“The response of asset prices to monetary policy shock in Indonesia: A structural VAR approach”

AUTHORS	Indra Suhendra Cep Jandi Anwar

ARTICLE INFO	Indra Suhendra and Cep Jandi Anwar (2022). The response of asset prices to monetary policy shock in Indonesia: A structural VAR approach. *Banks and Bank Systems*, *17*(1), 104-114. doi:10.21511/bbs.17(1).2022.09
DOI	http://dx.doi.org/10.21511/bbs.17(1).2022.09
RELEASED ON	Friday, 25 March 2022
RECEIVED ON	Monday, 02 August 2021
ACCEPTED ON	Monday, 14 February 2022

JOURNAL	"Banks and Bank Systems"
ISSN PRINT	1816-7403
ISSN ONLINE	1991-7074
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
23	3	5

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

Indra Suhendra (Indonesia), **Cep Jandi Anwar** (Indonesia)

THE RESPONSE OF ASSET PRICES TO MONETARY POLICY SHOCK IN INDONESIA: A STRUCTURAL VAR APPROACH

Abstract

This paper aims to determine the effect of central bank monetary policy on financial asset prices in Indonesia from 1990 Q1 to 2020 Q4. Furthermore, this study measures the responses of three different asset prices: bond yield, stock price and exchange rate to central bank rate shocks using the structural vector autoregression model. The impulse response functions showed that tightening monetary policy in Indonesia appreciated the exchange rate in four periods, lowered stock prices in five periods, and increased bond yield in all periods. These results imply that an increase in monetary policy interest rate appreciates exchange rate, lowers the stock price, and reduces bond yield. The result of variance decomposition showed that the most dominant central bank rate prediction was in predicting forecast error variance of bond yield but the smallest in predicting forecast error variance of the exchange rate. These results corroborated the hypothesis that tightening monetary policy in Indonesia increases financial asset prices. It also highlighted the informational role of monetary policy interest rate in stabilizing financial asset prices.

Keywords central bank interest rate, exchange rate, stock price, bond yield, Indonesia, impulse response function

JEL Classification E31, E58, G12

Received on: 2nd of August, 2021
Accepted on: 14th of February, 2022
Published on: 25th of March, 2022

Indra Suhendra, Ph.D., Assistant Professor, Faculty of Economics and Business, Department of Economics and Development Studies, University of Sultan Ageng Tirtayasa, Indonesia. (Corresponding author)

Cep Jandi Anwar, Ph.D., Assistant Professor, Faculty of Economics and Business, Department of Economics and Development Studies, University of Sultan Ageng Tirtayasa, Indonesia.

Conflict of interest statement:
Author(s) reported no conflict of interest

INTRODUCTION

2008–2009 global financial crisis triggered an increased research interest in the influence of the central bank monetary policy on the stabilization of the financial system both at macro and micro levels. The experience of financial asset price bubbles during financial instability led to the emergence of considerable research to investigate the association between financial asset prices and monetary policy. Some argue that asset price bubbles were due to excessive financial system liquidity and easy monetary policy. Others focused on the policy choice, emphasizing that monetary policy was neither an appropriate device for controlling the bubble in financial markets nor the principal cause of the asset price bubble (Bernanke, 2020). The drivers, direction, and magnitude of the impact remain inconclusive. According to Claessens and Kose (2017), asset prices are categorized into bond yield, stock price and exchange rate.

This paper contributes to the empirical literature in three ways. First, it examines the responses of asset prices to changes in the central bank policy rate and selected macroeconomic indicators using a different approach from prior studies. This was achieved by separating asset prices into the exchange rate, stock prices, and bond yield. Second, the approach focuses on responses of asset prices to structural shocks due to central bank innovations with a structural vector autoregressive or

http://dx.doi.org/10.21511/bbs.17(1).2022.09

SVAR model on key macroeconomic indicators, which is a novelty. The third aspect is the significantly updated validity to vast literature regarding the relationship between central bank rates and three asset prices, which supports the existence theory of the central bank policy rate on the exchange rate, stock prices, and bond yield.

This study focuses on Indonesia as a single country case study instead of panel studies common in the literature to capture the exact influence of the central bank monetary policy on the exchange rate, stock prices, and bond yield. The main issue is the transmission of monetary policy innovations to financial asset prices regarding portfolio adjustment to financial stability. Indonesia provides a unique example as a developing country for this study due to the following reasons. First, Indonesia switched from the fixed to free-floating exchange rate regime in August 1997, at the height of the Asian financial crisis of 1997. Under the fixed exchange rate system, Bank Indonesia fully controlled the domestic and foreign monetary base. Second, Indonesia reformed its central bank Act in 1999, providing Bank Indonesia independence in conducting its roles free from political interference. Thirdly, according to Kuncoro (2020), Indonesia's central bank has been pursuing inflation targeting in its monetary policy framework since 2005.

1. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The empirical study on the association between financial asset prices and monetary policy has continued to evolve with every crisis experience. Most previous studies have focused on the nexus between specific asset prices and monetary policy shock. Most of the previous research examined the relationship between asset prices and monetary policy shock. Abu Asab et al. (2018), Kearns and Manners (2018), Kuncoro (2020), Özen et al. (2020), Sen et al. (2020), and Yung (2021) focused on the link between the monetary policy rate and exchange rate. Others like Moya-Martínez et al. (2015), Aljarayesh et al. (2018), and Eldomiaty et al. (2019) examined the influence of monetary policy innovation on stock prices. While Fontana and Scheicher (2016), Ehling et al. (2018), Timmer (2018), and Anwar and Suhendra (2020) looked at the effect of alterations in the policy interest rates on bond yield.

The subject matter regarding the influence of the central bank policy interest rate on exchange rate dynamics has received a lot of empirical interest, for instance, the work of Galí (2014), Kearns and Manners (2018), Kuncoro (2020), Özen et al. (2020), Sen et al. (2020), and Yung (2021). In particular, Yung (2021) assessed the role of interest rates on fluctuating exchange rates using country pair data from 1980 to 2015 and observed that interest rates significantly influence exchange rate fluctuation.

Similarly, using panel data, Sen et al. (2020) established a significant negative link between interest rate shock and the currency in five developing countries, namely, Indonesia, India, Turkey, Brazil, and South Africa, using monthly data from 2013 to 2018. Sen et al. (2020) propose that in these nations, there is a negative link between the exchange rate and the central bank interest rate. Using the time-series technique, Özen et al. (2020) investigated the association between Turkey's inflation, central bank interest rate, and exchange rate. At the same time, Kuncoro (2020) examined the effect of central bank policy rates on the exchange rate volatility in Indonesia. Employing the event study techniques on intraday data, Kearns and Manners (2006) evaluated the effect of the central bank policy interest rate shock on the exchange rate of the United Kingdom, Canada, New Zealand, and Australia. They observed that tightening monetary policy causes an increase in the exchange rate. Thus, the first hypothesis is the central bank policy interest rate leads to decrease exchange rate.

In terms of the nexus between monetary policy shock and equity stock prices, the researchers have continued to evolve, for instance, Aljarayesh et al. (2018), Eldomiaty et al. (2019), Moya-Martínez et al. (2015), but the focus was on advanced and

emerging market economies with well-developed stock markets. For example, Eldomiaty et al. (2019) studied the influence of central bank interest rates and inflation on the DJIA30 and NASDAQ100 from 1999 to 2016 and discovered a negative link between stock prices and interest rates, whereas a positive relationship exists between stock prices and inflation. In contrast, Aljarayesh et al. (2018) investigated the impact of interest rates on stock market returns in Jordan using monthly data from 2006 to 2016. The findings concluded that stock prices respond positively to a unit monetary policy shock. Using industry-level information from Spanish banks, Moya-Martínez et al. (2015) investigated the link between monetary policy innovation and the stock market indices and found a negative association. Thus, the second hypothesis is that the central bank policy interest rate leads to higher stock prices.

The empirical literature extends to examine the influence of monetary policy interest rate on bond yield, in the approach of Ehling et al. (2018), Fontana and Scheicher (2016), Hsing (2015), and Timmer (2018). Indeed, Timmer (2018) discovered a positive association between bond yield and interest rate using quarterly panel data from 20 countries over 1999Q1 to 2014Q3. Similarly, Ehling et al. (2018) analyzed the link between inflation, policy rate, and bond yield using monthly data from January 1978 to June 2014 and quarterly data from 1981Q1 to 2014Q2 for the US and established that there was a positive impact of inflation and central bank monetary policy rate on bond yield. Meanwhile, Fontana and Scheicher (2016) utilized weekly data from January 2007 to December 2012 in the Euro area to establish a positive effect of interest rate on bond yield. Thus, the third hypothesis is central bank policy interest rate leads to a lower bond yield.

The hypotheses of this paper are as follows:

H_1: *The central bank policy interest rate leads to decreased exchange rate.*

H_2: *The monetary policy interest rate leads to higher stock prices.*

H_3: *The central bank policy interest rate leads to a lower bond yield.*

Even though the influence of monetary policy shock has been linked to changes in financial asset prices, the findings continue to be mixed and inconclusive (see, for instance, Aljarayesh et al., 2018; and Eldomiaty et al., 2019). In addition, a little attempt has been made to examine the impact and the transmission process jointly. Moreover, communication of the monetary policy action of Bank Indonesia, an inflation-targeting central bank, is transparent with foreword guidance to agents. Understanding the influence of the central bank monetary policy shock on the fluctuation of asset prices is empirical to provide public policy and financial stability information. This study aims to examine this nexus with the SVAR model critically.

2. METHOD

2.1. Data

Indonesia's macro data from Q1 1990 to Q4 2020 were compiled for empirical analysis in this study. These data were compiled from Bloomberg and the International Financial Statistic databases. The description of the variables is as follows.

A benchmark interest rate set by Bank Indonesia for commercial banks to use when extending bank credit is referred to as the Central Bank policy rate (%). The Central Bank policy rate is thought to have a negative impact on credit banking, since it is utilized by commercial banks to establish the interest rate on loans to borrowers. Indirectly, rising Central Bank rates raise interest rates, reducing credit extended due to high interest rates.

The exchange rate is the nominal currency of Indonesia Rupiah against the US Dollar. The data exchange rate worked in terms of logarithm and was retrieved from Bloomberg. The stock price was the Jakarta stock index measured in local currency obtained from Bloomberg and a logarithm. The government securities interest rate was utilized as a proxy for bond yield in this study, and the data was obtained from Bloomberg.

This paper also included some control variables. Inflation is measured as the percentage increase in the consumer price index over the preceding

http://dx.doi.org/10.21511/bbs.17(1).2022.09

quarter's corresponding period and is provided by the International Financial Statistics from the International Monetary Fund (IMF). The output gap is measured using the Hodrick-Prescott filter and the actual output and its potential difference. Furthermore, money per GDP is the ratio of the total value of money in Indonesia divided by GDP. The data were obtained from the International Financial Statistic.

2.2. Econometric methodology

The econometric methodology in this study involved Structural VAR (SVAR) estimation in analyzing the effect of the central bank monetary policy on financial asset prices in Indonesia. The SVAR was selected instead of standard VAR, as the standard VAR cannot reveal the economic structure due to the absence of any current influence among variables. This paper developed three SVAR models based on three different asset prices with five variables for each model. The first model included the central bank monetary policy interest rate, exchange rate, output gap, inflation, and money per GDP. The second included the central bank rate, stock prices, inflation, output gap, and money per GDP. Finally, the third model included the central bank rate, bond yield, inflation, output gap, and money per GDP.

This study followed the SVAR model by Kang et al. (2015), a simple one-period lag model which is illustrated as follows:

$$\begin{pmatrix} 1 & a_{12} \\ a_{21} & 1 \end{pmatrix}\begin{pmatrix} y_{1,t} \\ y_{2,t} \end{pmatrix} = \\ = \begin{pmatrix} \gamma_{11} & \gamma_{12} \\ \gamma_{21} & \gamma_{22} \end{pmatrix}\begin{pmatrix} y_{1,t-1} \\ y_{2,t-1} \end{pmatrix} + \begin{pmatrix} \varepsilon_{1,t} \\ \varepsilon_{2,t} \end{pmatrix}. \quad (1)$$

Generally, it can be written as:

$$Ay_t = \Gamma_1 y_{t-1} + \varepsilon_t, \quad (2)$$

where A denotes a matrix of current interaction between $y_{1,t}$ and $y_{2,t}$; ε_t – denotes the structural disturbance term of the SVAR, and it is iid. The model of SVAR following the reduced form of VAR is:

$$y_t = \Gamma_1 y_{t-1} + \mu_t, \quad (3)$$

where μ_t is the disturbance term of the reduced-form VAR and it is iid with zero mean and σ^2 variable. The general reduced form of VAR model form SVAR with p-period lag can be written as:

$$y_t = \Gamma_1 y_{t-1} + \cdots + \Gamma_p y_{t-p} + \mu_t, \quad (4)$$

where y_t is an M x 1 vector. Next, A on equation (4) can be switched to:

$$A\left(I - \Gamma_1 L - \cdots - \Gamma_p L^p\right) y_t = A\mu_t, \quad (5)$$

where L is the lag operator.

$$Ly_t = y_{t-1}, \quad L^2 y_t = y_{t-2}, \quad L^p y_t = y_{t-p}. \quad (6)$$

Because SVAR estimation requires more parameters than standard VAR, the model in SVAR must be limited. To make the SVAR model's structural disturbance term orthogonal, suppose that $A\mu_t = B\varepsilon_t$, where B is an M x M vector, equation (5) will be:

$$A\left(I - \Gamma_1 L - \cdots - \Gamma_p L^p\right) y_t = A\mu_t = B\varepsilon_t. \quad (7)$$

Equation (4) is an AB-model of SVAR; therefore, a constraint can be placed on the SVAR with an AB model. One common method to put a constraint is by following a Cholesky Decomposition Method. In this paper, the central bank monetary policy interest rate and three different asset prices, including stock price, exchange rate, and bond yield, were placed in a model of SVAR, applying the Cholesky restriction as a constraint in the SVAR model.

3. RESULTS

3.1. Descriptive statistics

As presented in Table 1, the study used quarterly data from 1990 Q1 through 2020 Q4. The Central Bank policy rate fell to 3.75 percent in 2020 Q3 and peaked at 62.79 percent in 1998 Q1–1998 Q4. Furthermore, in terms of the natural logarithm, the data of exchange rate is exciting and warrants analysis, where there was the lowest 7.5020 and a maximum value of 9.7080. For stock price data, in terms of the natural logarithm, the average was 7.1888, with a minimum of 5.5109 and a maximum of 8.7747. This is also related to the effect

of the bond yield variable. In general, the average was 12.611%, the highest was 5.191% and the lowest was 27.580%.

Throughout the study period, Indonesia's average inflation was 15.472, ranging from –0.5957 to 100.55. Indonesia's average output gap was relatively large, around 0.0057. Economic growth reached a maximum of 0.2514 and a minimum of –0.1015. Meanwhile, the ratio money to GDP indicated that Indonesia's growth rate was 43.259 percent. The greatest money to GDP ratio ever recorded was 57.261 percent, while a minimum of 35.123 percent.

Table 1. Descriptive statistics

Variable	Mean	Std. dev.	Min	Max
CB Rate	12.024	10.732	3.7500	62.790
Exchange Rate	8.8503	0.7164	7.5020	9.7080
Stock Price	7.1888	1.0958	5.5109	8.7747
Bond Yield	12.611	5.1500	5.1910	27.580
Inflation	11.307	15.472	–0.5957	100.55
Output Gap	0.0057	0.0448	–0.1015	0.2514
Money per GDP	43.259	5.6965	35.123	57.261

3.2. Unit root tests

The Augmented Dickey-Fuller (ADF) proposed by Dickey and Fuller (1979) and Phillip-Perron (PP) unit root tests proposed by Phillips and Perron (1988) are used in this study to examine the stationary series of the inflation, exchange rate, central bank monetary policy rate, bond yield, stock price, output gap, and money per GDP.

Table 2. Unit root tests

Variable	ADF Tests	Phillip-Perron Test
CB Rate	–1.8684*	–2.8139*
Exchange Rate	–3.2866*	–3.6506**
Stock Price	–3.2412*	–3.1838*
Bond Yield	–1.7346*	–3.6066**
Inflation	–1.9804**	–3.0792**
Output Gap	–4.7542***	–5.7208***
Money per GDP	–3.3598*	–3.2965*

Note: The symbols *, **, and *** represent the percentages of 10%, 5%, and 1% are used to indicate statistical significance.

The result of the unit root tests is represented in Table 2. The result illustrates that the null hypothesis is rejected at the 10% significance level. Rejecting the null hypothesis means that those variables are I (0).

3.3. Structural VAR

Three models were developed based on three different asset prices to analyze the effect of monetary policy and some control variable shocks on asset prices. Model 1 measured the exchange rate's responses to a central bank monetary policy shock, with a lag order 2. In Model 2, for the impact of stock prices, lag order two was selected. In Model 3, with the analysis of bond yield, lag three was selected. The lag order was selected based on the Akaike information criterion (AIC). All variables were constant at the level I(0) after the analysis using the Phillip-Perron test. The SVAR estimation results are not explained, but the analysis mainly involved variance decomposition and impulse response function.

3.4. Impulse Response Function (IRF)

SVAR estimation was applied to measure the structural shock of central bank rate changes on three different asset prices. SVAR results were summarized as an impulse response function, which represents the variables' time path in response to different shocks. The impulse response function was used in this study to analyze the short-run dynamic of financial asset prices' response to the central bank monetary policy and some control variables shocks. The result of the first hypothesis is shown as the responses of the exchange rate to central bank monetary policy rate, inflation, output gap and money per GDP shocks which are presented in Figure 1.

The result of second hypothesis is the responses of stock price indices to monetary policy, output gap, money supply, and inflation shocks are presented in Figure 2.

The result of third hypothesis is regarding the bond yield, Figure 3 depicts the time path of the responses to a central bank monetary policy shock, inflation, output gap and money supply shocks.

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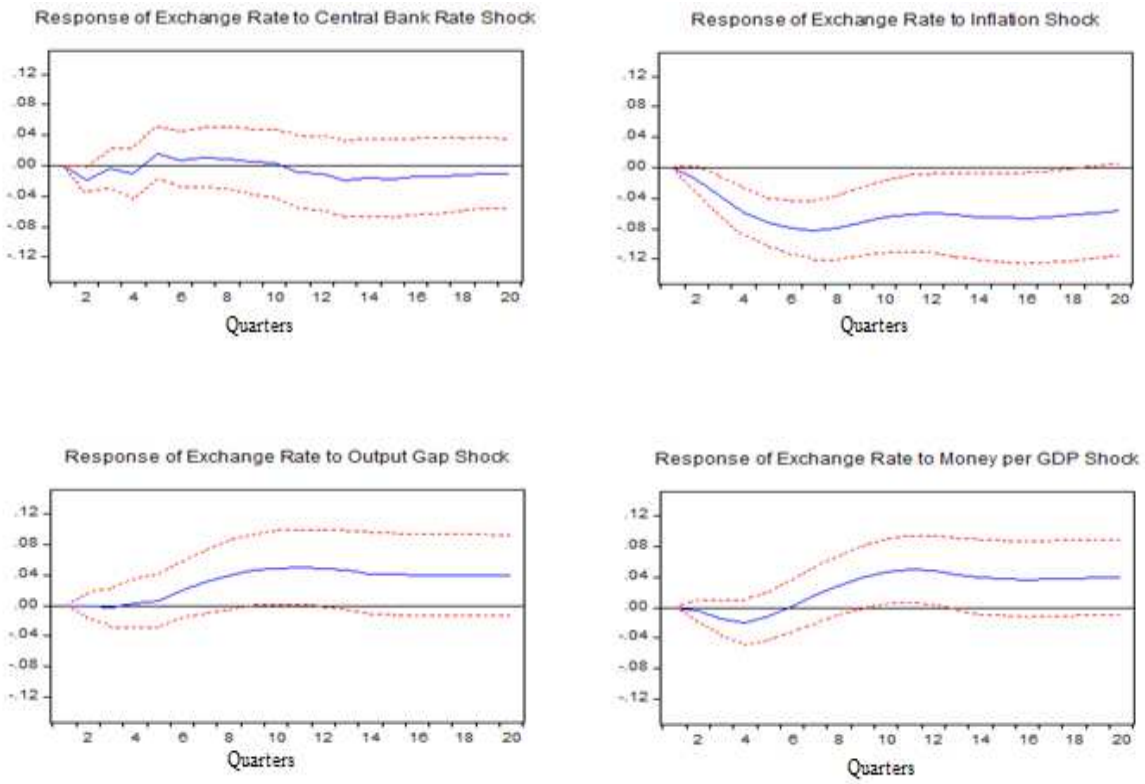

Figure 1. Exchange rate responses to monetary policy shocks

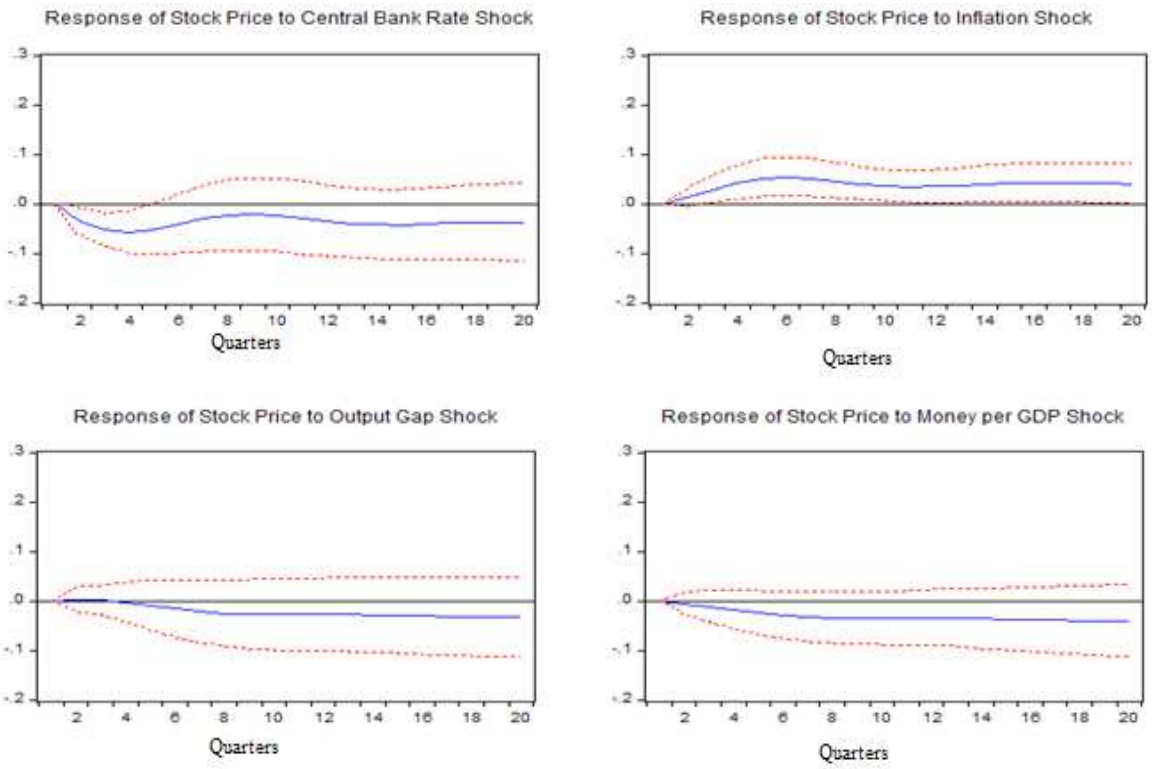

Figure 2. Stock price responses to monetary policy shocks

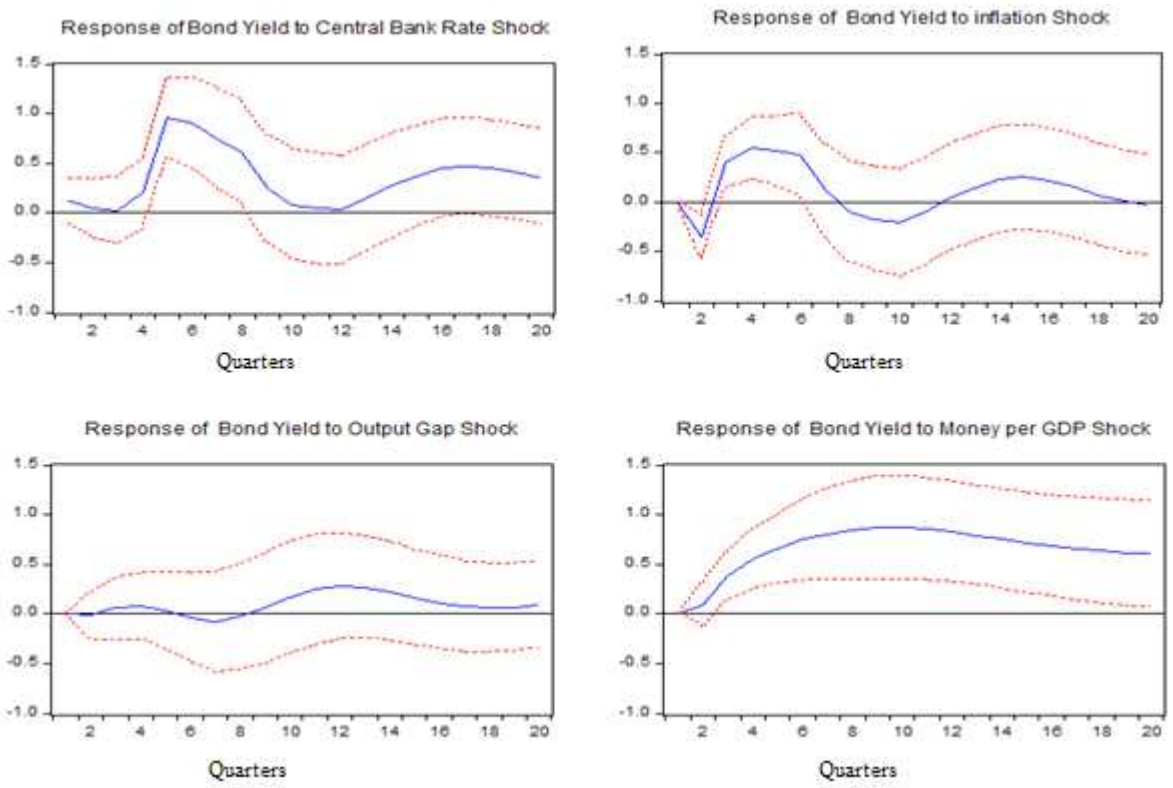

Figure 3. Bond yield responses to monetary policy shocks

3.5. Variance decomposition

Another output of SVAR is variance decomposition. Using endogenous variables, the variance decomposition reveals the contribution of different shocks. The magnitude of asset price variation is measured by the variance decomposition.

Variance decomposition was beneficial to decompose the variation of exchange rate changes into five components. These components include exchange rate, central bank rate, inflation, output gap and money per GDP. Table 3 shows that its exchange rate explained the exchange variation; however, the effect decreases to around 78% in period 10. The central bank rate showed that exchange rates changed around 1.31% in periods 4 and 5, but the contribution decreased to 0.81% in period 10. Furthermore, the impact of inflation to explain exchange rate variation increased in every period, from 1.3% at period 1 to 15.68% at period 10. The contributions of the output gap and money per GDP to exchange rate variation were relatively small at about 2-3% in period 10. In general, the central bank rate had a small contribution that explained the exchange rate variation.

Table 3. Variance decomposition of the exchange rate

Period	Exchange rate	Central bank rate	Inflation	Output gap	Money per GDP
1	100.0000	0.000000	0.000000	0.000000	0.000000
2	98.61159	0.020047	1.356421	0.011583	0.000357
3	93.84928	1.019007	5.101268	0.018605	0.011839
4	89.31727	1.309534	9.166031	0.122660	0.084507
5	89.31727	1.309534	9.166031	0.122660	0.084507
6	82.62501	1.002880	14.89718	0.902318	0.572619
7	80.59251	0.926849	15.98655	1.531761	0.962327
8	79.29181	0.910138	16.23445	2.191782	1.371825
9	78.55814	0.875901	16.03882	2.785087	1.742055
10	78.19798	0.816162	15.68084	3.261326	2.043692

http://dx.doi.org/10.21511/bbs.17(1).2022.09

Table 4. Variance decomposition of the stock price

Period	Stock price	Central bank rate	Inflation	Output Gap	Money per GDP
1	100.0000	0.000000	0.000000	0.000000	0.000000
2	96.20134	3.346600	0.345420	0.005226	0.101416
3	91.67326	6.599930	1.423500	0.003322	0.299990
4	87.78837	8.576502	3.015750	0.024755	0.594624
5	85.19342	9.097074	4.617881	0.113358	0.978271
6	83.68016	8.745517	5.859925	0.293575	1.420828
7	82.86667	8.089767	6.616560	0.550461	1.876544
8	82.45139	7.445877	6.955003	0.845567	2.302162
9	82.23797	6.931203	7.022974	1.136609	2.671244
10	82.08870	6.580515	6.958784	1.395024	2.976979

Table 4 shows variance decomposition for the series of stock prices with the time horizon between 1 to 10 quarters. The stock prices showed 82.08% variation due to its innovation in the 10th quarter. The central bank rate contributed 9.09% to explaining the variation of stock prices in quarter 5, but its contribution decreased to 6.58% in period 10. Furthermore, the forecast error variance of inflation contributed a maximum of 6.95% in period 10 in explaining the exchange rate. The output gap had a predictive power of 1.39% in explaining the variation of exchange rate. The money per GDP shock had a 2.04% contribution to the exchange rate in period 10.

Table 5 reveals the variance decomposition for the series of bond yields with the time horizon between 1 to 10 quarters. The bond yield had a 42.73% variation due to its innovation in quarter 10. The central bank rate contributed 20.15% to explaining variation in bond yield in quarter 8, but its contribution decreased to 17.14% in period 10. Furthermore, the forecast error variance of inflation contributed a maximum of 8.51% in period 10 to explaining the exchange rate. The output gap had a predictive power of 0.36% in explaining bond yield in period 10. Finally, the money per GDP shock had a 31.24% contribution to explaining bond yield in period 10.

4. DISCUSSION

The following includes the response to the central bank monetary policy, money per GDP, inflation, and output gap shocks. The impact of the central bank monetary policy rate on the exchange rate is negative for periods 1 to 4 and 11 to 20. This result signifies that a higher central bank monetary policy rate leads to the exchange rate appreciation in the short run. The response of the exchange rate to a one-standard deviation of a central bank rate shock was negative and reached a minimum of about –0.019% in period 2. It increased in the next quarter with a maximum of 0.016% in period 5. However, the exchange rate response to the central bank monetary policy rate was significant only in the first two periods. The negative link between exchange rates and interest rates exists because a higher interest rate improves the rate of return

Table 5. Variance decomposition of bond yield

Period	Bond yield	Central bank rate	Inflation	Output gap	Money per GDP
1	100.0000	0.000000	0.000000	0.000000	0.000000
2	94.55785	0.068316	5.019584	0.007225	0.347029
3	87.20157	0.115581	8.259922	0.103604	4.319321
4	77.20767	0.456621	12.53134	0.202219	9.602155
5	60.34993	12.96031	13.05267	0.166324	13.47076
6	51.74019	18.45444	12.68284	0.145805	16.97672
7	48.45943	19.96712	10.75235	0.186197	20.63490
8	45.92747	20.15024	9.523790	0.169281	24.22922
9	44.47734	18.55852	8.867942	0.181220	27.91497
10	42.73065	17.14485	8.516366	0.361238	31.24690

on local currency and capital inflow, thereby increasing the demand for domestic currency. This supports the international Fisher effect theory (Bayat et al., 2018), and previous studies such as Kearns and Manners (2018), Kuncoro (2020), Özen et al. (2020), Sen et al. (2020) agree with this result.

A positive shock of the central bank rate was associated with a decrease in stock prices. This negative effect was statistically significant between the 1st and 5th quarters. The response of the stock price to a one-standard innovation of the central bank rate is negative and reached a minimum of about 0.06 % in period 4, followed by an increase in the next quarters. The negative effect of the central bank monetary policy rate on stock prices implies that a higher central bank rate decreases stock prices. The reason could be that an increase in the interest rate decreases the value of stock, as the dividend discount model explains. A lower equity value generates fixed income securities, which become a more attractive alternative to holding stocks. Finally, it reduces the willingness of investors to invest in stocks, thereby reducing stock prices. This result agrees with that of Aljarayesh et al. (2018), and Eldomiaty et al. (2019).

The exchange rate's response to one-unit shock of inflation is negative for all 20 periods and was significant at a 5% level, with a minimum of –0.08 in period 6. Therefore, a positive shock in inflation appreciates the exchange rate. This is consistent with the purchasing power parity theory and supports the previous study by Abdurehman and Hacilar (2016). Meanwhile, the responses of the exchange rate to a positive innovation in the output gap were positive but insignificant. This means that when output is above, the trend leads to exchange rate depreciation. Similarly, the response of the exchange rate to a shock of positive innovation in money per GDP was positive after period 6, but not significant. This means that a higher money supply produces the exchange rate depreciation.

The response function of stock prices to one unit shock of inflation was positive for all periods and was significant at a 5% level after period 2. The effect reached a peak of 0.05 in period 7. Therefore, a positive shock in inflation increases stock prices. This finding is in line with Antonakakis et al. (2017). An increase in inflation should raise future nominal dividend payments on equities, causing a rise in stock valuations.

The responses of stock prices to a shock of positive innovation of output gap was negative after period 4, but not significant. This means that when output is above the trend, it decreases stock prices. Similarly, stock prices' response to a positive shock of money per GDP is negative for all periods, but not significant. This implies that an expansion of the money supply lowers stock indices.

A one standard deviation of the central bank rate was associated with a positive effect on bond yield. This positive effect was statistically significant between the 4th and 8th quarters. The response of bond yield to a one-standard innovation of the central bank rate was positive starting from period one and reached a peak of about 0.96 % in period 5. Afterwards, the response fell in the following quarters until period 12 and increased to 0.36 in period 20. A positive impact of the central bank monetary policy rate on bond yield means that a higher central bank rate raises bond yield. This is because a higher interest rate produces a higher expected return on investment in a bond, and thus, increases bond yield. This is consistent with the results of Fontana and Scheicher (2016), Ehling et al. (2018), and Timmer (2018).

The response function of bond yield to one-unit shock of inflation fluctuated, was negative in period one and reached a minimum of –0.36 in period two and between periods 9 and 11. The effect of inflation shock on bond yield was positive from periods 3 to 7. It further reached a peak of 0.96 in period 5, and also from periods 12 to 20. This is consistent with the results of Ehling et al. (2018). Bond yield responses to a positive shock of output gap were negative for periods 1 to 2 and 6 to 8 but positive for periods 3 to 5 and 9 to 20. However, the effect was not significant. Lastly, the response of bond yield to a positive shock of money per GDP was positive for all periods and was significant from period 2. This implies that higher money supply raises bond yield.

http://dx.doi.org/10.21511/bbs.17(1).2022.09

CONCLUSION

This study examined the influence of the central bank monetary policy shock on financial asset prices in Indonesia on quarterly time-series data spanning 1990Q1 to 2020Q4. The asset prices examined comprise the exchange rate, stock prices and bond yield.

It was observed that positive shocks of the central bank interest rate negatively affected exchange rate, which became significant from quarter 5. Therefore, this signifies that tightening monetary policy appreciates the exchange rate. An exchange rate appreciation is also caused by the positive shock of money per GDP and inflation. In contrast, a positive shock of the output gap leads to a depreciation in the exchange rate. A positive shock of the monetary policy interest rate had a statistically significant and negative influence on stock prices. This implies that tightening monetary policy reduced stock prices. A positive shock of the output gap and money per GDP also decreased stock prices. However, a positive shock of inflation raises stock prices. A positive shock of monetary policy interest rate had a statistically significant positive influence on the bond yield. This implies that tightening monetary policy increases bond yield. Likewise, a positive shock of inflation, output gap and money per GDP increased bond yield.

The forecast error variance of the central bank rate contributed a maximum of 1.3% to explaining variation in the exchange rate in quarter 5, 9.09% to explaining variation in stock prices in quarter 5, and 20.15% to explaining variation in bond yield in quarter 8. Furthermore, inflation contributed 15.68%, 6.98%, and 8.51% to explaining a change in the exchange rate, stock prices, and bond yield. The output gap had a contribution of less than 4% to explaining the three different asset prices. Although money per GDP had a small contribution to explaining exchange rate and stock prices of about 2%, it had an enormous contribution to explaining bond yield with more than 30%.

These findings imply that since monetary shock is inevitable in price spikes, tightening monetary policy may reduce the inflationary pressures and lead to an appreciation of exchange rates, possibly through higher bond yield that could invoke portfolio adjustments. Greater transparency in monetary policy actions could improve the performance of financial asset prices and, ultimately, financial stability.

AUTHOR CONTRIBUTIONS

Conceptualisation: Indra Suhendra.
Data Curation: Indra Suhendra.
Formal Analysis: Indra Suhendra, Cep Jandi Anwar.
Funding Acquisition: Cep Jandi Anwar.
Investigation: Indra Suhendra, Cep Jandi Anwar.
Methodology: Indra Suhendra.
Software: Indra Suhendra.
Writing – original draft: Indra Suhendra, Cep Jandi Anwar.
Writing – review & editing: Indra Suhendra, Cep Jandi Anwar.

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