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Introduction to Part II

The International Seminar was established in 1978, early enough to catch the first wave of academic research stimulated by the breakdown of the Bretton Woods system in 1971 and the shift in early 1973 to a flexible exchange rate system. The point of departure for much of this research was the distinction between a fixed exchange rate system like Bretton Woods, in which inflation is transmitted from a large country like the U.S. to other nations that are forced to import inflation unwillingly, and a flexible exchange rate system that allows individual nations to uncouple their inflation rates and pursue independent monetary policies. In the paradigm presented by such longtime advocates of flexible exchange rates as Milton Friedman, nations with different degrees of aversion to inflation could go their separate ways, and the exchange rates of the inflation-prone countries would steadily and smoothly depreciate relative to the currencies of the inflation-averse nations. And, while nominal exchange rates would change to reflect inflation differentials between countries, real exchange rates would remain stable and real trade would proceed unhampered by the jarring one-step devaluations forced on inflation-prone countries that ran out of international reserves under the Bretton Woods system.

However, the first few years after 1973 exposed a reality that contrasted sharply with the paradigm of the flexible rate advocates. Exchange rates turned out to be highly volatile, and since nominal exchange rates varied far more than the inflation differential between countries, real exchange rates were volatile as well. Far from insulating real trade flows and domestic real activity from international monetary disturbances, the flexible exchange rate system proved to be highly disruptive. The U.S. economy overheated in 1978–1979, partly in response to the weak dollar, while the 50 percent real appreciation of the dollar between 1980 and early 1985 decimated U.S. exports and U.S. manufacturing output, leading to the popular evocation of the American industrial heartland as the 'rust belt'. Following 1985 the dollar returned roughly to its 1980 level, and the cycle of expansion in exports and manufacturing was repeated.

The volatility of real exchange rate movements provides the central theme for Part II of this volume, as well as the setting for three other subsidiary themes. First, the disruptive effects of real exchange rate volatility has led to a search for intermediate exchange rate systems that combine the best

features of fixed and floating rates. Second, partly in response to the role of U.S. fiscal deficits in the 1980–1985 appreciation of the dollar, the volatility of real exchange rates has led to interest in using international policy coordination as a substitute for, or as a part of, an intermediate exchange rate system. Third, within Europe the formation in 1979 of the European Monetary System (EMS) combined an ongoing political process toward economic and monetary unification with a desire to move away from volatile exchange rates at least part of the way toward the ultimate objective of a common currency.

The first paper in Part II, 'The Collapse of Purchasing Power Parities during the 1970s' by Jacob Frenkel, has become a classic statement of the breakdown of the ideal Friedman paradigm in which exchange rate movements would mainly reflect differential inflation rates. Frenkel calls attention to the surprisingly loose relationship between price levels and exchange rates during the first decade of floating. Not only did short-run changes in exchange rates bear little relationship to short-run differentials in national inflation rates, but also divergences from purchasing-power parities (PPP) were cumulative.

Frenkel's empirical work contrasts the experience of the 1920s and 1970s for the bilateral exchange rates between the dollar and the British pound, French franc, and German mark (and also for various cross-rates among the pound, franc, and mark). He finds that PPP held up relatively well in the 1921–1925 period and that policies which affected the trend of domestic relative to foreign prices also changed the exchange rate in the appropriate direction by roughly one-to-one. The results for 1973–1979 differ completely – the slope coefficients relating exchange rate movements to inflation differentials are often insignificant or wrong-signed, and the equations are unstable across variations in specification.

To explain these results, Frenkel argues that exchange rates, like other asset prices, have been much more volatile than national price levels because they are more sensitive to expectations about the future. Exchange rates are forward looking, while national price levels are backward looking, due to the sluggish adjustment of wages and prices. Thus, during periods that are dominated by events that alter expectations, departures from PPP are likely to be the rule rather than the exception. To explain the greater divergences from PPP in the 1970s than in the 1920s, he points to the large number of shocks that caused sharp changes in expectations, including the oil embargo, supply shocks, commodity booms and shortages, shifts in the demand for money, and differential productivity growth. In drawing policy implications from his analysis Frenkel opposes policies of intervention in foreign exchange markets that attempt to force exchange rates to conform to PPP levels, and instead favors actions to minimize costly and unnecessary variations in exchange rates through the adoption of more stable and predictable policies.

Theoretical work has pointed to exchange rate 'overshooting' as an important component of real exchange rate volatility. Part of this theoretical contribution is provided by Willem Buiter and Marcus Miller in the next paper, 'Real Exchange Rate Overshooting and the Output Cost of Bringing Down Inflation.' To understand the overshooting phenomenon, imagine that country A and B initially have the same real interest rate, say 3 percent. Now A shifts to a tighter monetary policy, boosting its interest rate to 6 percent. With international capital mobility, why would anyone hold the securities of country B? This would occur only if the currency of A were expected to depreciate by 3 percent per annum in the future. To achieve this, the A currency must appreciate instantly at the time of the monetary tightening by enough to achieve the expected depreciation in the future. If the 3 percent depreciation were expected to last for 10 years, for instance, the currency of A would appreciate by 30 percent at the time of the policy shift, thus overshooting its value based only on fundamentals like inflation differentials (which are assumed to be zero in this example).

Buiter and Miller examine the implications of overshooting for the effects of deflationary monetary policy, using the 1979–1981 strategy of the Thatcher government as their main example. They stress that any appreciation of the home currency subsequent to an announced reduction in monetary growth is essentially due to the presence of non-classical rigidities in price and wage determination. In the long run, the real exchange rate is independent of the rate of monetary growth, that is, PPP holds. Any short-run appreciation thus constitutes overshooting, and would not occur if prices and wages adjusted instantaneously to the announced change in policy.

The link between the two parts of the Buiter–Miller paper, overshooting and the output cost of bringing down inflation, comes about because an exchange appreciation reduces the relative price of imports, and this acts to reduce the inflation rate and raise the growth rate of real output for any given growth rate of nominal output (just as would a beneficial supply shock like a bountiful harvest or reduction in the relative price of oil). However the authors then provide a demonstration, which they support with rough quantitative calculations based on U.K. parameters, that the additional reduction in inflation obtained by a managed appreciation of the home currency is only a transitory benefit. If it initially rises above its equilibrium level, the real exchange rate must eventually return to that level, causing inflation to be higher later than it otherwise would have been. The cumulative tradeoff between inflation reduction and output loss is thus unaffected by the path of the exchange rate. In all except timing, a stringent monetary policy so designed as to leave the real exchange rate unaffected would have results equivalent to those of a more dramatic unilateral policy.

Following the Frenkel analysis of the causes of real exchange rate volatility, and the Buiter–Miller study of some of its effects, we turn to two types of

remedies, and these are intermediate exchange rate systems viewed from a global perspective, and the specific workings and effects of the European Monetary System. The third paper in this section by Marcus Miller and John Williamson, 'The International Monetary System: An Analysis of Alternative Regimes,' examines the relative implications for global price and output stability of three systems. These are free floating, specific agreements to stabilize *nominal* exchange rates (a proposal advocated by Ronald McKinnon), and agreements to stabilize *real* exchange rates (as advocated by John Williamson).

The analysis is conducted in the context of a simple Dornbusch-type, symmetric, two-country world model. McKinnon's proposal is represented as the fixing of nominal exchange rates and the targeting of the global price level. Williamson's proposal is represented as fixing real exchange rates and the use in each country of fiscal policy to target nominal income growth. In both proposals the targeting of something other than the money supply is aimed at the avoidance of shocks to velocity while retaining the monetarist principle of controlling a nominal variable in order to avoid an acceleration of inflation. Both stochastic disturbances are assumed, and the authors analyze the steady-state variances of global prices and global output under alternative systems. They make assumptions regarding the values of the half-dozen parameters of the model and proceed to make numerical calculations of the resulting variances.

These calculations, summarized in Table 5 of their concluding section, show that the effectiveness of the proposals depends on the nature of the shocks. In the case of demand shocks the two proposals 'trade off' the variances of prices and output, as the targeting of the price level by the McKinnon proposal reduces the variance of the price level at the cost of a higher output variance. The authors also show that a regime of free floating with a money-supply target can closely approximate the price and output variances of the McKinnon proposal. Obviously the latter conclusion depends on the amount of overshooting that occurs with the particular model in a free-floating regime; here the authors assume a minimal amount of overshooting.

In the next paper, 'The Advantage of Tying One's Hands: EMS Discipline and Central Bank Credibility,' Francesco Giavazzi and Marco Pagano examine the effects on central bank behavior of a specific exchange-rate regime, the fixed-rate European Monetary System (EMS). They set the stage for their study by noting an asymmetry of the EMS, in which inflation-prone countries periodically realign their currencies in order to counter the loss of competitiveness caused by their high inflation rates. While one would expect in this system movements of the real exchange rate between realignments, and then a return of the real exchange rate to equilibrium upon realignment, in fact the inflation-prone countries have not devalued sufficiently to restore the

initial real exchange rate. Why, then, would an inflation-prone country join the EMS if it is likely to imply a trend of real appreciation over time? The authors argue that the answer must be the effect of the EMS on the 'incentive to inflate' of the monetary authority, which now must face the consequences of a trend real appreciation that would not exist under freely floating rates.

Giavazzi and Pagano treat the EMS exclusively as a form of precommitment about macroeconomic policy. Adherence implies that the new entrant agrees to raise inescapably the cost to itself of inflationary surprises by denying itself the possibility of offsetting through currency depreciation the loss of competitiveness which they imply. When the country is outside the EMS on its own its monetary authority has an ill-starred incentive to reduce the value of the public debt and raise output via unanticipated inflation. This incentive is ill-starred, because the public knows it and therefore thwarts it and also systematically raises its long-run expectation of inflation. By accepting in advance to bear an additional cost of unanticipated inflation, the monetary authority offsets this distortion, enhances its credibility, and thereby lowers the effective cost of inflation reduction. The conditions under which that calculus is favorable to joining the System are worked out in a small model in which the monetary authority maximizes an objective function of inflation and output, subject to the typical macroeconomic constraints of an open economy. The authors find that the result is often favorable to 'tying one's hands.'

At the background of most theoretical explanations of exchange rate volatility and overshooting is the assumption of perfect capital mobility. In the final paper in this section Martin S. Feldstein in "Domestic Saving and International Capital Movements in the Long Run and Short Run" raises questions about the interplay between international capital mobility and the autonomy of national macroeconomic policy. Are national capital markets so thoroughly permeable that they can be regarded as indistinguishable sources and uses of funds in a world market in which rates of return are systematically equalized internationally? Or, on the contrary, is the flow of capital as it moves across national boundaries sufficiently viscous for changes in national supply and demand to have persistent effects on national real interest rates?

Feldstein's paper emphasizes the long-run aspects of the question and examines the implications of international capital mobility for medium-term policies. If international capital flows were infinitely elastic, authorities in small- and medium-sized coutnries could not increase the supply of funds for national investment by any independent actions of their own. Only global agreements in which all parties acted in concert could effectively increase the supply of funds available for investment. In contrast, from the perspective of a large country like the United States, perfect capital mobility acts as less of a constraint on longrun policy, because its sources and uses of funds are such a

large share of the total world supply and demand that, even acting alone, it could substantially alter global market conditions. Perfect capital mobility would nonetheless have important consequences for the United Sates, for it would imply that national policies pursued by U.S. authorities have major, direct consequences for the rest of the world and that feedback from the rest of the world influences the way in which these policies bear their fruit.

In this paper Feldstein presents an array of tests of the hypothesis of perfect international capital mobility based on cross-country differences of national rates of saving and investment in seventeen OECD countries. He develops a simple model of domestic saving, domestic investment, and net foreign investment in an open economy in the long run, and shows that, under certain circumstances, perfect capital mobility would imply zero correlation across countries between national rates of saving and investment. Using data on five-, ten- and twenty-year averages of these rates between 1960 and 1979, he then demonstrates that this correlation is closer to one than to zero. Feldstein concludes that the evidence rejects the hypothesis of perfect capital mobility and suggests that, in the post-OPEC period, a dollar of sustained increase in domestic saving increased domestic investment in the average OECD country by roughly 85 cents. The implication is that autonomous changes in domestic policy matter, and, for instance, a move toward a fiscal surplus directly increases the supply of national saving available for investment and does not entirely spill over abroad in the form of a reduction in foreign borrowing (or increase in foreign lending). [1]

[1] The Feldstein approach is controversial, and his finding of minimal capital mobility from evidence of highly correlated saving and investment rates seems to conflict with the widespread belief that capital mobility is high and has been growing. For a set of references on more recent work on this controversy, and an approach which measures the extent of capital mobility from forward exchange rate data, see another ISOM paper not included in this volume by Jeffrey A. Frankel and Alan T. MacArthur, 'Political vs. Currency Premia in International Real Interest Differentials: A Study of Forward Rates for 24 Countries, "European Economic Review, Vol. 32, no. 5 (June 1988), pp. 1083–1114.