

Chapter 1

Introduction

In the last quarter of 1996 Thai people were shocked by price index of the stock market declining continually from the highest about 1700 to 1500 point. In the beginning of 1997 Thai people had another surprise receiving a report from the public about economic situation that Thai export grew at zero rate and the current account deficit was as high as about 8 % in 1996.

While the people could not yet prepare themselves, Baht was attacked by the speculator in February 1997 and many times since then. But in May 1997 good news came from Bank of Thailand (BOT) that Bank of Thailand won the speculator during the political party was not in stability.

The speculator attacked the Bath continually and there was a debate controversial among economists whether Thai baht must be devaluated in this period, and some economist from private sector did not agree. The government confirmed that Thailand would not devalue its currency. Thai people were shocked again when BOT announced floating of the Baht on 2 July 1997. The exchange rate regime has since then changed to managed float. The exchange rate continually depreciated.

In this period everyone who followed newspaper report found that Bath went down everyday. They had a question of when the process of decreasing in value of Thai currency would end. Finally, in the first quarter of 1998 the currency depreciation stopped at the highest value of 52 baht per a dollar under

the new formed government. After that Baht moved slowly to 37 -38 Baht per a dollar. The question is whether this is the equilibrium of real exchange rate or not. Real exchange rate is an important factor that effect resources allocation. Although after that, the nominal exchange rate have stayed on 37 -38 Bath per a dollar, it is interesting to study that movement of real exchange rate in the period before currency crisis whether the rate was overvalue.

Several economists indicated that the cause of Baht crisis are from

- 1 large capital inflow and mis-macroeconomic management.
- 2 fixed exchange rate policy under open capital inflow.
- 3 monetary policy could not sterilize the large capital flow.
- 4 fiscal policy was ineffectiveness to help the monetary policy to solve capital flow problem.
- 5 high interest rate policy added up the problem of sterilize the money supply.
- 6 conflicts among the monetary authority in solving the problem.
- 7 for maintaining of exchange rate policy in case where there was a misalignment.

From the above event, the currency crisis have phenomenally produced many questions such as whether Asian crisis was different from the Latin crisis, what were the Early warning indications of the currency crisis, and whether there was a misalignment in the currency before this crisis and so on.

However the main question in this thesis is to study the Thai 's equilibrium real exchange rate model which is the long run relationship between real

exchange rate and the fundamental variables. The model could suggest whether the movement of actual real exchange rate departed from the equilibrium real exchange rate or not (misalignment).

This thesis adopted Natural Real Exchange Rate (NATREX) model developed by Lim and Stein (1995). The model utilized to test the long run relationship between real exchange rate and the fundamental variables such as productivity, thrift, term of trade and real long term of foreign interest rate.

In the next section the economics situation and the real exchange rate will be scrutinized to indicated, why in this period the real exchange rate was overvalued by considering the fundamental variables during the period 1980.01 until 1997.04.

1.1 Economics situation in 1980 until 1997

When we considered the key indicators Thai economy seemed to perform relatively well during the period 1981-1996. Table 1.1 indicated that growth rate of real GDP from 1981 until 1996 increased rapidly, particularly after devaluation of Thai currency in the fourth quarter of 1984 in 14.9%. Nominal exchange rate moved in a narrow band and tied closely with the US dollar. Export growth in this period grew at a rapid pace. As a results, there were two digit growths for some years.

Table 1.1 Economic indicators in period 1981-1996

year	Growth (% change of real GDP)	Inflation (% change of CPI)	Current account (as % GDP)	export growth (% change of real export)
1981	0.059069	12.724	-0.07082	0.015072
1982	0.053523	5.326881	-0.02636	-0.006812
1983	0.055842	3.721355	-0.06895	-0.117629
1984	0.057524	0.911191	-0.04823	0.18558
1985	0.046472	2.384179	-0.03815	0.078015
1986	0.055338	1.867404	0.005515	0.184496
1987	0.095189	2.451331	-0.00728	0.252938
1988	0.132881	3.866713	-0.02628	0.295985
1989	0.121905	5.338949	-0.03523	0.215054
1990	0.111672	5.94731	-0.08575	0.077843
1991	0.085582	5.828383	-0.07749	0.162626
1992	0.082394	4.021049	-0.057	0.092873
1993	0.085488	3.323769	-0.05116	0.097696
1994	0.086156	5.068879	-0.05652	0.15701
1995	0.088352	5.798205	-0.08157	0.168661
1996	0.055187	5.824305	-0.08054	-0.050294

Note : calculated from data series that collected from NESDB, BOT

Source : NESDB, Bank of Thailand.

Apart from the performance that showed above, there were also many other factors that induced capital inflow from abroad. These factors were lower real wage, tax reduction to support foreign investor, opening of the stock market, exchange rate and interest policy.

Interest rate policy showed that domestic interest rate was much higher than US interest rates, under this situation inflation rate was greater than the rest of

the world (assume US inflation). The capital inflow was also facilitated by the liberalization of foreign currency current account transactions and the initiation of the Bangkok International Banking Facility (BIBF) in 1993.

This capital inflows facilitated the country's ability to by finance the saving-investment gap and they were in fact much larger than the gap (Table 1.2). While Thailand was in the high economic growth during the first haft of the 1990s', part as a result of the large capital inflow, the current account deficit began to rise considerably; increasing from about 5% of GDP in 1993 to more than 8% of GDP in 1995 and 1996.

Table 1.2 Share relationship of current account, investment, saving in real GDP

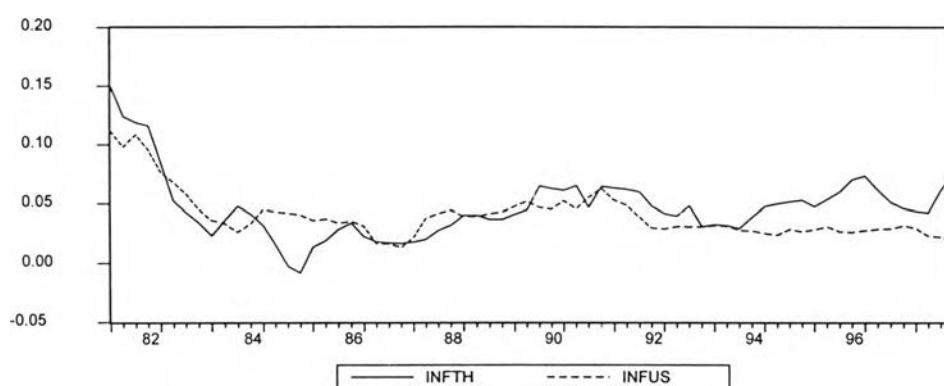
year	rca/rgdp	ri/rgdp	rs/rgdp	(i-s)/rgdp
1980	-0.06394	0.291085	0.227599	0.063487
1981	-0.07082	0.285095	0.215709	0.069387
1982	-0.02636	0.254217	0.229145	0.025071
1983	-0.06895	0.28716	0.218489	0.06867
1984	-0.04823	0.283923	0.236473	0.04745
1985	-0.03815	0.271537	0.234654	0.036883
1986	0.005515	0.248212	0.25404	-0.00583
1987	-0.00728	0.273343	0.268164	0.005179
1988	-0.02628	0.325909	0.300112	0.025797
1989	-0.03523	0.353218	0.318667	0.034551
1990	-0.08575	0.41255	0.326961	0.085589
1991	-0.07749	0.430558	0.353437	0.07712
1992	-0.057	0.402886	0.346787	0.056099
1993	-0.05116	0.403008	0.352455	0.050553
1994	-0.05652	0.408821	0.352625	0.056196
1995	-0.08157	0.42895	0.352703	0.076247
1996	-0.08054	0.416104	0.34588	0.070223

Note: calculated from data series that collected from NESDB, BOT and used CPI series based on 1990

Source : NESDB, Bank of Thailand.

The simple way to indicated the lost of competitiveness in real exchange rate in 1990s, there were different inflation rate compared other country (use US as example). While the Baht was tied mostly to the US\$, Thai inflation rate was consistently higher than the US inflation rate in the 1990s(see figure 1.1).

Figure 1.1 Comparison inflation Thai with US



Note: (1) INFTH mean inflation of Thailand.

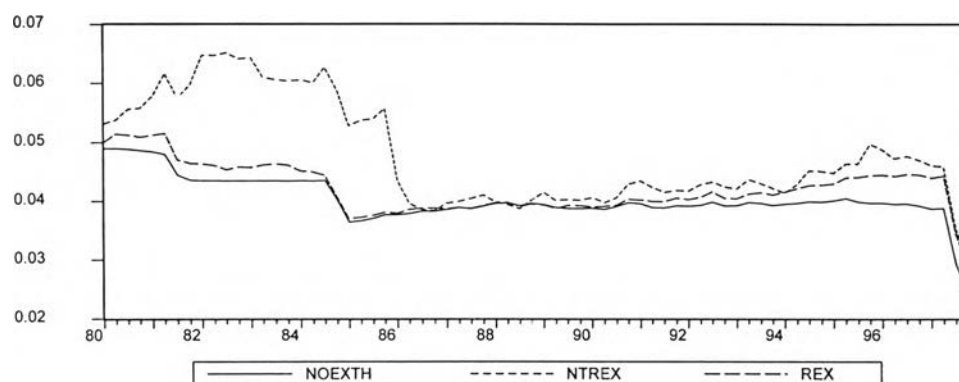
(2) INFUS mean inflation of US.

(3) Inflation series calculated from CPIs in each country by based year 1988.

Source : NESDB, Bank of Thailand.

The real exchange rate behavior that calculated from CPI of Thai and US indicated that in the 1990s period real exchange rate appreciated continually. The figure 1.2 indicated that the relative price of non-tradable also risen. The continuous appreciation of relative price of non-tradable showed that demand in non-tradable market was very high. This was because expansion in infrastructures, real estates and heavy industries.

Figure 1.2 Relationship nominal exchange rate, real exchange rate, relative price of non-tradable



- Note: (1) a rise in each indicator implied appreciation.
 (2) non-tradable relative price calculated from real exchange rate divide terms of trade .
 (3) real exchange rate calculated from CPIs Thai divide CPIs US and multiplied by nominal exchange rate.

Source : Bank of Thailand

1.2 Statement of the problem and its significance

It was agreed among economists and policy makers that maintaining of the real exchange rate at the wrong level or a level different from the long run equilibrium value, would significantly reduce a country's welfare. Such disequilibrium would send incorrect signals to economic agents and would increase economic instability.¹

¹Sebastian Edwards, Exchange rate misalignment in developing countries (Baltimore, MD: Johns Hopkins University Press, 1988), p. 1.

Some of the most important problems confronting policy makers was how to determine whether the real exchange rate was misalignment, or out of the line with respect to its long-run equilibrium level, and, if so, what to do about it.

The purchasing power parity (PPP) approach to exchange rate determination was probably the most widely used framework for many economists to assess long-term value in the foreign markets. Unfortunately, PPP had its limitations. The deviation of actual exchange rates from their estimated PPP values could be very large and persistent, enough so that its usefulness for medium-term forecasting purposes may, at times, be limited.

The failure of PPP to hold over medium-term horizons led many economists to consider alternative approaches to assess long-term value in the currency markets. Perhaps the most widely followed alternative approach to assess long-term value was the macroeconomics balance. According to this approach, this long-run equilibrium real exchange rate could be defined as that rate that resulted in the simultaneous attainment of internal balance and external balance.

In the macroeconomics balance, the natural real exchange (NATREX) approach offered an alternative paradigm for equilibrium real exchange rate. Importantly the NATREX was a moving equilibrium real exchange rate, responding to continual change in exogenous and endogenous real fundamentals. In a world of high capital mobility, the fundamentals of thrift, productivity, capital intensity, and net debt to foreigners become particularly important, influencing desired long term capital flow and altering the equilibrium real exchange rate. The NATREX approach identifies and models the fundamental determinants of

equilibrium real exchange rate. This study, therefore, will use the NATREX approach to explain movement of medium to long-run real exchange rates for the case of Thailand, in terms of the fundamental real variable of thrift and productivity, assuming that real exchange rates do adjust to their equilibrium level, although with a lag.

1.3 Objective of the study

The purpose of this study was to achieve the following objectives

1. to examine equilibrium real exchange rate (NATREX) determined by fundamental variables.
2. to examine equilibrium the non-tradable relative price as explained by fundamental variables.

1.4 Scope of the study

All variable were quarterly data during 1980.1 - 1997.4. The countries of interest were Thailand and United States. The exchange rate considered was between Thailand and the United States.

1.5 Organization of the study

This study will be divided in to six chapters. The first chapter was the introduction, significance of the problem , objective and scope of the study.

Chapter 2 discussed the literature controversial about long-run exchange rate. Chapter 3 was the theoretical framework of NATREX. Chapter 4 was about the methodology and econometric methods utilized. Chapter 5 showed the empirical results. The last chapter was conclusion, limitation and suggestion.

1.6 Benefit of the study

The benefit of this study may be used as the indicator for aware the movement of non-tradable relative price and real exchange rate when fundamental variables changed. It could be use complement with other approaches such as PPP and other macroeconomic balances.