Muqtasid 1 3(1),2022: 47-62
http://muqtasid.iainsalatiga.ac.id
DOI:http://dx.doi.org/10.18326/muqtasid.v12i2. 47-62

Islamic Versus Conventional Monetary Transmission: Which One Is Better Affecting Exchange Rate?

An'im Kafabih[1], Darwanto[2*], Dudang Gojali[3]
Islamic Economics Study Program, Faculty of Economics and Business,
Universitas Diponegoro, Indonesia[1,2]
Sharia Accounting Study program, Faculty of Islamic Economics and Business,
UIN Sunan Gunung Djati Bandung, Indonesia[3]

Submitted: 9 January 2022; Accepted: 16 September 2022; Published: 19 September 2022

Abstract

This study examined the impact of Islamic monetary and conventional transmissions on Indonesia's exchange rate performance. The Islamic monetary transmissions are *musyarakah* financing (proxied by the ratio of *musyarakah* to a total loan of conventional banks) and corporate *sukuk* (asset price), while the conventional transmission is the interbank interest rate (INTERB). Furthermore, this paper also incorporated gold price (GP) (asset price transmission) as a control variable. This study used monthly data from February 2011 to September 2021. By using the ARDL Bound Test, the long run results showed that the performance of Islamic monetary transmission through *musyarakah* financing has more effect of exchanging rate than INTERB. Therefore, Bank Indonesia should focus on *musyarakah* financing as its monetary transmission instead of INTERB. In the short run, corporate sukuk and *musyarakah* financing impact the exchange rate (10% and 1% significant level, respectively), while INTERB and GP can affect the exchange rate with lag (second month onward for each).

Keywords: monetary transmission, *sukuk*, *musyarakah*, exchange rate, ARDL Bound test

*** Corresponding author**
darwantomsiugm@gmail.com

ISSN 2087-7013
ISSN 2527-8304

INTRODUCTION

Mishkin (2016) noted that the exchange rate could affect the economy daily because domestic currency can become more valuable relative to foreign currencies. The home country's goods have become more expensive for foreigners. This explanation shows that the exchange rate volatility will determine the price of imported and exported goods and the output level. Therefore, the exchange rate is an important concern for monetary policymakers.

Indonesia had experienced a currency crisis because of the exchange rate, and in 1997, as explained by the world bank report (1998), the government floated the rupiah because of the expensive cost of defending the exchange rate band. Therefore, the value of the rupiah *vis a vis* the dollar depreciated by 10.7% in July 1997, then 25.7% in August. It appreciated by 39.8% in September, 55.6% in October and November, and 109.6% in December 1997 (The World Bank Report, 1998).

The depreciation of the rupiah was followed by the alarming rise of the current account deficit by 8% of GDP (Sadli, 1998), and inflation rose by 58.4% in 1998 from 6.2% in 1997 (data world bank, 2021). The other effect of the crisis is also related to development in the country. Soesastro and Atje (2005) explained that the effect of the crisis of 1997/8 had reduced the financial capacity to maintain infrastructure and make new investments. Indonesia needed to invest at least 5% of GDP in infrastructure to achieve 6% growth, but because of the currency crisis, only 3% of GDP was invested (Soesastro & Atje, 2005). Therefore, learning from the 1997/8 crisis experience, the exchange rate is important for policymakers, specifically monetary policymakers, as explained by Mishkin (2016).

Based on Bank Indonesia's official website, Indonesia now implements a free-floating exchange rate regime. More specifically, Oloko et al. (2021) showed that this country uses a limited floating exchange rate regime. Theoritically, Mankiw (2013) explained that in the Mundell-Fleming model on a small open economy under a floating exchange rate, an increasing money supply can lower the nominal exchange rate and vice versa. In a practical aspect, Bank Indonesia controls the money supply through 7-day reserve repo rate (BI7DRR) that will change the interbank interest or federal funds rate. In addition, the nominal exchange rate is the price of one currency in terms of another (Mishkin, 2016).

A bank with surplus reserves can make interest-bearing loans to other banks, and this interest rate is called the *federal funds rate* (Case, Fair, & Oster, 2012). With a decrease in the target for the federal funds rate, the money supply will expand, and an increase means a contraction (Mankiw, 2021). Therefore, decreasing Indonesia's interbank interest rate (INTERB) means lowering the exchange rate. Based on this explanation, this study hypothesized that positive relationships exist between INTERB as a bank in Indonesia's monetary transmission and exchange rate.

The Indonesian monetary authority employs traditional economics and Islamic transmission to regulate the money supply and exchange rate. Based on Syarifuddin and Sakti (2021), one monetary transmission is banking credit through *musyarakah* financing in an Islamic bank. Bank Indonesia as a monetary authority can rise or decrease reserve requirements as a monetary instrument. Increasing reserve requirement means decreasing the financing capacity of Islamic banks, decreasing the money supply, and increasing the exchange rate. Therefore, there is a negative relationship between Islamic bank musyarakah financing as Bank Indonesia's part of Islamic monetary transmission to exchange rate.

This study also proposes that when Bank Indonesia lowers the reserve requirement, the Islamic bank will have a higher capacity to finance corporations, affecting corporate productivity. Syarifuddin and Sakti (2021) explained that the rise in productivity would affect corporate sukuk price because the price of sukuk depends on the value of the underlying asset or project. Profit sharing will increase due to the higher price of corporate sukuk, which will increase the demand and boost investment (asset price channel, as proposed by Syarifuddin and Sakti (2021)). Based on the Mundell-Fleming framework, the rise of investment will shift IS curve to the right, increasing the exchange rate. Therefore, this study proposes a hypothetical result that there is a positive relationship between the demand for corporate *sukuk* as one part of Islamic monetary transmission and the exchange rate.

However, Islamic and conventional transmissions did not investigate the effect of monetary transfer. Some previous studies such as Drine and Rault (2006), Vural (2019), He, Liu, and Zhang (2021), Rahman (2021), Rashid and Basit (2021), and Rodriguez (2016) only explained some determinants of the exchange rate. Raza et al. (2021) examined the non-linear dynamic of gold price (GP) and exchange rate relationships in G7 countries. In contrast, Wang and Lee (2021) studied gold as a haven for exchange rate risk.

Danylyshyn et al. (2021) proposed an algorithm for assessing the effectiveness of monetary policy and claimed that the instruments are excellent in maintaining a stable exchange rate. Ariff, Zarei, and Bhatti (2021) stated relative exchange rates as an effective measure for tracking instability. Rossi (2013) analyzed the recent literature on exchange rate forecasting and gave up-to-date methodologies to forecast exchange rates. Goh and Mcnown (2015) examined Malaysia's exchange rate regime and did not find a co-integration between Malaysia and the US interest rate during managed floating exchange rate. However, the relation is found when Malaysia applied a fixed exchange rate with open capital account regime.

This research closes to several previous studies on monetary policy and exchange rates, such as Kim, Kim, and Park (2020), that examined monetary shocks on the exchange rate and reported contraction of monetary policy, leading to exchange rate appreciation in some countries and depreciation in others. Suriani et al. (2021) examined *sukuk* as a form of monetary policy transmission and reported no causal relationship to the exchange rate channel. Funashima (2020) demonstrated that the money supply significantly has a long-lasting effect on the exchange rate after the introduction of quantitative easing. Ismal (2021) studied Islamic hedging against exchange rate risk in Indonesia and reported that Islamic currency is a new hedging mechanism for business players to exchange rate risk.

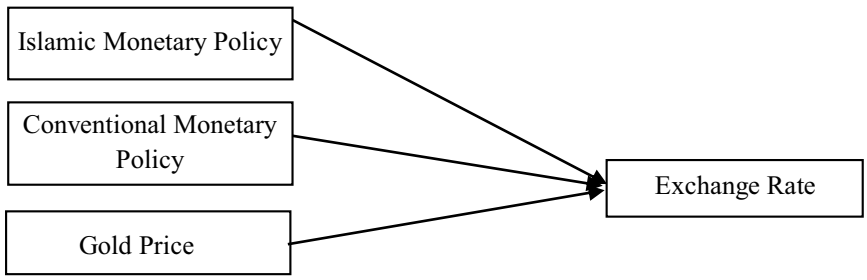

Figure 1. Theoretical Framework

This study seeks to compare the effectiveness of Islamic and conventional monetary transmission on the Indonesian exchange rate and to determine when the reaction occurred in the short-run, the long-run, or both. In addition, it uses Gold Price (GP) as a control variable because gold and exchange rate attract the attention of academicians after several economic events. This study analyzes the impact of Islamic and conventional monetary policy and GP on the exchange rate.

METHOD

This quantitative study compares the performance of Islamic and conventional monetary transmission on the exchange rate in Indonesia. The real effective exchange rate (REER) is used as a proxy for the dependent variable. Based on Ellis (2001)'s explanation, REER can depict the performance of currency exchange rates compared to several foreign currencies.

Syarifuddin and Sakti (2021) explained that the profit-sharing rate is one instrument of Islamic monetary economics. This study uses *sukuk* (SKUK) and *musyarakah* (MSKH) to proxy for Indonesia's Islamic monetary policy implementation. The ratio of *musyarakah* to the loan of conventional banks is used to avoid drawing false conclusions when comparing Islamic

monetary policy and the conventional one. This study uses interbank interest rate (INTERB) for conventional monetary policy. The interest rate is formed because commercial banks lend reserves to fulfill the requirements set by Bank Indonesia. Therefore, this interest rate is Bank Indonesia's monetary transmission mechanism for intervening in the money supply. GP was utilized as a control variable because gold and exchange rate attracted the attention of academicians after several economic events such as the sovereign debt crisis and subprime mortgage. The following equation gives the functional form of the model:

$$REER = f(SKUK, \frac{MSKH}{CR}, INTERB, GP)$$

Where:

REER = Indonesia Real Effective Exchange Rate

SKUK= Corporate *SukukCRMSKH*= Ratio of *musyarakah* to total loan of conventional banks,

INTERB = Indonesia Interbank interest rate

GP = Gold Price.

This study uses monthly secondary data from February 2011 (2011.M2) to September 2021 (2021.M09), generating 128 observations. REER and INTERB data are gathered from Federal Reserve Economic Data (FRED). SKUK, MSKH, and CR (total loan of conventional banks) data are gathered from Indonesia Financial Service Authority (*Otoritas Jasa Keuangan,* OJK), and GP data are gathered from World Gold Council.

ARDL Bound Test developed by Shin and Smith (2001) is employed to analyze the relationship between dependent and independent variables. The unit root test should be conducted to apply this approach, ensuring no variable is integrated with order 2 or I*(2)*. This is because the approach will not be applicable when an I*(2)* series exists in the model (Akmal, 2007, Bist & Bista, 2018).

A dummy variable is inserted to represent the breaking point in the series because ARDL does not account for the possibility of structural failure (Bist & Bista, 2018). Lee Strazicich LM unit root is performed to detect time in a structural break of the time series in the dependent variable, an exchange rate (REER). This structural break detection method is employed because Cansado-Bravo and Rodriguez-Monroy (2020) explained that it is unaffected under the null to solve the asymptotic validity of distributions. This method unambiguously implies trend stationarity as the null hypothesis is rejected (Lee & Strazicich, 2003).

Meanwhile, performing ARDL bound test needs maximum lag that should be included in the model. This study follows Majid and Yusof (2009) to impose a lag order of 1-12

and select the value that gives the highest F-statistics. The following ARDL specification is used in this present study (Kaur, 2019) :

$$\Delta LNREER_t = a + \omega T + \phi_1 D_{reer} + \beta 1 \mathrm{LNREER}_{t-1} + \beta 2 \mathrm{LNSKUK}_{t-1} + \beta 3 \left[\frac{\mathrm{LNMSKH}}{LNCR} \right]_{t-1} + \beta 4 \mathrm{LNINTERB}_{t-1} + \beta 5 \mathrm{LNGP}_{t-1} + \sum_{j=1}^{p} \gamma_{1J} \Delta \mathrm{LNREER}_{t-1} + \sum_{j=0}^{q} \gamma_{2j} \Delta \mathrm{LNSKUK}_{t-J} + \sum_{j=0}^{q} \gamma_{3j} \Delta \left[\frac{\mathrm{LNMSKH}}{LNCR} \right]_{t-J} + \sum_{j=0}^{R} \gamma_{4J} \Delta \mathrm{LNINTERB}_{t-J} + \sum_{j=0}^{S} \gamma_{5J} \Delta \mathrm{LNGP}_{t-J} + U_t$$ ..... Equation 1

Where LN stands for log natural, D is dummy to accommodate structural break independent variable, Δ is the difference operation, ω, ϕ, βi's, γi's, (i=1to 5) are coefficient, a is constant, T is trend, and U_t is the error term. The F-statistics are generated based on equation 1 to check co-integration (the existence of a long-run relationship). According to Bist and Bista (2018), the null hypothesis for no co-integration is :

$$\mathrm{H_{null}} : \beta 1 = \beta 2 = \beta 3 = \beta 4 = \beta 5 = 0 \text{ and } \gamma 1 = \gamma 2 = \gamma = \gamma 4 = \gamma 5 = 0$$

It is possible to reject the null hypothesis that there is no co-integration when the estimated F-statistics surpass the upper boundaries. Acaravci, Acaravci, and Ozturk (2011) explained that when there is any evidence of a long-run relationship (co-integration), then the following long-run and short-run models can be acquired and estimated :

$$LNREER_t = a + \omega T + \phi_1 D_{reer} + \sum_{j=1}^{p} \gamma_{1J} \Delta \mathrm{LNREER}_{t-1} + \sum_{j=0}^{q} \gamma_{2j} \Delta \mathrm{LNSKUK}_{t-J} + \sum_{j=0}^{q} \gamma_{3j} \Delta \left[\frac{\mathrm{LNMSKH}}{LNCR} \right]_{t-J} + \sum_{j=0}^{R} \gamma_{4J} \Delta \mathrm{LNINTERB}_{t-J} + \sum_{j=0}^{S} \gamma_{5J} \Delta \mathrm{LNGP}_{t-J} + U_t$$ ..... Equation 2

$$\Delta LNREER_t = a + \omega T + \phi_1 D_{reer} + \sum_{j=1}^{p} \gamma_{1J} \Delta \mathrm{LNREER}_{t-1} + \sum_{j=0}^{q} \gamma_{2j} \Delta \mathrm{LNSKUK}_{t-J} + \sum_{j=0}^{q} \gamma_{3j} \Delta \left[\frac{\mathrm{LNMSKH}}{LNCR} \right]_{t-J} + \sum_{j=0}^{R} \gamma_{4J} \Delta \mathrm{LNINTERB}_{t-J} + \sum_{j=0}^{S} \gamma_{5J} \Delta \mathrm{LNGP}_{t-J} + \Psi ECT_{t-1} + U_t$$ .....

Equation 3

Equations 2 and 3 represent long-run and short-run relationships, and Ψ shows the speed of adjustment to equilibrium in the long run (Deka & Dube 2021). The coefficient should have a statistically significant negative sign to validate the long-run relationship (Atri, Kouki, & Gallali, 2021). This study uses serial correlation, heteroskedasticity, normality, and functional form to test the model's validity. According to Shahbaz, Islam, and Rehman (2016) and Bahmani-Oskooee and Kanitpong (2017), a test for the stability of the long-run and short-run coefficients is needed to study employing the CUSUM and CUSUM sq test.

RESULT AND DISCUSSION

Stationary test

The unit root test for stationarity uses the Fisher-Augmented Dickey-Fuller (Fisher-ADF) test for individual roots, and the result is in the table below :

Table 1. Unit Root test using Fisher-ADF

	Level		**First difference**	
	Individual intercept	**Individual intercept and trend**	**Individual intercept**	**Individual intercept and trend**
ADF-Fisher	Stat 10,95	Stat 8,35	Stat 300,8	Stat 280,2
Chi-square	Prob.0,36	Prob. 0,59	Prob. 0,000	Prob.0,000
Adf-choi z stat	Stat -0,09	Stat. 1,17	Stat -16,14	Stat -15,45
	Prob. 0,46	Prob.0,88	Prob. 0,000	Prob. 0,000
Variables	**Prob.**		**Prob.**	
D(LNREER)	0,140	0,376	0,0000	0,0000
D(LNSKUK)	0,974	0,060	0,0000	0,0000
D(LNMSKH/LNCR)	0,130	0,995	0,0000	0,0000
D(LNINTERB)	0,351	0,763	0,0000	0,0000
D(LNGP)	0,667	0,881	0,0000	0,0000

Source: Researcher, 2022

Based on the above unit root test using Fisher-ADF, all variables are integrated into order 1, or I*(1)*. Since no one has I*(2),* then ARDL bound test approach can be used to estimate the parameter.

Structural break and lag length

The Lee and Strazicich (LS) test analyze structural break in time series variable. Furthermore, it detects one or two structural breaks in time series data with two models. This study uses model A (crash), which allows a one-time change in level (Lee & Strazicich, 2003) to detect a structural break in the exchange rate (REER) as a dependent variable.

In line with Altinay (2005), this study sets $k = 8$ as the maximum order of lag, with a t statistic greater than 1,645 (10% significance level) in absolute value. The null hypothesis of the exchange rate has a unit root with a break that cannot be rejected (minimum test statistics: -2,756), and the structural breakpoint was in May 2014. Based on Syafina (2014), the average rupiah's exchange rate weakened by 0.81%. Bist and Bista (2018) stated that to accommodate the structural break, the dummy variable is placed into an independent variable with a value of 0 until May 2014.

Before running ARDL bound test model (Equation 1), it is important to determine the maximum lag on the model. Therefore, this study is consistent with Majid and Yusof's (2009) findings by imposing lag order from 1 to 12 and computing F-statistics. Maximum lag is determined by the value that gives higher F-statistics, and the results are as follows.

Table 2. F statistics from the order of lag

ORDER OF LAG	F-STATISTICS
1	3,928
2	6,038
3	6,331
4	8,501
5	9,112
6-9	10,066
10	9,548
11	9,274
12	9,764

Source: Researcher, 2022.

Based on Table 2, when lags are selected from 6 to 9, it gives the higher f-statistics among others. Therefore, this study selects 6 as the maximum lag for executing the ARDL model.

Test for co-integration

With 6 maximum lag, Equation 1 is executed by Eviews 10 using linear trend and *akaike info criteria* (AIC). The results showed that the optimal length for the lag is ARDL (3,3,2,6,5,4), as depicted in Figure 2 below.

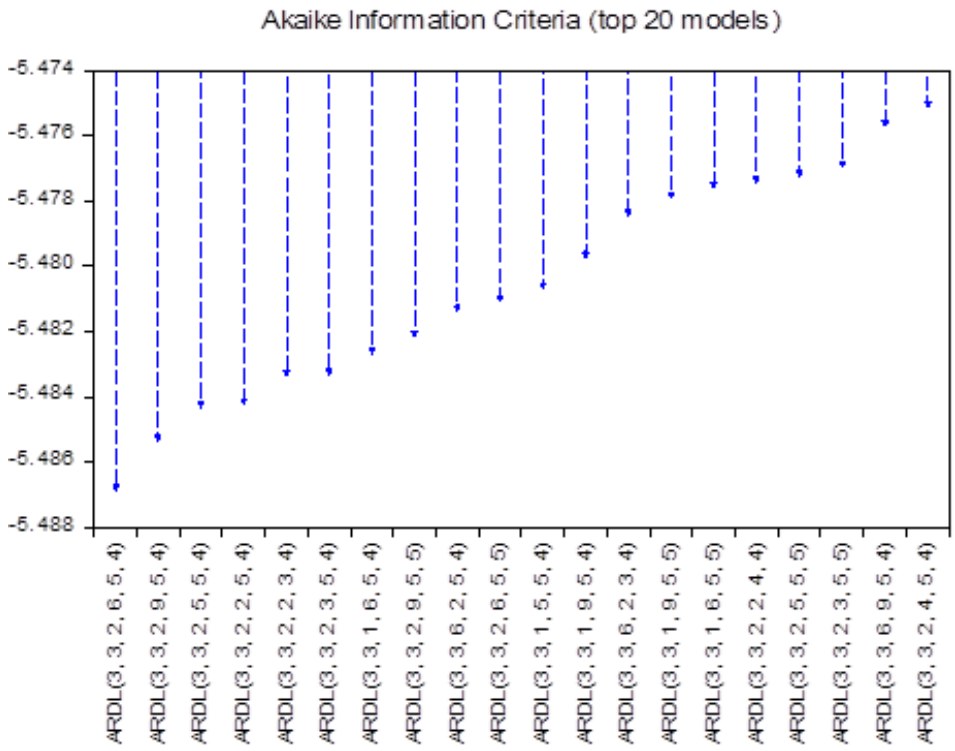

Figure 2. AIC for model selection

Source: Researcher, 2022.

For the co-integration, this study used the bound test. Omar, Hussin, and Ali GH (2015) explained that when the computed F-statistics is higher than the upper bounds critical value, the null hypothesis of "no long-run relationships exist" can be rejected. The result of the bound test is depicted in Table 3 below.

Table 3. Bound test resultNull

Hypothesis: No long-run relationships exist

Null Hypothesis: No long - run relationships exist

Test Statistic	Value	k
F - statistic	10.06611	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.75	3.79
5%	3.12	4.25
2.5%	3.49	4.67
1%	3.93	5.23

Source: Researcher, 2022

According to the result, F-statistics (10,066) is higher than the upper bound critical value of 1%. Therefore, the null hypothesis can be rejected with 1% significance

Long run and short estimation

Furthermore, after knowing that co-integration may exist based on the bound test result, the next step is to execute Equations 2 and 3 to determine the short-run, long run, and also the speed of adjustment depicted from ECT_{t-1} coefficient in Equation 3.

The long-run result is presented as follows.

The dependent variable is LNREER, ARDL (3,3,2,6,5,4) selected based on AIC

Case 5: Unrestricted Constant and Unrestricted trend

Table 4. Long-run Estimation Results

Regressor	Coefficient	Std. Error	t-Statistic	Prob.
DUMMY	0.0 349	0.03 1513	1.109755	0. 2700
LNSKUK	0.0 5914	0.05 7012	1.037350	0. 3023
LNMSKH /LNCR	-5.8294 6	1.775030	-3. 284131	0.00 14
LNINTERB	0.2 322 6	0.0 74733	3.108028	0.00 25
LNGP	0. 2302 Q	0.1 03684	2.220399	0.0 288

Source: Researcher, 2022

Note: 6 and Q indicate the significant level at 1% and 5%, respectively

Table 4 indicates that the ratio of *musyarakah* to a total loan of conventional banks (LNMSKH/LNCR) and interbank interest rate (LNINTERB) are significant at a 1% level of significance, with gold price (LNGP) of 5%, unlike National sukuk (LNSKUK). According to the elasticity coefficient, the ratio of *musyarakah* to total loan of conventional banks (LNMSKH/LNCR) has the highest effect on the exchange rate compared to the other significant variables by 5.83 % with a negative sign. INTERB and GP have a positive and significant effect on the exchange rate by only 0.23% each.

For the *musyarakah* variable*,* this result implied that the decrease in the ratio will affect the rise of Indonesia's REER by 5,82%, *cateris paribus.* The rise of REER indicates that exports will become more expensive, and Indonesia will lose trade competitiveness. This result also implied that Bank Indonesia should pay more attention to *musyarakah* financing as Islamic monetary transmission.

Furthermore, the long-run results also showed that GP positively and significantly affects the exchange rate. This result is slightly similar to Balcilar, Gupta, and Pierdzioch (2017), which found that GP can predict return and exchange rate volatility. Han et al. (2012)

also confirmed that the exchange rate relates to GP in the short-run and long-run. Shastri and Shastri (2016) stated that the interest rate has a long-run relationship with India's exchange rate. However, this result differs from Wang and Lee's (2021) study of GP and exchange rates in five major world currencies.

In the short-run model (Equation 3), the ECM coefficient presented in Table 5 shows how quickly/slowly the variable return to equilibrium (Pahlavani, 2005). For the study period, the coefficient of the equilibrium correction (ECM lagged one period) is 0.358, indicating a moderate speed of adjustment. According to the interpretation of Nguyen and Ngoc (2020), 3.17 or at least 3 months is the time needed for an adjustment (=1/ $|\Psi|$).

Table 5. Short-run Estimation Results

The dependent variable is LNREER, ARDL (3,3,2,6,5,4) selected based on AIC

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.784772	0.224673	7.943859	0.0000
@TREND	0.001317	0.000161	8.156767	0.0000
D(LNREER(-1))	0.170392	0.075859	2.246169	0.0271
D(LNREER(-2))	-0.290048	0.074043	-3.917282	0.0002
D(DUMMY)	-0.038879	0.014493	-2.682619	0.0087
D(DUMMY(-1))	-0.021210	0.015156	-1.399407	0.1651
D(DUMMY(-2))	-0.041210	0.014835	-2.777801	0.0066
D(LNSUKUK)	-0.030520	0.015880	-1.921939	0.0577
D(LNSUKUK(-1))	-0.025576	0.016502	-1.549858	0.1246
D(LNMSKH LNCR)	5.691799	1.210601	4.701632	0.0000
D(LNMSKH LNCR(-1))	6.264152	1.263604	4.957368	0.0000
D(LNMSKH LNCR(-2))	2.592723	1.211573	2.139964	0.0350
D(LNMSKH LNCR(-3))	1.835667	1.212759	1.513629	0.1335
D(LNMSKH LNCR(-4))	2.561404	1.178592	2.173274	0.0323
D(LNMSKH LNCR(-5))	1.737152	1.129666	1.537758	0.1275
D(LNINTERB)	-0.018083	0.042116	-0.429373	0.6687
D(LNINTERB(-1))	0.041327	0.051866	0.796802	0.4276
D(LNINTERB(-2))	-0.218246	0.050538	-4.318489	0.0000
D(LNINTERB(-3))	-0.015516	0.052015	-0.298291	0.7662
D(LNINTERB(-4))	-0.121650	0.041439	-2.935654	0.0042
D(LNGP)	0.016281	0.041543	0.391912	0.6960
D(LNGP(-1))	0.008068	0.042362	0.190449	0.8494
D(LNGP(-2))	-0.129031	0.042581	-3.030272	0.0032
D(LNGP(-3))	-0.157844	0.045130	-3.497534	0.0007
CointEq(-1)*	-0.315380	0.039522	-7.979919	0.0000

Source: Research, 2022

The finding of short-run coefficients in Table 5 showed that corporate *sukuk* (SKUK) and also ratio of *musyarakah* to a total loan of conventional banks have a short-run impact on the exchange rate at a 5% level of significance. In contrast, INTERB and GP can affect the exchange rate with a lag.

Stability test for parameter

This study employs several diagnostic tests, such as Breusch-Pagan-Godfrey, to analyze the presence of heteroscedasticity, Ramsey-reset for functional form, Jarque-Bera for normality, and Breusch-Godfrey serial correlation. Furthermore, it passes all the tests for heteroscedasticity, serial correlation, and functional form.

Hasan and Nasir (2008) explained the concept of autocorrelation conflicts with normal distribution. The study showed conflicting results where the data are normally distributed but do not pass autocorrelation. The study of Maski, Kafabih, and Hoetoro (2018) reported the same result where data is normally distributed but does not pass the autocorrelation test. The same pattern cannot be avoided where there is no serial correlation, but the data do not pass the normality test. Turner (2012) explained that cusum and cusum sq has the power to detect parameter instability. Cusum is instability in intercept, and cusum sq is slope coefficient or error term's variance. The results are presented in Figures 3 and 4 below.

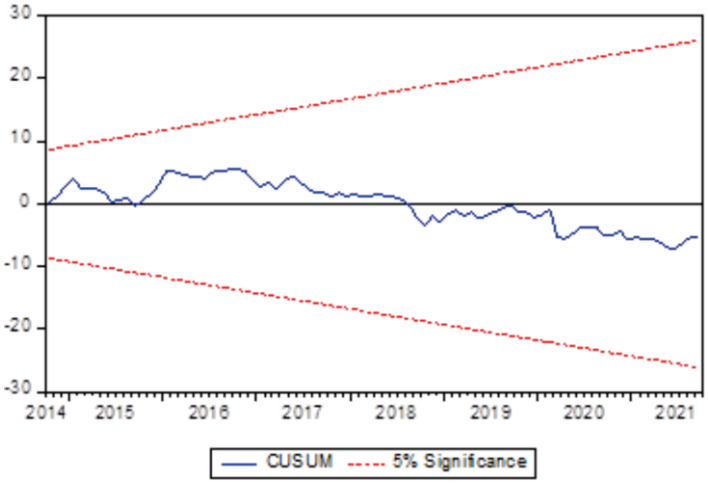

Figure 3. Cusum Result

Source: Researcher, 2022

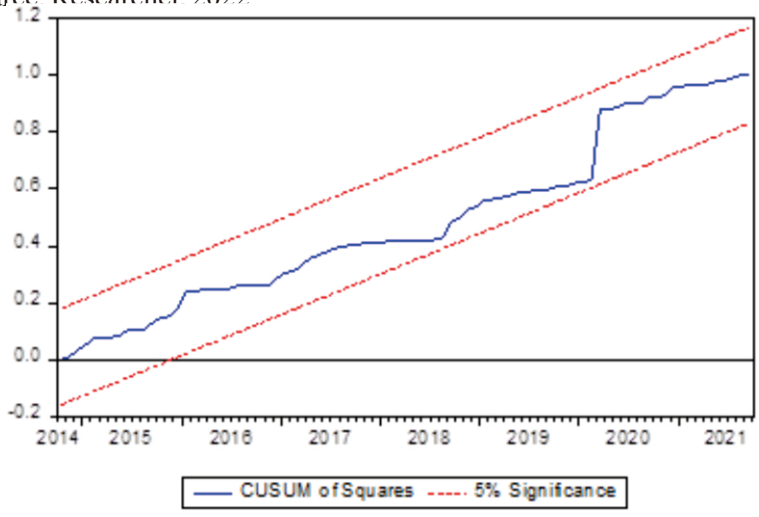

Figure 4. CusumSQ result
Source: Researcher, 2022

From the above CUSUM and CUSUMSQ figures, it can be stated that these plots (blue line) stay within the critical 5% bonds (red line). According to Kaur (2019), the long-run relationships among variables can be confirmed to show the stability of the coefficient over the sample period.

CONCLUSION

The exchange rate is important for determining price stability as the main objective of Bank Indonesia. The case of the exchange rate crisis of 97/8 is one example. As Indonesia applied a dual financial system based on conventional and Islamic economic perspectives, this study investigated the performance of Islamic and conventional monetary transmission on exchange rates. In the Islamic monetary system, two transmissions are through *musyarakah* financing (Islamic bank credit transmission) and corporate *sukuk* (asset price transmission). In contrast, an INTERB is in the conventional monetary system. This study also included GP as a control variable to determine the exchange rate. *Musyarakah* is proxied by the ratio to a total loan of conventional banks, INTERB, and GP, significantly affecting the exchange rate in the long-run. The results showed that the performance of Islamic monetary transmission through *musyarakah* financing has more effect on exchange rates than INTERB. Therefore, Bank Indonesia should focus on Islamic monetary transmission through *musyarakah* financing rather than interbank interest rate to stabilize exchange rate. In the short-run, corporate *sukuk* and *musyarakah* financing can impact the exchange rate without any lag even with different level of significance (10% and 1% , respectively). Meanwhile, INTERB and GP can also affect the exchange rate with lag (second month onward for each).

BIBLIOGRAPHY

Acaravci, S. K., Acaravci, A., & Ozturk, I. (2011). Stock Returns and Inflation Nexus in Turkey: Evidence from ARDL Bounds Testing Approach. *Economic Computation and Economic Cybernetics Studies and Research, 3*.

Akmal, M. S. (2007). Stock Returns and Inflation: An ARDL Econometric Investigation Utilizing Pakistani Data. *Pakistan Economic and Social Review, 45*(1), 89-105.

Altinay, G. (2005). Structural Breaks in Long-term Turkish Macroeconomic Data, 1923-2003. *Applied Econometrics and International Development, 5*(4), 117-130.

Ariff, M., Zarei, A., & Bhatti, M. I. (2021). Monitoring Exchange Rate Instability in 12 Selected Islamic Economics. *Journal of Behavioral and Experimental Finance, 31*, 1-10. doi : https://doi.org/10.1016/j.jbef.2021.100517.

Atri, H., Kouki, S., & Gallali, M. I. (2021). The Impact of COVID-19 News, Panic and Media Coverage on The Oil and Gold Prices: An ARDL Approach. *Resources Policy, 72*, 1-11. doi : https://doi.org/10.1016/j.resourpol.2021.102061.

Bahmani-Oskooee, M., & Kanitpong, T. (2017). Do Exchange Rate Changes Have Symmetric or Asymmetric Effects on The Trade Balances of Asian Countries?. *Applied Economics, 49*(46), 4668-4678. doi: http://dx.doi.org/10.1080/00036846.2017.1287867.

Balcilar, M., Gupta, R., & Pierdzioch,C. (2017). On Exchange-Rate Movements and Gold-Price Fluctuations: Evidence for Gold-Producing Countries From A Nonparametric Causality-in-Quantiles Test. *Int Econ Econ Policy, 14*, 691-700. doi : 10.1007/s10368-016-0357-z.

Bank Indonesia. *Monetary policy objectives.* Retrieved December 12, 2021, from : https://www.bi.go.id/en/fungsi-utama/moneter/Default.aspx

Bist, J. P., & Bista, N. B. (2018). Finance-Growth Nexus in Nepal: An Application of The ARDL Approach in The Presence of Structural Breaks. *VIKALPA The Journal of Decision Makers, 43*(4), 236-249. doi: 10.1177/0256090918813211.

Cansado-Bravo, P., & Rodriguez-Monroy, C. (2020). The Effects of Structural Breaks on Energy Resources in the Long Run. Evidence from the Last Two Oil Price Crashes before COVID-19. *Designs, 4*, (49). doi: 10.3390/designs4040049.

Case, C. E., Fair, R. C., & Oster, S. M. (2012). *Principle of Economics (10th ed.).* Boston: Pearson Education.

Danylyshyn, B., Dubyna, M., Zabashtanskyi, M., Ostrovska, N., Blishchuk, K., & Kozak, I. (2021). Innovative Instruments of Monetary and Fiscal Policy. *Universal Journal of Accounting and Finance, 6*(6), 1213-1221. doi: 10.13189/ujaf.2021.090601.

Data World Bank. *Inflation, Consumer price (annual %)- Indonesia*. retrieved: December 12, 2021, from: https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?end=2001&locations=ID&start=1992.

Deka, A., & Dube, S. (2021). Analyzing The Causal Relationship between Exchange Rate, Renewable Energy and Inflation of Mexico (1990– 2019) with ARDL Bounds Test Approach. *Renewable Energy Focus, 37*, 78-83. doi: https://doi.org/10.1016/j.ref.2021.04.001.

Drine, I., & Rault, C. (2006). Learning about The Long Run Determinants of Real Exchange Rate for Developing Countries: A Panel Data Investigation. *Contributons to Economic Analysis, 274,* 307-325. doi: 10.1016/S0573-8555(06)74012-3.

Ellis, L. (2001). Measuring the Real Exchange Rate: Pitfalls and Practicalities. *research Discussion paper. 2001-04.* Economic Research Departemnt Reserve Bank of Australia.

Funashima, Y. (2020). Money Stock versus Monetary Base in Time-Frequency Exchange Rate Determination. *Journal of International Money and Finance, 104*. doi: https://doi.org/10.1016/j.jimonfin.2020.102150.

Goh, S. K., & McNown, R. (2015). Examining The Exchange Rate Regime–Monetary Policy Autonomy Nexus: Evidence from Malaysia. *International Review of Economics and Finance, 35,* 292-303. doi: http://dx.doi.org/10.1016/j.iref.2014.10.006.

Han, A., Lai, K. K., Wang, S., & Xu, S. (2012). An Interval Method for Studying The Relationship between The Australian Dollar Exchange Rate and The Gold Price. *J Syst Sci complex, 25,* 121-132. doi: 10.1007/s11424-012-8116-x.

Hasan, A., & Nasir, Z. M. (2008). Macroeconomic Factors and Equity Prices: An Empirical Investigation by Using ARDL Approach. *The Pakistan Development Review, 47*(4), 501-513. doi: https://doi.org/10.30541/v47i4IIpp.501-513.

He, Q., Liu, J., & Zhang, C. (2021). Exchange Rate Exposure and its Determinants in China. *China Economic Review, 65,* 1-19. doi: https://doi.org/10.1016/j.chieco.2020.101579.

Ismal, R. (2021). Assessing The Application of Islamic and Conventional Hedgings in Indonesia. *International Journal of Islamic and Middle Eastern Finance and Management, 15*(1), 32-47. doi: 10.1108/IMEFM-06-2020-0300.

Kaur, G. (2019). Inflation and Fiscal Deficit in India: An ARDL Approach. *Global Business Review, 22*(6), 1-12. doi: 10.1177/0972150919828169.

Kim, J., Kim, S., & Park, D. (2020). Monetary Policy Shock and Exchange Rates in Asian Countries. *Japan & The World Economy, 56,* 1-19. doi: https://doi.org/10.1016/j.japwor.2020.101041.

Lee, J., & Strazicich, M. C. (2003). Minimum Lagrange Multiplier Unit Root Test with Two Structural Breaks. *The Review of Economics and Statitics, 85*(4), 1082-1089.

Mankiw, G. N. (2013). *Macroeconomics.* New York: Worth Publishers.

Majid, M. S. A., & Yusof, R. M. (2009). Long-run Relationship between Islamic Stock Returns and Macroeconomic Variables: An Application of The Autoregressive Distributed Lag Model. *Humanomics, 25*(2), 127 – 141. doi: http://dx.doi.org/10.1108/08288660910964193.

Maski, G., Kafabih, A., & Hoetoro, A. (2018). Testing Profit and Loss Sharing to Stabilise Level of Inflation: Evidence From Indonesia. *Research in World Economy,9*(2), 12-23. doi: 10.5430/rwe.v9n2p12.

Mishkin, F. S. (2016). *The Economics of Money, Banking, and Financial Market (11th ed.).* Harlow: Pearson Education Limited.

Nguyen, H. M., & Ngoc, B. H. (2020). Energy Consumption - Economic Growth Nexus in Vietnam: An ARDL Approach with a Structural Break. *Journal of Asian Finance, Economics and Business, 7*(1), 101-110. doi: 10.13106/jafeb.2020.vol7.no1.101.

Oloko, T. F. *et al.* (2021). Fractional Co-integration between Gold Price and Inflation Rate: Implication for Inflation Rate Persistence. *Resources Policy, 74,* 1-11. doi: https://doi.org/10.1016/j.resourpol.2021.102369.

Omar, W.A.W., Hussin, F., & Ali G. H. A. (2015). The Empirical Effects of Islam on Economic Development in Malaysia. *Research in World Economy. 6*(1), 99-111. doi: http://dx.doi.org/10.5430/rwe.v6n1p99.

Pahlavani, M. (2005). Cointegration and Structural Change in The Exports-GDP Nexus: The Case of Iran. *International Journal of Applied Econometrics ad Quantitative Studies, 2*(4), 37-56.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bound Test Approaches to Analysis of Level Relationships. *Journal of Applied Econometrics, 16,* 289-326. doi:10.1002/jae.616.

Rahman, R. E. (2021). Understanding Indonesia's Exchange Rate Behavior. *Studies in Economics and Finance, 38*(2), 189-206. doi: 10.1108/SEF-09-2018-0296.

Rashid, A., & Basit, M. (2021). Empirical determinants of Exchange-rate Volatility: Evidence from Selected Asian Economies. *Journal of Chinese Economics and Foreign Trade studies, 15*(1), 63-86. doi: 10.1108/JCEFTS-04-2021-0017.

Raza, S. A., Shah, N., Ali, M., & Shahbaz, M. (2021). Do Exchange Rates Fluctuations Influence Gold Price in G7 Countries? New Insights from a Nonparametric Causality-in-Quantiles Test. *Zagreb International Review of Economics & Business, 24*(2), 37-57. doi: 10.2478/zireb-2021-0010.

Rodriguez, C. M. (2016). Economics and Political Determinants of Exchange Rate Regimes: The Case of Latin America. *Internationl Economics, 147,* 1-26. doi: http://dx.doi.org/10.1016/j.inteco.2016.03.001.

Rossi, B. (2013). Exchange Rate Predictability. *Journal of Economic Literature, 51*(4), 1063-1119. doi: http://dx. doi. org/10.1257/jel. 51.4.1063.

Sadli, M. (1998). The Indonesian Crisis. *ASEAN Economic Bulletin, 15*(3), 272-280.

Soesastro, H., & Atje, R. (2005). Survey of Recent Developments. *Bulletin of Indonesian Economic Studies, 41*(1), 5-34. doi:http://dx.doi.org/10.1080/00074910500072641.

Shahbaz, M., Islam, F., & Rehman I. U. (2016). Stocks as Hedge against Inflation in Pakistan: Evidence from ARDL Approach. *Global Business Review, 17*(6), 1-16. doi: https://doi.org/10.1177/0972150916660393.

Shastri, S. & Shastri, S. (2016). Exchange Rate Interest Rate Linkages in India: An Empirical Investigation. *Journal of Financial Economic Policy, 8*(4), 443-457. doi: 10.1108/JFEP-06-2015-0038.

Suriani, S., et. al. (2021). Sukuk and Monetary Policy Transmision in Indonesia: The Role of Asset Price and Exchange Rate Channels. *Journal of Islamic Accounting and Business Research, 12*(7), 1015-1035. doi: 10.1108/JIABR-09-2019-0177.

Syafina, D. C. (2014). *Pada Mei 2014, rupiah rata-rata melemah 0,81%.* Retrieved from National Kontan Online Newspaper : https://nasional.kontan.co.id/news/pada-mei-2014-rupiah-rata-rata-melemah-081

Syarifuddin, F., & Sakti, A. (2021). *Instrumen Moneter Islam.* Depok: Rajawali Pers.

The World Bank Report. (1998). *Indonesia in Crisis: A Macroeconomcs Update.* Washington DC: The World Bank.

Turner, P. (2009). Power Properties of The CUSUM and CUSUMSQ Tests for Parameter Instability. *Applied Econometrics Letters,17*(11), 1049-1053. doi: http://dx.doi.org/10.1080/00036840902817474.

Vural, B. M. T. (2019). Determinants of Turkish Real Effective Exchange Rates. *The Quarterly Review of Economics and Finance. 73,* 151-158. doi: https://doi.org/10.1016/ j.qref.2018.06.004.

Wang, K., & Lee, Y. (2021). Is Gold A Safe Haven for Exchange Rate Risks? An Empirical Study of Major Currency Countries. *Journal of Multinational Financial Management, 63,* 1-15. doi: https://doi.org/10.1016/j.mulfin.2021.100705.