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The Impact of Monetary Policy on Exchange Rate and Its Policy Implication

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I. Background and purpose of the study

The purpose of this study is to investigate any differences between the monetary policies of small open economies with international currency and those without international currency, in the impact these policies have on exchange rates. Whether a country has an international currency or not has a very different effect on its monetary policy concerning foreign exchange rates. The monetary policies of these two groups showed clear differences in their policy performances in responding to global financial crisis. The countries with international currency, such as the US and Japan, were able to stimulate their domestic economy with aggressive monetary easing policies. This is because these nations were able to use monetary policy to lower interest rates and also induce the depreciation of their currencies. On the other hand, the countries without an international currency found it difficult to overcome the global financial crisis because of unfavorable exchange rate conditions in the export market.

Emerging economies have a limited impact on foreign exchange rates because their currencies are not used in international financial markets. Rather than their own monetary policy, it is the monetary policies of major economies that have a greater impact on their foreign exchange rate decisions. In this study we aim to clarify the different extents to which monetary policy influences foreign exchange rate determination between the two groups, and use empirical research to explain why.

II. Analysis results

To examine the characteristics of countries that do not have international currencies, we compared the statistical characteristics of exchange rates in both groups of countries, i.e. those with international currencies and those without, focusing on the volatility of exchange rates and interest rates parity. Countries which possess international currencies, such as the United Kingdom, Canada, and Switzerland, showed in general lower volatility during the financial crisis. On the other hand, countries that do not have international currencies, such as Korea, showed 2.14–6.78 times higher volatility during the crisis. In the interest rates parity test, all countries did not hold covered interest rates parity, but the coefficient was relatively large at 0.52 in the UK, closest to parity. The study

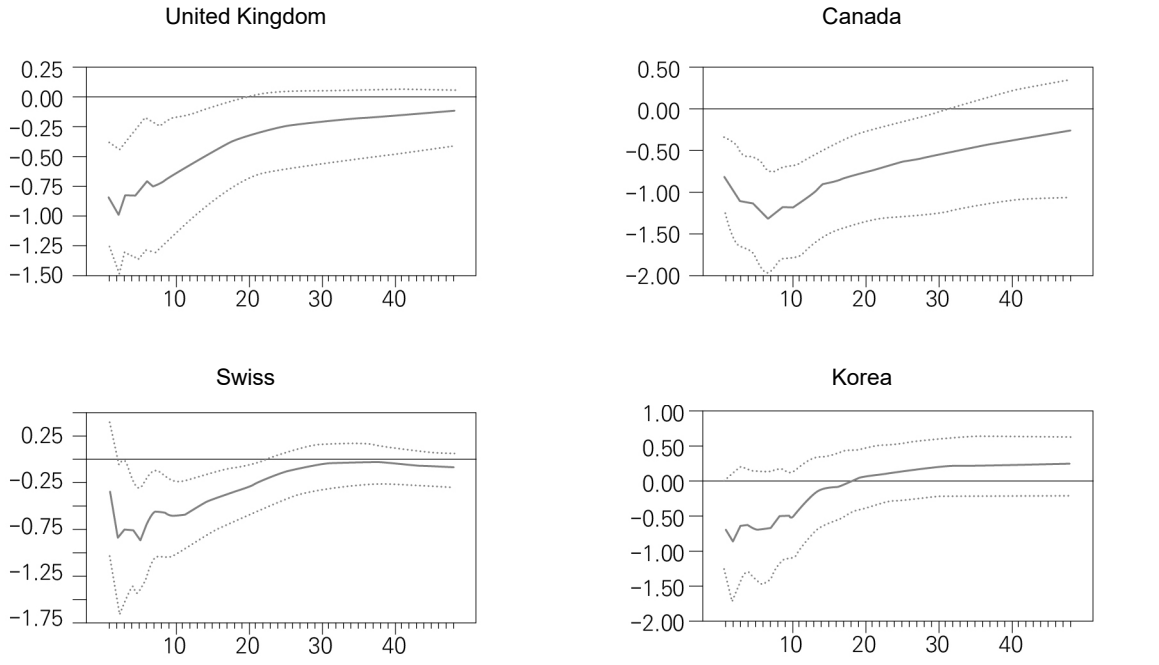
found that the two groups differed clearly in the movements of exchange rates. This indicates that whether a country holds an international currency or not is a significant issue to consider when analyzing exchange rate-related issues by country.

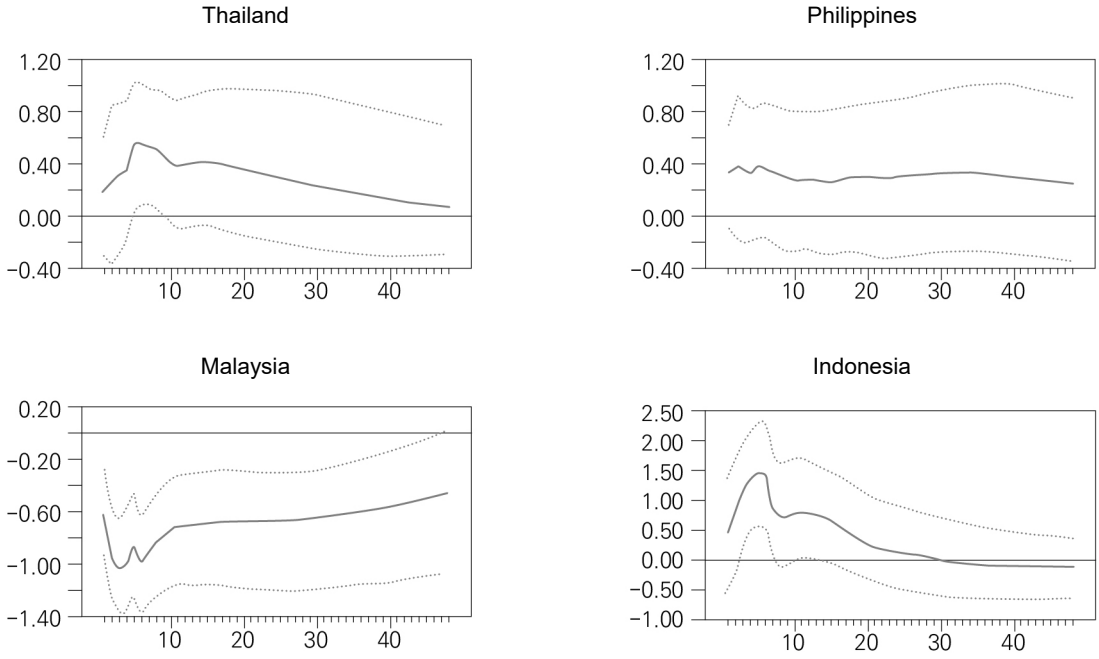
Next, the effect of monetary policy on exchange rate was analyzed using structural vector autoregression (SVAR) models with sign restrictions. The target countries are those which possess an international currency (UK, Canada, Switzerland) and Asian countries which do not (Korea, Thailand, the Philippines, Indonesia, Malaysia) among small open economies, and we analyze only those periods during which countries implemented inflation targeting policies. The responses of exchange rates to the impact of monetary policy in UK, Canada and Switzerland were not much different from predictions of theories in general. As most theories predict, interest rate hikes significantly lowered the exchange rate. It was also shown that exchange rates were overshooting, as predicted by Dornbusch (1976). On the other hand, the effect of monetary policy on the exchange rates in most countries without an international currency was considerably different from what theory predicts. In Thailand and Indonesia, "exchange rate puzzles" appeared. In Korea's case, the exchange rate response after the shock of the interest rate hike was less significant, which was somewhat consistent with theory and similar to that of developed countries.

The reason why the exchange rates in non-international currency countries respond to a monetary policy shock in a manner less consistent with theory may be related not only to their degree of currency internationalization but also to the degree of capital control in each country. Non-international currencies can carry a greater risk premium because they are less reliable than international currencies.

Figure 1. Impulse Response Function of Exchange Rate on Monetary Policy Impact

Unit: %





Note: The horizontal axis represents the elapsed time after impact.

Source: Author's calculation.

Finally, our case study examined the characteristics of the relationship between Korea's monetary policy and foreign exchange rates. For the analysis, the market model was used to measure whether a particular event would generate excess return out of trend. Four events were selected for the case study. Three of the incidents were when Korea's interest rates changed, with US interest rates frozen. The other was when the US and Korea raised interest rates at the same time. The final case was selected to look at a time period similar to the current situation to gain implications for future situations. We used the dollar index and emerging currency index as market returns. Three implications were obtained from the estimation results. First, the Korean exchange rate fluctuated more significantly based on the dollar index than the emerging currency index. Second, the impact of Korea's monetary policy on exchange rates was not always consistent with theory. The results of the case study showed that one of the four events changed the exchange rate in the opposite direction of theoretical expectations, and the other three events changed the exchange rate in accordance with theory. Third, in cases similar to the recent situation, if Korea raises interest rates, the exchange rate will fall even if the US raises interest rates to the same level. The reason for this is that the marginal impact of the US interest rate hike on Korea has diminished and Korea has bigger room to the rate hike than the US.

However, this event was not statistically significant.

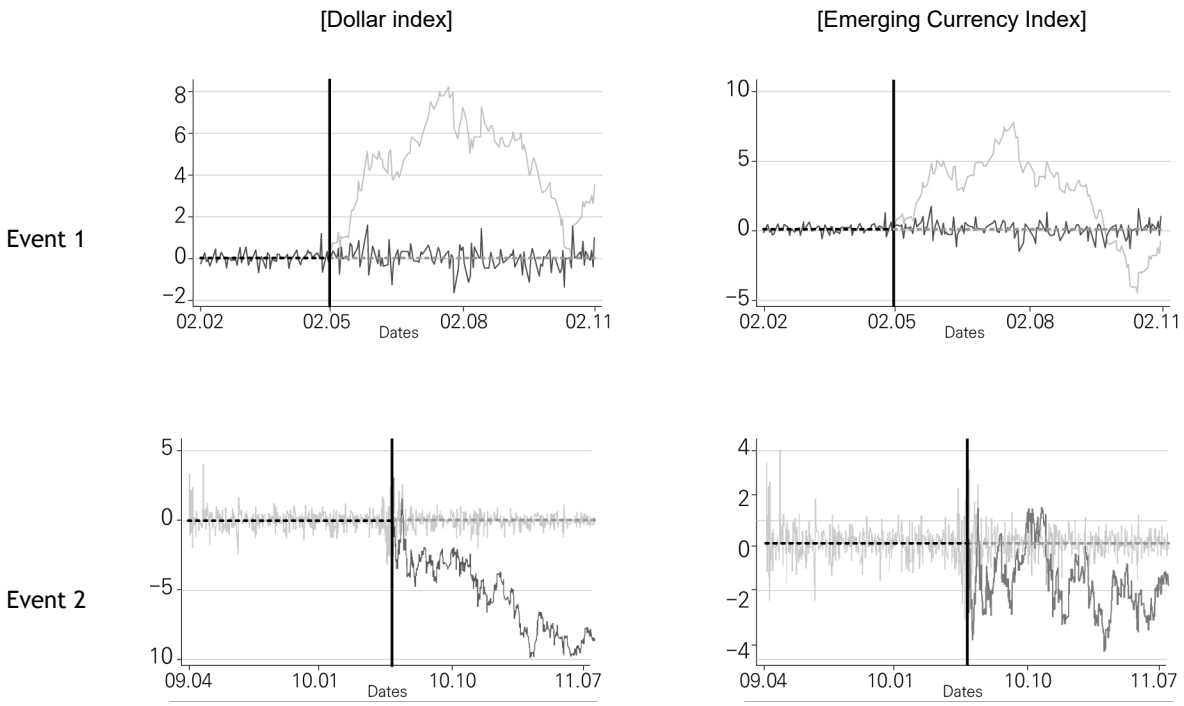
Table 1. Event Definition and Analysis Period

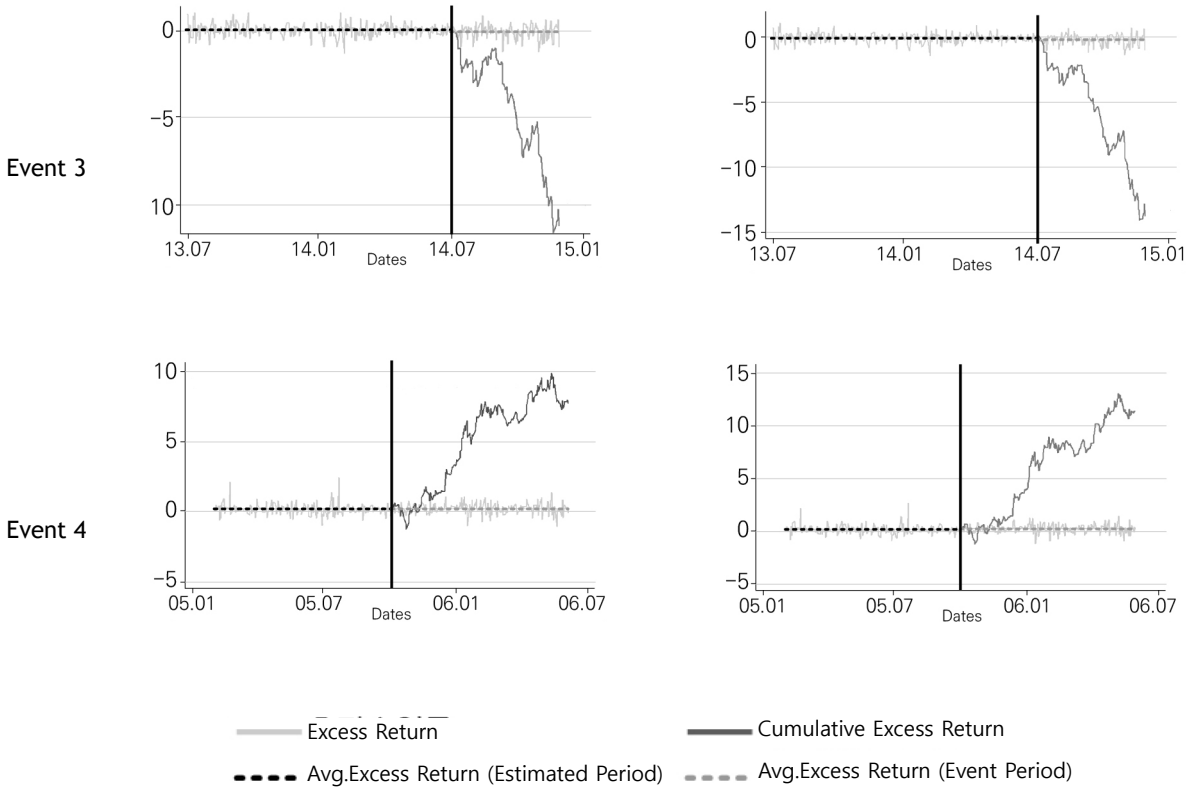
	Event 1	Event 2	Event 3	Event 4
Character-istic	• US interest rate freeze • Korea interest rate hike	• US interest rate freeze • Korea interest rate hike	• US interest rate freeze • Korea interest rate hike	• US interest rate hike • Korea interest rate hike
Estimated Period	2002. 2. 1 ~ 4. 30	2009. 4. 1 ~ 2010. 5. 30	2013. 7. 1 ~ 2014. 6. 30	2005. 2. 1 ~ 9. 30
Event pe-riod	2002. 5. 1 ~ 10. 31	2010. 6. 1 ~ 2011. 7. 31	2014. 7. 1 ~ 11. 28	2005. 10. 1 ~ 2006. 5. 31
Interest rate rela-tionship	Korea interest rate > US interest rate	Korea interest rate > US interest rate	Korea interest rate > US interest rate	Korea interest rate < US interest rate

Source: Author's calculation.

Figure 2. Excess Return on the Won / Dollar Exchange Rate

Unit: %p





Note: Based on the vertical line, the left side is the estimated period and the right side is the event period.

Source: Author's calculation.

III. Policy suggestions

The following are policy implications that can be derived from the results of this study.

First, Korea needs to internationalize the won. The impact of Korea's monetary policy on the exchange rate is limited because the won has not been internationalized. In addition, efforts to internationalize the won are needed to improve market transparency and the efficiency of monetary policy.

Second, monetary policy needs to be taken into account in the interest rate gap. As Korea is a small open economy, it is necessary to take into account changes in US monetary policy and interest rates between the two countries when making monetary policy decisions. If US monetary policy is more influential than Korea's monetary policy, and the two countries implement monetary policy in a way that is contradictory, Korea's policy effects are likely to be weakened.

Third, it is necessary to expand the implementation measures of monetary policy. Until now, Korea's monetary policy has been implemented based on adjustments of the base rate, but it is necessary to develop various operational tools that can change the real rate as well as the nominal rate. In an open economy, efforts to develop monetary policy operating techniques

that can effectively respond to domestic and foreign conditions are required. It is necessary to develop a variety of indirect policy measures in case exchange rate policy is needed. The exchange rate and other macroeconomic indicators are also closely linked to financial stability, so the central bank needs to embrace a more comprehensive range of role when necessary.

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