



Macroeconomic Factors That Influence Exchange Rate Fluctuation in ASEAN Countries

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Abstract

Exchange rate has a vital role in the country's level of trade, which in turn is very critical in a free market economy. The main objective of this study is to determine which macroeconomic factors that have relationship with exchange rate fluctuation on selected ASEAN countries. The data on Export, Interest Rate, and Inflation Rates were taken from the World Bank Data and International Monetary Fund bank for the period 2005-2014. Results show that not all variables included in the model contribute to the explanation of exchange rate movement. From the result, only export had shown a significant relationship with exchange rate movement. Compare the results for other two variables such interest rate and inflation rate shown insignificant relationship. Therefore policy makers must be aware of control mechanics so that movement of any determinants will not run adverse to the market mechanism.

INTRODUCTION

The exchange rate is defined as the number of units of domestic currency, the need to buy one unit of foreign currency. In other words, the exchange rate at which one currency in one country can be exchanged for other currencies. The exchange rate is very important, because it allows for the conversion of national currency into another, thus it can facilitate international trade for goods and services and the transfer of funds between countries and it also allows comparison of prices of goods at the same in different countries. In general, the price difference between similar goods determines the goods traded and where they were sent. However, the currency could stir volatility it depends on the economic situation in the foreign exchange market in particular. This study will focus on the main economic variables that have a direct or indirect impact on the exchange rate movements in selected ASEAN countries. Fluctuations in exchange rates may have an adverse effect on the economy. Exchange rate

fluctuations or stability are major concerns about the direction of foreign trade. Exchange rate volatility is defined as the risk related to unexpected movements in exchange rates. Macroeconomic variables such as interest rates, inflation, balance of payments, tax rates, imports, exports, gross domestic product (GDP) and the money supply is the random effect of exchange rates. The unstable of macroeconomic variables depend on the current economic situation in their country.

Fixed exchange rate system

In a fixed exchange rate system, the exchange rate was being allowed to volatility only within very narrow boundaries. If the exchange rate begins to move extreme, the governments will intervene in order to maintain it within the boundaries. From the year 1944 until 1971, the exchange rates were typically fixed according to a system planned at the Bretton Woods conference by representatives from various countries. In the year, each of the currency was been valued in terms of gold. For example, the US dollar, their values with respect to each other were fixed. The governments will intervene in the foreign exchange markets. It is to ensure that the exchange rates movement is drifted no more than one percent above.

Freely Floating Exchange Rate System

Under freely floating exchange rate system, the exchange rate values would be determined by the market forces. The freely floating exchange rate systems are not intervention by various governments in the country. Under this system also, a central bank in the country was not to be required for constantly to maintain the exchange rates at specified boundaries. Therefore, it is not forced to implement an intervention policy that may have an unfavorable effect on the economy just control exchange rates.

Managed Float Exchange Rate System

Managed float exchange rate system is similar to the fixed system. The managed float exchange rate system is allowed the governments to intervene for preventing their currencies from moving too much. This system shown the currencies have no explicit boundaries. But, this will tie in with supply and demand factors. If there were an oversupply of a certain currency as compared to its demand, it would affect the rate of an exchange rate of that currency would probably fall. The government will manipulate exchange rate through using the float system to generate the benefit its own country and looking to expense of others.

Pegged Exchange Rate System

Some countries may use pegged exchange rate system when there bone currency's value is pegged to a foreign currency. One of the best-known pegged exchange rate arrangements was been established by the European Economic Community knows as EEC in April 1977, when the EEC member's decided to maintain their currencies to be established with the limits of each other. This arrangement became known as "snake". The market pressure will cause some of the currencies to fluctuate at outside their established limits. Because of that, some of the members in EEC withdrew from the make arrangement, because it was so difficult to maintain, and some of the currencies were aligned.

REVIEW OF THE LITERATURE

Roubini (2000) stated that the economic phenomenon could be influenced by the changes in macroeconomic variables. Changes in economic phenomenon will also cause the movement in exchange rate at domestic level. The main macroeconomic variable such as interest rate will cause the changes in exchange rate movement. Furthermore, the positive change in nominal interest at domestic level will cause the currency to be appreciated and can be vice versa. Meanwhile, Kashif (2000) estimate in the economic indicator that influence exchange rate showed the result between inflation rate and exchange rate has a negative correlation and insignificant between US dollar and Pakistani rupee. The result for coefficient between inflation rate and exchange rate showed a negative. Means that, when the changes in exchange rate showed an increased and the inflation rate result in the decrease, the volatility between this two variable shows that they do not move together. Achsani (2010) study in case of inflation rate in the countries is much higher than in other countries, inflation rate also gives correct sign between the relationships with exchange rate, which is a negative relationship. Levin (1997) the changes in the real exchange rate at the home currency will fluctuate due to the depreciation of the currency and the unchanged value in domestic price. Actually, the expansion in the export is caused by the depreciation in the home currency.

From the previous researcher studies was investigate the effect of export on fluctuation exchange rate and has significant correlation between real exchange rate movements. Mocerco (2006) have done an investigation to found out the link between the real exchange rate volatility and the export, evident from Argentina. From the finding, it is

shown that there are negative relationships between those variables. In the easy word, when the exchange rate is down, the export volatility will be high. Besides that, the real exchange rate and export in finding shown a significant correlation. The volatility of those variable gives impacts to the value of sales other countries.

According to Kasif (2000), inflation rate and exchange rate has a negative correlation and insignificant between US dollar and Pakistani rupee. However, Achsani (2010) estimates the term inflation can be defined as the increase average price of good sustain for a period. For the Asia, there is positive significant way causal relationship between inflation and real exchange rate of the country. In European Journal of Economics, Finance and Administrative by Kamin (2003) empirically found that the relationships between inflation and the real exchange rates in most countries of Asia and Latin America shown a negative relationship. Furthermore, the effect of exchange rates changes on inflation in Latin America was significantly correlated.

Cruz (2013) show that the interest rate is not significant and has negative relationship. However, Utami (2009) estimates the movement of exchange rate could be influence by interest rate in year 2003 until 2008 that used by four foreign countries as a home country such as USA, Japan, Singapore and the UK and also Indonesia. Additionally, the interest rate differentials have a positive relationship but not significant, it is influence on changes in exchange rate for the countries such US, Singapore and the UK, but it is relative to the country such as Indonesia.

DATA AND METHODOLOGY

The data collection in this research study has come from the secondary data. Such as International Monetary Fund (IMF), Worldbank data and various issues of reports published. This research study used yearly panel data analysis, the data was collected for 9 years which started from the year 2005 until 2014 were most up to date data for Brunei Darussalam, Malaysia, Philippines, Singapore, Thailand, Indonesia, Cambodia, Laos and Vietnam. The total number of observation in this study is 90. The data consists of ten years data in Exchange Rate, ten years data in Export, ten years data in Interest Rate and also ten years data collected in Inflation Rate. Table 1 exhibits shows a list of variables with a proxy and definition of the latent variables and the explanatory variables used in the model.

TABLE 1
VARIABLES DEFINITIONS

VARIABLES	PROXY	DEFINITION
<i>Dependent variable:</i> Exchange rate	Currency US dollar	Number of units of domestic currency.
<i>Explanatory variables:</i> EXPORT	Currency US dollar	Transporting the products and administrations out of the port of a nation.
INTEREST RATE	Lending Rate	Interest is paid by a borrower.
INFLATION RATE	Percentage of inflation rate	Percentage change in the price level.

In order to analyze the factors that affect the exchange rate movement, a multiple regression analysis has been used that explains the effect of one variable on the other and its significance. The study employs random effects model (REM) using Statistic/Data Analysis (STATA) software application version 11.2. This study also uses the following theoretical model to assess the important macroeconomic variables.

$$Y_{it} = \alpha + B_1(EXPORT)_{it} + B_2(INT)_{it} + B_3(INF)_{it} + \varepsilon$$

Where **Y** is Exchange rate movement, **B** is the coefficient for that IV, **INT** is Interest rate, **INF** is Inflation rate, and ε is error term. This tells us about the relationship and the strength of the relationship between the variables.

The main objective of the study is to investigate which of the macroeconomic factors that influence exchange rate movement in selected ASEAN countries and to determine the relationship of exchange rate between and Export, Interest Rate, and Inflation Rate. To achieve these objectives; the study states the following hypotheses:

H₁: There is a significant relationship between Export and Exchange Rate.

H₂: There is a significant relationship between Interest Rate and Exchange Rate.

H₃: There is a significant relationship between Inflation Rate and Exchange Rate.

EMPIRICAL RESULTS AND FINDINGS

Table 2 presents the random effects model GLS estimation of the model. The results can be summarized as in equations:

$$Y_{it} = -10.4114 + 0.2100(EXP)_{it} - 0.0175(INT)_{it} - 0.0005(INF)_{it} + \varepsilon$$

TABLE 2
RANDOM EFFECTS MODEL

VARIABLES	COEFFICIENT	T-VALUE	SIGNIFICANT
Cons_	-10.4114	-4.88	
Log_EXPORT	0.2100	2.37	0.045**
INTEREST RATE	0.0175	1.13	0.293
INFLATION RATE	-0.0005	-0.09	0.928
NUMBER OF OBSERVATION	90		
NUMBER OF GROUP	9		
R-squared (overall)	4.24%		
F(3,8)	10.10		
Prob> F	0.0043		

Notes: ***significant at 1% level **significant at 5% level *significant at 10% level

Result in Table 2 showed that the result for regression on this study by using Random Effect Panel Data Analysis. The total number of observation in this study is 90. From the finding, the Export show the modest relation to the dependent variables which is Exchange Rate and statistically significant at 5% level. Thus, from this result it can be concluded that the researcher is able to accept the alternate and reject the null hypotheses. This also supported by Rodrik (2008) and Moccero (2006).

Lastly, the another two variable that involved in this study which is interest rate and inflation rate shows that there are statistically insignificant for the dependent variable which is exchange rate. Furthermore, researcher failed to reject the null. This finding is consistent to the previous literature (Asari; 2011, Achsan 2010).

The coefficient of determination that knows as R^2 in this study shows that only 0.0424. It is indicating that 4.24% of variables used in this research will represent the variance of the independent variables that are influenced the dependent variables. Another 95.26% may come from others macroeconomic variables were not included in this research study.

TABLE 3
DESCRIPTIVE ANALYSIS

VARIABLE	MEAN	STD. DEV.	MIN	MAX
Exchange Rate	-5.0627	3.8219	-11.2505	-0.2231
Export	24.6029	1.8152	20.4452	27.0845
Interest Rate	10.5266	6.4116	4.6	30
Inflation Rate	4.7752	4.3006	-0.85	25

This descriptive analysis is important where it will create a feel for the data. From the table above, we can conclude that the result from descriptive analysis on this study for ASEAN Countries has shown the dependent variables which are exchange rate mean is -5.0627 with min -11.2505 and max -0.2231. The standard deviation for exchange rate is 3.8219 little higher than the mean. The independent variable consists of Export, Interest rate, and Inflation rate show the number of mean 24.6029, 10.5266, 10.5266, and 4.7752. The result for standard deviation for independent variable such as Export, Interest rate and inflation rate had shown 1.8152, 6.4116, 6.411678, and 4.3006.

TABLE 4
CORRELATION TEST

	Exchange Rate	Export	Interest Rate	Inflation Rate
Exchange Rate	1.0000			
Export	0.4020**	1.0000		
Interest Rate	-0.5164	-0.0869	1.0000	
Inflation Rate	-0.7555	-0.6707	0.4341	1.0000

Notes: ***Significant at 1% level **significant at 5% level *Significant at 10% level

From the tables above, the relationship between dependent variables which the exchange rate and the independent variable, such as Export, Interest rate, and Inflation rate show varies between ASEAN countries. The Pearson correlation coefficient for exchange rate and export show 5% significant value with a coefficient at 0.4020. It is represented that the export has a positive linear correlation with exchange rate. Apart from that the result for another variable in the Pearson correlation coefficient analysis, such as interest rate and inflation rate it shows the negative correlation between the dependent variable, with is exchange rate. From the result obtain the coefficient for interest rate at -0.5164 and coefficient for inflation rate at -0.7555. Both interest rate and inflations rate show a quite weak relationship with exchange rate and insignificant relationship.

CONCLUSION

As a conclusion, there are one variable that can be accepted which is Export since only export has shown significant relationships with exchange rate. Thus, from the result obtained it can be concluding that the most significant factors that influence the exchange rate fluctuation is Export. It means that the export is an important variable to influence the exchange rate movement at ASEAN countries.

In general, this study has achieved its objective to identify which factors that have relationship with exchange rate fluctuation, from the result obtain the most variable that have strong relationship is an Export. After testing all the hypotheses, it shows interest rate and inflation rate bear the insignificant relationship with the exchange rate. After several discussion and supported information from the literature review, it has provided a clear picture about the factors of the exchange rate movement on economic condition at ASEAN Countries. Finally, this study can be regarded as successful since it has achieved its objectives.

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