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Introduction

Takatoshi Ito and Anne O. Krueger

Choice of exchange rate regime is a key policy variable for all countries. The exchange rate is the crucial variable linking the domestic economy to the international economy. An exchange rate that made exporting relatively attractive was clearly a key component of East Asian countries' rapid economic growth over the past several decades.

Yet recognition of the importance of the exchange rate regime is not sufficient to guide policymakers in their choice of regime. Policymakers can and do decide, at least in the short run, on the determinants of the nominal exchange rate. They can fix that rate in terms of a single currency or a basket of currencies, they can let the exchange rate float and let the market determine the exchange rate, they can determine a rule by which they will adjust the nominal exchange rate (when, e.g., the domestic rate of inflation exceeds the international rate), or they can follow some combination of these policies.

But other policies—monetary and fiscal policy which determine the rate of inflation, the degree of capital controls which affects the supply and demand for foreign exchange, and protection and the height of tariffs—all affect the way the exchange rate operates and influence the "real exchange rate." While in the short run, authorities might set a fixed nominal exchange rate despite rapid inflation, in the longer run, such an exchange rate cannot be maintained unless either the inflation rate is sharply reduced or exchange controls are imposed. Market determination of the price level ensures that the real exchange rate cannot over the longer term be determined solely by choice of a nominal exchange rate at the existing price level.

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Broadly speaking, in the longer run, there are three alternatives. Under the first alternative, the nominal exchange rate can be fixed and monetary and fiscal policy can then be tightened or eased as the balance-of-payments position of the country deteriorates or improves. In that case, the domestic price level is adjusted (through monetary and fiscal policy) to achieve the real exchange rate appropriate to the country's international position.

Under the second alternative, the nominal exchange rate can float and monetary and fiscal policy can be used to achieve domestic economic objectives. If domestic price stability were achieved, of course, the nominal exchange rate could remain fairly constant, unless significant external shocks warranted a change in the real exchange rate.

Under the third alternative, exchange controls are used to contain demand for foreign exchange to available supply. In this policy regime, the nominal exchange rate loses much of its function as a signal for resource allocation; overvaluation of the real exchange rate (relative to the rate that would clear the foreign exchange market without exchange control) tends to discourage exports and to lead to increasingly protectionist measures.

Until recent years, most developing countries—except those in East Asia—chose the third alternative and attempted to grow through "import substitution," which entailed heavy protection for domestic industries. East Asian countries instead chose various nominal exchange regimes that maintained a real exchange rate for exports that resulted in rapid growth. In Korea, for example, the exchange rate was floating during the latter half of the 1960s and frequently adjusted to account for inflation differentials until the mid-1980s. Only when inflation was reduced to a rate similar to that of internationally traded goods was the nominal exchange rate maintained at a relatively constant level.

While it became evident that the third alternative—exchange controls and heavy domestic protection—was inconsistent with good growth performance, experience also demonstrated that inflation itself had costs for economic growth. As that was recognized, some countries began using the fixity of the nominal exchange rate as a policy device to bring down the domestic rate of inflation. That policy, too, has its costs, and it has raised significant questions, especially since Mexico was forced, at the end of 1994, to abandon the policy and undergo a massive devaluation.

While questions have arisen about the linkages between exchange rate regimes, growth, and inflation, East Asian and other countries are liberalizing their capital accounts and removing remaining tariffs and other barriers to trade. Issues arise as to appropriate exchange rate policy in these circumstances. Moreover, for East Asian countries other than Japan, important issues arise with regard to their choice of peg or currency basket, given the importance of both yen and dollar transactions.

At the seventh annual NBER–East Asia Seminar on Economics, questions regarding nominal and real exchange rate behavior, inflation, and economic

growth were considered. This volume contains the papers presented at that conference, as well as discussants' comments on them.

The first group of papers examines the cross-country behavior of exchange rates, capital flows, and financial crises. The paper by Sebastian Edwards contains an analysis of the reasons why the authorities choose alternative exchange rate regimes. Edwards uses a model in which there is a trade-off between inflation and unemployment targets and the authorities are choosing the exchange rate regime to minimize their losses given the relative costs they associate with inflation and unemployment. A flexible exchange rate regime results in higher inflation rates but smaller unemployment (or growth) losses, whereas a fixed exchange rate reduces inflation but at the cost of more unemployment. Edwards also modifies the analysis to take into account regimes in which the exchange rate is fixed but is then altered when growth-unemployment costs of the fixed exchange rate regime mount to unacceptable levels. In that instance, the authorities incur political costs in altering the exchange rate.

Edwards then implements his model empirically. He shows that the choice of exchange rate regime depends on the history of political instability: more unstable countries have, all else given, a lower probability of selecting a pegged exchange rate regime. Capital controls also seem to accompany pegged exchange rate regimes.

The second paper, by Eichengreen and Rose, uses panel data over a 30-year period from the OECD countries to test the extent to which financial crises are contagious across countries. Financial crises are defined as large changes in exchange rates, interest rates, or foreign exchange reserves. Even after the effects of macroeconomic fundamentals have been controlled, a crisis in one country is shown to increase the probability of a crisis in another country. The paper attempts to specify different channels of contagion through the strength of trade linkages and macroeconomic similarity. Contagion appears to spread more easily to countries that are closely linked through trade than to countries with similar macroeconomic circumstances.

Milesi-Ferretti and Razin present a paper that addresses some key questions for policymakers: What determines a country's susceptibility to a sharp reversal of capital flows? Is the composition of capital flows important in determining sustainable current account balances? And, finally, what factors have contributed to the vulnerability of developing countries to capital flow reversals? Here the authors consider such factors as the goodness of macroeconomic policy and the level of real interest rates. They start by developing a model of intertemporal solvency, defining a theoretically sustainable current account situation. They then consider episodes in particular countries in Latin America (Chile, Colombia, Mexico) and in East Asia (Korea, Malaysia, Thailand) in the 1980s and 1990s. Based on their findings across countries and in the two decades, they conclude that a large number of macroeconomic and structural factors contribute to the likelihood of an external crisis and believe that there is no single factor that can be cited as dominant.

The second group of papers examines the behavior of real exchange rates for various countries. The behavior of the real exchange rate, of course, depends on the domestic price level as well as the nominal exchange rate. But in the longer term, economists believe, the equilibrium real exchange rate will prevail. One of the best known empirical hypotheses in the literature is that of Balassa and Samuelson: they noted that as countries' per capita incomes rise, purchasing power in domestic currency tends to fall. That is, a dollar's worth of a currency from a poor country will buy more in that country than a dollar's worth of a rich country's currency will buy in that country.

The paper by Ito, Isard, and Symansky tests the Balassa-Samuelson hypothesis, interpreted in a growth context. Ito et al. note that since rapid economic growth implies rising real incomes, there should be more real exchange rate appreciation in richer countries because of the differential in productivity growth between traded and nontradable sectors. Ito et al. use data for the APEC countries for the period 1973–92. They find that Japan, Korea, and Taiwan all experienced real exchange rate appreciation, in accordance with the Balassa-Samuelson hypothesis. However, Hong Kong and Singapore experienced only very moderate real exchange rate appreciation despite their rapid growth, while other rapidly growing countries—Thailand, Indonesia, and Malaysia—did not experience real appreciation. In the cases of Hong Kong and Singapore, rapid growth in the service sector may account for the failure of exchange rates to appreciate more than they did. However, closer examination of the components of the real exchange rate leads Ito et al. to conclude that there is no uniform pattern for the movement of nontradable prices relative to tradables, and that tradable prices, at least for most of the APEC countries, do not show international arbitrage.

In his paper, Jeffrey Sachs sets forth and tests the hypothesis that differences in Asian and Latin American experiences with real exchange rates are related to differences in their resource endowments. The labor-abundant developing countries of East Asia have tended to export manufactures, while land- and resource-abundant Latin American countries have tended to export agricultural and mining products. Theory suggests that resource abundance will result in a high price of nontradable goods, thus leaving a more appreciated real exchange rate and squeezing out manufacturing production. That, in turn, will lead to slow growth. In the longer run, real depreciation will stimulate more rapid growth of labor-intensive, manufacturing, industries. Sachs finds confirmation of his hypothesis in the data.

The Lin paper examines real exchange rate movements from the demand side. Lin first develops several alternative models with three goods (exportables, importables, and nontradables) and suggests several possible reasons why purchasing power parity might not hold. For each reason, the testable implication for real exchange rate behavior is developed. One particular hypothesis of interest is that the currency of the country with more rapid consumption growth will experience real appreciation. Empirical estimates, using his mod-

els, are formulated in the context of time-series data. Exchange rates of Korea relative to Japan and of Taiwan vis-à-vis the United States are tested for cointegration. Lin found among other things that the exchange rate did not stay stationary, mainly due to the trend behavior of the yen. A hypothesis of convergence of real consumption among these countries was also rejected.

The next group of papers considers particular issues of relevance to East Asia. In his paper, Takagi examines the behavior of exchange rates of Asian developing countries over the period 1980–95 in an effort to ascertain how different East Asian countries resolve the dilemma over the weights given to the dollar and to the yen. He finds that the weight of the yen has increased in the determination of the nominal exchange rates of Korea, Singapore, and Malaysia. The real exchange rates of the Thai baht and the Indonesian rupiah vis-à-vis the yen seem to be stable. For Korea and Malaysia, the authorities seem to react asymmetrically to yen appreciation and depreciation relative to the dollar: when the yen depreciates they appear to be anxious to maintain their relationship with the yen, while when there is yen appreciation they tend to stay with the dollar. This would suggest that they are very sensitive to the competitive position of their products relative to Japanese substitutes.

One of the key issues in analysis of exchange rates is the extent to which changes in exchange rates and foreign prices are "passed through" to domestic prices. Wang and Wu study this issue in their paper by examining behavior in the Taiwanese petrochemical industries during the period of currency appreciation from 1987 to 1992. They find that pass-through pricing was not evident in those industries despite the sharp appreciation of the New Taiwan dollar. This result would tend to suggest that, at least in the short run, exchange rate changes may not be reflected in domestic prices.

The final set of papers focuses on macroeconomic aspects of exchange rates in individual East Asian countries. Three examine aspects of Korea's exchange rate behavior. The first paper, by Sang-Woo Nam and Se-Jong Kim, examines Korean exchange rate policy in the past and the movements of the real exchange rate. When the Korean won moves with the U.S. dollar, Korean export industries benefit or suffer depending on whether the dollar-yen exchange rate is depreciating or appreciating. Nam and Kim also conduct a counterfactual simulation analysis of what would have happened under two alternative exchange rate regimes: in the first, a nominal peg to the U.S. dollar is maintained; in the second, the real exchange rate is maintained constant with respect to a basket of currencies. Nam and Kim conclude that exports and investment might have improved their performance if the policy of pegging to a real basket (with weights derived from the relative elasticities of demand) had been followed.

In his paper, Stanley Black considers the major factors influencing Korean policy with respect to the exchange rate. Of particular importance for Korea, with its history of inflation, was the extent to which monetary policy should be targeted at the external sector or at the domestic rate of inflation. However,

as Korea undergoes financial liberalization, that may significantly influence the demand and supply for foreign goods and assets in real terms, and it is difficult to anticipate the net effect on the real exchange rate. Although the Korean won has appreciated fairly steadily, Black argues that further real appreciation is probably not warranted because further appreciation would accelerate the shift of Korean firms' production to other Asian countries, which in turn would increase Korean purchases of Japanese machinery.

The third paper, by Cho and Koh, attempts to assess the likely effects of liberalizing capital flows on the Korean economy and evaluates the desirable time path of liberalization in that light. Cho and Koh first show how capital market liberalization has proceeded to date in Korea, examine the behavior of capital flows and interest rate differentials, and analyze how the exchange rate has responded. They then proceed to simulate the time path of key variables under alternative capital account liberalization scenarios: sudden ("big bang") liberalization and gradual liberalization.

Two papers examine exchange rate behavior in Japan. In their paper, Okazaki and Korenaga describe and analyze the Japanese foreign exchange "allotment policy," a quota system of foreign exchange that was used during the early years of Japanese reconstruction and development. The yen was overvalued, but the exchange rate was fixed, and the quota system used administrative means to allocate scarce foreign exchange. Okazaki and Korenaga show that being allotted foreign exchange was equivalent to winning a "prize" for successful exporting in a MITI-sponsored "contest."

The McKinnon, Ohno, and Shirono paper examines the factors that contributed to the long-run appreciation of the yen against the U.S. dollar. Trade tensions placed pressure on Japan to permit its currency to appreciate. However, deflationary policies of the Bank of Japan were also a contributing factor. There was then a vicious circle: there were large current account surpluses, which in turn led to pressures on the yen to appreciate but also increased trade tensions. But McKinnon et al. note that it was investment-savings balances, independent of the yen-dollar rate, that were fundamentally at work in affecting the Japanese current account balance.

For Taiwan, Wu examines the determinants of the real exchange rate. She first demonstrates that purchasing power parity did not hold. She then uses time-series analysis to show that shocks in the exchange rate, in domestic prices, and in foreign prices all resulted in permanent rather than temporary changes. Differential productivity growth in the nontraded and traded sectors in Taiwan (relative to the United States) also led to permanent changes in the real exchange rate.

In their paper, Kwan and Lui consider the experience of Hong Kong's currency board. They discuss the historical background of Hong Kong's currency board and then attempt to identify the structure of responses under the flexible exchange rate that was in effect from 1974 to 1983 and under the currency board system during which there was a "linked exchange rate," in effect since

1983. They associate temporary shocks with demand shocks and permanent shocks with supply shocks (such as productivity or oil price increases). They show that much of the difference in performance during the two exchange rate regime periods was attributable to differences in the structure of shocks, although they give the currency board credit for relatively good performance. They believe that output growth was reduced somewhat, but inflation was also significantly reduced. They attribute much of Hong Kong's good macroeconomic performance to government fiscal constraint, which was relatively constant across the two periods.

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