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Monetary Policy Rules and Exchange Rate Uncertainty: A Structural Investigation in Thailand

Kornchanok Lueangwilai[a]

[a]*Thammasat University, Bangkok 10200, Thailand*

Abstract

This paper analyzes monetary policy implementation under an Inflation Targeting (IT) regime in Thailand. The paper applies the Bayesian Maximum Likelihood estimation to a small open economy model, proposed by Lubik and Schorfheide (2007). The study examines whether or not the Bank of Thailand (BOT) considers exchange rate movement, which is uncertain, in setting the policy rate. The paper considers various types of the Taylor rule: contemporaneous, backward-looking and forward-looking. The main finding is that the BOT responds to the exchange rate movement. The contemporaneous rule responding to the nominal exchange rate movement well characterizes the policy rate set by the BOT. The BOT focuses more on the contemporaneous economic condition than the lag of interest rate. Specifically, the rule illustrates that the BOT follows the Taylor principle, with on average the inflation-response coefficient is 1.515. Also, the BOT puts more weight on exchange rate stabilization relative to the output stabilization. Thus, the BOT has implemented flexible IT policy with exchange rate concern.

Keywords: Monetary policy rule; Taylor rule; Exchange rate uncertainty

1. Introduction

Inflation Targeting (IT) is the monetary policy that the central banks try to stabilize inflation in order to provide a good sentiment for the economy by using the short-term interest rate as the policy instrument. However, most IT central banks have adopted flexible IT, in which the central banks respond to other variables such as output in addition to inflation. Especially, IT in the emerging market economies (EMEs) would also have the objective of exchange rate stabilization because the exchange rate has many impacts on the domestic economy: exchange rate pass-through and expenditure switching effect. These effects impact relative prices and demand of the domestic goods and then the domestic output and domestic inflation for the

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EMEs: hence the central banks may need to be concerned about it. This case might be true for the Thailand, which is a small open economy in EMEs.

The literatures, which have studied about the monetary policy in the IT countries, especially in EMEs, consider the exchange rate movement in the policy decision. Most studies assume that the central banks follow the Taylor rule, which is a function of the short-term interest rate responding to a deviation of inflation from an inflation targeting rate, an output gap, and an the exchange rate movement. Ball (1999) states that, under the open economy model, central banks who do not consider the exchange rate in the policy decision create a large variation in the exchange rate and the output, which is too dangerous for the economy. Cavoli (2008) finds that responding to the exchange rate in the policy function assists the policymakers in achieving the domestic objectives; inflation objective and the output objective.

The subsequent literatures have extended the study by relaxing the complete financial market assumption which generates the exchange rate uncertainty resulting from the validity of the Uncovered Interest Parity (UIP). The results of empirical studies state that the UIP validity is rejected in the short run, even in the weak form (Chai-anat, Pongsaporn and Tansuwanrat (2008)). Wollmershäuser (2006) examines the policy rule when the exchange rate uncertainty, which results from the UIP, is high. The results show that the Taylor rule augmented with the exchange rate movement delivers a lower welfare loss than the simple Taylor rule. It implies that responding to the exchange rate movement help the policymakers to achieve the monetary policy's objectives, inflation and the output stabilization. This finding is also supported by Pavasuthipaisit (2010). However, the idea that includes the exchange rate in the policy function is argued by Taylor (2001). This paper analyzes this issue by adopting the structural estimation. The model is adopted from the study of Lubik and Schorfheide (2007). The paper also proposes other types of policy rule in order that the result of the model would be robust.

The mentioned above literatures show that the literatures have discussed the role of the exchange rate in the policy rule. The results of the empirical studies are not clear-cut whether the policymakers are concerned about the exchange rate or the exchange rate movement in their consideration or not. The results are divided into two groups. The literatures findings are that the central banks do not take the exchange rate or the exchange rate movement into the decision (e.g. Clarida, Gali and Gertler (1998) in case E3, Osawa (2006), LS07 in Australia and New Zealand). On the other hand, the findings show that the central banks consider the exchange rate or the exchange rate movement in (e.g. Ball (1999), Clarida, Gali and Gertler (1998) in the case of G3, Mohanty and Klau (2004)). Thus, this paper aims to investigate the policy decision of the Bank of Thailand (BOT) when the exchange rate uncertainty exists in the economy.

The main investigation is that whether or not the BOT takes the exchange rate movement in policy setting. The study considers the exchange rate uncertainty arising from the deviation of UIP. The analysis focuses on the structural estimation since it considers the interaction between the variables unlike to the single equation estimation. Bayesian estimation is adopted since it treats the structural parameters as the random variables given the observed data, and does not assume the fixed distribution of the parameters. The estimation combines the prior knowledge on the parameters and the observing data together to compute the posterior distributions. Thus, the parameters are estimated under the distribution, which well explains the Thai economy. The paper also computes the posterior odds to analyze whether the BOT is concerned about the exchange rate movement or not.

The estimation illustrates that the BOT considers the exchange rate movement and adopts the contemporaneous rule as the guideline. The BOT focuses more on the current economic conditions than the lag of policy rate. Moreover, the coefficient of inflation response is greater than one meaning that the BOT adjusts the interest rate more than one percent when the inflation changes by one percent. It implies that the BOT follows the Taylor principle against the inflation. The BOT is more concerned about the output objective than the exchange rate objective. The estimation shows that the BOT adopts the flexible IT regime.