THE DETERMINANT FACTORS OF INFLATION IN INDONESIA: A LONGITUDINAL INVESTIGATION USING ARCH-GARCH ESTIMATION MODEL

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ABSTRACT

This study aims to determine and analyze effect of the exchange rate, interest rates, money supply, imports, and foreign exchange reserves on inflation in Indonesia in 2013-2019 period. This type of data uses secondary data, namely monthly data from 2013-2019. Sources of data come from Bank Indonesia (BI), Central Bureau of Statistics (BPS), SEKI (Indonesian Economic and Financial Statistics), and the Ministry of Trade. Data analysis needs to use several classical tests consisting of stationarity test, causality test, cointegration test, statistical test, and ARCH-GARCH analysis. The ARCH-GARCH analysis method with the best estimation model is GARCH (2.2). The results indicate that the exchange rate has a negative and significant effect on inflation, interest rates have a negative and not significant effect on inflation, money supply and imports have a positive and significant effect on inflation, and foreign exchange reserves have a negative and significant effect on inflation.

Keywords: Exchange Rates, BI Interest Rates, Money Supply, Imports, Foreign Exchange Reserves, Inflation.

INTRODUCTION

Data from Statistical Central Agency of Indonesia (BPS) during the study period 2013 to 2019 shows that the inflation rate fluctuates every year. In 2013, the inflation rate of 8.38 percent; 8.36 percent in 2014; 3.35 percent in 2015; 3.02 percent in 2016; 3.61 percent in 2017; 3.13 percent in 2018; and, 2.72 percent in 2019. Changes in the inflation rate in Indonesia are caused by several factors, namely the exchange rate, BI interest rates, the money supply, imports, and foreign exchange reserves.

In order to anticipate changes in the inflation rate, it encourages Bank Indonesia, which is the Monetary Authority, namely directing a monetary policy framework as part of macroeconomic policy that is more directed at achieving and maintaining the stability of the rupiah value, setting Bank of Indonesia policy interest rates, and to regulate and stabilize the money supply. This monetary policy framework is called the Inflation Targeting Framework (ITF) which has one important objective, namely to maintain and achieve low and stable changes in inflation (Meilianna, 2020). The implementation of the ITF's which was implemented in July 2005 was a milestone in the history of changes in the monetary policy framework carried out after the economic crisis in Indonesia (Arimurti & Trisnanto, 2011). Principally, the implementation of the ITF's is to make the monetary policy framework more credible, which refers to the use of interest rates as operational targets and anticipatory policies. Therefore, Bank of Indonesia hopes that the ITF can change the backward expectation, which is the source of high inflation, into a forward expectation, thereby encouraging a decrease in inflation persistence.

This study aims to determine and analyze effect of the exchange rate, interest rates, money supply, imports, and foreign exchange reserves on inflation in Indonesia in 2013-2019

period. This type of data uses secondary data, namely monthly data from 2013-2019. Sources of data come from Bank Indonesia (BI), Central Bureau of Statistics (BPS), SEKI (Indonesian Economic and Financial Statistics), and the Ministry of Trade. The problems formulated in this study are how the effect of exchange rates, BI interest rates, money supply, imports, and foreign exchange reserves partially and simultaneously on inflation in Indonesia. The study has the objectives to be achieved in this study to determine the effect of exchange rates, BI interest rates, money supply, imports, and foreign exchange reserves simultaneously and partially on inflation in Indonesia.

LITERATURE REVIEW AND HYPOTHESIS

Inflation is a monetary rate of change, which explains that inflation occur sustainably if it is followed by high or large money supply growth Dornbusch & Fischer (1984). Based on this statement, it means that continuous large money supply growth will also result in high inflation, on the other hand, low money supply growth will cause inflation to be low. The movement of the rupiah exchange rate was influenced by the strengthening of the United States currency against all global currencies (Warjiyo & Juhro, 2019). If the exchange rate or the rupiah exchange rate appreciates against the US dollar, it will have an impact on the price of trading goods from abroad or imported goods in Indonesia which will become cheaper, so that inflationary pressure in Indonesia will be reduced or low. On the other hand, when the value of the currency depreciates or weakens, it will result in goods from abroad becoming expensive, meaning that goods from abroad in Indonesia will become expensive, causing inflationary pressure (Mishkin, 2001). In the transmission of monetary policy on the interest rate channel, an increase in BI interest rates, the interest rates for deposits, savings, and credit will increase. One of the effects of the deposit rate is that an increase in the interest rate reduces the demand for money, because people put more of their wealth in bonds or savings (Blanchard & Johnson, 2013). Based on this statement, when there is an increase in the deposit interest rate, the amount of money in circulation will decrease, because people tend to keep their money in the bank. This can reduce Indonesia's economic activity and will reduce inflationary pressure. A continuously high inflation rate will not occur if it is accompanied by the growth rate of the money supply (Dornbusch & Fischer, 1984). The Quantity Theory, also known as the Irving Fisher Theory, also says that inflation occurs because of two factors, one of which is the money supply. The theory says if the absence of the money supply inflation was not going to happen, despite the rise in prices occurred.

Bank of Indonesia is strengthening the monetary operation framework by implementing a new benchmark interest rate or policy interest rate, namely the 7-Day (Reverse) Repo Rate, which became effective on 19 August 2016, replacing the BI Rate. The BI 7-Day (Reverse) Repo Rate is used as the new policy rate because it can quickly influence the money market, banking and real sectors. The BI 7-Day (Reverse) Repo Rate instrument as a new reference has a stronger relationship to money market interest rates, is transactional or traded on the market, and encourages financial market deepening, particularly the use of the repo instrument.

Previous studies have examined the determinant factors of inflation in Indonesia, such as Perlambang (2017) who showed that the money supply and the exchange rate do not have a significant effect on inflation and the SBI interest rate has a positive and significant effect on inflation. Previous literature also indicates that the Gross Domestic Product (GDP) and foreign exchange reserves in the period studies did not affect inflation in Indonesia (Utami & Soebagiyo, 2013). The money supply has a significant negative effect on inflation in Indonesia, and the exchange rate has a significant positive effect on inflation in Indonesia. On other hand, Firmansyah & Safrizal (2018) indicate that SBI, money supply, and exports

have no significant effect on inflation, while inflation has an effect on foreign exchange reserves. By using Engle-Granger Error Correction Model (ECM-EG), Langi (2014) show that the money supply and the exchange rate have a positive and insignificant effect on inflation. The BI interest rate has a positive and significant effect on inflation.

Similarly, Mahendra (2016) presented that the money supply and the exchange rate do not have a significant effect on inflation, while SBI interest rate also has no significant effect on inflation. Agusmianata et al. (2018) showed that the money supply, interest rates have a significant effect on inflation, and government spending also has a significant effect on inflation. Senen et al. (2020) stated that the rupiah exchange rate does not have a significant effect on the inflation rate in Indonesia, the BI Rate has a significant effect on the inflation rate in Indonesia, the foreign exchange reserves do not have a significant effect on the inflation rate in Indonesia.

Some also have examined the relations between exchange rate, and interest rate on inflation in various developing countries (Ahmed, 2021; Khan et al., 2012; Oriavwote & Eshenake, 2012). In addition, there are also empirical evidence of the relationship between money supply and inflation (Akinbobola, 2012); Adom et al., 2015; Sabade, 2014). The investigations from previous studies pointed out the role of foreign exchange reserves on inflation (Berganza & Broto, 2012; Armas et al., 2014), while the results also showed the influence of import on the inflation (Munepapa & Sheefeni, 2017; Bhattacharya, 2014; Reza & Ullah, 2019). Based on the description, the hypotheses proposed on the study are:

H1: *There is an influence of exchange rate on inflation.*

H2: *There is an effect of interest rates (BI rate) on inflation.*

H3: *There is an influence of money supply on inflation.*

H4: *There is an effect of imports on inflation.*

H5: *There is an influence of foreign exchange reserves on inflation.*

METHOD

Data used in this research is secondary data, time series data. Time series data is the type of data collected in a timely manner within a certain time frame. The data needed is monthly data on inflation, exchange rates, BI interest rates, money supply, imports, foreign exchange reserves during the study period January 2013 to December 2019. Sources of data come from Bank Indonesia (BI), Central Bureau of Statistics (BPS), SEKI (Indonesian Economic and Financial Statistics), and the Ministry of Trade. The variables in this study are the variable exchange rate, BI interest rate, money supply, imports, and foreign exchange reserves (as independent variables) and inflation (as the dependent variable).

The methods used are autoregressive conditional heteroscedasticity (ARCH) and generalized autoregressive conditional heteroscedasticity (GARCH) and hypothesis testing using the analysis tool Eviews 6. To explain how the ARCH and GARCH models are formed, we need to use multiple regression models as follows (Bhattacharya, 2014):

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \ldots + \beta_n X_{nt} + e_t$$

Information: Y_t = dependent variable; X_{1t} = Independent variable;
X_{2t} = Independent variable;
X_{nt} = Independent variable; β_o = Intercept (constant) ; β_1, β_2, β_n = Regression coefficient;
e = Standard *error*

The ARCH-GARCH variety equation is as follows:

$$\sigma^2{}_t = \alpha_0 + \beta_1 \sigma^2{}_{t-1} + \beta_2 \sigma^2{}_{t-2} + \lambda_1 \varepsilon^2{}_{t-1} + \lambda_2 \varepsilon^2{}_{t-2}$$

Information: $\sigma^2{}_t$ = Current year error/residual; α_0 = *Intercept* (Constant); β, λ = regression coefficient; $\sigma^2{}_{t-1}$ = Error/residual a year ago; $\sigma^2{}_{t-2}$ = Error/residual two years ago; $\varepsilon^2{}_{t-1}$ = The variance of error/residual a year ago; $\varepsilon^2{}_{t-2}$ = The variance of error/residual two years ago

The analysis uses secondary data, with the independent variable regression model consisting of Exchange Rate, BI Interest Rate, Amount of Money Supply, Imports, and Foreign Exchange Reserves, while the dependent variable is the Inflation variable. Hypothesis testing is done by using the ARCH-GARCH method with the selected model, namely the GARCH model (2.2). Based on the results of data analysis, the GARCH (2.2) equation is obtained as follows:

Inflation = 45.03325 - 3.461198 Exchange Rate - 0.276680 BI Interest Rate + 4.299862JUB + 0.758335 Imports - 5.125803 Foreign Exchange Reserves + 0.763557AR (1) + *e* (3.588952) *** (-3.885994) *** (-0.598466) (4.995851) *** (4.732469) *** (-4.646983) *** (8.842753) *** Information: (***) Significant at α = 1 percent; (**) Significant at α = 5 percent; (*) Significant at α = 10 percent

RESULT

A good regression model is a regression model that produces BLUE means Best Linear Unbiased Estimator. This condition will occur if several assumptions are met, which are called classical assumptions. The classical assumptions used in this study are first, normality test Table 1. If Jarque–Bera test is less than 0.05, it means the Jarque - Bera statistic is different from 0 (zero). It means that the residuals are not normally distributed. Meanwhile, the Jarque - Bera statistical value is 2,178151 with a probability of 0.336527. It can be concluded that the residuals in the GARCH (2.2) model are normally distributed.

Table 1 GARCH MODEL ESTIMATION AND NORMALITY TEST		
Variable	Coefficient	Prob.
C	45.033	0.0003
Exchange Rate	-3.461	0.0001
BI Rate	-0.276	0.549
Money supply	4.299	0.000
Import	0.758	0.000
Exchange reserves	-5.125	0.000
AR(1)	0.763	0.000
R-squared	0.796472	
F-stat.= 25.258	Prob (F-stat.) =0.00	
Jarque-Bera= 2.178	Probability=0.336	

The heteroscedasticity test is that the variance is no longer a minimum, the estimator coefficient is biased, the examiner of the significance of the regression coefficient becomes strong. The Chi-Square value is 0.7635 with a probability of 0.7669, namely α=0.05, which is

statistically insignificant. Thus, it can be concluded that in the model there is no heteroscedasticity problem Table 2.

Table 2 HETEROSCEDASTICITY ARCH AND DURBIN-WATSON TEST			
F-statistic	0.088478	Prob. F(17.54)	0.7669
Obs*R-squared	0.090564	Prob. Chi-Square (17)	0.7635
Durbin-Watson statistic		1.949526	

Based on the multicollinearity test, it is known that the matrix value between each independent variable is <0.9, so it can be concluded that there is no correlation or not affecting each other Table 3. The Durbin-Watson statistical value from the estimation results of the GARCH (2.2) model, which is to determine whether there is autocorrelation or no autocorrelation in the model. The Durbin-Watson statistic value is 1,949526, from the estimation results to find out whether autocorrelation exists or not, it must be tested with the testing criteria, namely, if $d_U < d < 4 - d_U$, there is no positive or negative autocorrelation. It can be seen that the results of the Durbin-Watson table value with the number of n (observations or samples) of 84 and the number of k (independent variables) of 5, then the value of $d_L = 1,5219$; $d_U = 1,7732$ is obtained, where $4 - d_U = 2.2268$; $4 - d_L = 2.4781$, and Durbin-Watson statistics 1,949526. Thus, we can conclude that the test criteria crimped $d_U < d < 4 - d_U$ or $1.7732 < 1.949526 < 2.2268$, meaning there is no positive or negative autocorrelation in the estimated model GARCH (2.2) used in this study. In order to see the goodness of the GARCH (2.2) model, it can be seen in the F test, t test, and the coefficient of determination.

Table 3 MULTICOLLINEARITY TEST					
Variable	Exchange rate	BI Rate	Money Supply	Import	Exchange reserves
Exchange rate	1.000000	-0.284203	0.883157	-0.267603	0.580034
BI rate	-0.284203	1.000000	-0.593964	-0.128597	-0.744253
Money supply	0.883157	-0.593964	1.000000	-0.080332	0.827860
Import	-0.267603	-0.128597	-0.080332	1.000000	0.065615
Exchange reserves	0.580034	-0.744253	0.827860	0.065615	1.000000

In the GARCH (2.2) model, it can be seen that the F-test is 25,25870 > the F-table is 2.33 at $\alpha = 0.05$ Table 4. Thus, it can be concluded that simultaneously the independent variables, namely the exchange rate, BI interest rate, money supply, imports, and foreign exchange reserves have a significant effect on the dependent variable, namely inflation. It can be concluded that the variable exchange rate, money supply, imports, and foreign exchange reserves the probability of t-statistic is less than alpha 0.05 which means significant or has an influence on inflation. Meanwhile, the BI interest rate variable has the probability of t-statistic more than α 0.05, which means it is not significant or has no effect on inflation. Based on the results of the regression models GARCH (2.2) obtained by the value of R^2 of 0.7964, or 79.64 percent, which means indicate a strong relationship or close, which means that 79,64 percent of variations in the rise and fall of inflation in Indonesia during this study could be explained by exchange rate, BI interest rate, money supply, imports, and foreign exchange reserves. Meanwhile, the remaining 20.36 percent can be explained by other variables outside the model.

Table 4 STUDENT TEST AND FISHER TEST ($\alpha = 0.05$)			
Variable	**t-statistic**	**t-table**	**Prob.**
Exchange rate	-3.885944	1.664	0.0001
Bi rate	-0.598466	1.664	0.5495
Money Supply	4.995851	1.664	0.00
Import	4.732469	1.664	0.00
Exchange reserves	-4.646983	1.664	0.00
AR (1)	8.842753	1.664	0.00
F-Stat.	25.25870	Prob (F-stat.)	0.0000

The results showed the coefficient of determination (R^2) of the variable exchange rates, central bank interest rates, money supply, imports, foreign exchange reserves accounted for 79,64 percent, which means that the variation of inflation able to be explained by the exchange rate, the BI rate, money supply, imports, and foreign exchange reserves or indicates a strong relationship to inflation in Indonesia. Meanwhile, the remaining 10.36 percent can be explained by other variables outside of the model.

Estimation of the exchange rate variable using GARCH (2.2), the exchange rate has a negative and significant effect on the Indonesian inflation variable as indicated by a coefficient value of -3.461198 with a probability of 0.0001. This means that if the rupiah exchange rate is appreciated against the US dollar, it will cause inflation to decrease by 3.461198 percent. The results of this study indicate that the rupiah/USD exchange rate variable has a negative and significant effect on inflation in Indonesia. The results of this study are in line with research by Perlambang (2017) and Mahendra (2016) that the exchange rate does not have a significant effect on inflation (Setiawanta et al., 2020). The results of this study indicate that in line with the theory there is a positive correlation between money growth (money supply) and inflation, that is, if the money supply increases, the inflation rate will increase, conversely if the money supply decreases, the inflation rate will also increase. The results of this study are in line with Jumhur et al. (2019) that the money supply has a significant effect on inflation. This is also in line with Sinaga et al. (2020) and Alawneh et al. (2019). The results of this study are consistent that inflation and foreign exchange reserves have a negative relationship. However, the results of research from Senen et al. (2020), explain that foreign exchange reserves do not have a significant effect on the inflation rate.

CONCLUSION

The results by using GARCH estimation model showed significant effects of the variables of exchange rates, BI interest rates, money supply, imports, and foreign exchange reserves on the inflation variable in Indonesia. In this study, partially, the exchange rate has a negative and significant effect on inflation in Indonesia, interest rates have a negative and insignificant effect on inflation in Indonesia, the money supply and imports have a positive and significant effect on inflation in Indonesia and foreign exchange reserves have a significant negative effect on inflation in Indonesia.

Theoretically, the relationship between foreign exchange reserves and inflation is that if a country has inflation, it will cause an increase in imports, so that a lot of foreign exchange

is needed to pay for import transactions which results in a decrease in foreign exchange reserves. Therefore, the Government is expected to be able to regulate the stability of the country's foreign exchange reserves so that the rupiah exchange rate remains stable through the Monetary Authority, because it is known that value is one of the factors that has an important influence on changes in the rate of inflation in Indonesia.

Practically, the results provide several suggestions. First, for Bank of Indonesia as the Central Bank or Monetary Authority in carrying out economic activities by regulating interest rates, exchange rates, and the money supply to remain in a stable state, so that the inflation rate can also be stable according to or below the target of Bank Indonesia each month. Second, the Government needs to take a policy in importing goods and services by reducing the need for imported goods so as not to cause foreign exchange to increase which causes a reduction in foreign exchange reserves. The government is expected to be able to regulate the stability of the country's foreign exchange reserves so that the rupiah exchange rate remains stable through the Monetary Authority, because it is known that value is one of the factors that has an important influence on changes in the rate of inflation in Indonesia.

Furthermore, for further research, it is suggested to increase the observation period by following the economic development in Indonesia and adding domestic and foreign macroeconomic variables that can affect inflation in Indonesia in addition to the variables in this study.

Acknowledgments

REFERENCES

Adom, P.K., Zumah, F., Mubarik, A.W., Ntodi, A.B., & Darko, C.N. (2015). Analysing inflation dynamics in Ghana. *African Development Review*, *27*(1), 1-13.

Agusmianata, N., Militina, T., & Lestari, D. (2018). Pengaruh jumlah uang beredar dan tingkat suku bunga serta pengeluaran pemerintah terhadap inflasi di indonesia. *Forum Ekonomi*, *19*(2),188-200. https://doi.org/10.29264/jfor.v19i2.2125

Ahmed, R., Aizenman, J., & Jinjarak, Y. (2021). Inflation and exchange rate targeting challenges under fiscal dominance. *Journal of Macroeconomics*, *67*, 103281.

Akinbobola, T.O. (2012). The dynamics of money supply, exchange rate and inflation in Nigeria. *Journal of Applied Finance & Banking*, *2*(4), 117-141.

Alawneh, A.M. (2019). Effect of Net Cash Flows on Investors' Decisions on Companies Listed in Amman Stock Exchange during the Period of 2001–2017: A Case Study on Industry and Service Sectors. *Universal Journal of Accounting and Finance*, *7*(2), 50-65 https://doi.org/10.13189/ujaf.2019.070203.

Arimurti, T., & Trisnanto, B. (2011). Persistence of inflation in Jakarta and its implication on the regional inflation control policy. *Buletin Ekonomi Moneter Dan Perbankan*, *14*(1), 5-30. https://doi.org/https://doi.org/10.21098/bemp.v14i1.76

Armas, A., Castillo, P., & Vega, M. (2014). Inflation targeting and quantitative tightening: effects of reserve requirements in Peru. *Economia*, *15*(1), 133-175.

Berganza, J.C., & Broto, C. (2012). Flexible inflation targets, forex interventions and exchange rate volatility in emerging countries. *Journal of International Money and finance*, *31*(2), 428-444.

Bhattacharya, R. (2014). Inflation dynamics and monetary policy transmission in Vietnam and emerging Asia. *Journal of Asian Economics*, *34*, 16-26.

Blanchard, O., & Johnson, D.R. (2013). *Macroeconomic*. 6th ed. Pearson France.

Dornbusch, R., & Fischer, S. (1984). *Macroeconomics*, 4th ed. New York: McGraw-Hill.

Firmansyah, F., & Safrizal, S. (2018). SBI, Jumlah Uang Beredar, dan Ekspor terhadap Inflasi dan Cadangan Devisa di Indonesia. *Jurnal Samudra Ekonomi dan Bisnis*, *9*(2), 188-197. https://doi.org/10.33059/jseb.v9i2.767

Jumhur, J., Nasrun, M.A., Agustiar, M., & Wahyudi, W. (2019). Pengaruh Jumlah Uang Beredar, Ekspor dan Impor Terhadap Inflasi (Studi Empiris Pada Perekonomian Indonesia). *Jurnal Ekonomi Bisnis dan Kewirausahaan (JEBIK)*, *7*(3), 186-201. https://doi.org/10.26418/jebik.v7i3.26991

Khan, Z., Khan, S., Rukh, L. & Imdadullah, I. (2012). Impact of Interest Rate, Exchange Rate And Inflation On Srock Returns Of Kse 100 Index. *International Journal Economic, 3*(5), 142-155.

Langi, T.M. (2014). Analisis Pengaruh Suku Bunga BI, Jumlah Uang Beredar, dan Tingkat Kurs Terhadap Tingkat Inflasi di Indonesia. *Jurnal Berkala Ilmiah Efisiensi*, *14*(2), 44-58.

Mahendra, A. (2016). Analisis Pengaruh Jumlah Uang Beredar, Suku Bunga SBI dan Nilai Tukar Terhadap Inflasi di Indonesia. *Jurnal Riset Akuntansi & Keuangan*, *2*(1), 1-12.

Meilianna, R. (2020). Labor Absorption, Inflation Volatility, and Inflation Targeting Framework (ITF): The Case of Three Economic Sectors in Indonesia. *Journal of Indonesian Social Sciences and Humanities*, *10*(1), 59-69.

Mishkin, F.S. (2001), The Economics of Money, Banking and Financial Markets, 6th ed., Addison-Wesley, Reading, MA.

Munepapa, M., & Sheefeni, J.P. (2017). The impact of import on inflation in Namibia. *European Journal of Business, Economics and Accountancy*, *5*(2), 42-51.

Oriavwote, V.E., & Eshenake, S.J. (2012). Real exchange rate and inflation: An empirical assessment of the Nigerian experience. *Mediterranean Journal of Social Sciences*, *3*(3), 145.

Perlambang, H. (2017). Analisis pengaruh jumlah uang beredar, suku bunga sbi, nilai tukar terhadap tingkat inflasi. *Media Ekonomi*, *18*(2), 49-68. https://doi.org/10.25105/me.v18i2.2251

Reza, M., & Ullah, S. (2019). Financial Reporting Quality of the Manufacturing Firms Listed in Indonesian Stock Exchange. *Arthatama*, *3*(1), 37-54.

Sabade, S. (2014). Is money supply the cause of inflation in India? An alternative postulate to understand inflation. *Procedia-Social and Behavioral Sciences*, *133*, 379-382.

Senen, A.S., Kumaat, R.J., & Mandeij, D. (2020). Analisis pengaruh nilai tukar rupiah, suku bunga acuan bank Indonesia dan cadangan devisa terhadap inflasi di Indonesia periode 2008: Q1–2018: Q4. *Jurnal Berkala Ilmiah Efisiensi*, *20*(1), 12-22.

Setiawanta, Y., Utomo, D., Ghozali, I., & Jumanto, J. (2020). Financial Performance, Exchange Rate, and Firm Value: The Indonesian Public Companies Case. *Organizations and Markets in Emerging Economies*, *11*(2), 348-366.

Sinaga, J.S., Muda, I., & Silalahi, A.S. (2020). The Effect of BI Rate, Exchange Rate, Inflation and Third Party Fund (DPK) on Credit Distribution and Its Impact on Non Performing Loan (NPL) on XYZ Commercial Segment Bank. Universal Journal of Accounting and Finance, 8(3), 55-64. https://doi.org/10.13189/ujaf.2020.080301

Utami, A.T., & Soebagiyo, D. (2013). Penentu Inflasi Di Indonesia; Jumlah Uang Beredar, Nilai Tukar, Ataukah Cadangan Devisa?. *Jurnal Ekonomi & Studi Pembangunan*, *14*(2), 144-152. https://doi.org/10.18196/jesp.14.2.1266

Warjiyo, P., & Juhro, S.M. (2019). *Central Bank Policy: Theory and Practice*. Emerald Group Publishing.