Factors influencing Interest Rate of Five Emerging Economies

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Abstract: The interest rate was and still a point of difference between economists. This difference is based on a difference in understanding the nature of the market in which the interest rate is determined and in enumerating the influencing factors in this market. Interest rate has a role to play in the national economy, but this role differs from one country to another due to different economic and political conditions. This study sheds light on the impact of changes of the US interest rate, the inflation rate and the exchange rate on the domestic interest rate in five emerging economies (Brazil, Russia, Turkey, China, and South Africa). The experimental results of the study were estimated by the dynamic least squares method and the causality test using monthly data during the period 2011-2019. The study concluded that the US interest rate has an inverse relationship with the interest rates of all sample countries included in the study at a significant level (5%). The increase in inflation and fluctuations in the exchange rate contributed to raising interest rates in the sample country. The results of causality test also indicated that the inflation rate and the exchange rate cause interest rates in Brazil, Turkey and South Africa in the long term.

Keywords: Short-Term Interest Rate, Emerging Economies, DOLS and Causality Test.

1. Introduction

The interest rate is one of the important variables in the economy, whether at the macro or micro level. This is because it plays a major role in the economic construction and is one of the most important indicators that are used to analyze the movement and direction of the macroeconomic so that it is used as a tool to influence economic activity through monetary policy (Hussein, 2017). It depends on the degree of the development of the country, whether developed or developing, and that any change in the interest rate will affect investment and economic decisions for any country. Nevertheless, all of this depends on the strength of the private sector and its role in economic activity and the availability of a market economy in that country. The latter will determine the effectiveness of the interest rate in the economy and it is often assumed in economic theory that the interest rate influences the decision of the individual consumer to distribute his income between present consumption spending and saving. In the wake of the financial crisis that struck the world between 2007 and 2009, most of the central banks in the countries of the world have tended to rely heavily on adopting monetary policy mechanisms to get out of that crisis. This is due to the fact that the majority of developed countries were not able to use the mechanisms of financial policies, as they were suffering from imbalances in their financial budgets and burdened by the domestic and foreign debts, and therefore they had to go towards monetary policies to recover from the crisis and boost the pace of economic growth (Hajj,2018). On the other hand, the changes that occurred in the US interest rate, especially after the subprime mortgage crisis, had a strong impact on the global economy, financial markets, emerging economies and the economies of developing countries. The rise in US interest makes denominated assets in the US currency more attractive to investors as a result of strengthening investor confidence in the largest economy in the world. This usually leads to an increase in the value of the US dollar at the expense of other currencies. This results in troubles in other economies, especially emerging economies such as Turkey, Brazil, Russia, Mexico and South Africa. The difference in interest rates leads to the exit of capital flows from these economies in search of the American return. In addition, the dollar debt burden in these economies becomes more difficult with the rise in US interest, which is burdening to these economies.

The parts of the study come as the following order: the second section deals with previous studies, the third section explains the objectives and methodology of the study and discusses its results using unit root tests, the dynamic least squares method, and the causality test. In the fourth section, the most important conclusions reached by the study are mentioned.

2. Previous Studies

There are many studies and empirical research that dealt with the issue of interest rate, whether in terms of its relationship to other factors or to the factors affecting it. The discussion of each researcher differed according to the problem of

each topic, among these previous studies are the following:

The early studies of Argy and Hodjera (1973) and Levin (1974) indicated that US interest rates are insensitive to the influence of foreign markets. The evidence is attributed to the relative isolation of US interest rate generation operations from External market forces. The study conducted by Blanchard and Summers (1984) dealt with global rates of interest rate in six largest economies of the Organization for Economic Cooperation and Development (OECD). The study focused on short-term rates. It used multiple regression models and analysis of changes for four main factors: the expected profits of investment, savings, monetary policy and wages. The research concluded that enhancing profitability and mixing fiscal and monetary policies are primary factors for raising real interest rates.

Bootha and Ciner study (2001) examining the long-term relationship between the two variables of the short-term interest rate on the European currency and the inflation rate in nine European countries and the United States. The findings of the study, by applying co-integration models, showed that in most cases, there is a one-to-one relationship between European currency rates and the expected inflation of the study sample.

The study of Gumus (2002) aimed to assess the relationship between interest rates and exchange rates during the currency crisis in Turkey in 1994. Using the weekly data and applying the vector error correction model, it was found that raising interest rates had a significant effect in the long term to reduce the nominal exchange rates in Turkey.

The study of Anoruo et al (2002) examines the relationship between 7 Asian countries, taking into account interest rates in the United States and Japan. The study concluded that interest rates in Asian countries are affected by each other. They also stated that after the 1990s, the USA became more effective in countries of the region than Japan. The study of Goldberg et al in 2003 investigated the degree of financial integration with the volatility of short-term interest rates in several largest industrialized countries, namely Canada, France, Germany, Japan, England, and the United States of America. They used quarterly data between 1957 and 2000. After applying the stationary and unit root tests, they found that capital movements in these countries are affected by capital controls and shocks, and that there is long-term financial integration in the sample countries in this study. In Laopodis study (2004) on the relationship between long-term interest rates for the economies of 8 developed countries, he explained that the interaction between long-term interest rates for these countries has gradually increased and that the rapprochement between the European Union countries has become more important and flexible as Germany retains its dominant position among the European Union countries. As for the study of Shalishali and Ho (2002), regression analysis on historical exchange rates and interest differentials was used in a simplified statistical test of Fisher's International theory in eight selected industrial countries, namely Canada, France, Germany, Japan, the Netherlands, Sweden, Switzerland and the United Kingdom. Each of these countries was used interchangeably as a native, and a foreign country to investigate the trend of parity and influence. The study concluded that Fisher's international theory applies to some countries and does not apply to other countries. The theory applies when some countries were used as the country of origin but was disproved when they were used as foreign countries. The study also indicated that there may be obstacles to foreign trade that affect the adjustment of the exchange rate, regardless of interest rate differentials and inflation. In the study of Masatçi and Jacqui (2006), the internal and external factors affecting interest rates in Turkey are discussed using monthly data for the period 1996-2004. It was noted that internal factors such as inflation, public debt and real income affect interest rates in Turkey, and external factors such as US interest rates do not affect interest rates in Turkey.

Ehrmann and others, in 2011, examined the relationship between short-term and long-term interest rates, stock prices, and exchange rate markets in the period 1989-2008. In their studies covering the US and Europe region, they find that the shocks originating from the United States affected the European region, while the shocks originating from Europe did not affect the US markets. Likewise, they find that changes in US stock prices are affecting stock prices in Europe.

The study of Awomuse and Alimi (2012) aimed at investigating the relationship between expected inflation and nominal interest rates in Nigeria and the extent of applying Fisher's hypothesis for the period 1970-2009. Using the Johansen co-integration test and the error-correction model, the results of the study showed that the nominal interest rates and expected inflation move together in the long run and that there is a strong causal relationship extending from expected inflation to nominal interest rates as suggested by Fisher's hypothesis. Khan's study (2012) aimed to investigate the effect of interest rates on the

exchange rate in Pakistan and the United States. For this purpose, historical data for the Pakistani Rupee / US Dollar exchange rate has been collected along with the monthly interest rates. The relationship between interest rate differential and exchange rate difference has been studied in Pakistan and the United States by applying a simple linear regression model. It turns out that the empirical relationship between interest rate and exchange rate is positive. The study revealed a non-significant effect of the interest rate differential on exchange rate differential.

Jaradat and Al-Hhosban's study (2014) aimed to investigate the relationship between the interest rate and inflation in the Jordanian economy during the period (1990-2012). In order to achieve the goal of the study, the study used the co-integration test and the causality test. The empirical results of this study showed that there is a positive relationship between inflation and the interest rate, and there is a two-way causal relationship between inflation and the interest rate in the Jordanian economy over the period (1990-2012). Moroşan and Zubaş in their study (2015) that aimed to examine the relationship between inflation and the exchange rate in Romania, concluded that inflation and exchange rates are among the important factors that affect interest rates in Romania. Saraç and Karagöz study (2016) which examined the causal relationship between short-term interest rates and exchange rates in Turkey during the period (02:2003-08:2015) using the causality test. By testing Granger's causality, the researchers found no evidence that higher interest rates caused exchange rate weakness. Şen et al study (2019) which investigated the possibility of a long-term relationship between interest rates, inflation and exchange rates in five fragile emerging economies (Brazil, India, Indonesia, South Africa, and Turkey) during the period (01: 2013-12: 2018). For this purpose, the study used (ARDL) model to examine the order of co-integration between variables on samples of monthly time series data for the countries. The study concluded that there is a long-term positive relationship between actual rates of inflation and nominal interest rates, which supports the validity of Fisher's hypothesis for all sample countries. Second, data from the sample countries support the existence of a co-integration between interest rates and exchange rates in the case of Brazil, India, and Turkey, but not in the case of Indonesia and South Africa.

3. Research Methodology and Data

The aim of the study is to show the effect of the Federal Reserve's decisions regarding interest rates as an external variable, the rate of inflation and the exchange rate as internal variables on domestic interest rates in five emerging economies (Brazil, Russia, China, Turkey and South Africa). For this purpose an empirical model is used to determine this effect. On this basis, statistical data is collected from various sources on all the variables that we think could serve us in addressing the problem at hand.

The dataset consists of the short-term interest rates of the six countries identified above for the period December, 2011 to December, 2019. The data of short-term interest rate (IRit) was taken from OECD database, exchange rate (EXitUSD) data were compiled from the International Monetary Fund database, and inflation (πit) data available at: https://www.global-rates.com/en/. Before starting to build empirical models for each of the countries under study, we will examine the stability of the variables. After completing the variables testing phase and making sure that the time series of the variables are stable, we will move to the next step, which is building the empirical models for each country individually, using the selected variables. We will perform the estimation process using a program prepared for this purpose which is "Eviews 11 statistical program". In the process of estimating study model, we will use the method DOLS and the causality test.

The mathematical function for all the countries is formulated as follows:

$$IR_{it}=f\ (i_{it}^{US},\ \pi_{it},\ EX_{it}^{USD}) \qquad (1)$$

Adding the random variable u to equation 1 we get the following econometric model:

$$IR_{it} = \alpha_0 + \beta_1 i_{it}^{US} + \beta_2 \pi_{it} + \beta_3 EX_{it}^{USD} + U_{it} \qquad (2)$$

Where, IR_{it}: The interest rate for country (i) in the period (t).

i_{it}^{US}: The US interest rate during the period t.

π_{it}: The inflation rate for country (i) in the period (t).

EX_{it}^{USD}: The exchange rate against the dollar for country (i) in the period (t).

Where the constants α_0, β1, β2, β3 express the parameters of the model, and U_{it} denotes the random error in the model estimation.

3.1. Descriptive statistics

Descriptive statistics of the study variables are presented in Table 1. The results show that among the five countries that were observed during the entire sample period, Turkey had the highest short-term interest rates as well as the highest inflation rate during the study period. Looking at the data on Russia and Brazil, the two countries ranked second and third place respectively in terms of short-term interest rates and inflation rates after Turkey during the period of 12.2011-12.2019.

Table 1: Descriptive summary

Variable	Brazil	Russia	China	Turkey	South Africa	United States
IR						
Mean	9.773196	9.347825	5.078557	9.757732	6.367010	0.870103
Maximum	14.25000	21.91000	6.560000	24.00000	7.610000	2.690000
Minimum	4.500000	6.350000	4.350000	4.500000	4.930000	0.110000
Std. Dev.	2.990672	2.817724	0.837448	5.737924	0.897278	0.844048
π_t						
Mean	5.468526	6.626196	2.166021	10.44363	5.308835	NA
Maximum	10.70600	16.92600	4.541000	25.24000	7.066000	NA
Minimum	2.126000	2.197000	0.710000	6.134000	3.568000	NA
Std. Dev.	2.471754	3.863816	0.755150	4.177491	0.944716	NA
EX_t^{USD}						
Mean	3.006598	51.79206	6.475567	3.219691	12.12485	NA
Maximum	4.220000	75.17000	7.140000	6.410000	16.08000	NA
Minimum	1.700000	28.95000	6.100000	1.740000	7.430000	NA
Std. Dev.	0.750711	14.92159	0.304798	1.365717	2.329715	NA
Obs.	97	97	97	97	97	97

3.2. Unit Root Tests

In order to be able to estimate the proposed models and in order not to get false estimation results, the selected time series must be stable (constant) (Gujarati et al., 2012). For this purpose, we use the Unit Root Test to test the stability of these series. The unit root test aims to examine the properties of the time series of all variable during the study period. There are several tests that are used to test the variables stability. In this study, the stability of the study variables is examined depending on Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP). According to these two tests, the decision is made on the basis of a comparison between the probability value and the value of the significance level.as following, the corresponding probability value of a variable is compared with the significance level equal to 5%. If the corresponding probability value is less than the significance level of 5%, then the null hypothesis that the variable under study is not stable is rejected, and the alternative hypothesis that the variable under study is stable is accepted. But if the corresponding probability value is greater than the significance level of 5%, then the null hypothesis that the variable under study is not stable is accepted, and the alternative hypothesis that it is stable is rejected. Table 2 shows the results of the unit root tests for the study variables, where it is noticed that the study variables represented by the short-term interest rates, US short-term interest rate, inflation rates and the currency exchange rate of the sample countries are not stable at the original level, and accordingly we will take the first differences for the variables.

Table 2:Unit root tests at level

Level	Country	Variable	ADF	PP
With Constant & Trend	United States	IR	-1.8377(0.6785)	-2.0346 (0.5749)
	Brazil	iR_{BR}	-2.2478 (0.4577)	-0.8004 (0.9615)
		π_t	-1.9124 (0.6403)	-1.6485(0.7662)
		EX_t^{USD}	-2.2939 (0.4329)	-2.2444(0.4596)
	Russia	iR_{RS}	-1.958 (0.6162)	-2.2485 (0.4574)
		π_t	-1.8744 (0.660)	-2.1935 (0.4873)
		EX_t^{USD}	-1.6764 (0.754)	-1.8637(0.6654)
	China	iR_{CN}	-1.1348 (0.9170)	-0.9056 (0.9505)

	π_t	-2.3298(0.4138)	-2.6742(0.2496)
	EX_t^{USD}	-2.6182(0.2734)	-2.3599(0.3980)
Turkey	iR_{TR}	-3.0586 (0.1225)	-2.2489 (0.4572)
	π_t	-3.0136(0.1342)	-2.4462(0.3539)
	EX_t^{USD}	-2.4326 (0.3607)	-2.4022(0.3762)
South Africa	iR_{ZA}	-1.3738 (0.8624)	-1.5374 (0.8098)
	π_t	-2.7127 (0.2341)	-3.5269 (0.0421) **
	EX_t^{USD}	-2.1129 (0.5319)	-1.9505 (0.6203)

Through Table 2, we notice that all the variables are not stable at the level, because the probability was greater than 5% for all the studied variables, and therefore we can say that all the variables of the study are not integrated of order 1(0). For this, the first differences of the variables were taken to make them devoid of the unit root as shown in table 3, where the results of the unit root tests indicate that the probability value (prob=0.000), that's less than 5 percent, so the variables are stable and integrated of order 1(1).

Table 3: Unit root test at first difference

First-Differences	Country	Variable	ADF	PP
With Constant & Trend	United States	IR	-5.5547 (0.000) ***	-5.5898 (0.000) ***
	Brazil	iR_{BR}	-2.0097(0.0455) **	-7.2387 (0.000) ***
		π_t	-4.2611 (0.000) ***	-9.5434 (0.000) ***
		EX_t^{USD}	-10.1750 (0.000) ***	-10.3930 (0.000) ***
	Russia	iR_{RS}	-7.9921 (0.000) ***	-7.8551 (0.000) ***
		π_t	-5.2304 (0.002) ***	-3.9505 (0.0136) **
		EX_t^{USD}	-7.8558 (0.000) ***	-7.6731 (0.000) ***
	China	iR_{CN}	-5.1950 (0.000) ***	-8.6794 (0.000) ***
		π_t	-13.9615 (0.000) ***	-14.8475 (0.000) ***
		EX_t^{USD}	-7.4276 (0.000) ***	-7.4464 (0.000) ***
	Turkey	iR_{TR}	-3.0982 (0.03) **	-9.4548 (0.000) ***
		π_t	-4.6939 (0.000) ***	-7.0356 (0.000) ***
		EX_t^{USD}	-9.1651 (0.000) ***	-9.7995 (0.000) ***
	South Africa	iR_{ZA}	-7.3116 (0.000) ***	-5.8002 (0.000) ***
		π_t	-9.5541 (0.000) ***	-9.5384 (0.000) ***
		EX_t^{USD}	-11.6664 (0.000) ***	-11.7208 (0.000) ***

Notes: (*) Significant at the 10%; (**) Significant at the 5%; (***) Significant at the 1%. and (no) Not Significant.

3.3. Regression Model

The regression model is a statistical method developed to determine the relationship between two or more variables that have a cause-effect relationship, and make future predictions about this topic using this relationship (Alma and Vupa, 2008). After ensuring the time series integrity and stationary, the next step is to use the empirical Model to get estimates with better characteristics. In the current study, the regression model will be estimated using the Dynamic Least Squares (DOLS), which is one of the most recent and powerful methods due to its performance in small-sized samples. This method is used to estimate the long-term equilibrium relationship for models that include integrated variables of the same order or from different order. It is a method suggested by Phillips (1988) and then developed by Saikkonen (1992) and (Stock and Watson, 1993), which depends on leads and lags for the variables (Montalvo, 1995). Table 4 presents the model estimation results for the sample countries using (DOLS) method.

Table 4: Regression results of equation (2)

Dependent variable: (IR_{it})				
Countries		$\beta_1 i_t^{US}$	$\beta_2 \pi_t$	$\beta_3 EXt^{USD}$
Brazil	Coefficient	-2.964	0.440	2.108
	Std. Error	0.694	0.169	0.7226

	Prob.	(0.001) ***	(0.011) **	(0.0046) ***
Russia	Coefficient	-2.039	0.287	0.160
	Std. Error	0.3260	0.0596	0.01653
	Prob.	(0.000) ***	(0.000) ***	(0.000) ***
China	Coefficient	-0.193	0.432	-1.668
	Std. Error	0.127	0.133	0.3577
	Prob.	(0.132)	(0.001) ***	(0.000) ***
Turkey	Coefficient	-3.204	1.127	2.824
	Std. Error	1.338	0.153	0.680
	Prob.	(0.019) **	(0.000) ***	(0.0001) ***
South Africa	Coefficient	-0.471	0.203	0.245
	Std. Error	0.101	0.087	0.0315
	Prob.	(0.000) ***	(0.022) **	(0.000) ***
Note: ***, ** and * indicates significance level at 1%, 5% and 10% respectively.				

The following data is showed by the results of the experimental analysis of the impact of the independent variables represented by the US interest rate, inflation and exchange rates against the dollar on the dependent variable (the interest rate) using the dynamic least squares method: The US interest rate has an inverse relationship with the interest rates of Brazil, Russia, China, Turkey and South Africa. This means that a decrease in the US interest rate by 1% leads to an increase in interest rates of Brazil, Russia, China, Turkey and South Africa by (2.964%, 2.039%, 0.193%, 3.204%, 0.471%) respectively. This is justified by the fact that the decisions of the central banks in these emerging countries are going in the opposite direction to the US central bank. They increase interest rates when they are lowered by the US central bank. This is because when the US interest increases, it results in a rise in the dollar against the currencies of these emerging countries, which makes Building foreign reserves is difficult for many of these countries' central banks. In addition to the fact that these countries depend on foreign investments and the dollar's presence, the high interest rate means a rise in the US treasury yields and an increase in their attractiveness for foreign investors. Consequently, the foreign investors exodus from those countries to America in order to invest in US Treasury bonds. The rate of inflation has a positive relationship with the interest rates of Brazil, Russia, China, Turkey and South Africa, and this means that an increase in the inflation rate in the sample countries by 1% leads to an increase in interest rates for Brazil, Russia, China, Turkey and South Africa by (0.440%, 0.287%, 0.432%, 1.127%, 0.203%) respectively.

The exchange rate has a positive relationship with the interest rates of Brazil, Russia, Turkey and South Africa. This means that a 1% decrease in exchange rates leads to an increase in interest rates for Brazil, Russia, Turkey and South Africa by (2.108%, 0.160%, 2.824%, 0.245%) respectively.

3.4. Granger Causality Test

Many empirical models assume different hypotheses to explain the relationship between the variables. Nevertheless, they were not able to ascertain the variables cause and effect relationship (Saymeh et al., 2013). Among the most famous tests and methods used to study the causal relationship are three main tests: (Granger 1969), (Sims 1972) and (Gwekes 1983). The method of Granger is the most used one. It was estimated using VAR model. This test allows us to estimate the causal relationship and determine its direction between the two variables. It says that there is a Granger causal relationship if previous values of a variable (X) affect the future values of another variable (Y_t + 1) and vice versa. This test depends on the following equations:

$$Y_t = \alpha_0 + \sum_{t=1}^{k1} \alpha_i Y_{t-i} + \sum_{t=1}^{k2} \beta_i X_{t-i} + \varepsilon_t \qquad (3)$$

$$X_t = \chi_0 + \sum_{t=1}^{k3} \chi_i X_{t-i} + \sum_{t=1}^{k4} \delta_i Y_{t-i} + \nu_t \qquad (4)$$

Both (Y and X) represent the study variables, (εt) and (vt) are the white error of both equations and they are not linearly correlated, (t) expresses the time and (k) is the number of lag length which is determined by the two criteria (Akaike and Schwarz), in which we test the following hypotheses:

H0: $\beta_i=\delta_i = 0$. (Null Hypothesis)

H1: $\beta_i \neq 0$ et $\delta_i \neq 0$. (Alternative Hypothesis)

In the case of rejecting the null hypothesis and accepting the alternative hypothesis, we conclude the existence of Granger's causal relationship,

where if (β_i) is significantly different from zero, and (δ_i) is not significantly different from zero, we conclude the existence of a causal relationship from X to Y and vice versa. But, in the case that both of them are different from zero, then causal relationship is in both directions (Ayad, 2017). Table 5 presents the results of Granger causality test for all the models for the sample countries.

Table 5: Granger Causality Test Results

Countries	Dependent Variables	İR	π_t	EXt^{USD}	Lag length
Brazil	$İR_{BR}$	-	(1.789)	(0.109)	1
	π_t	(68.08)***	-	(0.029)	1
	EXt^{USD}	(13.15)***	(0.016)	-	1
Russia	$İR_{RS}$	-	11.23***	(7.403)***	2
	π_t	(3.547)	-	(6.708)***	2
	EXt^{USD}	(0.784)	(2.198)	-	2
China	$İR_{CN}$	-	(0.008)	(9.120)**	2
	π_t	(2.043)	-	(1.131)**	2
	EXt^{USD}	(0.370)	(0.960)	-	2
Turkey	$İR_{TR}$	-	(16.08)***	(54.66)***	4
	π_t	(14.24)***	-	(5.081)	4
	EXt^{USD}	(25.04)***	(35.41)***	-	4
South Africa	$İR_{ZA}$	-	(4.490)	(1.104)	3
	π_t	(11.01)**	-	(6.679)*	3
	EXt^{USD}	(19.40)**	(16.28)	-	3

Note: ***, ** and * indicates significance level at 1%, 5% and 10% respectively. (...)represents the value of $\chi 2$

Table 5 shows the results of testing the causal relationship between the local interest rate, the inflation rate and the exchange rates in all sample countries at optimal lag length.

First, testing the causal relationship from the inflation rate and the exchange rate to the interest rates in Brazil, Russia, China, Turkey and South Africa, where we test the null hypothesis which states that the inflation rate and the exchange rate do not cause the interest rate in the sample countries. Based on the results in the table above, the value of (χ^2) for the inflation rate and the exchange rate was statistically significant, so the null hypothesis is rejected and the alternative hypothesis, which states that the inflation rate and the exchange rate cause the interest rate in Brazil, Turkey and South Africa during the study period, is accepted, while the null hypothesis that the inflation rate and the exchange rate do not cause interest rates in both Russia and China was accepted.

Secondly, the causal relationship from the interest rate to the inflation rate and the exchange rate, where it is evident from the results and through the value of (χ^2) ,we accept the null hypothesis that the interest rate does not cause inflation and the exchange rate in both Brazil and South Africa and accept the alternative hypothesis which states that the interest rate causes inflation and the exchange rate in China, Turkey and Russia. There is, also, a one-way causal relationship from the inflation rate to the exchange rate in China, Russia and South Africa, as well as a one-way causal relationship from the exchange rates to inflation in Turkey. Therefore, changes in the exchange rate and inflation help explain changes in interest rates, not in all the sample countries, but some of them.

4. Conclusion

The interest rate was and still a point of difference between economists. This difference is based on a difference in understanding the nature of the market in which the interest rate is determined and in enumerating the influencing and effective factors in this market, as well as the extent to which the nature of the factors affecting it is understood. Interest rate has a role to play in the national economy, but this role differs from one country to another due to different economic and political conditions. The present study aims to test the impact of US interest rates, inflation rate and exchange rate on interest rates in five emerging countries: Brazil, Russia, China, Turkey and South Africa, using monthly data during the period 2011 to 2019 through an empirical model to achieve the goal of the study. The study has the following results:

The stability of the data, where it was found through the unit root tests that all the variables are not stable at the level, and after taking the first

differences it was revealed through the two tests (Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP)) that the time series of the study variables became stable. This indicates that the effect of all temporary shocks will be vanished with time in the long run, especially that the Phillips-Perron test takes into account random errors and is more comprehensive than the Augmented Dickey-Fuller (ADF) test, therefore the US interest rate, the short-term interest rate, the inflation rate and the exchange rate for the sample countries are stable of order I (1). The results of estimating the model for the sample countries by means of the dynamic least squares method showed that the US interest rate has a negative relationship with the interest rates of all the sample countries included in the study. The decrease in the US interest rate by 1% leads to an increase in interest rates for Brazil, Russia, China, Turkey and South Africa by (2.964%, 2.039%, 0.193%, 3.204%, 0.471%) respectively. The increase in inflation and fluctuations in exchange rates contributed greatly to raising interest rates in the sample countries during the period covered by the study. The empirical findings regarding the causality test showed that the inflation rate and the exchange rate cause the interest rate in Brazil, Turkey and South Africa and do not cause the interest rate in both Russia and China in the long run, as well as the interest rate causes inflation and the exchange rate in China, Turkey and Russia. There is a one-way causal relationship from the inflation rate to the exchange rates in China, Russia and South Africa, as well as a one-way causal relationship from the exchange rates to inflation in Turkey.

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