

# VIII

## Summary and Conclusions

The objective of this paper has been to consider the various ways in which exchange rate variability might have an impact on international trade flows; to present various measures of exchange rate variability, both across countries and over time; to discuss tests of the link between trade and exchange rate variability, where appropriate extending the results of published studies into a more recent period; and finally to interpret the implications of the results. The consideration of what constitutes an "appropriate" exchange rate and what are the consequences of a rate that remains at a "wrong" level have been deliberately left outside the ambit of the study. The paper also has not attempted to make policy recommendations concerning measures to reduce exchange rate variability or offset its consequences.

In principle, exchange rate variability can affect trade directly, through the willingness of economic agents to enter into particular transactions, and indirectly, through the effect of exchange rate movements on the pattern of domestic output and investment and the induced policy reactions of the authorities. Direct effects can work through (i) the cost imposed by greater uncertainty in the relationship between production costs and sales returns, when both are expressed in a common unit, and (ii) the adjustment costs of shifting resources between different occupations in response to transitory shifts in comparative advantage. The consequences of these costs can be to reduce the volume and distort the pattern of international trade.

Indirect effects on trade can occur if exchange rate variability results in a shift in the pattern of domestic output and investment that in turn influences the international pattern of comparative advantage and the willingness to engage in international trade. Such effects might include a tendency to favor the production of nontraded goods over traded goods, a tendency for undue concentration of output in particular enterprises or geographical locations, and a reduced level of investment, particularly in traded goods industries.

Exchange rate variability can potentially affect trade through the induced policy reactions of the authorities. If it adds to inflationary pressures at a given level of output and employment, it may induce the authorities to adopt more accommodative policies, and the resultant inflation may worsen the climate for sustainable expansion in

trade and output. A similar effect could work if countries had a systematic tendency to intervene on the foreign exchange markets more forcefully when their currencies were appreciating than when they were depreciating. This would tend over time to lead to increased reserves and, if not offset by sterilizing monetary policy, to upward pressure on the growth of the money supply.

The paper discussed a variety of possible measures of exchange rate variability in the light of the possible transmission mechanisms linking exchange rate movements and trade. It was pointed out that trade transactions are financed in a variety of different ways and are therefore subject to different types of uncertainty. Short-term instability in the nominal exchange rate is relevant for traders undertaking individual transactions in which the purchase price in the exporting currency and the selling price in the importing currency are known in advance. Such individual transactions are perhaps the exception rather than the rule in international trade, and in any event evidence suggests that the uncertainty involved can be hedged against (in forward markets) at relatively small cost. It is more common for an importer's or exporter's involvement in foreign trade to extend over a longer period and to involve a sequence of transactions rather than a single purchase or sale. In such a case, the law of large numbers will make short-term fluctuations in exchange rates self-canceling, and exchange rate instability is more likely to affect transactions when it involves exchange rate movements that are only reversed over a somewhat longer period. Uncertainty is also more likely to arise from movements in the "real" exchange rate, that is, divergences between nominal exchange rate movements and movements in relative costs and prices in the countries concerned. More generally, it may be noted that, for transactors engaging in a longer-term commitment to international trading relationships, it may be the divergence of the exchange rate from its underlying trend, rather than its movement from one period to the next, that is the most significant source of uncertainty.

The evidence presented in this study suggests that both short-term and long-term exchange rate variability have increased sharply following the move to more flexible exchange rates at the beginning of the 1970s. This increase is significantly more noticeable in nominal ex-

change rates than in real exchange rates. During the 1960s, as might be expected, nominal rates tended to be much more stable than real rates. Since the move to generalized floating, both measures reveal a similar degree of variability. The fact that variability in real rates is not less than that in nominal rates suggests that inflation differentials explain only a relatively small part of exchange rate shifts, at least over the short to medium term. There also appears to be no clear tendency for variability in exchange rates to decline as experience with floating exchange rate arrangements accumulates. All the major currencies have diverged from the medium-term trend in their real effective exchange rate by at least 10 percent during the past decade, and for some (including the U.S. dollar) the divergence has reached 20 percent.

The large majority of empirical studies on the impact of exchange rate variability on the volume of international trade are unable to establish a systematically significant link between measured exchange rate variability and the volume of international trade, whether on an aggregated or on a bilateral basis. The three studies that do appear to establish an empirical link do so subject to particular conditions. One study is concerned with Brazil, where the restoration of real exchange rate stability following the establishment of the "crawling peg" in 1968 can be regarded as only one among a number of factors contributing to a revival of Brazilian trade. Another study appears to have obtained positive results only after extensive experimentation with lag structures (including some rather implausible ones). In the third, positive findings must be regarded as doubtful in the light of results reported in a subsequent (unpublished) paper that produced contradictory results. Replication of some of these tests was undertaken expressly for the purposes of the present study, and had similarly inconclusive results.

The failure to establish a statistically significant link between exchange rate variability and trade does not, of course, prove that a causal link does not exist. It may well be that the measures of variability used are inadequate measures of uncertainty; that other factors overwhelm the impact of variability in the estimating equations; or that the presence of statistical problems (e.g., serial correlation, dependence among explanatory variables) interferes with the effectiveness of statistical tests. It may also be that the lags with which greater variability in the exchange rate regime affect trade flows are longer and more variable than imagined by previous investigators.

The indirect effects of exchange rate variability on the structure of domestic output, and thereby on the level and pattern of international trade, are extremely difficult to trace. Exchange rate uncertainty is only one relatively minor consideration among many others in each individual decision to invest at home or abroad, expand output, merge with another enterprise, and so on. It is, therefore, not to be expected that empirical work would

reveal powerful statistical relationships between such phenomena and the level of exchange rate variability. In recent years there has been a tendency toward larger enterprises and increased international investment. This is consistent with what might be expected as a rational reaction to increased uncertainty about relative factor and product prices in different markets. However, it is a phenomenon that stretches back beyond the period of greater exchange rate variability, and can just as easily be attributed to the effects of greater international integration of markets and the impact of technological progress on the nature of production processes.

The volume of business fixed investment (in relation to GDP) does not appear to have declined in recent years, as might have been expected on the basis of theoretical considerations concerning the effect of uncertainty. It is possible, however, that the adverse effects of uncertainty were outweighed by the need to invest in energy conservation and exploration following the large rise in the relative price of energy.

As far as the relationship between exchange rate instability and government macroeconomic policy is concerned, most attention has focused on the possible adverse effects on inflationary pressures. The most comprehensive survey of the literature on this subject, that of Goldstein (1980), reached the view that neither theoretical reasoning nor empirical evidence was conclusive in establishing a link between exchange rate variability and inflation. While depreciation certainly adds to price inflation, the corresponding appreciation in other countries should retard price increases commensurately, unless some asymmetrical or "ratchet" effect is at work. The literature surveyed by Goldstein did not produce strong evidence of such an effect, and the additional results presented in Appendix IV of this paper are not conclusive either.

Another aspect of macroeconomic policy that could be influenced by exchange rate variability is the nature of the foreign trade regime. During the period when exchange rates were fixed, and foreign exchange crises were more frequent for the major countries, it was frequently suggested that exchange rate flexibility would reduce the balance of payments need for restrictions on foreign trade and payments. It has since been argued that an excessive degree of exchange rate variability has generated pressure for protectionism on the part of those industries most vulnerable to sudden shifts in external competitiveness. This is sometimes said to lead to a global increase in protectionist pressure because of asymmetrical effects between occasions when competitiveness declines as a result of an exchange rate change and occasions when it increases.

Evidence on this matter is sometimes anecdotal, since it is difficult to know what lies behind pressure by a particular industry for protection. In any case, it is not the pressure that produces protection but the response of

policy authorities to it; the sum of these responses determines the stance of trade policy. What can perhaps be said is that the recent period of more turbulent exchange rates has seen a reversal of the generally liberal trend of trade policy that prevailed for much of the postwar period. Many factors probably contributed to such a change in trend, but the existence of volatile exchange rates has given one additional reason for interest groups to offer when they seek protection, and a further factor for authorities to cite when granting it.

Overall, the arguments and the evidence presented in this paper point to rather indefinite conclusions. Uncertainty inhibits economic activity; that much is clear. But that does not necessarily mean that exchange rate volatility of a relatively short-term character has a serious adverse effect on international trade. In the first place, economic agents react to the presence of uncertainty by seeking hedging mechanisms that allow such risks to be

reduced. Second, exchange rate variability is only one dimension of the uncertainty associated with international transactions.

More fundamentally, exchange rates, though an uncontrollable "given" to an individual transaction, are themselves determined by interacting supplies and demands for foreign exchange. It is shifts in these supply and demand schedules that give rise to price (i.e., exchange rate) changes. Thus, it is the factors that give rise to such shifts, rather than the exchange rate changes that are their consequence, that should be regarded as the basic cause of uncertainty. Whether or not prolonged shifts in underlying conditions that cause sustained departures from some medium-term trend in exchange rate relationships are harmful for trade is a question that falls outside the scope of the present paper, and cannot be satisfactorily answered by the kinds of empirical test surveyed here.