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Analysis Of The International Financial System in The Three Countries With the Highest Inflation Rates in The G20 Organization

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Abstract.*This research to analyze and identify the international financial system with the highest inflation rate in three G20 member countries (Argentina, Turkey and Russia) using simultaneous methods. Data was obtained from worldbank and tradingeconomic using eviews 12 software. The research results show that there is an influence between inflation and the exchange rate, namely if the inflation rate increases it can disrupt the stability of the exchange rate. Inflation has a positive influence on the exchange rate in a country over a long period of time in the countries of Argentina, Turkiye and Russia. To control the inflation rate, this is done by monitoring the amount of money in circulation and interest rates to control the inflation rate. Advises the government through Bank sentral Indonesia to maintain the amount of money in circulation in an effort to recude the inflation rate which will then be able to maintain exchange rate stability.*

Keywords *Inflation, Exchange Rate, Money Supply, Imports, Interest Rates*

1. INTRODUCTION

In a country's economy, inflation is the most important factor in terms of describing unhealthy economic conditions, because the increase in prices of goods in general will experience changes. These changes are known as general price increases and continue to occur (Murni, 2013:202). High price changes can reduce purchasing interest in the community and ultimately lead to inflation that paralyzes production activities. These price changes can affect the exchange rate, in other words, inflation affects exchange rate fluctuations. In a study conducted by (NB Cheickh, et al: 2016), it was explained that the strong dependence of the pass-through regime on the inflationary environment, namely the class of countries with higher inflation rates, experienced higher ERPT (Exchange rate pass-through).

In a study conducted by (H Liu, Z Idrees, JA Satti, A Nazeer, 2015) it is explained that one of the factors that affects the exchange rate is inflation. And from the results of the study it is proven that inflation has a significant impact on exchange rate volatility through increasing import prices which lead to increased inflation and currency depreciation. In addition, this is supported by (TM Ali, Tariq Bashir, 2015) high money supply and increasing interest rates can increase the price level (inflation) which will ultimately cause an increase in exchange rate volatility. The main factor of inflation that affects the exchange rate is the difference in expectations in various countries, and this is what causes inflation to be responsible for changes in exchange rates over time.

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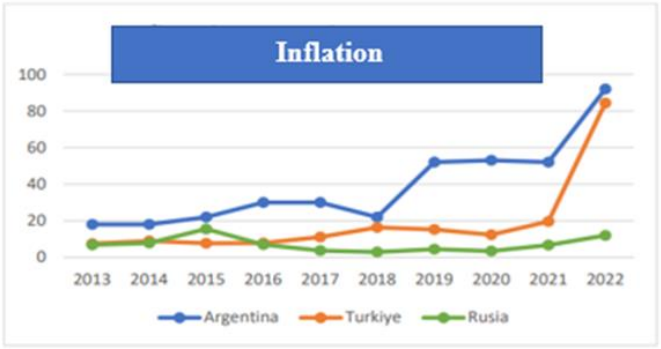


Source: www.worldbank.org

Figure 1. Inflation in Three G20 Member Countries

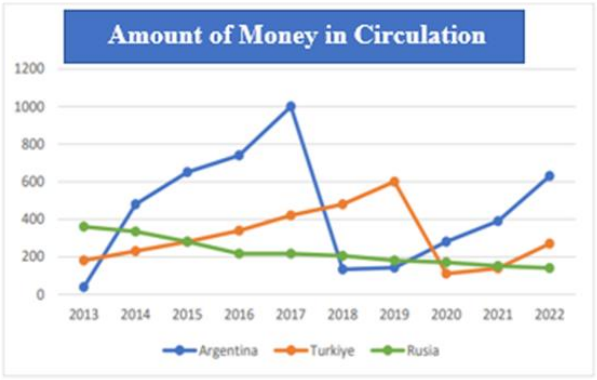
The figure illustrate the inflation rate in three G20 member countries, namely Argentina, Turkey and Russia. The inflation rate in Argentina continues to increase annually, in 2013 the inflation rate was 18.0% and increased in 2019 to 52.0% and in 2022 the inflation rate reached 92.4% making Argentina the country with the highest inflation rate in the G20 organization, the soaring inflation rate in Argentina was triggered by the political crisis and the lack of a credible economic plan from the government. As a country with the second highest inflation rate after Argentina, namely Turkey, in 2013 inflation in Turkey was 7.5%, the lowest figure in the last 10 years and increased in 2019 to 15.2% before Covid-19 and increased again in 2022 to 84.3%. Meanwhile, in Russia, the inflation rate has tended to be at 16% in the last 10 years, with the highest in 2015 at 15.5% and 2022 at 12.0%.

Source: www.worldbank.org

Figure 2. Exchange Rates in Three G20 Member Countries

The figure illustrate the exchange rate conditions in the three member countries of the G20 organization. It can be seen that the exchange rate in each country has depreciated. In 2013, Argentina's exchange rate reached 15.5 Pesos/USD and in 2019 Argentina's exchange rate experienced serious depreciation, namely 40.0 pesos/USD in 2019 and the worst in 2022 at 163.0 pesos/USD. In Turkey, the lira exchange rate depreciated to 10,000 lira/USD, compared to 2013 when the lira exchange rate was only 1,800 lira/USD. The Russian currency exchange rate (Ruble) is known to fluctuate, 2013 was the year with the lowest exchange rate

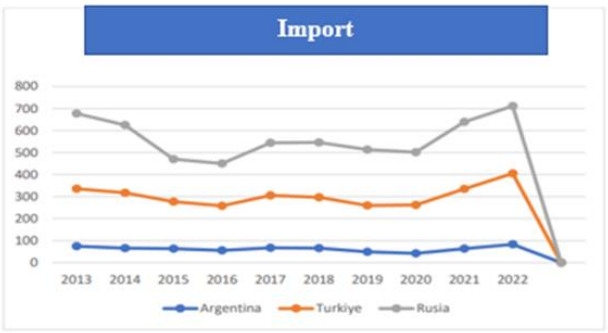
in the last 10 years with an exchange rate of 31.84 Rubles/USD and the highest in 2021, which was 73.65 Rubles/USD.



Source: www.worldbank.org

Figure 3. The Amount of Money in Circulation in The Three G20 Member Countries

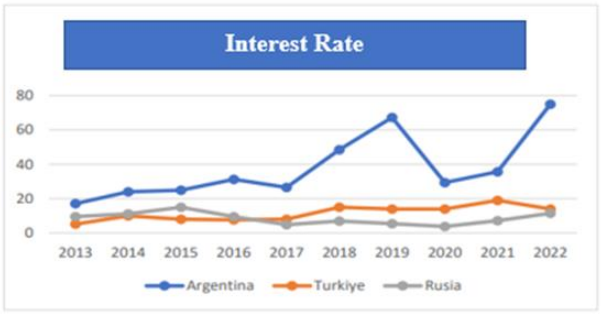
The figure illustrates the level of money circulating in Argentina, the largest in 2017 was 1000.00 billion USD and in 2013 it was 63.00 billion USD and rose again in 2022 to 630 billion USD. The amount of money circulating in Turkey was 600.00 billion USD in 2019, the highest amount in the last 10 years, and in 2022 the amount of money circulating was 270.00 billion USD. Meanwhile, in Russia, the highest level of money circulating was in 2013, namely 360.00 billion USD, while the lowest level of money circulating was in 2022, namely 140.00 billion USD.



Source: www.worldbank.org

Figure 4. Import Data in Three G20 Member Countries

Based on the table and graph above, Argentina's total imports are 82.89 billion USD in 2022. Argentina's main import commodities are semi-finished goods at 29% of total imports, fuel and lubricants (13%) and motor vehicles (8%), while in Turkey the total imports in 2022 were 322.04 billion USD. Turkey's main import commodities are semi-finished goods (31%), fuel and lubricants (16%) and chemicals (13%), not much different from Russia which has a total import of 305.98 billion USD in 2022. Russia's main import commodities are semi-finished goods (45%), chemical products (19%) and food and agricultural products (14%).



Source: www.worldbank.org

Figure 5. Interest Rate Data Graph for Three G20 Member Countries

Interest rates are one of the instruments in overcoming the inflation rate in a country. In 2019, interest rates in Argentina soared to 12.1% and soared again in 2022 to 75.0%. Interest rates in Turkey have been stable with the highest level in 2019 at 24.0%. Meanwhile, Russia has had interest rates below 10% in the last 10 years. Based on the phenomenon of the problem above with the background that has been explained, the next step of this study is to analyze how the international financial system using macroeconomic variables such as Money Supply, Imports and Interest Rates can affect Inflation and Exchange Rates in three countries (Argentina, Turkey and Russia) with the hope that in the future the level of inflation can be stable and the exchange rate is stable in the three countries with the highest inflation rates in the G20 organization.

2. LITERATURE REVIEW

Economic policy by stabilizing the international financial system by increasing the quantity and quality of trade between countries is what is called monetary policy. In general, to avoid inflation and difficulties in international payments. If emphasized, the goal is to stabilize prices, full employment, satisfactory economic growth and balance the balance of payments (Goldfeld Stephen M and Lester V Chandler, 1986). According to (Mankiw, 2006) Inflation is the tendency of prices to rise generally and continuously (Mankiw, 2006:145). The increase in inflation can be caused by domestic or foreign influences. If domestically inflation can be influenced by several secondary factors such as employee salary increases or crop failures. Then abroad inflation is caused by rising prices abroad or in trading partner countries. Inflation can be measured by the inflation rate, namely the rate of change in the price level in general and continuously over a certain period of time.

The exchange rate of other currencies is called the exchange rate, According to Paul RK rugman and Maurice (1994) the exchange rate is the price of a currency from a country measured or expressed in another currency. According to Munthe & Hamdi, (2015) in Zakiah,

and Umaruddin Usman (2019) the exchange rate is the price of the local currency against a foreign currency. So, the exchange rate is the value of the rupiah converted into cash from another country. According to Pilbeam:2006 the exchange rate or exchange rate is the price of a country's currency against the currency of another country.

According to (Herlambang, et al. 2002:114) Money is a stock of assets that can be used for transaction purposes, and in the stock of assets there is a demand for money (classically/quantity theory of money, it is explained that people hold money to buy goods and services, the more transactions, the more money is needed) and the supply of money (money available in the economy). Meanwhile, according to the quantity theory of money, it states that the central bank that oversees the amount of money in circulation has the highest control or inflation rate. If the central bank maintains a stable amount of money in circulation, the price level will be stable. If the central bank increases the amount of money in circulation rapidly, the price level will increase rapidly (Mankiw, 2006:82).

According to Andi Susilo (2013), import is the activity of bringing goods from a country into a customs area. This involves 2 countries in this case can be represented by the interests of 2 companies between the two countries which are different and of course different regulations and laws. According to Nopirin (2011) import is the process of purchasing foreign goods or services from one country to another. The level of import is influenced by trade regulation constraints. Mishkin (2008) stated that interest rates are the cost of borrowing or the price paid for the loan funds. Meanwhile, according to Darmawi (2005) in Efni (2007), the interest rate is the price that must be paid by the loan to obtain funds from the lender for a certain period of time. Subardi (2007) stated that interest rates are one of the economic indicators that connect the monetary sector with the real sector, therefore interest rate control plays a role in monetary policy.

3. METHODS

The research approach is associative/quantitative research. According to Rusiadi (2013:14). Associative or quantitative research is research that aims to determine the relationship and also the pattern in the influence between two or more variables, where with this research a theory is built with the aim of explaining, predicting and controlling a symptom. In supporting quantitative analysis in the research, a simultaneous model is used, where this model is able to explain the reciprocal relationship in the long term of economic variables used as endogenous variables. The data analysis methods used in this study are as follows:

$$Log(INF)=C(10)+C(11)*Log(JUB)+C(12)*Log(IMP)+C(13)*Log(SB)+C(14)*Log(KURS)+e1 \quad \ldots\ldots 1$$

$$Log(KURS)=C(20)+C(21)*Log(JUB)+C(22)*Log(IMP)+C(23)*Log(SB)+C(24)*Log(INF)+e2 \quad \ldots\ldots 2$$

Based on the above criteria, the identification of similarities in this study is as follows:

$$Log(INF)=C(10)+C(11)*Log(IMP)+C(12)*Log(SB)+C(13)*Log(KURS)+\sum 1 \ldots.3$$

$$Log(KURS)=C(20)+C(21)*Log(JUB)+C(22)*Log(IMP)+C(23)*Log(INF)+ \sum 2..4$$

4. RESULTS

VAR analysis is used to see the simultaneous relationship (interrelated or mutually contributing) between the variables studied, as exogenous variables and endogenous variables by including the element of time (lag).

System: SIMULTAN
Estimation Method: Two-Stage Least Squares
Date: 08/11/23 Time: 14:59
Sample: 1 30
Included observations: 30
Total system (balanced) observations 60

	Coefficient	Std. Error	t-Statistic	Prob.
C(10)	-15.46332	14.19576	-1.089291	0.2812
C(11)	0.015404	0.014805	1.040452	0.3031
C(12)	0.050819	0.045608	1.114249	0.2705
C(13)	1.069530	0.263038	4.066060	0.0902
C(14)	0.050453	0.091445	0.551728	0.5836
C(20)	306.4913	627.1181	0.488730	0.6272
C(21)	-0.305319	0.607588	-0.502511	0.6175
C(22)	-1.007259	2.196997	-0.458471	0.6486
C(23)	-21.19865	40.94852	-0.517690	0.6070
C(24)	19.82054	35.92447	0.551728	0.5836

Determinant residual covariance 3.73E-09

Equation: INF=C(10)+C(11)*JUB+C(12)*IMP+C(13)*SB+C(14)*KURS
Instruments: C JUB IMP SB
Observations: 30

R-squared	0.582014	Mean dependent var	21.68000
Adjusted R-squared	0.515137	S.D. dependent var	22.91415
S.E. of regression	15.95561	Sum squared resid	6364.537
Durbin-Watson stat	1.983011		

Equation: KURS=C(20)+C(21)*JUB+C(22)*IMP+C(23)*SB+C(24)*INF
Instruments: C JUB IMP SB
Observations: 30

R-squared	54.461097	Mean dependent var	36.84733
Adjusted R-squared	-74.934875	S.D. dependent var	36.29177
S.E. of regression	316.2487	Sum squared resid	2500332.
Durbin-Watson stat	1.983011		

Source: Eviews

Based on the equation 1 estimation results, it is known that all variables are significant towards inflation, so Ha is accepted. This means that most of the variables have a significant effect simultaneously on inflation in the three research countries, namely (Argentina, Turkey and Russia) so that the accuracy of the research is very reliable. The R-squared value (0.582014) or 58.20%, means that (money supply, imports, interest rates and exchange rates) are able to influence inflation by 58.20%, the remaining 41.8% of inflation is influenced by other variables that are not included in the research model.

Based on the equation 2 estimation results Based on the estimation results, it is known that there are four variables that are significant to the CURS, so Ha is accepted. This means that most of the variables have a significant effect simultaneously on the CURS in the three

research countries, namely (Argentina, Turkey and Russia) so that the accuracy of the study is very reliable. The R-squared value (54.461097) or 54.46% means that (JUB, IMP, SB and INF) are able to influence the CURS by 54.46%, the remaining 45.54% of the CURS is influenced by other variables that are not included in the research model.

5. DISCUSSION

Based on the results of the data analysis known in the t-test value that inflation is significantly influenced by the amount of money in circulation which is in line with the research (Lutfhiah Azizah, et al: 2020). These variables have a simultaneous effect on inflation. There is an influence between the amount of money in circulation on inflation, namely if the amount of money in circulation increases, inflation will increase in other words, a decrease at a smaller rate and vice versa. If the amount of money in circulation is too much, it will cause an increase in prices (inflation) and will have an impact on reducing people's purchasing power. The quantity theory highlights the process of inflation through the aspect of the amount of money in circulation and the psychology or expectations of the community regarding future price increases (expectations). The rate of inflation is determined by the rate of increase in the amount of money in circulation and public expectations about future price increases (Sutawijaya, 2012:90). when people need more money in hand to meet their living needs. As a result, the amount of money in circulation in the community increases and has an impact on increasing inflation.

Based on the results of the data analysis known in the t-test value that imports have a significant influence, meaning that the higher the import, the higher the inflation rate, in line with research conducted by (Ulke & Ergum, 212) revealed that there is a long-term and dynamic relationship between inflation and imports in Turkey and (Abidemi et al, 2010) stated that between import variables have a positive relationship with inflation in Nigeria. (D Zivkov, et al: 2019) one of the triggers for the increase in domestic inflation is that import consumption is too high in other words, dependence on imported products causes products sent from abroad to spend a lot of shipping costs and others. So that dependence on imports can increase inflation.

Based on the results of the data analysis known in the t-value test, the interest rate has a significant effect on inflation in line with the research conducted by (JH Egilsson, 2020) and (Heru Perlambang, 2012) the interest rate has a relationship with the inflation rate, if the interest rate tends to increase when inflation is expected to increase. (Harda Putra Aprileven, 2015) the interest rate is used by the government to control the price level when prices are high where

the prices of goods in general increase, and in conditions like this, people will certainly need more money in their hands, and cause the inflation rate to rise. The government makes efforts by setting high interest rates, with the hope that public consumption will decrease and price increases or inflation can be overcome (Adisetiawan, 2009).

Based on the results of the data analysis known in the t-test that the exchange rate has a significant positive effect on inflation, meaning that if the exchange rate rises (depreciates) then the inflation rate will also increase, this is in line with research (Venkataramana Yanamandra, 2015) and (Sjamsul Arifin, 1998) stating that in a situation where the exchange rate depreciates it will result in a very large increase in the price of tradable and non-tradeable goods and thus inflation increases. Depreciation affects reciprocal inflation, because theoretically if inflation in the country is higher than abroad, the domestic currency must be depreciated to maintain the ppp theory. The policy implication of this relationship is that it needs to be suppressed so as not to trigger depreciation. (Doddy and Benny, 1998) in their research it is known that the exchange rate has a significant positive influence on inflation, the results of the Granger causality test show that the real effective exchange rate (REER) influences inflation (in the same direction) with an average lag of 1 quarter.

Based on the results of the data analysis, it is known from the t-test that the amount of money in circulation has a significant negative effect on the exchange rate, in line with research conducted by (Priskilla Trivena Sanggor, 2013) in her research it was found that the amount of money in circulation has a significant negative effect on the exchange rate. An increase in the amount of money in circulation will result in an appreciation of the exchange rate or the exchange rate will fall. If viewed from the theoretical relationship, a positive relationship is found between the amount of money in circulation and the exchange rate. This shows that during the research period, the relationship between the amount of money in circulation and the exchange rate was not in accordance with that suggested by the theoretical relationship. Based on the results of the data analysis known in the t-test that imports have a significant negative effect on the exchange rate, this is in line with research conducted by (Ribkha Br Silitonga, et al: 2017) imports have a significant negative relationship to the exchange rate, because when the import rate increases, (Andy El Yuda, 2009) in his research it is known that imports have a significant negative effect on the exchange rate. because if imports increase, it will cause demand for the currency of the country of origin of imported goods to strengthen and on the other hand will weaken the value of the importer's currency.

Based on the results of the data analysis known in the t-test that interest rates have a significant negative effect on the exchange rate, meaning that if interest rates rise, the exchange

rate will decrease (depreciate), previous research (Noor, 2014) stated in his research that interest rates affect the exchange rate, relatively high interest rates domestically (Indonesia) will attract cash flow from abroad, relatively high interest rates in one side will reflect expectations of high inflation rates that will depreciate the exchange rate). Based on the results of the data analysis known in the t-test that inflation has a significant positive effect on the exchange rate, meaning that if inflation rises, the exchange rate will rise. This result is in line with previous research (TM Ali, et al: 2015) which states that in the short term and during the long term there is a relationship between inflation and exchange rate volatility, high and increasing money supply and interest rates can increase the price level (inflation) which causes an increase in exchange rate volatility. (Ribkha Br Silitonga, et al: 2017) in his research it is known that based on the theory of purchasing power parity (PPP) high inflation rates will cause a weakening of the exchange rate, in general if inflation increases then the price of goods in the country increases, the increase in the price of goods is the same as the decrease in the value of the currency.

6. CONCLUSION

Based on the results of the study, the variable of the amount of money in circulation has a significant effect simultaneously on inflation and exchange rates in Argentina, Turkey and Russia. The amount of money in circulation has a significant positive effect on inflation and a significant negative effect on exchange rates. l Imports have a significant effect simultaneously on inflation and exchange rates in Argentina, Turkey and Russia. Imports have a significant positive effect on inflation and a significant negative effect on exchange rates. Interest rates have a significant effect simultaneously on inflation and exchange rates in Argentina, Turkey and Russia. Interest rates have a significant positive effect on inflation while having a significant negative effect on exchange rates. and the variables of inflation and exchange rates each have a significant positive effect on each other (both inflation and exchange rates) in Argentina, Turkey and Russia.

LIMITATION

This research is limited so that the discussion in this research does not deviate from the desired objectives. In accordance with what has been written in the problem identification. So the author limits the problem only to the International Financial System in the form of JUB (Money Supply), IMP (Import), SB (Interest Rate), INF (Inflation) and KURS (Exchange Rate) variables in 3 G20 membership countries (Argentina, Turkey and Russia).

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