Speculative Attack and
Korean Exchange Rate Regime

December 2004

Prof. Ji Hong Kim*
KDI School of Public Policy and Management

The financial crisis in 1998 triggered arguments about the fundamental determinants of currency crises. It is generally found that a degradation of the fundamentals (the first generation) significantly increase the probability of a crisis, but this probability evolves sluggishly and the timing of a crisis is random. The relative disconnection between the dynamics of the fundamentals and the speculative attack is difficult to reconcile with a purely fundamentals-based theory of crisis, and several economist proposed the hypothesis of self-fulfilling speculation (the second generation). The occurrence of crises and their precise timing involve multiple equilibrium, but the latter can grow only on the fertile ground of deteriorated fundamentals. The third generation model adopts game theoretic approach and the currency crisis is contagious because the interplay of market participants’ belief matters, regardless of the economic fundamentals. Based on the three models, this paper compares the appropriate exchange regimes and recommends the optimal exchange regime and policy response of Korean economy faced the possibility of speculative attack.

JEL Classification: F33

Key Words: Exchange Rate Regime, Speculative Attack, Korean exchange rate

* JiHong Kim is a professor at KDI school of public policy and management.
Speculative Attack and Korean Exchange Rate Regime

1. Introduction

The informal pegging of Korean Won to the US dollar in the mid 1990s when the US$ appreciated is one of the backgrounds of Korean foreign exchange crisis. Attracted by the liberalization of capital movement, stability stemming from rigid exchange rates, and high domestic interest rates, foreign capital moved into Korea. With the loss of confidence in Korean Won, these funds were reversed, which required significant corrections in macroeconomics policies. Delayed adjustment invited speculative attacks and made exodus of capital. Faced with speculative attacks, Korean government had a short-term choice between defending the exchange rate and defending foreign exchange reserves. In 1998, Korean government argued that the economic fundamentals are robust and defended the exchange rate until they run short of foreign exchange reserves at the last moment, when Korean government gave up dollar pegging and switched to flexible exchange rate system. The result was an inability to defend neither the exchange rate nor the foreign exchange reserves.

This paper aims to discuss the appropriate policy response to the possibility of speculative attacks to Korea. Section 2 explains the alternative exchange rate systems. Section 3 and 4 reviews the research traditions on exchange rate regimes and on currency crisis. Section 5 discussed the speculative attacks and recommends the appropriate exchange rate regime for Korean government faced with speculative attack. Section 6 summarized the results.

2. Alternative Exchange Rate Regimes

There are continuous spectrums and layers of possible exchange rate regimes between two extremes of pure floating and fixed system. And there are various classifications of exchange rate regimes. For example, Edwards and Savastano (1999) listed nine alternative exchange rate regimes, ranking according to the degree of flexibility that they impart to the economy. They include 1) free float,
2) dirty float, 3) floating with band (target zone), 4) sliding band, 5) crawling band, 6) crawling peg, 7) fixed-but-adjustable exchange rate, 8) currency board, 9) full dollarization.

Bofinger and Wollmershaeuser (2001) identified three different forms of floating on the basis of a central bank’s intervention activities: pure floating (no intervention), independent floating (exchange rate smoothing), and managed floating (exchange rate targeting). They showed that the exchange rate is used as an operating target of monetary policy in addition to the short-term interest rate, and demonstrated how in an open economy a central bank has to set its two operating targets in order to achieve simultaneously internal and external equilibrium.

Williamson (2000) classified five alternative managed floating regimes as intermediate options between two extremes of pure floating and fixed system. First strategy is to buy reserve when the domestic currency appreciates and sell when it depreciates. Second is fixed but adjustable-under-market-pressure peg. Third alternative is to seek to defend an unannounced crawling band (quiet band advocated by Goldstein 1995). Fourth alternative is to operate an unannounced reference rate, tending to intervene with a view to depreciating the currency when it is stronger than unannounced target. A fifth strategy is to intervene only when the exchange rate had deviated by more then some threshold away form the unannounced reference rate.

Among various classifications, generally accepted classification is the IMF’s international financial statistic’s classification of exchange rate regimes, which adopts the following eight categories from the most flexible to least flexible systems:

1) Pure floating 2) Independent floating 3) Managed floating (no pre-announced path for exchange rate: the monetary authority actively intervenes without specifying or pre-committing to a pre-announcing the path of exchange rate) 4) Crawling bands (the currency is maintained within certain fluctuation margins around the central rate that is adjusted periodically in small amounts at the fixed, pre-announced rate or in response to the changes in selective quantitative indicators) 5) Crawling pegs (the currency is adjusted periodically in small amounts at the fixed, pre-announced rate or in response to the changes in selective quantitative indicators) 6) Pegged rates within horizon bands (formal or de factor pegged with margins wider that 1% around a central rate) 7) Conventional fixed peg arrangement (formal or de factor pegged with a narrow margin less than 1% around a central rate) 8) currency board arrangements 9)
3. Literature Review on Exchange Rate Regimes

At the cost of over simplification, the bipolar characteristics of flexible and fixed exchange rate regimes are discussed as follows.

1) Flexible Exchange Rate Regime

A standard argument for flexible exchange rate is that a small economy buffered by external shocks can use the exchange rate as a ‘shock absorber’, cushioning the economy against the full effect of the shocks (Mundell 1961). A flexible exchange rate acts perfectly as a shock absorber. In response to a negative world demand shock for a country’s products, under flexible exchange rates, the home currency will depreciate, and employment and output is perfectly stabilized. With a fixed exchange rate, on the other hand, a fall in world demand for a country’s product causes unemployment and a fall in output. Output is no longer stabilized under fixed exchange rates. A central pillar in the argument for flexible exchange rates relies on the idea that the exchange rate acts as an automatic adjustment device. Especially when there exist nominal wage rigidity and factor immobility, flexible exchange rates might be advisable to smooth out the international adjustment process. In other words, nominal exchange rate may play a useful role to allow for adjustment in the terms of trade. The flexible exchange rate is favored on the ground that it can be built-in-stabilizer of external balance. However, it has disturbing effects on international trade and capital transaction.

It is not easy to establish a divide between a flexible exchange rate and a fixed exchange rate in emerging economies. It seems that the case for greater flexibility has received a further boost from the recent crises in East Asia (Eichengreen and Masson 1998, Obstfeld 1995). After the crisis, it is believed that “a flexible exchange rate regime allows large adverse shocks to be more easily deflated or absorbed than a pegged or quasi-pegged exchange rate regime” (Mussa et al 2000).

Eichengreen and Hausmann (1999) took Australia as a country with
successful floating regime. Australia developed long-term debt market before it liberalized its financial markets. By building deep and liquid domestic markets in long-term domestic-currency-denominated securities, it can insulate itself from contagion effects.

2) Fixed Exchange Rate Regime

A fixed exchange rate regime is favored for guiding disinflation and for maintaining macroeconomic stability. In Latin countries, an exchange rate nominal anchor would generate a convergence between the inflation expectations. As the result of low credibility, the inflation prevailed and the effective exchange rate appreciated, which had negative implication on the export's competitiveness. In the case of negative external shock, the tightening of monetary and fiscal policies is inevitable, which shrinks economic activities and increase the unemployment. Political difficulty of this adjustment process may delay the adjustment, which will increase the vulnerability of the economy.

There are researchers who argue for fixed exchange rate regime for emerging economies from the recent crises (Dornbusch 2001, Devereux 2001, McKinnon 1998).

For example, Dornbusch (2001) advocated a hard peg such as a currency board and mentioned that from a perspective of inter-temporal optimization, most of the buffer should come from partial adjustment of consumption or investment and current account financing. In terms of the models used in new classical economics, the exchange rate can be used as a “fooling device” to create unexpected changes in real factor rewards, but that last only as long as expectations, wages, and prices cannot adjust. The devaluation has limited scope in labor markets, and increases costs in the capital market. A regime with the devaluation option translates into lower average equilibrium real wages compared to a hard peg.

By incorporating international financial market in the model with sticky wages, Devereux (2001) demonstrated that the fixed exchange rate regime may be welfare superior for countries subject to unpredictable shock to world demand for their goods. The international financial market allows residents of a country to engage in consumption risk-sharing, diversifying away some of the risk associated with unpredictable demand disturbances. He also pointed out three sources why adjustment of flexible exchange rate regime might not work: distortions in wage
setting, nominal wage rigidities, and absence of international risk-sharing. Under full risk-sharing, nominal spending and nominal income may differ, where the adjustment in the terms of trade to a demand shock is achieved by nominal price adjustment. Without risk-sharing, nominal spending equals nominal income, where nominal prices are unaffected by the demand shock and the exchange rate does all the adjusting. In the flexible exchange rate regime, employment does not respond to world demand shocks and the output is kept at its natural rate which is inefficient. By contrast, the fixed exchange rate ensures that employment and output do respond in the right direction and leads to more efficient allocation of resources. On the other hand, a fixed exchange rate is pro-cyclical, which means that there are output gaps; employment is above the natural rate in periods of high demand, and below the natural rate under low demand. When the elasticity of resource (labor) supply is high, fixed exchange rate is superior to flexible exchange rate.

3) Intermediate Exchange Rate Regime

Several literatures on exchange rate regimes emphasized the existence of important tradeoffs between credibility and flexibility (Frankel 1995, Edwards 1996, Krugman 1988, Coopers 1999, Edwards and Savastano 1999) and recommended intermediate regimes. Krugman (1988) pointed out that in the choice of optimal exchange rate regime, the tradeoff among three desirable attributes - adjustment, confidence, and liquidity - are important.

Coopers (1999) said that under fixed exchange rate, the autonomy of monetary policy and free capital mobility cannot be compatible.

Edwards and Savastano (1999) emphasized the existence of important tradeoffs between credibility and flexibility. A flexible exchange rate regime allows a country to have an independent monetary policy, providing the economy with flexibility to accommodate domestic and foreign shocks including changes in external terms of trade and interest. Alternatively, fixed exchange rate regime reduces the degree of flexibility of the system but impart a higher degree of credibility to policy making. Fixed exchange rate allows the economy to attain a lower rate of inflation. In fact, fixed exchange rates often fail to impose macroeconomic discipline and end up in major devaluation crises. For this reason, a number of analysts that favor credibility over flexibility increasingly argue that fixed exchange rate are a necessary, but not sufficient condition for achieving macroeconomic stability, and that additional
institutional constraints on policy makers have to be devised.

Frankel (1999) offered three traditional criteria in choosing the appropriate exchange rate regime: 1) exchange rate risk 2) nominal anchor question 3) independent monetary policy. First, he conjectured that most countries with managed floating system allow less short-term volatility than occurs with a free float and less occurs than under a band system as well. Second, only a fixed exchange rate can serve the nominal anchor function, and a crawling band can play the nominal anchor role if the path of the band were pre-announced. Third, floating system is consistent with an independent monetary policy, while the fixed system limits the freedom. A band system is consistent with a limited degree of independence. The critical question is how important the independence of monetary policy is for each economy.

Pastine (2001) introduced uncertainty and imperfect information to speculative attack and fixed exchange rate regime. Assuming a rational, forward-looking policy maker, he recommended the introduction of the uncertainty and supported nominal anchor policies in order to avoid speculative attacks.

Williamson (2000) recommended cooperative sterilized intervention later called a BBC(Basket peg, Band, Crawl) and a limited role for price-oriented capital controls, and proposed the active crawl which depreciate the domestic currency against the foreign currency (or basket of foreign currency) according to the inflation gap minus the productivity gap. He takes very cautious attitude toward exchange market intervention and preferred soft buffers of exchange rate.

Mishkin (2001) mentioned that although adhering to pegged exchange rate regime can be a successful strategy for controlling inflation and accompany lower risk for foreign investors and thus encourage capital inflows, it can be dangerous for an emerging economy with a large amount of foreign-denominated debt. Under a pegged exchange rate regime, the decline in the value of the domestic currency is much larger or rapid and more unanticipated than when under a floating exchange rate regime. When the bank supervisory process is weak, the government safety net for banking institutions creates incentives for them to take on risk, and the likelihood that a capital inflow will produce a lending boom is much greater. With inadequate bank supervision, the likely outcome of a lending boom is substantial loan losses and a deterioration of bank balance sheets and a possible financial crisis.

Assuming fixed social cost of intervention in foreign exchange markets,
Lahiri and Vegh (2001) build a model which incorporate three key frictions: an output cost of nominal exchange rate fluctuations, an output cost of higher interest rates to defend the currency, and a fixed cost of intervention. They reported a positive correlation between changes in the exchange rate and interest rates and a negative correlation between both changes in reserves and the exchange rate and changes in interest rates and reserves. The more open the economy, the stronger the case for fixed exchange rate, since the costs increase when frequent exchange rate adjustment are required. However, for an open economy which is vulnerable to external shock is better in mitigating foreign shocks with frequent adjustment in exchange rate.

Bordo and Flandreau (2001) pointed out that the periphery economies face the dilemma of either anchoring themselves to core countries or remaining out of integration with a volatile exchange rate. Core economies can be independent and have the luxury to free float, but peripheral economies who need the access to foreign capital are afraid to float. They need a hard peg to the core country currencies or resort to capital controls. The exchange regime of core countries and periphery countries are different because of financial maturity and the ability to issue international securities denominated in domestic currency. They argue that more open countries will end up either in a fixed exchange rate system or in a flexible one. While emerging economies have the opportunity to adopt intermediate exchange rate regime.

Vidale (2001) demonstrated how foreign exchange intervention may be instrumental in stabilizing the economy, reducing the volatility of employment and output, whenever there is uncertainty over the objectives of the policy makers. In particular, if private investors are uncertain of the motives of the policy makers, they possess an incentive to manipulate market beliefs. While simple announcements will generally lack credibility, this can be acquired when an expensive signaling mechanism is employed. He thought that foreign exchange intervention has signaling role, which helps stabilize the economy by reducing the volatility of the employment level.

Ryou and Kim (2001) pointed out that when capital account is fully liberalized, exchange rate stability is hardly able to coexist with the autonomy of monetary policy. The soft peg without a transparent rule of monetary policy would result in failure to gain credibility and in inducement of speculative attacks. In the modified model of Mundell, they argue that flexible exchange rate regime is desirable in the case of a
currency crisis because the flexible exchange rate can work as an automatic stabilizer. In the case of banking crisis, the fixed exchange rate regime is more desirable; this is because the credit crunch would cause interest rate to rise and the higher interest rate may induce capital inflows, which would alleviate the economic recession.

Calvo and Reinhart (2000), Levy-Yeyati and Sturzenegger (2000) have shown that many of emerging economies that had declared themselves as independent floaters in the IMF statistics were indeed heavily intervening on foreign exchange markets. In most cases floating means “managed floating”. Managed floating is another intermediate exchange rate regime which is different from flexible exchange rate in the sense that the central bank intervenes very often and also with high quantities on the foreign exchange market in order to target a path for the exchange rate. It is different from fixed exchange rate in the sense that the central bank does not announce its target path. There is no pre-commitment in the exchange rate policy. A completely discretionary exchange rate management is adopted. Exchange rate paths determined by a simple rule (fixed as well as pure floating) are always inferior to such discretion in exchange rate policy. They supported the managed floating which offers an integrated approach where the advantages of both corner solutions, namely control over the exchange rate and control over domestic monetary conditions, can be combined. Managed floating is a strategy where the central bank targets the exchange rate along a non-announced and adjustable path is exactly the optimum approach that is required to achieve internal and external equilibrium in a world of capital mobility. Managed floating allows conversion of inconsistency triangle in Mundell-Fleming model into consistency triangle with the three corners: capital mobility, an autonomously determined monetary composite index, and an exchange rate path that follows the interest differential.

Recently, Goldstein (2002) proposed the managed floating plus, where plus is shorthand for a framework that includes inflation targeting and aggressive measures to discourage currency mismatching. It can retain the desirable features of a flexible rate regime while addressing the fear of floating problems.

4. Literature Review on Currency crisis

The first intellectual framework for thinking about currency crises until the early 1990s was the speculative attack model developed by Krugman (1979) and Flood
and Garber (1984). This approach views currency crises as runs on foreign exchange reserves at central banks. The main contribution of this approach is to show that the run need not be ascribed to the irrationality of market participants, but in fact can be explained by the very rationality of their expectations. The main message of the speculative attack literature is that the reserve flight that happens during a currency crisis is provoked by rational arbitrage.

The speculative attack approach has yielded important insights on the anatomy of currency crisis, but proved to be less illuminating on the underlying causes. In most models the speculative attack is provoked by monetary or fiscal policies that are inconsistent with the maintenance of the fixed currency peg. A bad fundamental makes the devaluation inevitable.

The limitation of the first generation model regarding the underlying causes of currency crises became more frustrating after the EMS crisis of 1992-93. The EMS crisis raised a second theoretical challenge the nature of their relationship with speculation. While excessively expansionist monetary or fiscal policies may have been an issue in some countries such as Italy or Spain, they were clearly not in others, like France Great Britain. The credibility of the latter countries commitment to the ERM was eroded by the combination of mounting unemployment and the high interest rates imposed upon them by the German monetary unification shock. These factors not only increased the temptation to devalue and implement an expansionary monetary policy but also made raising the interest rate to defend the currency more painful. The first challenge to theorists was to develop a framework that would define the determinants of currency credibility in a board: and more holistic framework than the speculative attack approach. The speculation was not determined solely by the economic fundamentals, but that it is also was to some extent also self-fulfilling.

Thinking about these questions led researchers to develop a new strand of models that can be regrouped under the name of second-generation models. Under these models, the notion of fundamental is much more encompassing than in speculative attack models and in the limit can involve any variable that influences the policymakers’ decision whether or not to defend the fixed peg. In addition to “hard” observable fundamentals, such as unemployment or the trade balance, it included ‘soft’ fundamentals, such as the beliefs of the foreign exchange market participants on the more or less cooperative nature of the game that is played by the members of the fixed exchange rate arrangement, or the policymakers’ reputation.
In addition, the second-generation model provides a new theory of self-fulfilling speculation and multiple equilibrium. In the second-generation models, causality does not flow exclusively from the fundamentals to market expectations. Causality runs both ways and this circularity can generate multiple equilibrium. For example, an increase in devaluation expectation can become self-validating because it makes it more costly for the authorities to maintain the fixed exchange rate peg, by forcing them to raise the interest rate. Under these conditions, the authorities optimal policy may be to validate ex post the market expectation, i.e., devalue if markets expect a devaluation, or maintain the fixed peg if they don’t. Whether and when a crisis occurs is determined by the self-fulfilling mood of the market and is not necessarily related to fundamental development. The occurrence and precise timing of a crisis may be impossible to predict solely on the basis of the fundamentals, but the latter nevertheless plays a crucial role, to the extent that it is deterioration that makes the currency ripe for an attack.

The first-generation models are often defined as those in which the speculation is determined solely by the fundamentals, and the second-generation models as those where it can be self-fulfilling.

In the first generation model, the speculator’s problem is ballistic. It is determine the optimal time of running on the foreign exchange reserves, given an exogenous monetary trajectory. The second-generation model offers a more holistic view of currency crisis, in which each speculator has to figure out how the broad economic conditions, including the expectations of other speculators, influence the policy maker’s decision over the exchange rate. The devaluation is no longer the consequence of an exogenous reserve shortage but of the incentives with which the policymaker is faced when considering whether or not to devalue. In the first generation model, a sufficient condition for an attack is that the shadow exchange rate must be larger than the fixed parity.

In the second-generation model, one can also define the shadow exchange rate as the exchange rate chosen by the policy maker after he has opted out. However, a shadow exchange rate that is higher than but very close to the fixed parity does not trigger a crisis, because in that case the benefit of devaluing is too small to make for the fixed opting out cost. The shadow exchange rate must be far enough from the fixed parity for an attack to occur.

The Asian crisis in the 1990s has prompted some economists to call for a
‘third generation’ model of currency crises. In the Asian crisis some phenomena that were apparent before such as the link between banking and currency crises and the contagion of crises across countries, became exacerbated. The second-generation model adopts the view that currency crises should be analyzed in the context of a conflict between contradicting policy objectives. The Asian authorities were faced with a dilemma between the external objectives of defending their currency, which required high interest rates, and the internal objectives of preserving their banking sectors which required low interest rates.

The third generation model not only adds foreign price developments to the lost of fundamentals, but also helps us to understand the contagion of crises as a domino effect. The devaluation by one country constitutes a shock for the other members of the fixed exchange rate arrangement, which may induce them to devalue.

The crisis is difficult to predict on the basis of the observable economic fundamentals. The degradation of the fundamentals increase the probability of crisis, but this probability evolves sluggishly and remains low even in period when crises are observed, so that the timing of a crises involves a considerable element of randomness. One possible explanation is soft fundamentals such as the beliefs of market participants on the perceived health of the banking system or the political willingness to defend the currency.

Obstfeld (1996) described a game model in which high unemployment may cause an exchange rate crisis with self-fulfilling features. He showed how the coordination problem of traders leads to different equilibrium even when the economic fundamentals are the same.

In a recent paper by Morris and Shin (1998) presents a reduced-form version of the second generation model of currency crises, in which the cost of defending the currency depends on the number of speculators attacking the currency as well as an exogenous stochastic fundamental. Speculators receive heterogeneous noisy signals on the value of the fundamental. If the actions of individual speculators were publicly observable multiple equilibrium would arise. However, if the information is decentralized among atomic agents who base their decisions on their private noisy signals about the fundamentals, there exists unique equilibrium. In the real world, there are numbers of channels such as word-to-mouth communication, media-producing public information about the economy as well as the mood of market participants, and conceivably these media could be manipulated by large agents.
One feature often presented as essential in the Asian crisis is the connection between banking problems and currency instability. The relationship between banking and currency crisis is not a new phenomenon, but it is a very salient one in the Asian case. This has prompted some economists (Krugman 1999) to call for a “third generation” model of currency crisis because that would put at its core the nexus between financial fragility and currency crisis. It is widely acknowledged that the crisis-hit economies in Asia were made fragile by a liquidity mismatch between the asset side and the liability side in the balance sheet of the corporate sector. This made them vulnerable to self-fulfilling liquidity crises, which can be analyzed according to the same logic as bank runs in the model of Diamond and Dybvig. This is done by Chang and Velasco (1998) and Goldfajn and Valdes (1997). The latter authors stress the spillover effects between banking and currency crises. Deposits at domestic banks are part of the domestic liabilities that investors will attempt to convert into reserves in a currency crisis so that a run on the currency is typically associated with a run on the banking system. Conversely foreign investors running on the banking system for reasons unrelated to the currency will drain the foreign exchange reserves, inducing a currency crisis. Chang and Velasco present a model in a similar vein, but insist more on the multiplicity of equilibrium in banking and currency crisis, and their implications for normative analysis.

A critique of these models in the spirit of the escape clause approach would be that as in all speculative attack models, they do not take account of the various ways monetary authorities can defend the currency, in particular by raising the interest rate. The cost of raising the interest rate is that it further weakens the banking system through different channels, in particular by decreasing the price of the assets that serve as collateral on loans. An interesting direction of research is to incorporate these effects in models of banking and currency rates.

Crises have a tendency to propagate very quickly to neighboring countries and even distant unrelated emerging markets. A number of explanations on contagion have been put forward for this phenomenon. One explanation could be that the economies involved in the same speculative wave shared the same kind of macroeconomic weakness, or were hit by the same external shock. The recent but already large empirical literature on contagion suggests, however, that explanations in terms of common internal or external fundamentals leave large unaccounted international co-movements between crisis indicators (see Kaminsky and Reinhart, 1998, for a review). A third explanation is based on trade spillovers. One country's
devaluation gives incentives to devalue to countries that trade with it, or compete in the same third markets. The size of trade, however, does not suggest that trade links are large enough to be the main channel of contagion. Drazen (1998) discusses other mechanisms of contagion that involve what one might call “informational spillover”. A problem in one country leads investors to revise their beliefs on other countries that share the same unobservable fundamentals, or the same model of economic development or regulation. For example, to the extent that Thailand and other Southeast Asian countries were perceived to share the same model of close bank-firms relationships and the same weakness in banking supervision, a bank failure in Thailand was bad news not only for Thailand (and its creditors) but for the whole region. These fundamentals, argues Drazen, are all the more difficult to measure that they may involve commonalities in political systems and other “soft” variables. Finally, argues Masson(1998), “pure contagion” should be viewed as the consequence of multiple equilibrium. If the sunspot variables that coordinate market expectations are correlated across countries, crises are likely to erupt at the same time in different countries irrespective of the fundamentals-provided that the fundamentals lie in the zone of multiplicity in all countries. In other words, self-fulfilling crises have an inherent tendency to become systemic.

5. Exchange Rate Regime in Korea

The remaining question is which exchange rate regime is appropriate for Korea in the midst of changes of the international monetary system.

Generally speaking, the optimal choice of exchange rate regime is influenced by labor market flexibility, capital mobility, openness, inflation history, characteristics of the shocks (demand, supply, technology), size of shocks, production structure, and credibility. The criteria of choice are to prevent crisis and to minimize the variance of real economic variables when a country faces external and domestic shocks.

I recommend the managed floating exchange rate regime without announced target rate for Korea with the consideration on the following features of Korean economy.

First, the real terms of trade fluctuate significantly in Korea. A few items
accounts for a large share of Korean export. For example, five items (semiconductor, automobile, steel, electronics and petro-chemical products) accounts for around 50% of Korean export in the 2000s. And it has direct impacts on economic cycle and employment.

Second, the tradable manufacturing sector accounts for large share of employment, which is politically important. Therefore, the maintenance of export competitiveness is critical for political stability and current account balance.

Third, the export market is concentrated on a few markets. For example, three countries (US, Japan, EU) accounts for 44% of Korean export market in 2001. As the result, the fluctuation of exchange rate among three economies ($, ¥, £) has significant impact on Korean trade. Since major export products of Korea compete directly with those of Japan, it is advisable to minimize the fluctuation of ¥/Won exchange rate in order to remain competitive. It is advisable to link Korean Won more to Yen and less to US dollar.

Fourth, Korean labor market is not flexible and the nominal wages are sticky. The mobility of labor force is limited and the adjustment of nominal wage invites strong resistance. Without the adjustment of exchange rates, a large misalignment of exchange rate can be emerged.

Fifth, as the tenth largest trading economy, Korea faces high risk of retaliation from neighboring economies. Explicit announcement of reference rate and the deviation can invite the counter-act by the trading partners. Moreover, as a member of OECD, the control on capital account transaction is very difficult.

However, the managed floating is not free from the following shortcomings: The first shortcoming of managed floating is the limited ability of central banks to defend an exchange rate path in a situation of strong speculative attacks. Williamson pointed out that the lack of transparency along with a failure to provide stabilizing speculation is the inadequacy of managed floating, and he recommended a formal intermediate regime such as the reference rate with soft bands. Such a shock would require a policy-mix with high real interest rates that can lead to negative effects for the domestic sector of an economy. Second, under an uncoordinated managed floating, countries can manipulate the exchange rate in order to improve their international competitiveness, which can invite retaliatory action.
Third, because of lack of transparency, the success of managed floating regime depends on the good judgment of the authorities. Government officials find it attractive to be able to act without the threat of informed criticism or benchmark that can indicate their failure. Also they might be influenced by the political goals. Fourth, there is a weak relationship between macroeconomic fundamentals and a floating exchange rate. Empirical study does not find any systematic relationship between the volatility of exchange rates and the underlying fundamental volatility (Flood and Rose 1995).

Since 2001, Korean case seems to fall into managed floating where the authorities do not announce any objectives that would permit a judgment that they had succeeded or failed, but where they nevertheless have views about where the exchange rate ought to be. They announce no parity or band, but they worry if the rate depreciates a lot and they intervenes or change interest rates or seek to influence the flow of capital, with a view to having an impact on the exchange rate. Worry about the exchange rate appreciating as to threaten their trade competitiveness. Korean authority seems to target the achievement of both internal and external equilibrium. It seems that the exchange rate is used as operating target of monetary policy in addition to the short-term interest rate.

For the adjustment period of managed floating system, the authority faces the tradeoff between short-term volatility and the long-term misalignment. Volatility is the statistical measures of exchange rate movement. Misalignment means the departure from the fundamental equilibrium exchange rate (Williamson 1985). To avoid volatility in the managed floating system, the chance of misalignment increases, vice versa. The central bank with the tendency to limit short-term volatility will be periodically obliged to make large adjustment in response to market forces. Various factors (including change in external environments, the amount of reserves, and terms of trade) should be considered in the choice between volatility and misalignment.

The following policies are recommended in order to supplement the managed floating system in Korea.

First, long term Won-denominated debt market needs to be developed. By building deep and liquid domestic market in long-term domestic-currency-
denominated securities, Korean economy can insulate itself from contagion effects. Domestic financial markets can be deepened by the willingness of foreigners to lend at long-term maturity and of residents to save their money at home. It means reforming monetary and fiscal institutions in order to enhance the independence, transparency, and credibility of the policy-making authority.

Second, the enough foreign reserve level should be kept in order to buffer from the terms of trade shock. When the capital account is liberalized, the optimal foreign reserve level is higher than the opposite case.

Third, moral hazard is a problem in financial institutions because they can be leveraged and have limited liability when they expect the bailout by the government. Moreover, a pegged exchange rate is the implicit guarantee and can be a source of moral hazard. The moral hazard behavior of financial institutions should be discouraged with prudential regulations. A constructive ambiguity of managed floating system can limit the moral hazard behavior.

Fourth, there should be a good monetary policy discipline. Inflation targeting is a promising monetary policy framework and a better nominal anchor. It can prevent the pitfall of managed floating system. With publicly announced inflation target, it becomes less flexible for government to deal with large and sudden shifts in capital flows.

Fifth, the tradeoff between short-term volatility and long-term misalignment should be carefully reviewed periodically. When the fluctuation of reserve currencies ($, ¥, ₤) are significant, Korean Won needs to be adjusted accordingly.
Reference


Chung, C.S. and Yang, D.Y. 2000, Appropriate Exchange Rate Regime in Developing Countries: The Case of Korea, KIEP Working Paper No.00-08


Cooper, R., 1984, A Monetary System for the Future, Foreign Affairs 63(1), 166-84.

Corsetti, G., Pesenti, P., and Roubini, N., 1998, What Caused the Asian Currency and


Devereau, M., and Engel C., 2000, Monetary Policy in the Open Economy Revisited: Price Setting and Exchange Rate Flexibility, NBER Working Paper No.7665


International Monetary Fund, 2001, World Economic Outlook Database.

Korea Development Institute, 2000, The Korean Crisis: Before and After, edited by Inseok Shin.


Pastine, I., 2001, Speculation and the Decision to Abandon a Fixed Exchange Rate Regime, CEPR Discussion Paper No.2893


