtomeasurethelong-term and short-term impact of several independent variables on the dependent variable with a time series of January 2014 to December 2023.

2.3.1 UnitRootTest

Stationarity test or unit root test is a necessary thing used in time series data. A data set is considered stationaryifthemeanandvarianceofthetimeseriesdatadonotchangesystematicallyovertime,orsome expertssaythatthemeanandvariancearеconstant.(nachrowi andharidusUsman,2006).Thetechnique usedtotest stationarityistheADF (AugmentedDickey-Fuller)test. Unitroot test ifit doesnot reject H1or the presence of stationary if prob< 0.05.

2.3.2 CointegrationTest

CointegrationtheorywasfirstproposedbyGranger(1981),whichaddressestheissueofdeterminglong-run economic equilibrium relationships. Cointegration isthe statistical implication of the existence of long-runlinkagesbetweeneconomicvariables. Themainobjectiveof thecointegrationtestistocheck whether the residualsof the cointegratedregression are stationary or not (Istiqomah&Mansoer, 2005). According to Johansen and Juselius, "If one is cointegrated, this means that the errors in the regression model are stationary even though the dependent and independent variablesare non-stationary, hence theinference of a long-run relationship.

2.3.3 GrangerCausality

ThisstageinvolvesusingtheGranger causalitytest todeterminewhether anendogenousvariablecanbe treatedasanexogenousvariable.Thisstemsfromtheunknownimpactbetweenvariables.Iftherearetwo variables Y and X, then either Y affects X or X affects Y, or both have an effect or neither.

2.3.4 VectorErrorCorrectionModel

If a long-run relationship is realized, the model can be estimated using a vector error correction model (VECM) which allows forseparationof the long-run relationship and also the ECT which shows the speed of adjustment of the variables used to return to the equilibrium position. This study used VECM to estimate the results of the threeresearchvariables. Thelong-run relationship VECM model is used to estimatethe
resultsofthefirstobjective.VECMGrangercausalityisusedtodeterminethedirectionofcausalitybetween variables.

VECMLongRun

ThefollowingistheVECMlong-runrelationship equation:

$$LogNAV_i = \beta_0 + \beta_1 LogINF_i + \beta_2 LogICP_i + \beta_3 LogISSI_i + \varepsilon$$

VECMShort Run

ThefollowingistheVECMshort-runrelationshipequation:

$$D(Log(NAV)_i = \beta_0 + \beta_1 D(INF)_i + \beta_2 D(Log(ICP)_i + \beta_3 D(Log(ISSI)_i + \varepsilon$$

2.3.5 ImpulseResponseAnalysis

ThisstageinvolvesanalyzingtheresponseofavariableinthepresenceofashocktoitselforanothEr variable.

2.3.6 VarianceDecompositionAnalysis

ThisstageinvolvesanalyzingtheproportionOf influencea variablehaswhenit issubjectedtoshocksor changes in itself over a period.

3. RESULTSANDDISCUSSION

The JarqueBera test statistic fails the null hypothesis of the normal distribution of each variable (P > 0.05), which confirmsthatthe dataisnormally distributed. The heteroscedasticity andautocorrelationtests have passedtheHACNewey-Test whichcorrectsthestandarderrorsandresultsinvalidestimatesandreliable regression coefficients. It also passed the multicollinearity VIF < 10 and linearity (P > 0.05) tests.

3.1 UnitRootTest

The ADF test is performed by comparing the calculated t statistic and the Mackinnon critical value at the 5%significancelevel.Withtrendandintercept,theresultsinTable1showthatall seriesarenon-stationary in level form and become stationary at the first difference level.

3.2 CointegrationTest

The Cointegration Test will determine whether the study can use the VECM test or not. Determination of thepresenceorabsenceof cointegrationif prob<0.005.FromTable2cointegrationbasedonthetracetest prob 0.0000 <0.05 means rejecting H0. Rejection of H0 means that there is a long-term relationship between Inflation, Indonesia crude price, the Islamic stock index, and Islamic mutual fund NAV.

Comment [MM3]: Be ccnsistent with your P-value as 0.05

The max eigen statistic cointegration test results in Table 3 have a prob of 0.0000 <0.05, which means rejecting H0 and accepting H1 cointegration. Rejectionof H0means that thereis a long-term relationship betweenInflation,Indonesiacrudeprice,the Islamicstockindex,andIslamicmutualfundNAV.Thismeansthat VECM testing can be done.

3.3 GrangerCausalityTest

From the Granger causality test results in Table 4 presented below, none of the variables show a causal relationship. This is indicated by all p-value results > 0.05.

3.4 VectorErrorCorrectionMethod

3.4.1 VectorErrorCorrectionMethodLongRun

AfterexaminingthelONg-runrelationshipinTable5 betweenthevariables.Thenthelong-runVECMmodel is used to estimate themodel of this study because the variables in this study are cointegrated. This test observes the existence of a long-run relationship between Inflation, Indonesia crude price, and Indonesia Islamic stock index with the NAV of Islamic mutual funds.

TheEffectofLong-TermInflationonIslamicMutualFunds

The results of the analysis are in line with the hypothesis that the t statistic value of the lag 1 Inflation variable is 4.35893 or greater than the t table value of 1.981 which means accepts H1 and rejects H0 so thatthe Inflationvariablehasa positiveeffectonlong-term Islamicmutualfund NAV*(p < 0.05)*,thisis relatedtosignallingtheorywherecontrolledinflationandfollowedby mutualfundsthat canprovide returns that exceed the inflation rate can send positive signals to investors about good investment performance and prospects. This can attract investors to invest in these mutual funds. However, high inflationcancauseadecreaseintherealvalueofmutualfundinvestmentreturns,thussendinganegative signal to investors about the prospectsof themutual fund. (Merdad, Hassan, &Alhenawi, 2015). Inflation isharmlessifitispredictable, aspeoplewilltakeintoaccount thepotential forfuturepriceincreaseswhen makingdecisions.Mosteconomistsagreethattheeconomywillgrowefficientlyifinflationislow. InIslamic economics, controlling inflation is important to maintain economic stability and realize justice in financial transactions. High inflation can encourage people to seek investments that are more profitable and safe fromfallingcurrencyvalues. ThisistoIslamicprinciplesthatrecommendinvesting wealth in a halal and productiveway. In Islam, investment is recommended tobe done fairly, does not involveusury (interest), andis not speculative. Since inflation affectsthevalue of money circulatingin society, inflation has a positive impact on Islamic mutual funds in the long run. When inflation increases, thevalue of money circulatinginsociety becomesless valuable, so peopleprefer topreservethevalue of theirmoney byinvesting theirfunds in Islamicmutual funds. As a result, inflation has a positiveimpact on Islamic mutual funds in the long run. Research conducted by Nofrianto&Yutegi (2022) shows that the pandemicdelayseconomicactivityand reducesthereturnofIslamicinvestmentinstruments,suchastheNAV of Islamic stock mutual funds. JII, trading volume, and mutual fund age are negatively affected compared to inflation and exchange rates. Adrian &Rachmawati's research (2019) concluded that partial inflation hasarelevantimpactontheNAVofIslamicmutualfunds.Alifa&Ferli'sresearch(2022)foundthatinflation has a positive influence on the performance of fixed-income mutual funds, which means that if inflation increases,itwillaffecttheperformanceoffixed-incomemutualfundsaswell.
ResearchbySholeha&Fadhlillah(2023)andKurniawan(2019)that inflationhasapositiveeffect ontheNet Asset Value(NAV)ofIslamicMutualFunds.TheresultsofthisstudyaresupportedbySumantyo&Savitri(2019) who

found that inflation has a positive effect on the NAV of Islamic mutual funds in Indonesia and Malaysia. However, Budhijana (2023) andArdana(2023) havedifferent research resultsthatinflation isnegativeeffect to the NAV of Islamicmutual fundsand thisresearch is supported by the research results of Hermawan&Wiagustini (2016). Research by Miha& Laila (2017), Sukarno &Herlianto (2022), and Aldiansyah et al, (2021) have the same results that inflation has no effect on the NAV of Islamicmutualfundssupportedby researchby Alim etal. (2021) andResearchconductedby Hasanahet al.(2020)showsthatthereisnolong-termrelationshipbetweeninflation,interestrates,andexchangerate variablesonIslamicmutualfunds. Theresultsof researchby Azzahra&Arianti, (2021) showthat inflation does not affectnetassetvalue.Benget'sresearch(2021)istoshowthatinflationhasnoeffect on the net asset value of equity mutual funds.

TheEffectofLong-TermIndonesiaCrudePriceonShariaMutualFunds

Theanalysisresultsarebythetestcriteriawherethetstatisticvalueof-4.41781isgreater than the t table value of 1.981 which means accepting H1 and rejecting H0 so that the Indonesia crude price lag 1 variable has a negative effect on the NAV of Islamic mutual funds. This is inversely proportional to signaling theory which states that changes in crude oil prices can be a signal for investors about investment prospects in mutual funds that have exposure to related sectors. For example, if crude oil prices increase, this can be a positive signal formutual funds that invest in energy companies or other related sectors. Conversely, a decrease inthe price of crude oil can be a negative signal for such mutual funds.Thetwo-wayrelationshipmeansthatmovementsinmutualfundperformancealsosignalmovements in oil prices. mutual funds should provide clear and accurate information about their exposure to sectors relatedtocrude oil prices so thatinvestors canmakeinformeddecisions. (Ahmed&Alrashidi, 2015). Itis assumed that Indonesia crude price in the long run has less exposure because, in the long run, Islamic mutual fund portfolios are dominated by the money market, fixed income, and mixed Islamic sectors. While oil pricesincludeIslamicstockmutualfundportfoliosthathavehighrisk,becausealsoanincreaseintheprice of Indonesian crude oil (ICP) canincrease operational costs and production costs, companies can spend moremoney, reduce company profits, and reduce thenet asset value of Islamic mutual funds in the long run. As a result, ICP has a negative impact on Islamic mutual funds in the long run. This is in line with (Antonioetal,2013:393)whichstatethatallaspectsoftheeconomycanbeaffectedbyoilprices,aswell asresearchby Miha& Laila, (2017) thattheIndonesiaCrudePrice influencestheNAVof Islamic mutual funds. Research by Othman et al. (2015) in Rifai&Achmad (2020) resulted in oil prices affecting long-termNAV.However, researchby Nugrahaetal.(2023)statesthatworldoilpricesintheshorttermhave no proven effect on mutual fund net asset value.

TheEffectofLong-TermIndonesiaShariaStockIndexonShariaMutualFunds

The resultsof the analysisare in line with the hypothesisthat the t statisticvalue of thelag 1 sharia stock indexvariableis2.70047orgreaterthanthettablevalueof1.981whichmeansacceptingH1andrejecting importssothattheIndonesianshariastockindexvariablehasapositiveeffectonlong-term IslamicmutualfundNAV,thisisbysignalingtheorywhichstatesthattheIndonesiansharia stock index canbeasignalforinvestorsabout theprospectsandpotential returnsof Islamicmutualfunds that invest in stocks incorporated in the index. If the Islamic stock index increases, this can be a positive signal for investorsthat Islamicmutual fundsthat havea similar portfolio to theindex have the potential to provide good returns. The composition and changes in the constituency of stocks in an Islamic index can also signal to investors about the investment strategy and asset allocation policy implemented by the investment manager of an Islamic mutual fund. This helps investors in assessing the suitability of Islamic mutual funds to their risk preferences and Shariah compliance. (Al-Hassan & Al-Rashid, 2020). The increase in ISSI reflects an increase in company performance that is getting better so that it has the opportunity to generate more increased profits. Increased company income will lead to increased returns on Islamic mutual funds. Thus, investors will invest their funds through Islamic mutual funds with the expectation of getting more returns. Since ISSI represents the performance of the Islamic stock market listed on the Indonesia Stock Exchange (IDX), the Indonesia Sharia Stock Index (ISSI) has a long-term positive effect on Islamicmutualfunds. In thelong run,ISSIcan show stable and increasing performance, which means that Islamic mutualfunds invested inIslamic stocks listed on ISSI can also showstable and increasingperformance.Therefore,ISSIhasapositiveinfluenceontheperformanceof Islamicmutual

funds.Thisresearchisinlinewith Aldiansyahet al. (2021) andresearchbySulistiyowati&Barnas(2022). whichstatesthat theIndonesianShariaStockIndex haspositiveeffect onthenetassetvalue of Islamic mutual funds. However, this is different from the research of Adiputro&Sutrisno (2020) which shows that from 2015 to 2019, the performance of sharia mutual funds was negatively influenced by the Indonesian Sharia Stock Index (ISSI).

3.4.2 ShortRunVectorErrorCorrection Model

After examining the long-run effect, we look at the short-run effect in Table 6 between Inflation, Indonesia crude price, and Indonesia Islamic stockindex on the NAV of Islamicmutual funds. TheVECM estimation results show that none of the variables have a short-term effect on the NAV of Islamic mutual funds.

TheEffectofShort-TermInflationonIslamicMutualFunds

The estimation results indicate that there is no effect of the short-term lag 1 inflation variable on the NAV of Islamic mutual funds. This conclusion is based on the t statistic of -0.53044, which is smaller than the critical value of 1.981. Therefore, the null hypothesis (H0) is accepted and the alternative hypothesis (H1) is rejected, suggesting that there is no short-term influence of the lag 1 inflation variable on the NAV of Islamic mutual funds. The reason for this is that there is a weak association between short-term inflation movements and Islamic mutual fund investment instruments. Furthermore, in the immediate term, the performance of Islamic mutual funds is mostly affected by issues associated with business and the tangible economy, rather than short-term inflation. Islamic mutual funds achieve performance protection against inflation swings through diversification, since they allocate investors' cash into a range of investments. While inflation can influence the performance of Islamic mutual funds through many factors, it does not have any immediate impact on their performance. In the immediate term, inflation can lead to a rise in operational and production expenses, resulting in increased expenditure for corporations. Consequently, the company's earnings may decline, leading to a reduction in the nett asset value of Islamic mutual funds. Furthermore, volatile inflation can generate considerable ambiguity for economic participants, therefore impacting investor enthusiasm for allocating assets to Islamic mutual funds. This aligns with the findings of Khusna et al. (2023), which indicate that inflation has only a partial impact on the Nett Asset Value (NAV) of Islamic Stock Mutual Funds. Similarly, research conducted by Miha& Laila (2017), Sukarno &Herlianto (2022), and Aldiansyah et al. (2021) also shows the same results, showing that inflation affects the NAV of Islamic mutual funds.These findings are further supported by the research of Alim et al. (2021). A study conducted by Azzahra and Arianti (2021) demonstrates that inflation has no impact on the nett asset value. Benget's 2021 study aims to demonstrate that inflation does not have a substantial impact on the nett asset value of equities mutual funds. Contrary to the findings of Nofrianto&Yutegi's (2022) research, it is evident that the pandemic has caused a slowdown in economic activity and a decrease in the profitability of Islamic investment instruments, such as the nett asset value (NAV) of Islamic stock mutual funds. The trading volume, JII, and mutual fund age experience a negative impact as compared to inflation and currency rates. The research conducted by Adrian &Rachmawati (2019) found that inflation affects the Net Asset Value (NAV) of sharia mutual funds. In a study conducted by Alifa and Ferli in 2022, it was discovered that inflation has a beneficial impact on the performance of fixed-income mutual funds. This implies that a growth in inflation would also affect the performance of fixed-income mutual funds. Studies conducted by Sholeha&Fadhlillah (2023) and Kurniawan (2019) have found that inflation has a favourable and substantial impact on the Nett Asset Value (NAV) of Islamic Mutual Funds. The findings of this analysis are corroborated by Sumantyo&Savitri (2019), who demonstrate that inflation has a substantial beneficial impact on the nett asset value (NAV) of Islamic mutual funds in Indonesia and Malaysia.

TheEffectofShort-TermIndonesiaCrudePriceonShariaMutualFunds

Theestimationresultsof theshort-term Indonesiacrudepricelag1variableontheNAV of Islamicmutual fundsthatthereisnoinfluenceontheNAVofIslamicmutualfundsbecausethetstatisticresultof0.43206 issmallerthanthettableof 1.981soit acceptsH0andrejectsH1whichmeansthereisnoshort-term influence of the Indonesia crude price lag 1 variable on the NAV of Islamic mutual funds. ICP affects the performanceof Islamicmutualfundsinthelongterm,ICP doesnot affectIslamicmutualfundsinthe short termbecauseICPaffectsthecompany'soperatingcostsandproductioncosts,thusaffectingthecompany's net assetvalue.Intheshort term,ICPdoesnothaveaimpactonIslamicmutualfundsbecause the performance of Islamicmutual fundsisinfluenced by othervariables, such asthe BI rate and inflation. TheportfolioofIslamicmutualfundsisalsodominantlyspreadacrossvariouseconomicsectorsratherthan

theoilandgassector,sofluctuationsincrudeoilpriceshavenoimpactontheNAVofIslamicmutualfunds. Thisisinlinewiththeresearchof Nugrahaetal.(2023)thatworldoilpricesintheshorttermhaveno

proveneffectonthenetassetvalueofmutualfunds,butincontrasttotheresearchof Miha& Laila, (2017) Indonesia Crude Price affects NAV of sharia mutual funds.

TheEffectofShort-TermIslamicStockIndexonIslamicMutualFunds

The estimation results indicate that there is no influence of the lag 1 variable of the Indonesian sharia stock index on the nett asset value (NAV) of Islamic mutual funds. This is supported by the t statistic result of 0.16639, which is smaller than the critical value of 1.981. Therefore, the null hypothesis (H0) is accepted, and the alternative hypothesis (H1) is rejected. In other words, there is no short-term impact of the lag 1 variable of the Indonesian sharia stock index on the NAV of Islamic mutual funds. Investors in the short term pick Islamic firms based on their return and performance, but the Indonesian Islamic stock index uses DES as a reference instead of directly selecting Islamic stocks. Investors mostly utilise the Indonesian Sharia stock index as a benchmark for selecting investments with consistent performance. However, it does not directly impact Islamic mutual funds as their success is determined by investor purchasing choices. The short-term impact of ISSI on Islamic mutual funds is not considerable due to the influence of other factors, including the BI rate, inflation, and the Rupiah exchange rate, which can affect the fluctuations in Islamic stock prices. This contradicts the findings of Aldiansyah et al. (2021) investigation. According to Sulistiyowati&Barnas (2022), the Indonesian Sharia Stock Index has a notable and favourable impact on the nett asset value of Islamic mutual funds. Adiputro&Sutrisno's (2020) study reveals that the performance of Islamic mutual funds saw a considerable negative impact from 2015 to 2019 due to the Indonesian Sharia Stock Index (ISSI).

3.5 ImpulseResponseAnalysis

At the beginning of the period, namely the first month, the LOG(NAV) response fluctuates, namely responding positively and negatively (up and down) since the shock or shock to 4 variables, LOG(NAV), INF, LOG(ICP)and LOG(ISSI), but smallfluctuationsuntil approachingmonth20and beyond experiencing equilibrium or equilibrium.

Atthebeginningof theperiod,namelythefirstmonthuntil approachingmonth15,theresponseof LOG(ICP) to itself decreased and began to reach equilibrium in month 15 onwards. The response of LOG(ICP) to LOG(NAV), LOG(ISSI), and INF increases in the first month until approachingmonth 15 and beyond.

At the beginning of the period, namely the first month, INF experienced a downward shock to itself and begantoreachequilibriumasitapproachedmonth20.INF'sresponsetoLOG(ICP)increasedfromthefirst month until it approached month 20. It began to reach equilibrium in month 21 and beyond. The INF response to LOG(NAV) and LOG(ISSI) decreased until approaching month 10 and began to reach equilibrium afterward.

At the beginning of the period, namely the first month to month 10, the LOG(ISSI) response fluctuates in the early months and begins to reach equilibrium as it approaches month 15 onwards. The response of LOG(ISSI) to LOG(ICP) fluctuates in increase and decrease and reaches equilibrium in the 15th month onwards. The response of LOG(ISSI) to LOG(NAV) and INF experienced a declinein the first month and began to reach equilibrium in the period approaching the 15th month onwards.

3.6 VarianceDecompositionAnalysis

VD LOG(NAV) analysis shows that the variable that is suspected to have the highest influence on LOG(NAV)inthe 120 monthsaheadisLOG(NAV)itselfwithacontributionof inthefirstmonthof100%, followed by LOG(ISSI) by 0.06% in the second monthand followed by INF by 0.02 in the second month. However,thecontributionof LOG(NAV)continuestodeclineeverymonth.Itisinverselyproportionaltothe LOG(ICP), LOG(ISSI), and INF variables which continue to increase every month.

The INF VD analysis shows that the largest contributing variable is itself in the first month at 99.96%, followedbyLOG(NAV)whichcontributed0.04%inthefirstmonth,LOG(ISSI)at0.92%inthesecond

month, andfinally LOG(ICP) at 0.1%in the second month. However, the contribution of INF every month continuestodecline,bestcomparedtothevariablesLOG(NAV),LOG(ISSI),andLOG(ICP)whichcontinue to increase every month.

The VD LOG(ICP) analysis shows that the variable that is suspected to have the highest influence on LOG(ICP)inthe 120 monthsaheadisLOG(ICP)itselfwithacontributioninthefirstmonthof99.84%, followed by INF by 0.14% in the first month and followed by LOG(NAV) by 0.015% in the first month. However,thecontributionofLOG(ICP)continuestodeclineeverymonth.IncontrasttotheINF,LOG(NAV), and LOG(ISSI) variables which continue to increase every month.

VDLOG(ISSI)analysisshowsthatthevariablethatissuspectedtohavethehighestinfluenceonLOG(ISSI) in the next 120-month period is LOG(ISSI) itself with a contribution in the first month of 80.88%, followed byLOG(ICP)of 13.66%inthefirstmonthandfollowedbyLOG(NAV)of 3.56%inthefirstmonth.However, thecontributionofLOG(ISSI)fluctuateseverymonthandcontinuestodecline,thisisfollowedbyLOG(NAV) which also experiences a decline every month. This is inversely proportional to the LOG(ICP), and INF variables which continue to increase every month.

4. CONCLUSION

This study aims to examine the impact of inflation, Indonesia crude price, and Indonesia sharia stock index on the nett asset value (NAV) of Islamic mutual funds throughout the period of January 2014 to December 2023, both in the short term and long term. The empirical findings from the VECM analysis demonstrate a significant and enduring positive relationship between inflation and both the Indonesian Sharia stock index and the nett asset value (NAV) of Islamic mutual funds in Indonesia. There exists a persistent and adverse correlation between the price of Indonesian crude oil and the Nett Asset Value (NAV) of Islamic mutual funds in Indonesia. The short-term VECM analysis indicates that there are no variables that have a significant impact on the Nett Asset Value (NAV) of Islamic mutual funds. However, the Granger causality analysis reveals that there is no causal relationship, either unidirectional or bidirectional, between the variables.

Comment [MM4]: Correct the word 'net' in all the usage in the paper.

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APPENDIX

Table1.StationarityTest

Variables	Probat level	Result	Variables	Probat1st difference	Result
NAV	0.8229	Non-stationary	D(NAV)	0.0000	Stationary
INF	0.3477	Non-stationary	D(INF)	0.0000	Stationary
ICP	0.0174	Stationary	D(ICP)	0.0000	Stationary
ISSI	0.5309	Non-stationary	D(ISSI)	0.0000	Stationary

Table2.CointegrationTest(Trace)

Hypothesized No. of CE(s)	Eigenvalue	TraceStatistic	0.05 CriticalValue	Prob.
None*	0.461670	206.0251	47.85613	0.0000
Atmost1*	0.347222	133.5690	29.79707	0.0000
Atmost2*	0.327685	83.66643	15.49471	0.0000
Atmost3*	0.272447	37.21408	3.841465	0.0000

Table3.CointegrationTest(Max-EigenStatistic)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 CriticalValue	Prob.
None*	0.510470	83.55916	27.58434	0.0000
Atmost1*	0.360944	52.38829	21.13162	0.0000
Atmost2*	0.301437	41.97145	14.26460	0.0000
Atmost3*	0.296268	41.10884	3.841465	0.0000

Table4.GrangerCausalityTest

	Observation	F-Statistic	Prob.Value
INFdoesnotGrangerCauseNAV	119	0.52195	0.4715
NAVdoesnotGrangerCauseINF		1.60507	0.2077
ICPdoesnotGrangerCause NAV	119	0.49266	0.4841
NAVdoesnotGrangerCauseICP		0.30389	0.5825
ISSIdoesnotGrangerCause NAV	119	2.28222	0.1336
NAVdoesnotGrangerCauseISSI		0.18153	0.6708

Table5.VectorErrorCorrectionMethodLongRun

Description	Coefficient	Std.Error	T-Statistics
INF(-1)	1.819809	(0.41749)	[4.35893]
LOG(ICP(-1))	-6.423954	(1.45410)	[-4.41781]
LOG(ISSI(-1))	15.80050	(5.85101)	[2.70047]

Table6.ShortRunVectorErrorCorrectionModel

Description	Coefficient	Std.Error	T-Statistics
D(LOG(NAV(-1)))	0.012298	(0.09655)	[0.12738]
D(INF(-1))	-0.008472	(0.01597)	[-0.53044]
D(LOG(ICP(-1)))	0.013715	(0.03174)	[0.43206]
D(LOG(ISSI(-1)))	0.040878	(0.24568)	[0.16639]

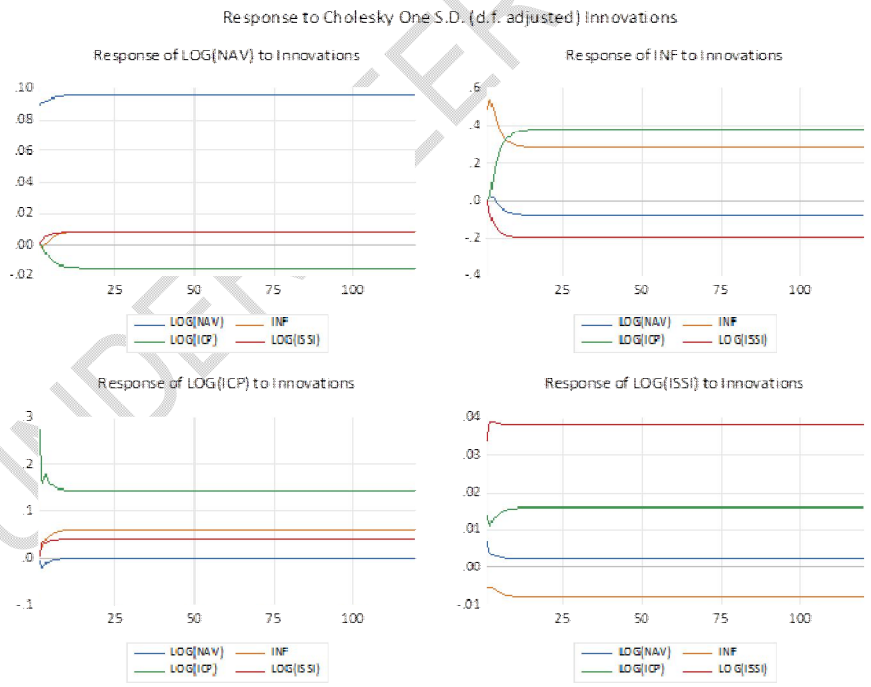

Figure1.ImpulseResponse

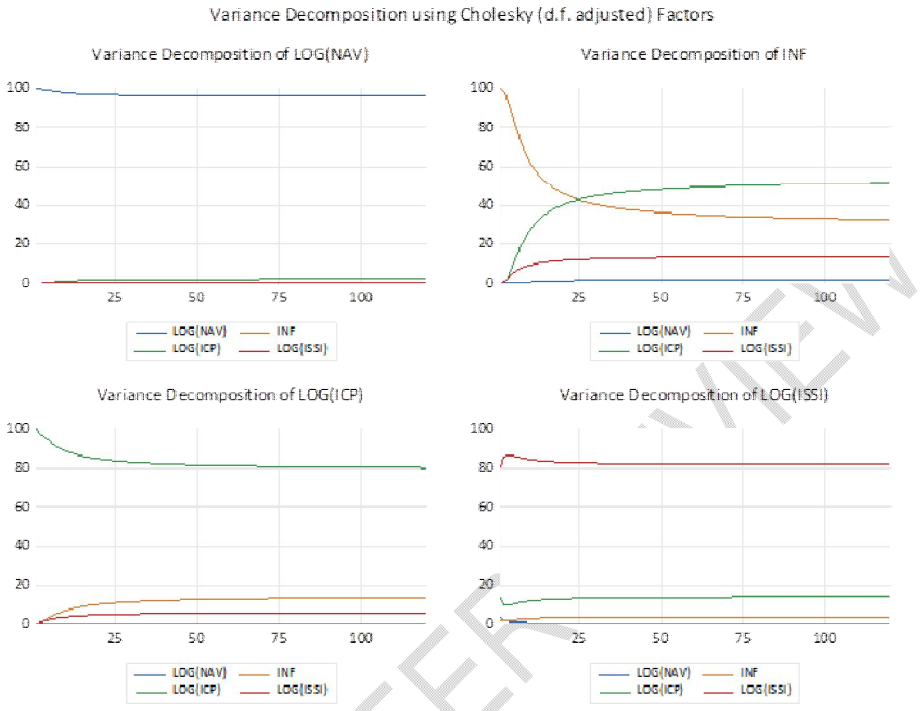

Figure2.Variance Decomposition