

## The Effects of Economic Factors on Exchange Rates in Thailand

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### ABSTRACT

The objective of this paper was to determine and explain the effects of economic factors on exchange rates from January 2003 to June 2014 time period. This study was the quantitative research using multiple regression, The results indicated negative relationships among forward position (bought), balance of payment, international reserve and exchange rates, and also the result indicated no relationships between interest rates and exchange rates.

**Keywords:** economic factors, exchange rates, agriculture goods, and Thailand.

### Introduction

Most developing countries rely their development on export heavily, but Thailand cannot accept this way. Thailand is a major exporter of the rice in the World. Thailand's agricultural goods export volumes have moved from 5.06042 US billions in the year 2002 to 18.21699 US billions at the end of 2013 (BOT, 2014) represented 360.01 percent increase, and also Thailand's economic factors from January 2002 to August 2014; balance of payment (BOP) have moved from 917 US Millions to -58.30 US Millions, international reserve moved from 33,802.40 US Millions to 160,606.73 US Millions, and forward position (bought) moved from 39,283 US Millions to 262,295 US Millions (BOT,2014). In the mean time, if the economic development is high, it may create inflation, strong value of domestic currency and raise up the export prices (Joumard and Reisen, 1992).

There are several economic factors affecting on the movement of exchange rate for example inflation, interest rate, government debt, economic growth or recession, investment, and trends in import and export, etc. The main economic growth is export volume, Normally, in the past Thailand's balance of payment had surplus since 2002, the exchange rate would always be favorable. Conversely, from year 2012 Thailand had started balance of payment deficit, the exchange rate will be adverse, if it is continuous and ever growing deficit in balance of payment, so it will indicate over valuation of the currency concerned and the dis-equilibrium created can be remedied through devaluation. In additional, interest rate, international reserve, and forward position will have effect on exchange rate in the same way of balance of payment that means Thailand's economic factors will be increased, Thailand's exchange rate will have strong value of currency.

The exchange rate between currencies of two countries is particularly important if the two countries are heavily involved in trade. Thailand's exchange have raised from 44.0215 Baht per USD in

January 2002 to 32.0982 Baht per USD in December 2014 (BOT, 2015) represented 134.146 percent increase. Based on the exchange rate theory, the increased value of Thai baht results in expensive prices of export products. The purpose of the research has observed that the effects of Thailand's exchange rates, the effects of economic factors on exchange rates. Therefore, this study aims to analyze the behavior of exchange rate, economic indicators effect on exchange rate fluctuation. There is a question needed to be clarified: What are the relationships between economic factors and exchange rates in Thailand?

## Literature Review

### **The effect of balance of payment and exchange rates**

Many of researchers investigated the effect of balance of payment on exchange in many countries also for example Nawaz, Raheem, Khoso, Palwishah, & Raza (2014) found a significant and positive relationship between exchange rate and balance of payment from January 2007 to October 2013 in Pakistan. Several researchers studying in Nigeria such as Azeez, Kolapo, and Ajayi (2012) examined the effect of exchange rate on balance of payment had negative effects using the Ordinary Least Square from 1986 to 2010. Umoru and Odjegba (2013) found a positive impact between exchange rate and balance of payments using the vector error correction econometric modeling technique from 1973 to 2012. Oladipupo (2011) found that exchange rate had a significant impact on the balance of payments from 1970 to 2008 using the Ordinary Least Square method. However, Bunchapattanasakda (2001) investigated the relationships between major economic indicators and exchange rates in Thailand. The author could not find the significant relationship between exchange rate and balance of payment using chi-square tests from 1991 to 2000.

### **The effect of interest rates on exchange rates**

The interest rate was one of economic indicators with effect on exchange rate, there were many authors report the effect of interest rates on exchange rates such as Chowdhury and Hossain (2014) found interest rate and current account balance had positive impact on exchange rate in Bangladesh for the period of 1990 to 2011 using simple single equation linear regression model. Khan (2010) found a positive relationship between interest rate and exchange rate of Pakistan and US. Cho and West (2003) found the relationship between interest rate and exchange rate that increase in interest rates caused exchange rate appreciation in Korea and the Philippines, depreciation in Thailand. However, Chow and Kim (2004) investigated the relationship between the exchange rate and the interest rate for four Asian crisis countries in Indonesia, Korea, Philippines and Thailand. The result showed no strong evidence positive relationship between exchange and exchange in four countries in the time of crisis.

### **The effect of forward exchange contracts on exchange rates**

Forward contract was the hedging instrument for exporter who had to transfer foreign exchange to Thai Baht. The economic indicators had effect on exchange rates fluctuated, thus exchange rate fluctuation would make risky for receiving income of exporter and could make profit or loss of exchange rate also. Changes in the exchange rate could have a powerful effect on the economy, but these effects took time to show through Salami and Arawomo (2013). Therefore the exporters should have the hedging instrument using forward contract to reduce their risk because of exchange rate fluctuated. There were several author reports about the relationships between forward contracts and exchange rates.

All researches were finding the way to manage the currency risk. The first, Feng (2007) studied the fluctuation of the exchange rate of Euro against U.S. dollar. The results showed the positively practical results that hedging exchange risks with forward contracts for this small trading company was feasible. The internal hedging method was the cash flow method with time matching. Papaioannou (2006) reviewed the traditional types of exchange rate risk faced by firms. The author found the best practices in managing currency risk and presents some of the main hedging instruments in the over the-counter (OTC) and exchange-traded markets. In addition, provided some data on the use of financial derivatives instruments, and hedging practices by U.S. firms. The last, Kapila and Hendrickson (2001) identified the financial risk factors associated with international construction ventures, and attempted finding the strategies to minimize foreign exchange risk and to better manage foreign exchange dealings.

### Methodology and data

This study was quantitative a designed research. The major objective of the present study was to examine the relationships between economic factors and exchange rates using multiple regressions. The secondary data were the monthly report from January 2002 to June 2014 provided publicly by the Bank of Thailand.

Multiple regressions would be used to analyze the relationships between variables and test hypothesis for empirical results. The value of economic factors would be used as an independent variable and the value of exchange rates (Baht per US Dollar) would be used as a dependent variable. The independent variable was monthly of the value of economic factors which were forward position (bought) and international reserve volumes in million US Dollar, balance of payment volume in billion US dollar, interest rates value in percentage for 150 months.

This study used multiple regression to find the relationship between economic factors and exchange rates, (Stockburger, 1996) the function was as follows:

$$y = a + b(x_i)$$

### The results and finding

#### The results of relationships between economic indicators and exchange rates

The results of relationships between economic indicators and exchange rates showed the regression equation of the analysis was as follows:

$$Y = a + b_1(x_1) + b_2(x_2) + b_3(x_2)$$

where

Y = Exchange rate

X = Economic indicators

X<sub>1</sub> = Forwards position (bought), X<sub>2</sub> = Balance of payment

X<sub>3</sub> = International reserves, X<sub>4</sub> = Interest Rate

Table 1 :

## The relationships between economic indicators and exchange rates

Model	Coefficients				R <sup>2</sup>	Adjusted R <sup>2</sup>
	Y-intercept	t	Slope (b)	t		
I FWD	42.476	133.527	- 5.453E-05	-24.866	0.807	0.806
II FWD	43.034	146.126	-5.49E-05	-28.505	0.850	0.848
BOP			-0.521	-6.471		
III FWD	43.243	148.360	-4.2742E-05	-15.522	0.860	0.858
BOP			-0.492	-6.288		
RES			-1.155E-05	-3.3356		

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of the relationships between economic indicators and exchange rates were shown models of economic indicators from January 2003 to June 2014 time period on table 1 as the follow:

Model I: The results showed correlation coefficient R<sup>2</sup> that was 0.807 which explained that 80.7 percent of the variation in the exchange rate explained by the variability in forward position (bought). The regression showed the beta was -0.00005453 that meant the regression coefficient was negative relationship between forward position and exchange rate (forward position increase, exchange rate would decrease). The regression equation as follow:

$$Y = 42.476 - 0.00005453 X_1$$

Model II: The results showed forward position (bought) and balance of payment had a correlation coefficient R<sup>2</sup> that was 0.850 which explained that 85 percent of the variation in the exchange rate explained by the variability in forward position (bought) and balance of payment. The regression showed the beta was -0.00005549 and -0.521 that meant the regression coefficient was negative relationships among forward position, balance of payment and exchange rate (forward position and balance of payment increase, exchange rate would decrease). The regression equation as follow:

$$Y = 43.034 - 0.00005549X_1 - 0.521 X_2$$

Model III: The results showed forward position (bought), balance of payment and international reserves had a correlation coefficient R<sup>2</sup> that was 0.860 which explained that 86 percent of the variation in the exchange rate explained by the variability in forward position (bought) and balance of payment. The regression showed the beta was - 0.00004742, -0.492, and 0.00001155 that meant the regression coefficient was negative relationships among forward position, balance of payment, international

reserves and exchange rate (forward position, balance of payment and international reserves increase, exchange rate would decrease). The regression equation as follow:

$$Y = 43.243 - 0.00004742 X_1 - 0.429X_2 - 0.00001155 X$$

According to the results, The best Model economic indicators was Model III which showed highest  $R^2$  was 0.860 which explains that 86 percent of the variation in the exchange rate explained by the variability in economic indicators. This showed that there was a negative relationship between the two variables. The variables in Model III were forward position (bought), balance of payment, and international reserves were taken as an independent variable while exchange rate was taken as a dependent.

### Discussion and Implications

The results from regression analysis showed that economic factors had impacted on exchanges with high confidence interval statistics testing. There were there models: model I: forward position, model II: forward position (bought) and balance of payment model III: forward position (bought), balance of payment, and international reserves. The coefficients of determination were acceptable in high level  $R^2$ : 0.86, 0.85, and 0.807 percent for economic factors model III, model II, and model I respectively. The economic factors function of three models had shown negative relationship with exchange rates. The best model was model III which got the highest  $R^2$ . The researcher had agreement with Azeez, Kolapo, and Ajayi (2012) who reported a negative effect of balance of payment and exchange rate volatility. Oladipupo (2011) found that exchange rate had a significant impact on the balance of payments in Nigeria. However, Nawaz, Raheem, Khoso, Palwishah, & Raza (2014) reported a positive significant relation between exchange rate and balance of payment in Pakistan Economy, and also Umoru and Odjegba (2013) also reported exchange rate misalignment exhibited had a positive impact on the Nigerian's balance of payments position. Moreover, the researcher found that the interest rates had no effect on exchange rate. This would disagreed with Chowdhury and Hossain (2014) concluded that interest rate had positive impact on exchange rate in Bangladesh economy, and Cho and West (2003) found interest rates caused exchange rate appreciation in Korea and the Philippines, depreciation in Thailand, and Chow and Kim (2004) found indicated that increased exchange rate flexibility had not led to greater stability in interest rates in these economies.

### Implication

The results indicated that economic factor had negative relationships with exchange rates that meant forward position (bought), balance of payment, and international reserve increased, then exchange rates would decreased, but interest rates had no relationship with exchange rates. In addition, the value Thai Baht appreciation would increase in economic factors. Therefore, economic factors which should focus on forward position (bought), balance of payment, and international reserve which impacting on exchange rates movement in order to prediction of exchange rates fluctuation.

### Recommendation

The recommendations of this study, the economic factors which were forward position (bought), balance of payment, and international reserve that affected on exchange rates in negative way. The results would have benefit for companies, government officers, foreigners, business men, and others who were need to forecast the exchange rate movement can focus on forward position (bought),

balance of payment, and international reserve factors. Therefore, the readers can use the result to manage their works or studies which related on economic factors and exchange rates.

### Suggestions

The future research of the effects of economic factors on exchange rates in Thailand suggested about the methodology that should use other methodology to compare results of economic factors which affected on exchange rates. The other suggestion should should investigate others variables such as government monetary policy, real exchange rates, inflation rates, GDP, direct investment, and cash inflow from stock market in order to develop the finance model of the effect of exchange rate on economic factors to control the volatility of exchange rates of Thai Baht. In addition, the future research should separate variable of economic indicators into investment of money market and capital market with effect on exchange rate to get the better result.

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