Investigation Of The Impact Of Exchange Rates, Interest Rates, Economic Growth, And Circulation Of Electronic Money On Inflation In Malaysia

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Abstract

This project intends to research the effects of the USD vs Malaysian Ringgit exchange rate, Malaysia's central bank interest rate, The growth of the economic in malaysia, the circulation for electronic money in Malaysia on inflation in Malaysia. Bank Negara Malaysia is a secondary data source for this investigation, global financial institution (IMF), also the World Bank with a monthly research period from January 2012 to January 2020. We use Model for Error Correction (ECM) model for the investigate some influence relationship at the long and short run.We found that a stronger USD further depresses the Malaysian ringgit and has an impact on increasing Malaysia's inflation on the long and short run. When the Malaysian central bank interest rate are higher, the more it will push Malaysia's inflation. And the higher economic growth in Malaysia, the more accelerating inflation at Malaysia, at long and the short run. However, some circulation of electronic money in Malaysia only has a short-term impact on inflation and in the long term the impact is not significant.

Keywords: Inflation, E-Money, ECM, Exchange Rate
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Background

The last quarter of the twentieth century witnessed an unparalleled technological revolution, embodied on the back of the Internet (Widarni, Prestianawati, & Bawono, 2020), ranking the effective role in achieving rapid and comprehensive exchange of information in policy and fabric planning for the benefit causing by the sector of financial (Gruin & Knaack, 2020), The outcome by increasing demand of individuals for goods and services around the world (Murniati & Bawono, 2020). The modern trend is related to electronic commerce, which uses the International Information Network (internet) in achieving commercial transactions in different formulas either in the same country or in several different countries (Melović, Jocović, Dabić, Vulić, & Dudic, 2020). It is a mix of advanced technology and services and search mechanisms for exchanging information between sales people and their customers (Chapuzet & Bawono, 2021).

In the same context, modern transaction banking has witnessed a radical development, as electronic payment methods have emerged to allow customers to make purchases and sales over the Internet (Bawono, 2021). Traditional money fully functions as a means of payment and a means for concluding transactions and a mediator of exchange, and it is hoped that electronic money will replace traditional money in the long run (Viphindrartin, Wilantari, Prabowo, Sasongko, Priyanto,& Bawono, 2020 ; Sasongko & Bawono, 2020). Electronic money and its

widespread use had a major impact on monetary policy, which was followed by the central bank because the rise of others by creating electronic money had an impact on doubts about monetary stability (Sasongko, Widarni, & Bawono, 2021).

This rapid technological development presents new challenges for banking management, regulatory and supervisory authorities in general, and the Central Bank in particular (Vučinić, 2020). The most important challenge stems from the increase in cross-border transactions due to the low ease of banking activities, and risks (Gozman & Willcocks, 2019).

Electronic banking transactions involve a high degree of legal risk for banks, due to the wide geographical scope of their services, so state laws and regulations (Sinigaglia, Carbone, Costa, & Zannone, 2020). Relying on modern technology to provide services is a major focus of the operational risks arising from electronic banking (Li, Lu, Hou, Cui, & Darbandi, 2021).

Security breaches significant changes in services's system might harm a bank's standing A bank's reliance on contactless transactions service transport operator, The possible loss of business increases (Wewege, Lee, & Thomsett, 2020). This causes customers to lose confidence in the banks they work with, which is why central banks must develop internal guidelines and records for their customers, in addition to distributing guidelines to banks on certain management activities and issuing warnings (Auer, Frost, Gambacorta, Monnet, Rice, & Shin, 2022).

The risks and challenges of the electronic age are not limited to central bank regulators and oversight but rather affect state agencies and the economy as a whole, and one of the most dangerous are the opportunities for money laundering and tax problems that are increasing in the virtual economy (Nabilou, 2020). Electronic money is defined as a set of digital signatures and protocols (Signes Digitals) that allow electronic messages to completely replace traditional currency exchange, and this is the electronic equivalent (Wang, Ma, Deng, Zheng, & Wu, 2021). Electronic money is an ordinary monetary unit that is stored electronically and filled electronically, or as some people know it as an electronic digital unit that is transferred in a certain way from a person's account to his account (Rahmatian, 2019).

Electronic money is a monetary value stored on a prepaid electronic device, not linked to a bank account and widely accepted by those who are not as a distinct means of payment (Khalaf, 2018). Monetary value includes monetary units with a financial value such as one hundred dollars, and it follows that telephone cards are not considered Before electronic money, because the value stored in the former is the telephone communication unit and not the monetary value that can afford goods and services (Putri, Ilham, Sinurat, Lilinesia, & Saragih, 2021). Electronic money is stored on electronic means so that it becomes an important element in defining electronic money, because monetary value is transmitted electronically on plastic cards or on the hard disk of consumers' personal computers (Panova, & Makhinchuk, 2020). Electronic money applies to fulfilling obligations such as buying goods and services, or paying taxes...etc (Coskun, Saygili, & Karahan, 2022).

Inflation is one of the economic problems experienced by most if not all countries (Musarat, Alaloul, & Liew, 2021). In its most general definition, inflation is the weakening purchasing power of the local currency or a persistent a rise in a nation's overall rate of pricing on products and services, both goods, also services (Yanescha, 2022). Therefore, a temporary price increase is not considered inflation, and a price increase at the level of a particular commodity is not considered an increase in inflation (Neville, Draaisma, Funnell, Harvey, & Van Hemert, 2021). The inflation's danger manifested in its effects. This causes panic for investors as it involves decreasing the true value of money (Rahman & Gan, 2020).

Inflation is usually the result of an greater at the cash coming that are not the expansion inside the number of products and services available to match, for example, accompanied by a rise in production Increasing earnings will result in rising consumer demand for services and goods for goods with providers, which raises the cost of goods (inflation) (Van, 2019). An increase in national debt can also lead to inflation, especially if using new ways of creating money to meet the debt service burden (Yusuf & Mohd, 2021). Interest rates that are too low can cause inflation because it will encourage the growth of credit grants and thus an abundance of money (Adediran, George, Alege, & Obasaju, 2019). Inflation can also be caused by an increase in the price of raw materials, which forces companies to increase prices (Prohorovs, 2022). In order to overcome the imbalance caused by inflation and return the country's economy to a balanced situation, the government uses a set of financial and monetary tools aimed at reducing the risk of inflation (Bordo & Levy, 2021).

Increasing interest rates curb the inflation rate. Interest rates are one of the monetary tools at their disposal Central banks control the money supply, in case of inflation (Kubiczek, 2022), these banks use an increase in interest rates which leads to owners of surplus finance to keep their money in the bank for profit (Whited, Wu, & Xiao, 2021), and on the other hand, it will cause commercial banks to raise interest rates on loans, leading to restrictions on lending operations (Murodovich & Jahongir, 2022), and ultimately the policy of raising interest rates will reduce the money supply in the market, which in turn will cause the demand for goods and services to decline and consequently a decrease in their prices (Makin & Layton, 2021). This procedure is not without its drawbacks, including it will affect the volume of investment in the country concerned because it increases borrowing costs and thus hampers the financing of investment projects because the increase in borrowing costs also risks pushing up prices from increasing borrowing costs which has an impact on increasing production costs (Egli, Steffen, & Schmidt, 2018). However, the increase in interest rates in fact increases the cost of production which also carries the risk of increasing inflation. Because the number of goods and services produced can also be threatened to decrease due to the increase in production costs due to the increase in the cost of capital (Eeckhout, 2022). When the amount of goods and services decreases, even though the amount of money decreases, there is still a risk of inflation (Wollie, 2018). This project intends to research the effects of the USD vs Malaysian Ringgit exchange rate, Malaysia's central bank interest rate, The growth of the economic in malaysia, the circulation for electronic money in Malaysia on inflation in Malaysia.

Research Method

Bank Negara Malaysia is a secondary data source for this investigation, global financial institution (IMF), also the World Bank with a monthly research period from January 2012 to January 2020. We use Model for Error Correction (ECM) model for the investigate some influence relationship at the long and short run with the following econometric model:

$In_t = \beta_0 + \beta_1 R_t + \beta_2 Ir_t + \beta_3 Eg_t + \beta 4 Em_t + \varepsilon_t.$

Where:

β_0 = consistent

β_1 ..... β_4 = co - efficient

In = inflation in percent

R = rate of exchange usd to malaysian ringgit

Ir = interest rate in percent

Eg = Economic growth in GDP growth
Em= The percentage of electronic money in circulation over fiat money at the central bank (Bank Negara Malaysia).
ε_t = error term

Results and Discussion

This study focuses on the country of Malaysia with a statistical description of the variables presented in table 1:

Table 1. Study Results Using Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Median	Std. Dev.
In	120	2.39	8.99	4.97107	5.69	1.212417
R	120	0.21	0.23	0.20	0.22	0.0018
Ir	120	2.12	3.5	2.5	2.81	0.0033
Eg	120	4.32	5.96	4.44	5.14	0.0496
Em	120	21.76	31.08	27. 24	26.42	1.23

In the statistical descriptive table in table 1. It can be seen in the minimal amount, max worth, median value, average cost with the normal of deviation of each variable. Some estimation results of the Error Correction Model (ECM We can see at the table 2 and 3.

Table 2. Estimation Outcome by the ECM's Short Run at Malaysia

Variables	Coefficients	t-Statistics	Probability
D(R)	0.901213	1.997281	0.0091
D(Ir)	1.911211	1.927271	0.0092
D(Eg)	-0.000302	-1.091721	0.0291
D(Em)	0.195912	1.213221	0.0089

Based on the estimation results in table 2. The coefficient value on the exchange rate is smaller than the t-statistic value which indicates that there is a significant positive relationship in the short term between the exchange rate and inflation. Interest rates also have a significant positive impact. However, economic growth has a significant negative impact on inflation. The circulation of electronic money has a significant positive impact in the short term on inflation.

Table 3. Estimation Results of Long-Term ECM in Malaysia

Variables	Coefficients	t-Statistics	Probability
D(R)	1.401131	1.732112	0.0000
D(Ir)	1.312412	1.912271	0.0000
D(Eg)	- 0.000006	- 0.000071	0.0012
D(Em)	0.1792121	0.0471121	0.0000

In the long term, it is based on table 3. Inflation is strongly affected mostly by currency rate. Likewise, interest rates. However, the circulation of electronic money does not have a considerable influence to the inflation. Furthermore, economic expansion does have a major negative influence to inflation..

Conclusions

The stronger USD further depresses the Malaysian ringgit and has an impact on increasing Malaysia's inflation on the long and short run. When the Malaysian central bank interest rate are higher, the more it will push Malaysia's inflation. And the higher economic growth in Malaysia, the more accelerating inflation at Malaysia, at long and the short run. However, some circulation of electronic money in Malaysia only has a short-term impact on inflation and in the long term the impact is not significant.

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