

# Assessing the Performance of Inflation Targeting in East Asian economies

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## *Abstract*

*This paper examines the implementation and performance of inflation targeting (IT) focusing on East Asian emerging market economies as about ten-year-old IT adopters. To be specific, our study estimates the policy reaction function for verifying the linkage between the IT adoption and monetary policy rule, and also estimates the impulse responses of prices to monetary policy shock in a VAR framework for identifying monetary policy effect on price stabilization. Our study targets not only IT adopters: Korea, Indonesia, Thailand and the Philippines, but also non-IT adopter, Malaysia for their comparison. Our findings on monetary policies of the five sample economies can be summarized as follows. Korea has taken an inflation responsive and forward-looking policy rule under the IT adoption, which also has had an effect on price stabilization. Indonesia and Thailand have conducted inflation responsive but backward-looking policy rules under the IT adoption, which have had no effect on price stabilization. The Philippines—the IT adopter but under pegged exchange rate regime, and Malaysia—the non-IT adopter, have represented neither inflation responsive rules nor policy effects on controlling inflation.*

*Key words: inflation targeting framework, East Asian emerging market economy, policy reaction function, impulse response in VAR model, forward-looking and backward-looking specifications*

*JEL Classification Codes: E52, O53*

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## **1. Introduction**

Inflation targeting (abbreviated as “IT”) has become popular as a framework of monetary policy among not only advanced countries but also emerging market economies since the 1990s. Under the background that many countries in the world had seriously suffered from high inflation since the latter half of the 1970s, there came the necessity for monetary authority to make a solid commitment to lower inflation through curbing expected inflation without sacrificing output and employment, thereby inflation targeting framework having been adopted at first by such advanced countries as New Zealand, Canada, the United Kingdom, Sweden and Australia in the early stage of the 1990s. A number of emerging market economies with pegged exchange rate regimes have experienced unhappy financial crises under the drastic increase in international capital flow in the 1990s, and thus most of them have switched to the floating exchange rate regime. Given the need for emerging-market countries to search for alternative nominal anchors, inflation targeting have been adopted by such countries as Chile, Brazil, South Africa and East Asian countries (Korea, Indonesia, Thailand, and the Philippines) since the 1990s-2000s. This seems to have been probably because inflation targeting, which appears to have been successfully used by a number of advanced countries, has become as an attractive alternative anchor for emerging market economies.

The question is how we can evaluate the performance of the inflation targeting framework that has so far been adopted. There appears, by and large, to be a consensus in academic literature that inflation targeting adopted in advanced countries is a supportive framework for monetary policy and macro-economy. As far as the cases of emerging market countries are concerned, however, there have been less than sufficient advances in research on inflation targeting to date, and consensus views have not been formed in literature. Especially, in East Asian countries, which only started to introduce inflation targeting about ten years ago, there is little accumulation of academic studies and analyses on the performance of their inflation targeting (see Section 2 below).

The largest difficulty that emerging market economies, not advanced countries, are facing in performing inflation targeting is the issue of how to manage the exchange rate under the condition that their external debt is primarily denominated in U.S. dollars. A framework of inflation targeting can be realized only when monetary autonomy is secured under floating exchange rate regime. Emerging market economies have, however, a “fear of floating,” which comes from a lack of credibility toward currency value (see Calvo and Reinhart, 2002). Their care for exchange rate volatility prevents

emerging market countries from concentrating their monetary policy fully on inflation targeting. In the cases of small-open economies, exchange rate fluctuation itself gives some influence on domestic prices through so-called “pass-through” effect, thereby making it difficult for their monetary authorities to control inflation and to perform inflation targeting. Another possible difficulty in the IT management for emerging market economies is the lack of credibility of inflation targeting, which might come from not only arbitrary policy reactions accompanied often with imperfect independence of the monetary authority, but also unreliable inflation forecasting due to the premature capacity of the central bank as well as the economic uncertainty and volatility. As long as agents do not believe that the monetary authority will be successful in achieving targeted inflation, it would be hard for inflation targeting itself to have any significant effects on the expectations and behaviors of private sectors in such terms of wage and pricing contracts. The lack of credibility will thus lessen the IT performance.

This article, considering the difficulties in the IT management as noted above, examines the IT implementation and performance focusing on East Asian emerging market economies as about ten-year-old IT adopters. To be specific, our study first estimates the policy reaction function in each country to see if the IT adoption has really been kinked with a monetary policy rule emphasizing on inflation stabilization, and then examines whether an inflation-responsive policy rule under the IT adoption has really given an effect to curb inflation through tracing the impulse responses of prices to monetary policy shock in a VAR framework. We conduct these analyses in not only inflation targeters - Korea, Indonesia, Thailand and the Philippines but also in non-targeter - Malaysia for their comparison. The rest of the paper is structured as follows. Section 2 reviews previous studies and clarifies this paper’s contribution. Section 3 presents empirical analyses, introducing the data, methodology and estimate results. Section 4 summarizes and concludes.

## **2. Previous Studies and Our Position**

This section first overviews the key literature on the inflation targeting framework, and then focuses on previous studies on emerging market economies who adopted inflation targeting for monetary policy, and finally clarifies the contribution of this paper.

### ***Overview***

There are a number of studies that deal with the theories and empirical analyses on

inflation targeting. In an early stage of the literature, Bernanke and Mishkin (1997), Mishkin and Posen (1997), and Bernanke *et al.* (1999) are the prominent papers that described a comprehensive overview of the major issues on inflation targeting that was adopted by industrial economies in the 1990s. As the latest study on the IT performance, Mishkin and Schmidt-Hebbel (2007) conducted a comprehensive study to examine the performance of inflation targeting in industrial countries.

Bernanke and Mishkin (1997), discussing inflation targeting with some details of how this approach has been implemented in practice, represented their assessment that this approach—when construed as a framework for making monetary policy, rather than as a rigid rule—has a number of advantages, including more transparent and coherent policymaking, increased accountability, and greater attention to long-run considerations in day-to-day policy debates and decisions. Mishkin and Posen (1997) examined the experience of the first three countries to adopt an inflation-targeting strategy—New Zealand, Canada, and the United Kingdom—as well as Germany, which had a monetary targeting scheme that incorporated many elements of inflation targeting even earlier, and found that the countries adopting a numerical inflation target have successfully enjoyed low inflation rates with the benefits of increased central bank accountability, heightened public understanding of monetary policy, and an improved climate for economic growth. Bernanke *et al.* (1999), examining how the monetary policy strategy of inflation targeting has worked in a number of countries using case studies of their experiences, presented the following five elements that characterize a framework of inflation targeting: (a) making public a specific numerical inflation target; (b) the central bank making an explicit commitment, by means of institutional arrangements, to setting price stability as its ultimate goal, and economic growth and employment as its secondary goals; (c) a forward-looking monetary policy by comprehensive consideration of all the economic indicators related to price stability; (d) accountability to market participants and the public for monetary policy decisions and the reasons that led to them in relation to achieving inflation targets; and (e) the central bank holding itself accountable to achieving the inflation target. Mishkin and Schmidt-Hebbel (2007) provided panel evidence for inflation-targeting countries and a control group of high-achieving industrial countries that do not target inflation, and suggested from their evidence that inflation targeting helps countries achieve lower inflation in the long run, have smaller inflation response to oil-prices and exchange-rate shocks, strengthen monetary policy independence, improve monetary policy efficiency, and obtain inflation outcomes closer to target levels.

To sum up the above-mentioned overview, inflation targeting adopted in advanced

countries appears to be considered as a supportive framework for monetary policy and macro-economy.

### ***Studies on Emerging Market Economies***

When we focus on the cases of emerging market economies, the empirical evidence has been relatively scarce to date because of their relatively short-term experiences since their IT adoption, and have not yet created consensus views due to their several hardships in managing the IT framework.

Some argued the conditional success of the IT in emerging market economies. Mishkin (2000; 2004), discussing the advantages and disadvantages of inflation targeting in emerging market countries, argued that although inflation targeting is more complicated in emerging market countries and thus is not a panacea, when done correctly, inflation targeting can be a powerful tool to help promote macroeconomic stability in these countries. Picking up the Chilean and Brazilian successful examples, he also noted that the success of inflation targeting cannot be solely attributed to the actions of the central bank: supportive policies such as the absence of large fiscal deficits and rigorous regulation and supervision of financial sector have been crucial to its success. As the latest study, Lin (2009) evaluated the treatment effect of inflation targeting in thirteen developing countries that have adopted this policy by the end of 2004. Using a variety of propensity score matching methods, it showed that, on average, inflation targeting has large and significant effects on lowering both inflation and inflation variability in these thirteen countries, and also revealed that the performance of a given inflation targeting regime can be affected by a country's characteristics such as the government's fiscal position, the central bank's desire to limit the movements of exchange rate, its willingness to meet the preconditions of policy adoption, and the time length since the policy adoption.

Other studies presented the suggestions and recommendations in managing the IT in emerging market economies. Fraga *et al.* (2003), picking up the Brazilian experience, argued that inflation targeting in emerging market economies has been relatively successful but has proven to be a challenging task due to the volatility of output, inflation, and interest rate and exchange rate, and recommended: i) high levels of communication and transparency; ii) target bands treated mainly as communication devices; iii) a methodology to calculate the convergence path following a shock; and iv) better IMF conditionality under inflation targeting. Ito and Hayashi (2004), through a cross-country comparison of inflation targeting practices among Korea, Indonesia, Thailand, and the Philippines, concluded that the introduction of inflation targeting has

promoted sound monetary policy and contributed to enhancing the transparency and accountability of the monetary policy conduct. At the same time, they presented the following two recommendations, considering the characteristics of emerging market economies: emerging market countries should set an inflation target central rate slightly higher and a target range slightly wider than a typical advanced countries; small, open economy countries may pursue both an inflation target range and an implicit basket band exchange rate regime, as both targets are expressed in a range (the targets work as the source of stability in expectations, and the ranges allow some flexibility).

While the fore-mentioned studies represented rather supportive assessments toward the IT in emerging market economies, Eichengreen (2002) offered negative messages on that issue. He argued that inflation targeting is difficult in emerging markets for three reasons: they are open; their liabilities are dollarized; and their policy makers lack credibility, which often comes from the difficulty of forecasting inflation. He also stressed that although emerging markets that are less open, have well regulated financial institutions and markets on which foreign exposures can be hedged, and whose central banks possess a reasonable degree of policy credibility may prefer inflation targeting, the question is how many emerging markets will soon fall under this heading.

### ***Studies on the East Asian IT performance and Our Contribution***

When we look at the quantitative studies of the IT performance in East Asian countries, there is extremely little accumulation of empirical evidence, because only about ten years have passed since the IT adoption. Several East Asian countries adopted inflation targeting soon after the 1997-98 Asian currency crisis: Korea instituted it in 1998, followed by Indonesia and Thailand in 2000, and by the Philippines in 2002. Some of these countries have been studied from the viewpoint of the quantitative assessment of their IT adoption. As the Korean evidence, Kim and Park (2006) examined the mode of operation in the Bank of Korea (BOK) by a monetary reaction function and the effects of its monetary policy on macroeconomic variables by a structural VAR model since the IT adoption. They found that the BOK adjusts interest rates in response to changes in inflationary pressure as well as to output gap, and also that in the impulse response to monetary policy shock the core CPI gradually decreases over time until it turns up about three years later. Regarding the evidence of Indonesia and Thailand, Siregar *et al.* (2008), assessing their IT implementation by employing a markov-switching approach to examine the monetary reaction functions, showed that controlling inflationary expectations has indeed been the focus of the monetary policies of these economies, whereas the commitment prevails during stable and volatile

regimes in Indonesia and only during the stable regime in Thailand.

This paper tries to enrich the existing studies in more comprehensive ways. To be specific, we examine both of the IT implementation and performance in terms of policy reaction function and impulse response function with the comparison between the pre- and post- IT regimes, in all of the IT adopters— Korea, Indonesia, Thailand and the Philippines by unified methodologies. We further include Malaysia as a non-IT adopter into estimation samples for comparison, which would be significantly of great use for identifying whether, given the monetary policy emphasis on stabilizing inflation and the successful performance in low inflation, it might come from the IT adoption or from such global trend as “the great moderation”.

### **3. Empirics**

We now proceed to the empirics. We herein take two kinds of estimations: a policy reaction function for examining the monetary policy rule under the IT adoption, and an impulse response function in a VAR model for tracing monetary policy effect on prices.

The source of all the data used for the estimation below in quarterly term comes from the International Financial Statistics of the International Monetary Fund. The interest rate is derived from “Money Market Rate” in the line 60b; the price index is from “Consumer Prices (base period 2005=100)” in the line 64; and the production index is from “Industrial Production (base period 2005=100)” in the line 66 (or “Manufacturing production” for Indonesia, Thailand and the Philippines in the line 66ey).

We next specify the sample periods (see Appendix). Setting the sample periods is crucial in our analysis because the IT implementation and performance can be evaluated by comparing the estimation outcomes between before and after the IT adoption. We define the pre-IT period as the one in which exchange rate was substantially pegged to U.S. dollar as a nominal anchor just before the 1997-98 Asian currency crises. To be specific, as the starting quarter of that period, we set “the first quarter of 1985”, from which to the Asian crises all the sample economies had adopted pegged exchange rate regimes regardless of their formality (until 1984, the Philippines had adopted a floating exchange rate regime). The ending quarter is set to be the one in which the pegged exchange rate regime came to an end due to the outbreak of the Asian crises: Korea in the fourth quarter of 1997; Indonesia and Malaysia in the third quarter of 1997; Thailand and the Philippines in the second quarter of 1997.<sup>2</sup> The post-IT period is

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<sup>2</sup> For the classification of exchange rate regime, we follow Reinhart *et al.* (2009).

specified as the one from the IT-executed quarter to the present time (the fourth quarter of 2009). The starting quarters are, thus, the third quarter of 1998 in Korea<sup>3</sup>, the first quarter of 2000 in Indonesia, from; the second quarter of 2000 in Thailand and the first quarter of 2002 in the Philippines. The starting quarter of Malaysia, non-IT adopter is set to be the fourth quarter of 1998, i.e. the starting quarter of the pegged regime again for comparison.

### ***Policy Reaction Function***

We now step into the estimation of a policy reaction function during each of the pre- and post- IT periods in each sample economy. The purpose is to examine whether the IT adoption in each country has really been linked with a monetary policy rule emphasizing on stabilizing inflation. We basically follow the estimation model of Clarida *et al.* (1998) and such subsequent studies as Gagnon and Ihrig (2004), Kim and Park (2006), and Siregar *et al.* (2008). We estimate two kinds of Taylor-type monetary policy rules using: forward-looking specification and backward-looking one in the following equation of (1) and (2) respectively, since we are targeting emerging market economies, and since Eichengreen (2002) picked up the difficulty of forecasting inflation as one of the hardships in the IT management of emerging market economies. Clarida *et al.* (1998), in estimating the monetary policy rules of the G3 (German, Japan, and the US), took both of the forward-looking specification as the baseline and the backward-looking function as the alternative for their comparison, and found that the G3 have pursued the forward-looking rule responding to anticipated inflation as opposed to lagged inflation. Regarding subsequent studies, while Gagnon and Ihrig (2004), and Kim and Park (2006) used the forward-looking specification for estimating policy reaction function in 20 industrial countries and in Korea respectively, Siregar *et al.* (2008) adopted the backward-looking one in the cases of Indonesia and Thailand.<sup>4</sup> Our estimation equations are as follows:

$$\dot{i}_t = \theta_0 + \theta_1 \dot{i}_{t-1} + \theta_2 E_t \Delta p_{t+4} + \theta_3 E_t gap_{t+4} \quad (1)$$

$$\dot{i}_t = \theta_0 + \theta_1 \dot{i}_{t-1} + \theta_2 \Delta p_{t,t+4} + \theta_3 gap_t \quad (2)$$

<sup>3</sup> Although Korea adopted the IT in April 1998, the second quarter of 1998, the turbulent period of the Asian crisis did not end on that point according to Reinhart *et al.* (2009). This we set the starting quarter the one when the floating regime started, the third quarter of 1998.

<sup>4</sup> The estimated equation of Siregar *et al.* (2008) includes the expected, but lagged inflation of  $E_{t-1}\pi_t$ ,  $E_{t-2}\pi_{t-1}$ , and  $E_{t-3}\pi_{t-2}$ , thereby being classified into the backward-looking specification. Though the estimated equation of Siregar *et al.* (2008) includes exchange rate variable, our estimation excludes it because their estimation result does not show any significance in its inclusion and also because its inclusion itself is theretically controversial. See, for example, Taylor (2001).

where  $i$  is the end-of-quarter nominal money market rate,  $p$  is the quarterly consumer price index and  $gap$  is the output gap, calculated as the difference between industrial production index and an HP-filter of that series (as an estimate of potential production level).  $E_t \Delta p_{t+4}$  is the expectation at date  $t$  of the rate of inflation between date  $t$  and date  $t+4$ .<sup>5</sup>  $\Delta p_{t,t-4}$  is the rate of inflation between date  $t-4$  and date  $t$ . The coefficient  $\theta_1$  indicates the speed of monetary policy adjustment. The coefficient  $\theta_2$  represents the immediate response of monetary authority to inflation. The expression  $\theta_2/(1-\theta_1)$ , thus, shows the long-run response to inflation. Similarly, the long-run response of the monetary authority to the output gap is  $\theta_3/(1-\theta_1)$ . We can confirm the significant existence of these long-run responses by the Wald test. For a monetary authority that moves to put more emphasis on stabilizing inflation under the post-IT period, we expect to find a significantly larger coefficient of  $\theta_2/(1-\theta_1)$  as a long-run inflation response in the post-IT period than in the pre-IT period.

Estimating equations above may entail endogeneity problem, in that they contain the lagged dependent variable among the explanatory variables, and that interest rate may also affect future changes in explanatory variables. For obtaining unbiased and consistent estimation, we herein adopt the Generalized Method of Moments (GMM). We use the first-differenced endogenous variables with necessary lagged periods as instrumental variables, and then verify the instrumental validity by the Sargan test of over-identifying restrictions. (The Sargan test did not suggest rejection of the instrumental validity at conventional levels for any cases estimated in Table 1.)

Table 1 reports for each country regression the long-run monetary policy coefficient estimates with standard errors for both forward-looking and backward-looking specifications in the two estimation periods: the pre-IT period and the post-IT period. Korea has significantly positive coefficients on the responses to inflation and output gap only in the post-IT period under the *forward-looking* specification, and also indicates an increase in these coefficient levels from the pre-IT period to the post-IT period. Indonesia and Thailand has significantly positive coefficients on the response to inflation only in the post-IT period under the *backward-looking* specification, and also represents an increase in the coefficient level on the response to inflation from the pre-IT period to the post-IT period. The Philippines and Malaysia have no significant coefficients in any cases.

We interpret the estimation results above as follows. First, we could find some

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<sup>5</sup> Since we presume rational expectations, we use observed data for estimating inflation expectations.

linkage between the IT adoption and a monetary policy rule emphasizing on stabilizing inflation except the Philippines, because of the existence of significant coefficient of inflation response in the post-IT period of the IT adopters except the Philippines, as well as because of the non-existence of that coefficient in the non-IT adopter of Malaysia. Evidence on Malaysia might contribute to supporting the hypothesis that the IT adoption, not other factors like global trend, might provide some inherency in inflation response for monetary policy rule. Second, under the IT adoption, Korea appears to have taken a *forward-looking* monetary policy rule, while Indonesia and Thailand seem to have adopted a *backward-looking* one. This outcome seems to be consistent with the results of forward-looking estimation of Kim and Park (2006) as to Korea, and those of backward-looking estimation of Siregar *et al.* (2008) as to Indonesia and Thailand. Third, the failure of the Philippines to prove an inflation-responsive policy rule even under its IT adoption may originate from its loss of monetary autonomy: the Philippines came back to pegged exchange rate regime in December 1999 and has still maintained it even under the IT adoption (Reinhart and Ilzetzki, 2009); and have kept high correlation of domestic interest rate with US interest rate (Taguchi 2009).

### ***Impulse Response Function***

We herein turn to the estimation of an impulse response of prices to monetary policy shock in a VAR model during each of the pre- and post- IT periods in each sample economy. The purpose is to see whether an inflation-responsive policy rule under the IT adoption has really given an effect to curb inflation. The structure of the VAR model in our estimation basically comes from the most standard one developed by Christiano *et al.* (1996) and subsequently adopted by Kim and Park (2006). We construct a three-variable recursive VAR model: IP, CPI, and MMR, which denote the log of industrial production index, consumer price index and nominal money market rate (end-of-quarter). The variable of monetary aggregate included in the standard model is excluded in our estimation, since the variables adopted in the VAR model should be consistent with those in monetary policy reaction function in the previous section when the IT implementation and performance is examined simultaneously, and since this paper is not going to deal directly with the transmission channels and mechanisms of monetary policy. The ordering in the VAR model is {IP, CPI, MMR}, where monetary policy shocks are identified as shocks to the operational instrument, MMR. A constant term is included in the model. The lags are chosen based on the Akaike criterion.

Figure 1 reports the impulse responses of CPI to monetary policy shock in MMR with a 95 percent error band over a 20-quarter horizon in each of the pre- and post- IT

periods in each sample economy. Korea and Thailand in the post-IT period indicate a fall in CPI within one and half years in response to monetary policy shock (the rise in MMR). It is only the case of Korea with the post-IT period, however, that shows a definite decline in CPI, clearing the 95 percent error band.

We can then summarize the implications of estimation results combining the one of policy reaction function and the one of impulse responses as follows. The monetary policy of Korea, which proved to take an inflation responsive and forward-looking policy rule, appears to have an effect on price stabilization; the monetary policies of Indonesia and Thailand with an inflation responsive but backward-looking policy rule, and those of the Philippines and Malaysia without an inflation responsive rule do not seem to have any effect on controlling inflation. The question is why there is the difference in policy effects between forward-looking and backward-looking policy rules. We speculate that the difference in policy effects may come from the difference in the way how private sectors form expectations on inflation under between forward-looking and backward-looking policy rules; the forward-looking rule of the central bank makes it easier for private agents to form their expectations consistent with the targeted inflation by sharing reliable inflation-forecasting information presented by the central bank. Under the backward-looking rule accompanied often with lack of reliable inflation forecasting, private agents cannot recognize the intent of the central bank (see Eichengreen (2002), pp23)—on what ground and criteria the central bank set an inflation target to certain level, which makes them believe in targeted inflation. The difference in policy rules, thus, may create the difference in policy effects.

#### **4. Concluding Remarks**

This paper examines the implementation and performance of inflation targeting (IT) focusing on East Asian emerging market economies as about ten-year-old IT adopters. To be specific, our study estimates the policy reaction function for verifying the linkage between the IT adoption and monetary policy rule, and also estimates the impulse responses of prices to monetary policy shock in a VAR framework for identifying monetary policy effect on price stabilization. Our study targets not only IT adopters: Korea, Indonesia, Thailand and the Philippines, but also non-IT adopter, Malaysia for their comparison. Our findings on monetary policies of the five sample economies can be summarized as follows. Korea has taken an inflation responsive and *forward-looking* policy rule under the IT adoption, which also has had an effect on price stabilization. Indonesia and Thailand have conducted inflation responsive but *backward-looking*

policy rules under the IT adoption, which have had *no* effect on price stabilization. The Philippines—the IT adopter but under pegged exchange rate regime, and Malaysia—the non-IT adopter, have represented neither inflation responsive rules nor policy effects on controlling inflation.

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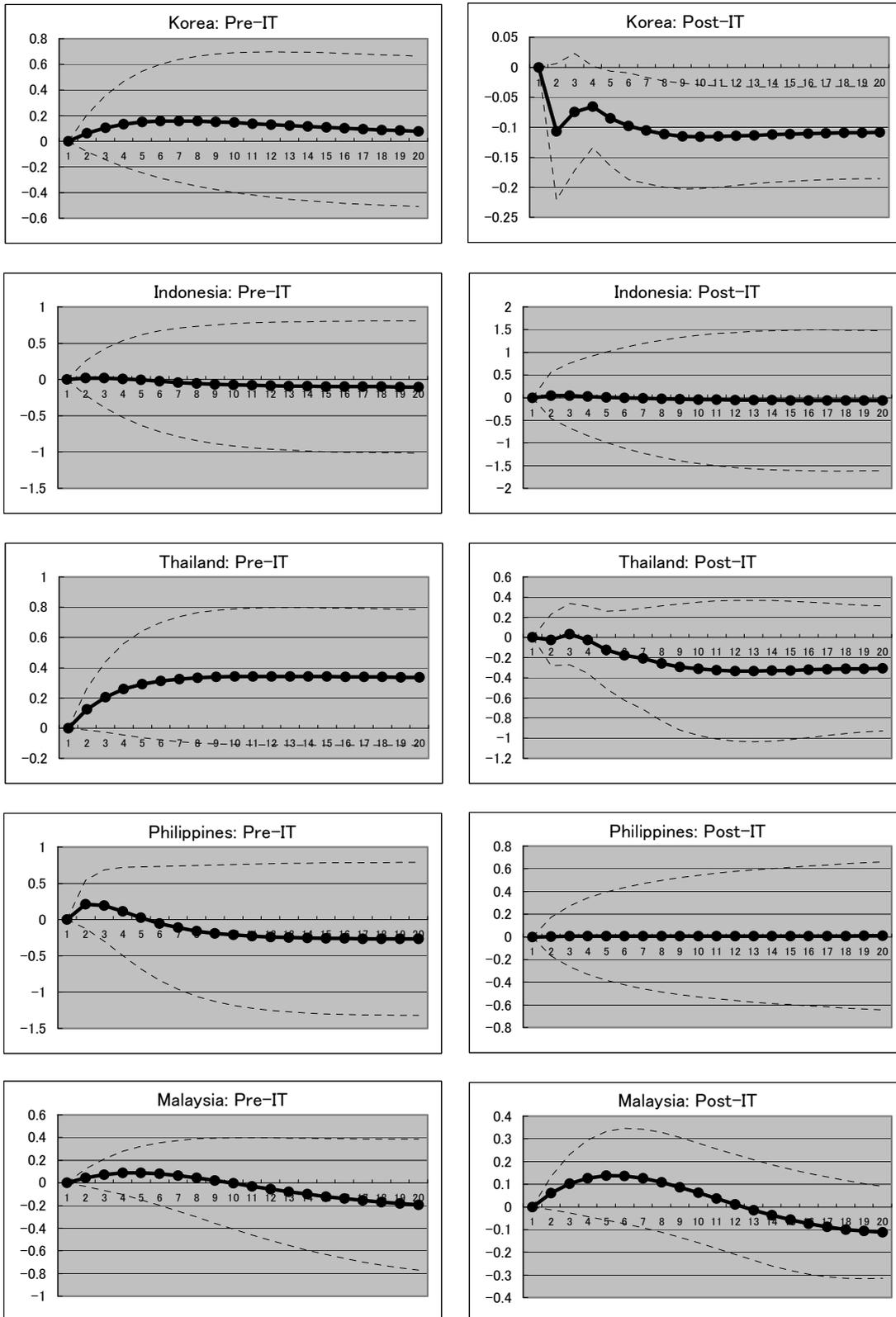
**Table 1 Policy Reaction Functions**

	<b>Korea</b>	<b>Indonesia</b>	<b>Thailand</b>	<b>Philippines</b>	<b>Malaysia</b>
<b>Pre-IT Period</b>					
Forward-looking Functions					
Inflation	0.749 (0.559)	-0.710 (1.876)	-2.975 (3.862)	-0.211 (0.234)	196.425 (14,259.68)
GDP Gap	-0.899 (1.690)	0.007 (0.183)	-7.620 (6.898)	0.385 (0.246)	198.297 (14,527.43)
<Sargan test>	<0.999>	<0.999>	<0.998>	<0.999>	<0.999>
Backward-looking Functions					
Inflation	0.959 (1.532)	-1.870 (1.383)	0.114 (0.542)	0.450 (0.282)	1.512 (1.536)
GDP Gap	-7.124 (8.690)	0.168 (0.286)	-0.359 (0.315)	-0.308 (0.183)	-0.091 (0.478)
<Sargan test>	<0.997>	<0.999>	<0.999>	<0.998>	<0.990>
<b>Post-IT Period</b>					
Forward-looking Functions					
Inflation	0.842 *** (0.318)	0.125 (0.526)	-0.523 (0.094)	-0.025 (0.103)	0.060 (0.042)
GDP Gap	0.248 *** (0.095)	1.036 (0.635)	0.019 (0.041)	0.150 (0.192)	-0.063 (0.037)
<Sargan test>	<0.999>	<0.986>	<0.999>	<0.999>	<0.999>
Backward-looking Functions					
Inflation	-31.983 (625.563)	1.226 *** (0.258)	1.969 *** (0.497)	0.038 (0.083)	0.213 (0.141)
GDP Gap	-5.152 (97.330)	0.645 (0.522)	0.006 (0.074)	-0.355 (0.130)	-0.116 (-0.192)
<Sargan test>	<0.999>	<0.999>	<0.999>	<0.999>	<0.858>

Notes:

- 1) \*\*\*, \*\*, and \* indicate that the coefficient is significant at the 90, 95, and 99 percent levels, respectively.
- 2) Standard errors in parentheses.

**Figure 1. Impulse Response Functions**



**Appendix Sample periods for Estimation: Pre-IT period and Post-IT Period**

	<b>Korea</b>	<b>Indonesia</b>	<b>Thailand</b>	<b>Philippines</b>	<b>Malaysia</b>
Estimation Period					
Pre-IT Period	1985Q1 ~ 1997Q4	1985Q1 ~ 1997Q3	1985Q1 ~ 1997Q2	1985Q1 ~ 1997Q2	1895Q1 ~ 1997Q3
Post-IT Period	1998Q3 ~ 2009Q4	2000Q1 ~ 2009Q4	2000Q2 ~ 2009Q4	2002Q1 ~ 2009Q4	1998Q4 ~ 2009Q4
References:					
Exchange Rate Arrangements	Peg : ~ 1997Q4* Float : 1998Q3* ~	Peg : ~ 1997Q3* Float : 1999Q2 ~	Peg : ~ 1997Q2* Float : 1998Q1 ~	Peg : ~ 1997Q2* Float : 1998Q1 ~	Peg : ~ 1997Q3* Peg : 1998Q4* ~
Inflation Targeting	1998Q2 ~	2000Q1* ~	2000Q2* ~	2002Q1* ~	(Freely Floating: 1997Q4~1998Q3)

Note: \* denotes the point of time that is adopted for the estimation.