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# Introduction

Richard C. Marston

Economists writing on flexible exchange rates in the 1960s contemplated neither the magnitude nor the persistence of the changes in real exchange rates that have occurred in the last 15 years. Swings in real exchange rates of over 30% have occurred in the case of several currencies. Movements in relative prices of this magnitude lead to sharp changes in exports and imports, disrupting normal trading relationships and causing shifts in employment and output in the export- and import-competing sectors of the countries concerned.

Real disturbances such as the sharp increases in the relative price of oil in 1973–74 and 1978–79 have been responsible for some of these changes in real exchange rates. When real disturbances occur, changes in real exchange rates may play a useful role in facilitating the adjustment of the world economy to such shocks. But many of the largest changes in real exchange rates experienced recently do not represent the equilibrium adjustments of relative prices to real disturbances. Instead, these changes represent the temporary, but sustained, departure of real rates from their long-run equilibrium levels. It is these departures of real exchange rates from equilibrium which we refer to as “misalignment.”

Many explanations for misalignment have been suggested by experts. In the case of the dollar’s misalignment in the early 1980s, these explanations have ranged from the tight monetary policies instituted after Paul Volcker became Federal Reserve chairman in 1979 or the expansionary fiscal policies of the Reagan administration to the shifts in investor sentiment towards dollar securities attributed to “safe haven” motives or to a speculative “bubble,” the latter having been said to occur during the few months leading up to the dollar’s peak in February 1985. Misalignment thus may be associated with shifts in monetary

policy or financial disturbances which change real exchange rates only because wages and prices are imperfectly flexible in the short run. Or misalignment may be associated with shifts in fiscal policy, which can change real exchange rates even when wages and prices are flexible, if those shifts are unsustainable in the long run, as many experts claimed about the fiscal policies of the Reagan administration.

The papers in this volume address a series of questions concerning misalignment. First, what causes exchange rates to be misaligned, and to what extent are observed movements in real exchange rates attributable to misalignment? The causes of misalignment are investigated both empirically within the context of the experiences of individual countries and theoretically in models of imperfect competition. The second set of questions concerns the effects of misalignment. How severe are these effects on employment and production in the countries concerned? Several of the papers provide detailed estimates of the effects of changes in real exchange rates on individual industries. Note that these estimates are not confined solely to cases of misalignment, since many of the same adjustment costs are incurred in response to real disturbances. Charles Bean, for example, analyzes the effects of sterling's rise in the late 1970s even though the appreciation of sterling was due at least in part to a real disturbance, the discovery of North Sea oil. Several papers ask whether these effects are reversible once exchange rates return to earlier levels, since some economists have contended that there is significant "hysteresis" in the adjustment of employment and production to changes in real exchange rates. Finally, several papers ask how misalignment might be avoided, or at least controlled, by macroeconomic policy. The panel on exchange rate policy also discusses this issue in detail.

In the first paper of the volume, William Branson advances an explanation for the dollar's misalignment in the 1980s that centers on fiscal policy and the associated federal budget deficits. He develops a model that explains the real exchange rate and real interest rate in terms of portfolio behavior and savings-investment behavior. Branson argues that the 1981 budget program of the Reagan administration led to a "crowding out" of foreign demand for U.S. products, as well as private domestic demand. This crowding out occurred through higher real interest rates and an appreciating real exchange rate for the dollar. The resulting current account deficits, however, had to eventually lead to a lower real value for the dollar as foreigners accumulated dollar claims. Branson uses his model to trace out the initial rise in exchange rates and interest rates, as well as the subsequent fall in the exchange rate as dollar claims accumulated. He then examines what happens when fiscal expansion is reversed. He attributes at least part of the recent fall of the dollar to the Gramm-Rudman-Hollings legislation of 1985, which set a timetable for the gradual reduction of the deficit.

Charles Bean investigates the misalignment of the pound sterling and its effects on British trade. In the first part of the paper, he uses a small-scale model of the British economy to study alternative explanations of the appreciation in the real exchange of the pound by 23% between 1978 and 1981. He finds that the discovery of North Sea oil and the subsequent rise in its price as a result of the Iranian revolution can explain 12% of the appreciation. Some of the remaining fraction of the appreciation can be attributed to tight monetary policy, but less than other experts have found. Bean attributes the rest of the appreciation to adverse supply-side factors (which raise domestic prices relative to foreign prices). In the second half of the paper, Bean turns to the question of whether sterling's appreciation may have long-term effects on the British economy that persist even after the appreciation has been reversed. Bean searches for evidence of such hysteresis in both demand and supply behavior. On the demand side, for example, temporary appreciations may allow foreign firms to establish a beachhead in a particular market because consumers develop loyalties to particular brands of a product. On the supply side, foreign firms may find it profitable to invest in a distribution network which will remain in place when the appreciation is reversed. Although Bean finds only tentative evidence of such hysteresis, his statistical analysis is interesting in itself from a methodological point of view.

Misalignment may be less of a problem for countries in the European Monetary System (EMS), because countries in the EMS are committed to fixing bilateral exchange rates between member currencies. Paul De Grauwe and Guy Verfaillie present evidence showing that this is indeed the case; countries in the EMS have experienced less misalignment than those outside the system. The variability of real effective exchange rates within the EMS, moreover, has been reduced relative to the variability of rates outside the EMS and of rates among the EMS countries before the EMS was founded. Yet trade among EMS members has grown less rapidly since the beginning of the EMS. Trade among non-EMS countries, moreover, has increased twice as fast as that among EMS countries despite the greater exchange rate variability outside the EMS. De Grauwe and Verfaillie attempt to explain this growth pattern for trade by estimating a cross-section model of trade flows among EMS and non-EMS members. The results show that low growth in output among EMS countries held down the growth of trade even while lower exchange rate variability had a significant effect in expanding trade among EMS members. The net result was lower trade growth in the EMS. De Grauwe and Verfaillie cannot explain the low growth of output itself, however, so the ultimate cause of lower growth in trade remains to be investigated.

The Japanese economy benefited more than any other from the dollar's misalignment, and now that the dollar has fallen relative to the

yen, the Japanese economy must bear much of the burden of adjustment. Bonnie Loopesko and Robert Johnson analyze how well that adjustment is proceeding in a wide-ranging study covering such topics as the measurement of equilibrium exchange rates for the yen, the extent of currency pass-through, the adjustment of Japanese trade to price changes, and the effects of Japanese and American fiscal policies on income and trade. The authors review how previous studies have measured equilibrium exchange rates and show why there is so much disagreement among economists about what would constitute an equilibrium exchange rate for the yen. They then ask why more adjustment has not occurred in response to the fall in the yen-dollar rate. They show some tentative evidence that Japan's trade surplus has begun to adjust to the lower dollar, but also show that this adjustment is proceeding more slowly than historical experience would suggest. One reason for the slow pace of trade adjustment, according to Loopesko and Johnson, is that the yen's appreciation has been passed through to export prices less than in the past, and retail prices in Japan have also adjusted much less than the fall in import prices would suggest. They present some interesting econometric evidence suggesting that this pass-through behavior may follow an asymmetric pattern that helps to protect Japanese market shares when the yen appreciates.

Rounding out the first set of papers is a panel on exchange rate policy consisting of Stanley Black, Dale Henderson, and John Williamson. Black begins by reviewing a list of problems associated with the present system and then discusses proposals for reform. He suggests that the most important failing of the present system of floating rates is that it allows a wide divergence in the monetary and fiscal policies of different countries. Yet international policy coordination is difficult to achieve, because governments disagree on objectives and often even employ different models to analyze the effects of policy initiatives on these objectives. He views target zones as an indirect method for achieving coordination, since departures from the zones would signal the need for changes in monetary and fiscal policies (although in a target zone system, these policy changes would not be mandated). Black argues that exchange rates can be managed with a combination of policies including sterilized intervention, at least when intervention is used in support of equilibrium exchange rates.

Dale Henderson reviews arguments for exchange rate policy in the case of four common types of shocks. He points out how difficult it is to identify some shocks even when current interest rates and exchange rates are used to pinpoint their source. According to Henderson, however, it is not difficult to identify the fiscal shock which led to the appreciation of the dollar. Henderson argues that the appreciation of the dollar helped to mitigate the effects of the U.S. fiscal expansion

and foreign fiscal contraction which occurred in the early 1980s, and that a policy of fixing the exchange rate would have been “a disaster.” He is skeptical about the argument that an international agreement to fix exchange rates would have helped to constrain U.S. fiscal policy or that of any other country.

The third member of the panel, John Williamson, observes that recent trade legislation proposed in the U.S. Congress calls on the president to push for an international agreement on exchange rates. For an international agreement to be successful, experts must be able to identify an equilibrium set of exchange rates which can serve as targets for the system. Williamson cites his earlier work showing how equilibrium rates might be calculated, then describes his more recent research (with Hali Edison and Marcus Miller) where he outlines a system of intermediate targets for international coordination. His proposed system requires that fiscal policies as well as monetary policies be coordinated, an important stipulation for those who believe the dollar’s misalignment was largely attributable to fiscal policies.

The panel was followed by four papers examining the causes and effects of misalignment at the industry level. Joshua Aizenman’s paper provides an analysis of how prices become misaligned. He specifies a model of overlapping labor contracts which ensures that current monetary shocks lead to the overshooting of exchange rates and to temporary misalignments. The novel feature which he introduces to the labor contract model is an imperfectly competitive goods market in which the prices charged may differ from firm to firm. A monetary shock leads to immediate wage adjustments only for those firms with contracts negotiated in the current period, so the prices charged by firms differ according to the vintage of the labor contract. This model thus can explain the presence of misalignment due to pure monetary shocks, although the duration of the misalignment is limited to the longest labor contract (since once all contracts are renegotiated, the real exchange rate returns to equilibrium). Aizenman also investigates how structural factors such as the degree of substitutability in the goods market can influence misalignment, and how the volatility of real and monetary shocks affects the contract length and therefore the persistence of misalignment.

Louka Katseli investigates one form of imperfect competition where firms choose prices on the basis of partial information about aggregate price movements. Katseli wishes to explain why the response of domestic prices to changes in exchange rates differs depending upon whether these changes occur in small increments or as a large-scale devaluation or revaluation. She specifies a model where an individual firm tries to estimate the aggregate price level on the basis of observing the prices of neighboring firms. When a devaluation occurs, the vari-

ance of aggregate price movements increases relative to firm-specific price movements, so any individual firm weights more heavily any price increases that it observes. As a result, the price level as a whole increases more than it would if the same change in the exchange rate occurred in a series of small movements. Katseli then uses Greek data to estimate how the variance of the exchange rate affects the overall inflation rate for Greece. She finds that the exchange rate variance has an influence on inflation quite apart from the direct effect of the rate of depreciation on inflation.

J. David Richardson examines one key industry in the United States where international competition has been steadily increasing, the auto industry. He develops a unique set of disaggregated data to assess how changes in exchange rates, factor costs, and voluntary export restraints have affected recent price competitiveness. Among these series is an "auto" dollar, the effective exchange rate for the dollar obtained by using auto import weights either with or without Canada (with whom the United States has an automobile trade agreement). He then adjusts this auto dollar for changes in relative unit labor costs in the manufacturing sectors of the United States and foreign countries to form a real exchange rate series measuring the relative costs of production. This series shows the United States suffered a marked loss of competitiveness beginning even before the dollar started appreciating in 1981 as unit labor costs rose faster in the United States than in its trading partners. The second part of the paper shows that this trend in relative unit labor costs was not matched by a corresponding change in the relative prices of U.S. and foreign automobiles. In fact, the dollar prices of Japanese automobiles sold in the United States actually rose relative to U.S. auto prices in the early 1980s. Richardson suggests that the voluntary restraint agreements (VRAs) which constrained Japanese sales may account for this price behavior. With quotas on units sold, the Japanese firms raised the yen export prices of cars sold to the United States enough to keep dollar prices rising despite an appreciation of the dollar.

The U.S. manufacturing sector as a whole was hit hard by the dollar's misalignment. William Branson and James Love estimate the effects of changes in the real exchange rate on 20 sectors of manufacturing in the United States. In most sectors, changes in the real exchange rate have significant effects on employment regardless of the period over which the equations are estimated. Branson and Love then use the estimates to calculate the effects of the dollar's misalignment in the period from 1980 to 1985. The misalignment is estimated to have reduced employment in the manufacturing sector by almost a million jobs. In the primary metals and nonelectrical machinery industries, the loss in employment was over 10%. They also estimate separate equations for production workers and other workers in each sector. They

calculate that most of the job loss has been sustained by production workers, thus suggesting that manufacturing firms have moved production offshore while maintaining nonproduction staffs in the United States. They speculate that this pattern of employment loss may not be easily reversed now that the dollar has depreciated from its previous highs.

Paul Krugman's paper investigates three possible long-run consequences of a strong dollar. First, the current account deficits of the Reagan years have led to an accumulation of dollar debt that must be serviced. But Krugman argues that the burden of servicing this debt should be quite manageable (on the order of \$10 billion/year) as long as foreigners are willing to maintain a fixed ratio of dollar debt to GNP. (In that case, the current account need not be balanced, but the growth of nominal debt is limited by the growth of nominal GNP.) The buildup of debt would pose serious problems only if foreigners insisted on significantly reducing their holdings of dollar securities. The second long-run consequence of a strong dollar is the reallocation of capital from the tradables to nontradables sectors. If a strong dollar causes a shift of investment from the tradables sector to the nontradables sector, this may require a corresponding depreciation for the movement to be reversed. Krugman finds, however, that there is little evidence of a decline in investment in manufacturing over this period, perhaps because there was increased military spending and an improvement in investment incentives due to the new tax law. Krugman also investigates whether the sustained appreciation has induced foreign firms to undertake fixed investment in marketing and distribution which may lead to permanent beachheads in the American market. Krugman estimates export and import demand equations to determine if there is any evidence of such irreversible changes in the markets for these products, but finds no such evidence. Thus he reaches the tentative conclusion that the dollar's appreciation has caused less long-term damage to U.S. industry (though not necessarily to U.S. employment) than was originally feared.

In a commentary on new directions for research, Rudiger Dornbusch identifies three areas where research on exchange rates might prove fruitful. The first is the application of imperfect competition models to the question of exchange rate pass-through. Dornbusch uses Salop's circle model to examine how domestic and foreign prices respond when domestic currency depreciations raise the local costs of foreign firms. He then applies Pindyck's irreversible investment model to issues of labor demand and investment in response to changes in real exchange rates. Finally, he sketches a model of exchange rate overshooting where current changes in the money supply are extrapolated into the future by private agents. It is hoped that this volume will help to stimulate further research on exchange rates along these and other lines.



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