

Foreign exchange market developments and intervention in Korea

Sangdai Ryoo, Taeyong Kwon and Hyejin Lee¹

Abstract

This paper provides an overview of the developments in the Korean foreign exchange market and the Bank of Korea's foreign exchange interventions since the introduction of the floating exchange rate regime in Korea. It deals with institutional aspects such as the objectives, instruments employed, tactics and strategies of the interventions, as well as the sterilisation practices. It also explains why the Korean won has been so volatile during the crisis period, and how the Korean authorities have addressed the vulnerability of the won via interventions and other macro-prudential regulations.

Keywords: foreign exchange intervention, exchange rates, sterilisation

JEL classification: E58, F31

¹ Bank of Korea.

1. Introduction

This note provides an overview of the characteristics of the Korean foreign exchange market and the Bank of Korea's foreign exchange market intervention over the last decade. The Korean authorities have intervened in the market when it was judged necessary, although we hold the view that under a free floating regime like the current Korean exchange rate system the exchange rate should in principle be determined in the foreign exchange market, reflecting economic fundamentals. This note discusses why and how the Korean authorities intervene in the FX market, and describes the consequences of their intervention.

We once before examined our foreign exchange market developments and FX intervention in a BIS country note (2004). Since then, the environment surrounding the Korean FX market has changed greatly. Above all, the experience of the global financial crisis in 2008 sharply revealed the vulnerabilities of Korea's foreign exchange system to external shock. Therefore, our main policy issues and methods of intervention have been modified to cope with the Korean won's vulnerability. Also, therefore, the present note points out what has changed since the last review.

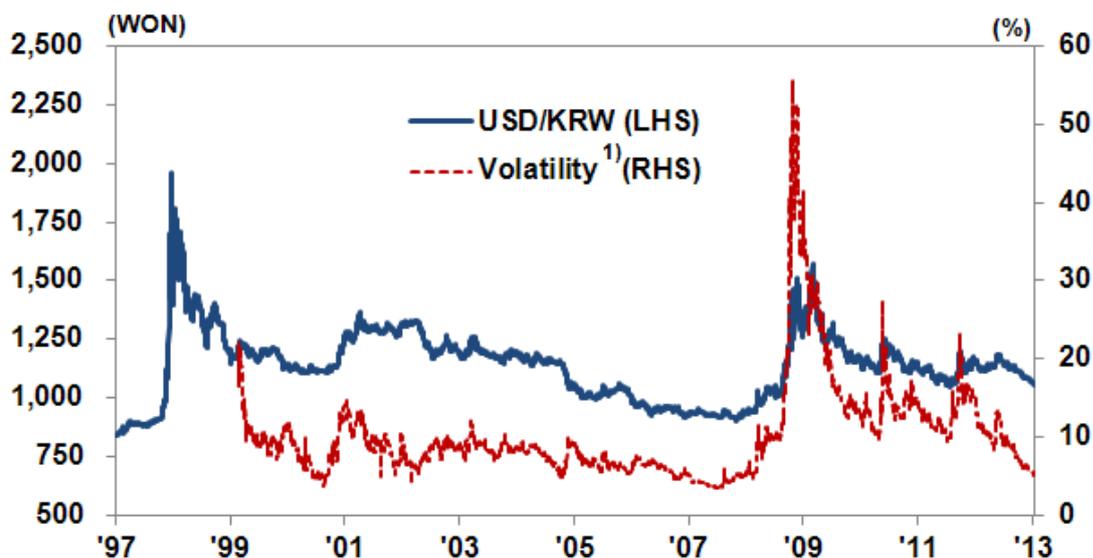
The rest of the note is organised as follows: As background, section 2 briefly describes developments in the foreign exchange market, as well as the institutional setup as regards Korean foreign exchange policy. Section 3 goes on to explain the objectives and tactics of FX intervention. This is followed in section 4 by a discussion of the effectiveness of each intervention channel, and of what happens in the domestic financial market after intervention. Section 5 introduces the recent macro-prudential measures adopted in Korea, and their effects.

2. Developments in the foreign exchange market after adoption of the floating regime

2.1 Movement of the Korean won

The USD/KRW exchange rate has for the most part fluctuated in line with global financial market circumstances. It has generally shown slow downward trends during periods when risk-on sentiments have dominated, owing to the won's nature as a typical risk currency and to Korea's continuing current account surplus. For example, we experienced long-term moderate appreciation of the won in the mid-2000 decade. However, the exchange rate has shown sharp increases during times of market turmoil such as the global financial crisis in 2008 and the European sovereign debt crisis in 2010 and 2011.

The volatility of the USD/KRW exchange rate has shown similar behaviour. It tends to be moderate during periods of risk-on sentiment, and then surges during risk-off sentiment. Although these asymmetric features are commonly observed in many developing countries that have adopted floats, the Korean won was one of the most severe cases during the global financial crisis in 2008 specifically.



1) Implied volatility of 3-month USD/KRW options (data not available before 1999).

Sources: Bank of Korea; Bloomberg.

2.2 Why has the Korean won been so vulnerable?

Regarding the sharp depreciation and high volatility of the Korean won during past financial crises, previous studies usually pointed to Korea's high degree of capital market openness, to its geopolitical risks, and to the large amount of banks' external debt and their maturity mismatches. It is quite obvious that Korea's high capital market openness combined with the pro-cyclicality of international capital flows has exposed the country's foreign exchange market to volatile swings. Sporadic geopolitical events reminding investors of the geopolitical risks surrounding the Korean Peninsula have also played a part in the won's vulnerability. It might be asked, however, why Korean banks have had large amounts of external debt despite the nation's continuing current account surplus. The answer to this is also related to the country's current account surplus.

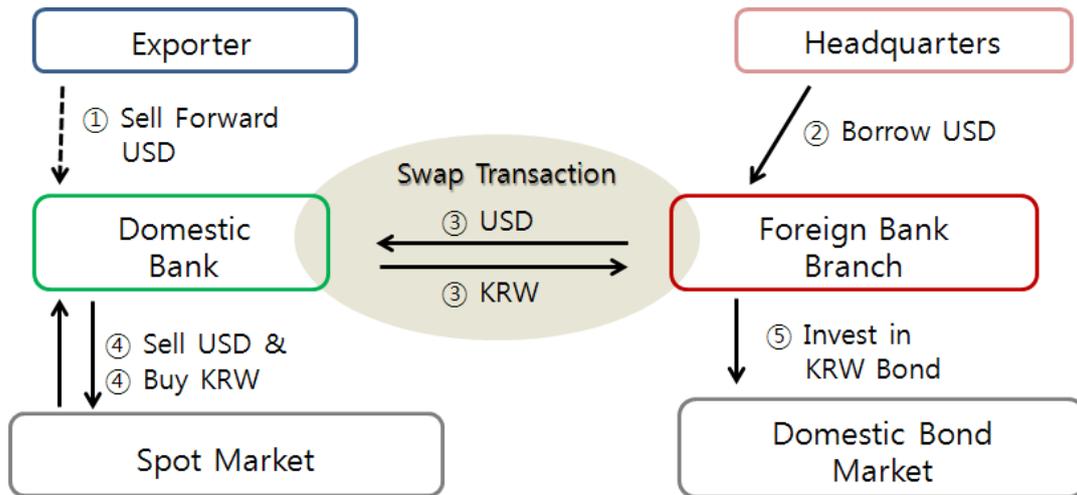
Banks' external debts have been driven by the demand for FX hedging since the mid-2000 decade. Korean exporters and asset management companies have sold forward foreign currency to hedge the values of their future export proceeds or their foreign-currency-denominated assets. In the years leading up to the global financial crisis, bank demands for FX hedging were spearheaded mainly by shipbuilders whose overseas orders were increasing thanks to the shipping industry boom, and by asset management companies that were rapidly expanding their overseas securities investments due to the bullish global stock market and the government's policy of encouraging overseas investment.

Exports have exceeded imports for several years. Unlike exporters, moreover, importers tend to acquire foreign currency in the spot market rather than the

forward market.² In the face of companies' forward selling, and given the shortage of forward buying by importers, banks have sought to square their positions by taking short positions. This has been done by either borrowing foreign currency (typically via foreign bank branches) or creating short FX swap positions (typically a domestic bank transaction). After borrowing foreign currency, foreign bank branches have exchanged it for Korean won and invested the proceeds in domestic bonds. This is the main reason Korean banks have had such a large amount of external debt.

Banks' typical positioning

Figure 2



In addition, banks have built up liquidity mismatches. They raised short-term external debt to offset their long-term long positions because of the cheaper interest costs of funding and the low perceived liquidity risk, given the abundance of global liquidity before the financial crisis. Ree et al. (2012) pointed out that these maturity mismatches, combined with the large amount of banks' external debt, have brought about dollar squeezes when crises have occurred, and banks have suddenly faced rollover difficulties, forcing them to sell their securities to obtain dollars – the safe haven currency – despite the losses that result. This puts downward pressure on the Korean won. The depreciation of the won in turn sends negative signals about the Korean economy and can make banks' FX funding more difficult again. In summary, stresses in the on-shore FX funding market and the off-shore FX market feed each other.

Against this background, the foreign exchange authorities in Korea supplied dollar funds to banks during the global financial crisis in 2008, and introduced macro-prudential measures designed to address banks' wholesale funding problems and reduce their maturity mismatches.

² Importers in Korea usually feel no need to hedge their foreign exchange risk, as it is relatively easy to shift the additional costs onto customers in the domestic market. Hence, they usually participate in the spot market or the short-term (less than 2-week) forward market.

2.3 Institutional setup

Two administrative bodies are involved in Korean exchange rate intervention: the Ministry of Strategy and Finance (MOSF) and the Bank of Korea (BOK). These two institutions serve in partnership as the foreign exchange authorities. The Foreign Exchange Transaction Act (FETA) states that the MOSF has overall responsibility for the stability of the foreign exchange market and for foreign exchange policy, including market intervention. The BOK, under the Bank of Korea Act, also formulates foreign exchange policy in cooperation with the government (i.e. the MOSF).

The BOK, as the central bank, manages the nation's foreign reserves, consisting of the Foreign Exchange Stabilisation Fund and the BOK's own reserves. The Foreign Exchange Stabilisation Fund was established by the Korean government in 1967 and has been managed for the purpose of achieving foreign exchange market stability. As the legal administrator of the Foreign Exchange Stabilisation Fund, the MOSF makes overall decisions concerning its funding and operation. The operational details and ordinary management of the fund, however, are delegated to the Governor of the BOK. The BOK, in consultation with the MOSF, is also in charge of implementing the actual foreign exchange market interventions.

3. Objectives and tactics of foreign exchange intervention

3.1 Objectives of FX intervention

The main objective of foreign exchange intervention in Korea is to contain excessive exchange rate volatility. Large movements of foreign exchange rates have negative effects on a small economy like Korea's. Excessive exchange rate volatility increases economic participants' uncertainties as to costs and benefits, and thus has potential to lead to a decline in the nation's trade and investment. It is also known that inflationary pressures tend to increase when exchange rate volatility goes up, as companies facing uncertainties about future prices set product prices higher to forestall possible losses. We attempt to limit upward or downward pressures only when such pressures cause large volatility in the exchange rate or lead to speculative movements.

Another objective of intervention is to alleviate the FX funding shortages of banks, which have experienced severe dollar shortages, especially in periods of crisis. As noted above, an FX funding shortage puts depreciatory pressure on the Korean won and increases exchange rate volatility. When it is judged necessary, the Korean authorities provide dollar liquidity in the FX swap market to ease imbalances in the FX funding markets.

For several years after the currency crisis of 1997, the accumulation of foreign exchange reserves was one of the objectives of intervention. A strong stock of FX reserves helps to minimise external vulnerability and to increase confidence in the economy. Since a substantial amount of reserves has now been accumulated, however, our FX intervention is no longer designed with further accumulation in mind.

3.2 Basic strategy of FX intervention

The decision on when and how to intervene in the market depends upon the authorities' discretionary judgment rather than on any implicit rule. Many elements, such as the strength and nature of the external shock, the movements of other market indices, market sentiment, and the volume of funds available, are all taken into account in the discretionary decision-making.

In determining the timing of intervention, no comprehensive set of indicators is adequate in all situations for deciding whether intervention is necessary. Nor is there an economic model that reliably integrates all of this information in a form that indicates the degree to which intervention is needed. To make such decisions, the authorities monitor exchange rate developments and the various related conditions on a real-time basis. The conditions considered include, for example, fund flows of international investors as well as exporters and importers, liquidity conditions in the swap market, market positions, important technical levels, and so on. Meanwhile, actual intervention is based on developments at least being observed – not pre-emptively before the FX market shows reactions to certain events.

Similar considerations apply to the magnitude of the intervention. The domestic financial market situation, as well as the elements mentioned in the foregoing paragraph, must be considered when a high-volume intervention is carried out, since the domestic money market could be distorted in the sterilisation process, hindering the effect of FX intervention. When it comes to limiting excessive depreciatory pressures on the Korean won by using the foreign exchange reserves, we try to preserve an adequate volume of reserves, since too much of a reduction in reserves erodes confidence in the Korean economy, and hence accelerates depreciation.

As to the intervention tools used, direct interventions in both the spot and swap markets have been employed. Which instrument the authorities choose depends upon the objective of the intervention. Spot market intervention is usually preferred when the objective is to contain exchange rate volatility, and swap market intervention when the aim is to provide dollar liquidity in the market. The Bank of Korea began participating in the FX swap market in September 2007 in order to ease imbalances in the country's FX funding market. During the global financial crisis in 2008, the BOK also supplied 10.27 billion dollars to foreign exchange banks through swap transactions using a competitive bidding method. The bank at that time also provided 16.35 billion dollars through lending transactions, utilising a currency swap agreement with the U.S. Federal Reserve. We also use verbal intervention to give speculative forces warning by conveying the authorities' concerns and intentions related to foreign exchange market developments. Verbal intervention must be used limitedly, as its effects on the market will lessen if it is used frequently.

The Korean FX authorities do not publicly disclose any information related to intervention, because we believe that such information could stimulate speculative trading in the FX market. We thus intervene in the market through agents selected from among major banks. The Bank of Korea imposes a confidentiality requirement on these agent banks to maintain secrecy concerning intervention. As for the criteria used to select the agent banks, priority is given to institutions with the following characteristics: no danger of default risk, ability to provide the Bank of Korea with instant market information, and active role in the market.

4. Channels of intervention, and domestic consequences

4.1 Channels of intervention

Of the various channels for intervention, the signalling channel seems to be generally the most effective in Korea, by changing market participants' expectations about future exchange rates and intervention. Through the signalling channel, the Korean authorities give speculative forces warning and provide market participants an opportunity to rethink whether recent movements in the FX market are rational. The portfolio balance channel and the microstructure channel also sometimes work, depending upon the situation. The overall effects of intervention through all of these channels have become weaker than they were in the past as the size of the Korean exchange market has expanded. Meanwhile, there is no room for going through the monetary policy channel, because we fully sterilise any changes in the domestic money supply brought about by intervention.

4.2 Sterilisation in Korea

The Bank of Korea sterilises changes in its domestic money supply brought about by FX intervention, using market instruments for the purpose. The major sterilisation instrument for the Bank of Korea is issuance or withdrawal of Monetary Stabilisation Bonds (MSBs, Korean central bank securities). Deposit to / withdrawal from the Monetary Stabilisation Account and transactions in the repo market are also used to control short-term money market liquidity. Using MSBs can be a more effective way of adjusting changes in the money supply, as the impacts of the other instruments tend to reverse after a few days. However, sterilisation using MSBs is more costly, as long-term interest rates are usually higher than short-term rates. In cases where the government covers the expenses of intervention by using the Foreign Exchange Stabilisation Fund, sterilisation by the Bank of Korea using MSBs is not necessarily required, since the base money supply does not change.

4.3 FX intervention and monetary policy

Along with the change in the exchange rate regime in 1997, inflation targeting was chosen as the monetary policy framework to achieve the Bank of Korea's aim of price stabilisation. Given free movement of capital, the Bank of Korea sometimes has difficulties in achieving low exchange rate volatility while maintaining stable inflation. This is related to the impossible trinity theory argued by Mundell, which states that a country cannot simultaneously have perfectly free capital movement, a perfectly floating exchange rate and perfectly autonomous monetary policy. A recent conflict between FX and monetary policy occurred in mid-2011, when inflation rose to 4.7%, exceeding the central bank's target range ($3\% \pm 1\%$), while the Korean won was appreciating rapidly and exchange rate volatility was high. There was a possibility that a hike in the policy rate could lead to more capital inflows and thus accelerate exchange rate volatility. Meanwhile, if the Bank of Korea had tried to limit excessive exchange rate volatility by intervention to prevent additional appreciation of the won at that time, the action could have hindered the curbing of inflation, in that import prices would not have fallen without additional currency appreciation.

On the other hand, FX market intervention and monetary policy in Korea can sometimes be complementary. In the face of huge capital inflows and high inflation, for instance, the central bank faces a double bind. If it raises the policy rate to curb inflation, capital inflows will be increased. Inflation will, on the other hand, rise if the bank cuts the policy rate to limit capital inflows. In this case, intervention to absorb foreign currency in the FX market could reduce additional capital inflows without the need for a policy rate cut, by stemming the flows due to self-fulfilling expectations of currency appreciation, and by reducing deviation from the covered interest rate parity. Ostry et al. (2012) have also pointed out that FX intervention in certain circumstances may be an optimal instrument even under an inflation targeting regime.

5. Other recent foreign exchange measures and their effects

To fundamentally reduce the vulnerability of the Korean won, the Korean authorities have introduced strengthened macro-prudential regulations since 2010, such as limiting banks' foreign currency forward positions, re-introducing a withholding tax on foreign purchases of Treasury and Monetary Stabilisation Bonds, and imposing a macro-prudential stability levy on banks' non-deposit FX liabilities. These measures are aimed at improving foreign exchange market soundness by addressing banks' FX funding problems and reducing their maturity mismatches.

Since the adoption of these various measures, Korean banks' reliance on short-term FX funding has declined. Banks' external funding profiles have improved considerably, particularly at foreign bank branches whose short-term debt as a proportion of total external debt has declined steadily, from more than 90 per cent right before introduction of the regulations nearly to 60 per cent at the end of the third quarter of 2012. The amount of foreign bank branches' external debt has also decreased somewhat, although that of domestic banks has increased. Fortunately, USD/KRW exchange rate volatility has also generally diminished since 2010, despite several ups and downs, as banks' external funding profiles have improved. The volatility of the Korean won during the recent European sovereign debt crisis has also gradually lessened.

Have these improvements, then, been attributable to the Korean authorities' introduction of the various new regulations? Even though this is hard to measure, we think that the regulations adopted have played a role in improving the banks' external funding profiles, and thus affected the exchange rate volatility. For now, therefore, it can be said that these macro-prudential measures have helped to reduce the need for direct intervention.

We must, however, be cautious about jumping to conclusions. The improvements might have also come from changes in the environment surrounding the Korean FX market. First, the demand for medium- to long-term FX hedging, particularly by Korean shipbuilders, has declined in the face of a sharp global drop in ship orders. This has helped to reduce the amount of external debt and the liquidity mismatches of banks. On the other hand, offshore entities, including real money and sovereign investors, are increasingly replacing foreign bank branches as

investors in domestic bonds.³ As a result, the government's long-term external debt, which has relatively high solvency, has increased at the same time that banks' short-term debt has decreased. In addition, foreign banks and sovereign investors clearly have different investment objectives and horizons, and their responses to liquidity shocks are hence likely to differ, reducing herding behaviour in the capital markets. It seems that all of these changes have contributed to the recent improvement in the Korean FX market. Further research is needed to measure how much of the improvement has been attributable to the regulations we have adopted, and to verify whether the need for direct intervention has ultimately been reduced.

References

Ostry, Jonathan D., Ghosh, Atish R. and Chamon, Marcos, 2012, "Two Targets, Two Instruments: Monetary and Exchange Rate Policies in Emerging Market Economies", IMF Staff Discussion Notes, no 12/1.

Ree, Jack Joo K., Yoon, Kyoungsoo and Park, Hail, 2012, "FX Funding Risks and Exchange Rate Volatility – Korea's Case", IMF Working Paper no 12/268.

Rhee, Gwang Ju and Lee, Eunmo, 2004, "Foreign Exchange Intervention and Foreign Exchange Market Development in Korea", BIS Paper no 24.

³ The relative dominance of these two groups of investors as net buyers of domestic bonds has reversed since late 2009.