

ESSAYS IN INTERNATIONAL FINANCE

No. 127, May 1978

FLOATING EXCHANGE RATES
AND THE NEED FOR SURVEILLANCE

JACQUES R. ARTUS
AND
ANDREW D. CROCKETT



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS
PRINCETON UNIVERSITY
Princeton, New Jersey

This is the one hundred and twenty-seventh number in the series ESSAYS IN INTERNATIONAL FINANCE, *published from time to time by the International Finance Section of the Department of Economics of Princeton University.*

The authors, Jacques R. Artus and Andrew D. Crockett, are both on the staff of the International Monetary Fund. Artus, who is Chief of the External Adjustment Division of the Fund, which he joined as economist in 1969, has published widely on economic and financial matters. Crockett, a member of the staff of the Bank of England from 1966 to 1972, when he joined the Fund, is presently Advisor, Middle East Department. He is the author of Money: Theory, Policy, and Institutions and International Money: Issues and Analysis.

The Section sponsors the Essays in this series but takes no further responsibility for the opinions expressed in them. The writers are free to develop their topics as they wish.

PETER B. KENEN, *Director*
International Finance Section

ESSAYS IN INTERNATIONAL FINANCE

No. 127, May 1978

FLOATING EXCHANGE RATES
AND THE NEED FOR SURVEILLANCE

JACQUES R. ARTUS
AND
ANDREW D. CROCKETT



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY

Princeton, New Jersey

Copyright © 1978, by International Finance Section
Department of Economics, Princeton University

Library of Congress Cataloging in Publication Data

Artus, Jacques R

Floating exchange rates and the need for surveillance.

(Essays in international finance; no. 127

ISSN 0071-142X)

Includes bibliographical references.

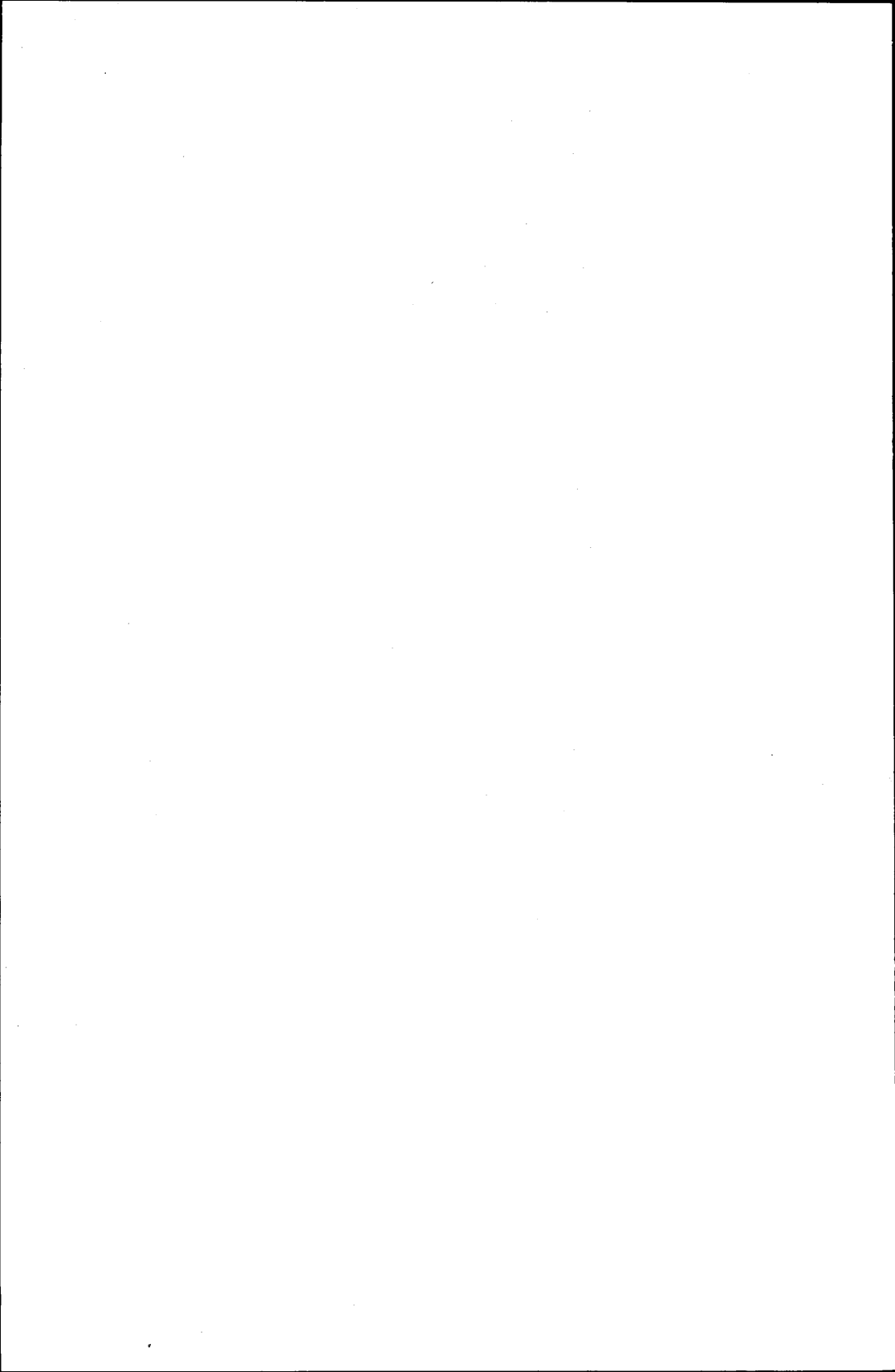
I. Foreign exchange problem. I. Crockett, Andrew,
joint author. II. Title. III. Series: Princeton
University. International Finance Section. Essays in
international finance; no. 127.

HG136.P7 no. 127 [HG3821] 332s [332.4'5] 78-5905

Printed in the United States of America by Princeton University Press
at Princeton, New Jersey

CONTENTS

INTRODUCTION	1
ISSUES RELATED TO THE SHORT-RUN VARIABILITY OF EXCHANGE RATES	3
A Simple Analytical Framework	5
Exchange-Rate Risk	7
Monetary Policies and Exchange Rates	10
The Danger of Speculative Excesses	14
The Costs of Exchange-Rate Variability	15
THE ROLE OF EXCHANGE RATES IN ELIMINATING PAYMENTS DISEQUILIBRIA	17
The Protracted Nature of External Imbalances	19
The Vicious-Circle Argument	20
External Constraints on Inflationary Practices	23
ASSESSING EXCHANGE-RATE POLICIES	25
The Case for Intervention	25
The Need for a Case-by-Case Approach to Surveillance	29
REFERENCES	34
APPENDIX: SURVEILLANCE OVER EXCHANGE RATE POLICIES	36



Floating Exchange Rates and the Need for Surveillance

Introduction

The move from fixed to more flexible exchange rates among major currencies has been rapid and widespread in recent years, but it has fallen far short of a complete shift to a freely floating exchange-rate regime. Rate-management policies continue to play a major role. Such policies may involve intervention by the central bank in the foreign-exchange market, official or quasi-official borrowing or lending, various forms of controls on foreign transactions and payments, monetary-policy measures, and statements by public officials on the appropriateness of prevailing rates. The major issue at the moment is the extent to which national authorities should use such management policies rather than rely on the free play of market forces for the determination of their exchange rate. This issue is central to the definition of the duties and responsibilities of national authorities and of the International Monetary Fund in a world of floating exchange rates.

Two major questions in the current debate relate to the likely behavior of exchange rates in the absence of rate management and to the role of exchange-rate flexibility in the international adjustment process. An important argument for rate management is that the free play of market forces would lead in the short run to an inappropriate rate, i.e., a rate that has been unduly influenced by temporary factors of a cyclical or speculative nature and therefore diverges significantly from some longer-run equilibrium value corresponding to underlying economic conditions.¹ A second argument for rate management is that exchange-rate flexibility is not a very effective means of reducing or eliminating payments dis-

¹ An implicit assumption here is that market forces cannot produce an inappropriate rate in the longer run. This means that political and economic preferences reflected in permanent measures affecting payments flows (e.g., tariffs, capital controls, and fiscal incentives) are taken as given in the determination of the longer-run equilibrium rate. Also, in what follows, the long-run equilibrium rate should be seen as an analytical concept referring to the rate that would clear the exchange market in the absence of temporary factors and once any adjustment lags have worked themselves out, given foreseeable underlying price and economic conditions. Since such conditions are uncertain and may change rapidly, the long-run equilibrium rate is obviously not a precise value and will change whenever the foreseeable conditions that it reflects are modified.

equilibrium and may have harmful consequences for domestic economic objectives, in particular the objective of price stability. Exchange-rate movements, in this argument, lead only to offsetting local-currency price changes and result in a vicious circle of depreciation/inflation or appreciation/deflation.

Even if market forces often led to an inappropriate rate or if exchange-rate flexibility was not very effective in bringing about international adjustment, there still might not be a case for an active policy. Such a policy might be ineffective, the potential for policy errors might be large, the cost of the policy measures might be high, and finally the welfare costs of the inappropriate rate might be low.

These issues have obvious implications for the development of effective international surveillance over countries' exchange-rate policies. If the free play of market forces can be presumed to result in exchange rates that contribute to the smooth working of the international adjustment process, the interest of the international community can concentrate on cases involving deliberate rate management; the concern will be whether policy measures affecting the exchange rate are justifiable in the context of a country's overall economic strategy, and whether such measures place undue burden on other members. If, on the other hand, such a presumption about market-determined rates cannot be made, the international community will have a legitimate interest also in the policies of countries that do not pursue an active exchange-rate policy, and ultimately an assessment of whether an active or inactive policy is justified will have to be made.

This essay begins by discussing a number of important issues related to the short-term variability of exchange rates: the role played by exchange-rate risk and the risk preferences of market participants, the effects of various kinds of monetary measures, the role of exchange-rate expectations, and the costs of short-run exchange-rate variations. We conclude that the free play of market forces may lead to inappropriate rates in periods of unstable underlying economic conditions, and that such rates, if they persist, can impose significant economic costs. Inappropriate rates are less likely to result, however, if the underlying economic conditions are stable and if well-developed capital markets exist without strict capital controls.

We go on to discuss issues related to the role of exchange rates in eliminating payments disequilibria. While recognizing that there is solid empirical evidence for large feedbacks from exchange-rate movements to domestic wages and prices, we conclude that there is most often no

realistic alternative to the use of exchange-rate flexibility for the elimination of protracted imbalances. While exchange-rate flexibility is a necessary part of the adjustment process, however, it is not a substitute for domestic stabilization policies.

In the final section of the essay, we consider the implications of these judgments for the desirability of various forms of rate-management policies and for the development of effective international surveillance over countries' exchange-rate policies. We conclude that no simple set of rules can adequately cover the various exchange-market circumstances that are likely to arise. There will be occasions when rate management is desirable to counter short-term disturbances in the exchange markets and promote smooth balance-of-payments adjustment. There are risks, however, that deliberate management of the rate will be used to meet short-term economic goals at the expense of underlying adjustment. Effective surveillance of exchange-rate policies cannot therefore rely on a set of mechanical guidelines but must take account of the special circumstances of each individual case. In building experience with operating the new, more flexible system, the International Monetary Fund can be expected to accumulate a body of "case law" that will enable member countries to form a clearer impression of the kind of behavior most conducive to effective international adjustment.

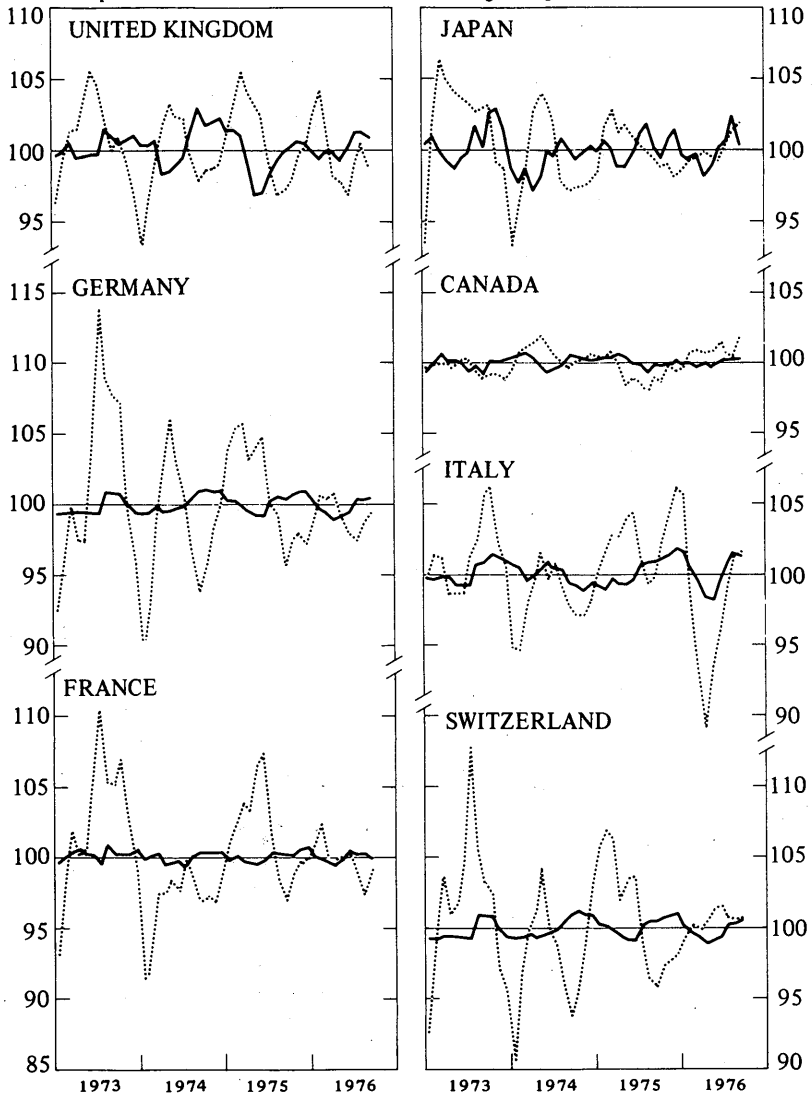
Issues Related to the Short-Run Variability of Exchange Rates

During the first few years of floating exchange rates among the major industrialized countries, short-run exchange-rate movements have been far greater than the corresponding movements in domestic price levels. This is illustrated in Figure 1 by comparing deviations of exchange rates and local-currency consumer price indices from their corresponding thirteen-month centered moving averages. (In this chart, the U.S. dollar and the U.S. domestic price level are used as reference points.) This experience suggests two questions: (1) What are the reasons for the short-run variability of exchange rates? And (2) are there significant economic costs when exchange rates fluctuate widely over the short run? Answering these questions requires, first, a theoretical digression on the nature of the process of exchange-rate determination. This digression provides the context for a discussion of the effects of exchange-rate risk, monetary-policy measures, and speculative excesses on the short-run variability of the exchange rate. The concluding part of the section assesses the costs of exchange-rate variability.

FIGURE 1

SHORT-RUN VARIABILITY IN EXCHANGE RATES
AND RELATIVE CONSUMER PRICES

..... Deviations of exchange rates in terms of U.S. dollars from a 13-month centered moving average.
— Deviation of the country consumer price index relative to the U.S. consumer price index from a 13-month centered moving average.



A Simple Analytical Framework

In recent years, a broad measure of support has developed, at least among academic economists, for the asset-market theory of exchange-rate determination. The essence of this approach is to view the exchange rate as an asset price—the relative price at which the stock of money, bonds, and other financial and real assets of a country will be willingly held by domestic and foreign asset holders. The asset-market approach does not, of course, neglect the requirement that exchange rates must balance the current demand for a currency with the current supply (i.e., flow equilibrium), but it highlights the role played in the determination of current (flow) demand and supply by factors affecting the relative desired stocks of domestic and foreign assets.

The asset-market approach has its main relevance for countries with well-developed capital and money markets, where exchange controls are free enough to permit substantial arbitrage between domestic and foreign assets. In countries where the possibility of such arbitrage is limited or nonexistent, the exchange rate is determined by supply and demand in goods markets and by the amount of intervention undertaken by the authorities. For other countries, the asset-market approach has two major advantages. First, it draws attention to the multiplicity of factors affecting the exchange-rate-determination process. Asset holders continuously adjust or attempt to adjust the composition of their portfolios to reflect expected rates of return, adjusted for degrees of risk, on various domestic and foreign assets. Variability in the factors that influence expected rates of return or relative risk will tend to result in variability in exchange rates.

A second advantage of the asset-market approach is that it draws attention to the predominant role of financial factors in the short run. New unexpected financial developments leading to desired portfolio readjustments occur continuously, and they may at times cause sharp exchange-rate changes. In contrast, changes in current-account positions (apart from their effect on expectations) play a more subdued role in the short run, both because prices in goods markets usually change more gradually and because longer lags operate in the adjustment of trade and invisible flows to price changes. Also, expectational factors play a more limited role in determining trade and service flows. Thus, over any short period the potential demand for a currency resulting from changes in desired *stocks* of financial assets will be large relative to the *flow* demand arising from current balance-of-payments transactions and will be more important in determining the short-run equilibrium value of the exchange rate.

Relative prices of goods and of factors of production are dominant factors in exchange-rate determination in the long run, but the usefulness of the asset-market approach is much greater when the focus of the analysis is on the short run. A brief review of this approach will provide an analytical framework for discussing the various issues related to the short-run variability of exchange rates. (A more extensive review of this approach and its implications for the analysis of exchange-rate variability can be found in Schadler, 1977, and Dornbusch and Krugman, 1976.)

The foreign demand (A') for assets denominated in the currency of a given country, net of the demand for foreign assets by the country's residents, can be assumed to be determined by the expected yield on that country's assets relative to the expected yield on assets denominated in other currencies.² The expected relative yield reflects the interest-rate differential and the expected exchange-rate change. The elasticity of demand for domestic-currency assets with respect to their expected relative yield will depend on the degree of substitutability between assets denominated in the domestic currency and assets denominated in foreign currencies. Exchange-rate risks and the risk preferences of speculators, which are discussed in more detail below, will be the major determinants of this substitutability.

In terms of flow demand, the change in A' occurring during a given period will be related to changes in the interest-rate differential and in the expected exchange-rate appreciation or depreciation. At the same time, the change in A' , which is nothing other than the net balance on private capital flows, will have to be equal *ex post* to the sum of the balance on current transactions, official capital flows, and the net amount of intervention by the monetary authorities in the exchange market.

We have dwelt at some length on the analytical framework of the asset-market approach because it is the key to understanding the potential for exchange markets to produce in the short run exchange rates that are inconsistent with effective adjustment in the longer run. The factors that establish a stock equilibrium in financial markets are not necessarily consistent with those that would produce continuing flow equilibrium in goods markets. In particular, stock equilibrium may be influenced by expectational and risk-aversion factors not relevant to transactions on current account. And because the lags that govern the response of current-account flows to changes in their underlying determinants are generally presumed to be longer than those for the capital account, the exchange rate may move to a level which, while clearing the foreign-

² Foreign currencies are all grouped together here for purposes of exposition.

exchange market in the short term, is not consistent with continuing equilibrium in the longer term. In such cases, it may be desirable for the authorities to take action which keeps the exchange rate at (or moves it to) a level consistent with longer-term equilibrium. The following sections therefore examine those factors which may give rise to differences between the equilibrium short-term rate that is dominated by asset-market developments and the rate that would result in payments equilibrium over a longer-term time horizon.

Exchange-Rate Risk

The degree of exchange-rate risk and the risk preferences of participants in the foreign-exchange markets influence significantly the behavior of exchange rates in the short term. Financial assets denominated in different currencies and carrying the same yield would be perfect substitutes if speculators were risk neutral.³ In this case, temporary disturbances in the goods markets or temporary changes in "autonomous" capital flows would be rapidly offset by speculative capital flows, with little or no cost in terms of exchange-rate variations.⁴ Even substantial capital flows resulting from the speculative activity of a significant number of misinformed speculators would be offset by the action of the better-informed speculators.

Even if there were variations in the degree of risk attached to particular currencies, say because of changes in the underlying economic and political conditions in the issuing countries, these would not in themselves be a source of exchange-rate change if speculators were risk neutral. Under such circumstances, it would also be impossible for the authorities to influence their exchange rate by intervening in the foreign-exchange market while offsetting the effect of this policy on the monetary base. Perfect asset substitution implies that excess money creation in one country immediately creates an incentive for capital outflows and pushes the exchange rate down to a point where the higher money stock is willingly held. Thus, the authorities can have a target for the money

³ Risk neutrality means that speculators would make decisions on whether to acquire or dispose of assets denominated in certain currencies entirely on the basis of the mean values of their expected relative yields (interest plus capital-value change). They would not be influenced by any change in the overall degree of risk (i.e., variance of the expected yield) of their portfolio that such decisions might cause either because of differences in the degrees of risk attached to assets denominated in different currencies or because of diversification considerations.

⁴ Examples of changes in "autonomous" capital flows would include, in the present context, bulky overseas direct investments related, say, to the discovery of a new oil field, a large bond issue in the Eurodollar market, or a loan to a foreign government.

supply or for the exchange rate, but not both. Imperfect asset substitution opens the way for exchange-rate variations caused by temporary changes in trade flows or autonomous capital flows, or by the action of misinformed speculators; at the same time, it permits, within limits, an independent monetary policy and provides justification for an active policy of intervention by the central bank in the foreign-exchange market.

Early arguments in favor of a flexible-exchange-rate regime (see, e.g., Friedman, 1953, and Sohmen, 1961) assumed that benign speculators with a firm view of where the equilibrium value of the exchange rate lay and unlimited supplies of funds would ensure the short-run stability of the exchange rate. A few years' experience with floating exchange rates has, however, led to a re-examination of the importance of exchange-rate risk and its effect on the degree of substitution between various currencies.

Essentially, currency risk is related to the perceived likelihood that the exchange rate will vary in an unpredictable way during the period a currency is held. One reason for such uncertainty is to be found in the "thinness" of exchange markets for many currencies, a characteristic that is often the result of exchange restrictions. Even with large markets, currencies of countries with unstable underlying political or economic conditions are likely to be considered particularly risky. Variations in their rate may be dominated by political factors rather than relative prices or other predictable economic variables, and the risk of exchange controls is always present. Since the depth of exchange markets and surrounding economic and political conditions vary among countries, it seems likely that perceived risk will differ considerably between currencies.

As to the risk preferences of banks and other large institutional market participants, there is a growing body of evidence (see, e.g., McKinnon, forthcoming) which suggests that they are very much risk averters as far as foreign-exchange operations are concerned. Strict legal and regulatory constraints have been imposed on the speculative activity of commercial banks in many countries. In addition to such constraints, difficulties encountered by a number of financial institutions as a result of their foreign-currency dealings have led banks to shy away from taking substantial net open positions in foreign currencies. Oil exporters and multinational corporations tend also to have a "defensive" policy; they are mainly searching for a stable haven for their funds. (Corporations or other transactors with operations in several countries may, of course, have a need to maintain cash balances and other financial assets denominated in various currencies to finance their worldwide operations.

This in itself does not involve risk. The multinational corporation takes risks when it speculates by reallocating its portfolio away from the equilibrium position corresponding to its normal disbursement needs. An "open position" must be understood as a deviation from the portfolio allocation corresponding to normal disbursement needs.)

Perhaps a more important reason why risk aversion can lead to exchange-rate variability is that the willingness of transactors to take additional risks is likely to decrease with their exposure in particular currencies. A small expectation of gain may be sufficient for a multinational corporation to undertake a minor reallocation in its portfolio of liquid assets, but the profit prospects might have to be much greater and more certain to induce it to accept the risk of a large open position. Except in the case where the multinational corporation is betting against a fixed rate that is clearly out of line with underlying factors, it is unlikely that it would be willing to accept a large open position. The degree of currency substitutability may thus be quite low in many cases.

Another aspect of currency substitution is that the smooth working of the adjustment mechanism requires market transactors to take open positions in "weak" currencies. It is countries with weak balances of payments that need to attract a net capital inflow, and the providers of these funds naturally ask themselves what consequences balance-of-payments adjustment will have for the value of their investment. Although an exchange-rate depreciation may appear sufficient to restore external balance, foreign holders may still be reluctant to acquire the currency if they fear that the depreciation might set off a round of domestic inflation or might be perceived as inadequate by other participants in the foreign-exchange market. Further, countries with weak balances of payments also often happen to be countries with unstable underlying economic and political conditions. The cumulative influence of all these factors may lead many transactors to consider investment in assets denominated in certain currencies as "unsuitable" in the same way that they exclude from consideration certain low-quality shares or bonds regardless of yield.

Risk aversion may therefore cause exchange rates to depart from what would be an appropriate level for longer-run equilibrium. This would be particularly likely when there is a large disturbance in trade flows. When such a disturbance occurs (for example, the oil-price increase of late 1973), it is not to be expected that current-account positions will quickly adapt to a balance financed by sustainable capital flows. Additional capital flows are needed during a transitional period while adjustment is taking place. This means that foreign residents must be prepared to take open positions in the currencies of deficit countries. If this is difficult to do

because markets are thin or unattractive or because of the risks involved in any open position, there is a danger that exchange rates will depreciate by more than is necessary to secure the needed adjustment in the current account.

In the case of the oil-price increase of late 1973, countries with large oil deficits and small financial markets might not have been able to attract capital on a sufficient scale to maintain an exchange-rate appropriate to longer-run adjustment. In such a situation, intervention by central banks financed from reserves or from compensatory official borrowing can have a key role to play while gradual adjustment takes place in goods markets. More generally, countries with narrow financial markets may find it necessary to intervene in the exchange market to offset the effects of cyclical and other temporary variations in their export receipts and import payments.

Monetary Policies and Exchange Rates

Another way in which exchange rates can be pushed away from their longer-run equilibrium value is through the response of exchange markets to unexpected monetary measures, and the resultant shifts in interest differentials. It is, of course, not surprising that changes in interest differentials should have an influence on exchange rates. What is less well understood is why relatively small monetary disturbances have in recent years sometimes been accompanied by disproportionately large exchange-rate changes. (For an empirical study of the effects of monetary disturbances on the U.S. dollar/deutsche mark rate, see Artus, 1976.) An explanation that is sometimes advanced to explain these disproportionately large exchange-rate movements is based on the bandwagon hypothesis: the change in the interest-rate differential caused by the monetary shock leads initially to a small change in the exchange rate; speculators project further exchange-rate movements in the same direction and act on these projections; their action brings about further exchange-rate movements. This explanation, as it is usually presented, implies irrational market behavior. There is, however, an alternative explanation that attributes greater rationality to speculators and is intuitively more appealing. It focuses on the relation between monetary measures and expected price changes, and it also draws attention to the effects of monetary measures on nominal interest rates and on portfolio composition.

For analytical purposes, a discretionary change in monetary policy, defined as a discretionary change in the money stock, can be viewed as affecting speculators' expectations in one of three possible ways: it may

be seen as a transitory development, perhaps of a countercyclical nature, that will subsequently be reversed; it may be seen as a one-step change in the money stock that will not be reversed but will not change the future rate of growth of the monetary aggregates; or it may be seen as presaging a more permanent change in monetary growth rates.

If speculators view a change in monetary policy as a temporary measure that will later be reversed, they will have no reason to change their expectations as to the long-run value of the exchange rate. If we ignore for the moment the effect of the policy change on interest differentials, there is no reason to expect such a development to lead to a significant change in the current exchange rate. On the other hand, changes in monetary policies that are viewed by market participants as probably leading to permanent changes in prices can be expected to have a very different effect on the exchange rate. If there is no reason to expect that a 5 per cent increase in the money supply will be reversed at a later stage, market participants will be likely to consider that the long-run equilibrium value of the exchange rate has fallen by about 5 per cent. This fall will reflect the widespread belief that in the long run both the quantity theory of money and the purchasing-power-parity theory hold. Under these circumstances, the spot rate will fall by something close to 5 per cent after the implementation or announcement of the policy change. If the policy change is interpreted by market participants as a sign that the authorities are "giving up" in the fight against inflation and that further accommodating increases in the money supply will take place, the rate may fall by even more.

The cases considered above are illustrative only and are therefore somewhat unrealistic. The argument, however, strongly suggests that it is the effect of monetary-policy measures on expectations that determines the size of the exchange-rate change in the short run. And expectations are more likely to be volatile when domestic underlying economic conditions are unstable, leading to uncertainty about the long-run policy intentions of the authorities. During periods of rapid inflation, monetary-policy changes are likely to be interpreted mainly in relation to the fight against inflation. In such circumstances, policy measures are much less likely to be viewed as purely temporary events without any long-run implications as to prices. In countries with stable conditions, on the other hand, there is less reason to expect countercyclical measures to cause significant exchange-rate movements. Price and exchange-rate expectations would be more stable under such conditions, and in any event monetary-policy changes would probably be smaller.

The effects of movements in the money supply on prices do not come

through at once. In the short term, changes in interest rates are more likely to equilibrate the supply and demand for money (although this effect itself depends on how far the inflationary consequences of monetary changes are anticipated). Any change in the interest rate will affect the relative attractiveness of domestic bonds versus foreign bonds; therefore, the spot rate will initially have to move away from the expected longer-run equilibrium level by an amount sufficient to offset the interest-rate differential between domestic and foreign bonds. (For a discussion of this effect, see Dornbusch, 1976.) For example, if the 5 per cent increase in money supply considered above leads to a fall in domestic (real) interest rates in addition to the 5 per cent fall in the longer-run equilibrium value of the spot exchange rate, then the spot rate would fall initially by 5 per cent *plus* an amount that offsets the lower interest rate.⁵ The "overshooting" effect is a manifestation of the phenomenon of differences in the speed of adjustment to equilibrium—in this case between the money market and the goods market. The more rapidly domestic prices adjust to the higher money supply and attendant fall in the exchange rate, the more transitory will be the effects of monetary-policy changes on interest rates and the shorter will be the period during which the actual exchange rate differs from its longer-run equilibrium value.

For many years, one of the main attractions of a flexible-exchange-rate system has been assumed to lie in the independence it gives to national monetary authorities. In a formal sense, this occurs because, in the absence of exchange-market intervention, the rate of growth of the monetary aggregates is approximately equal to the domestic credit creation that is directly under the control of the monetary authorities. Hence, the thrust of monetary policy cannot be offset by inflows or outflows of reserves.

The kind of monetary independence allowed for by a flexible-exchange-rate system has, however, been found in recent years to be less beneficial than expected, at least for high-inflation countries, and also possibly to have adverse consequences for the international community at large. Considering first the long-run aspects, it is certainly true that a flexible-exchange-rate system permits a country to "choose" a long-run inflation rate that diverges from the world rate of inflation, since it allows the country to control the rate of growth of its monetary aggregates. If

⁵ This effect will normally be small. For example, a 1 percentage point fall in the interest-rate differential (at an annual rate) on three-month deposits might cause a fall of about one-fourth of 1 per cent in the exchange rate if the fall in the rate was expected to last three months; the fall of the exchange rate would be about 1 per cent if the fall in the interest rate was expected to last one year, 2 per cent if the fall in the interest rate was expected to last two years, etc.

countries faced a long-run tradeoff between output and inflation and had diverging preferences for inflation rates, the possibility for each country to choose its inflation rate would be an important advantage for all. It is now recognized, however, that in most countries such a tradeoff does not really exist in the long run; any advantage in terms of real output from having a higher-than-average rate of inflation is likely to be short-term in nature. Thus, the only long-run advantage arising from monetary independence may be that countries that are willing and able to maintain lower-than-average rates of inflation do not see their efforts frustrated by inflows of reserves pushing up the money supply.

In the short run, monetary independence may tend to increase the effectiveness of discretionary policy measures, but sometimes to the detriment of other countries. The possibility of using monetary-policy measures to affect real domestic demand is enhanced by the greater degree of control the monetary authorities have over their monetary aggregates. Of course, under a flexible-exchange-rate regime, changes in monetary policy are more quickly translated into price-level effects via the inflationary or deflationary consequences of exchange-rate movements. To the extent that prices adapt more quickly under floating rates to changes in monetary policy, real interest rates are likely to move by less in response to changes in the money supply. Even under a floating-exchange-rate regime, however, price adjustment will not be instantaneous. More important, monetary-policy measures may be quite effective in the short run in achieving real output and price goals in a floating-rate regime because of their effects on the exchange rate. It does seem to be the case that, in the short run, exchange rates are quite sensitive to interest-rate differentials created by differences in monetary policies among countries. It may therefore be tempting for countries to use this mechanism to a greater extent than is warranted in the context of balance-of-payments adjustment needs. A loosening of domestic monetary policy may drive the exchange rate down to levels where trading partners have a legitimate fear that the country concerned is exporting unemployment. Conversely, if a shift in policy toward restraint results in an exaggerated upward movement in the rate, trading partners may be concerned about the inflationary consequences for them.

These fears point to the desirability of pursuing stable monetary policies clearly related to the medium-term needs of the country concerned. They also lend support to the suggestion, adopted by a number of major countries, that market participants should receive guidance (through the establishment of medium-term monetary objectives) on how to adapt

their expectations in the light of current developments in the monetary aggregates.

The Danger of Speculative Excesses

So far, we have considered ways in which market participants, acting perfectly rationally given the information available to them and their own preferences regarding risk, can move exchange rates away from their longer-run equilibrium levels. But what of the possibility of irrational speculative behavior, plain and simple?

Attitudes toward speculators have always played a key role in the debate on the merits of flexible-exchange-rate systems. At one extreme, speculators have been viewed as overreacting to most news, and as contributing to a "bandwagon" effect that causes exchange rates to fluctuate widely around their underlying equilibrium value. At the other extreme, speculation has been regarded as a stabilizing force, with speculators instantaneously processing and correctly interpreting all new developments bearing on the appropriate value of the exchange rates. A more balanced view would admit that speculative activity can be either stabilizing or destabilizing, depending on the circumstances. The task then becomes one of identifying the circumstances under which speculation might be destabilizing and considering how such speculation might be offset or its consequences limited.

The possibility of speculative excess in free markets is documented by a wide range of historical experience, from the Dutch tulip-bulb craze and the South Sea Bubble down to the Wall Street boom and bust of 1928-29. Speculative excesses are, however, much less likely to occur in the foreign-exchange market than in markets for individual commodities. A currency is only a right to purchase certain goods at market prices, and the value of a currency in terms of foreign exchange is not likely to become completely divorced from its relative purchasing power. Nevertheless, the degree of constraint imposed by arbitrage opportunities in the goods market should not itself be exaggerated. Large and protracted disturbances from purchasing-power parity can and do occur, as demonstrated by the experience of the French franc in the 1920s (see Rogers, 1929).

Speculative disturbances are more likely to occur as prospective developments in the relative purchasing power of currencies become more uncertain. In such circumstances, the desire of speculators to hold particular currencies will be affected not only by the current purchasing power of those currencies but also by perceptions of how this purchasing power will change in the future. This makes the foreign-exchange market

more like a stock market, where price fluctuations are due more to changing expectations of future profitability than to current profits. It follows that the possibility of speculation leading to wide fluctuations in exchange rates is less likely when underlying price developments are reasonably stable than when there is considerable uncertainty in this regard.

The Costs of Exchange-Rate Variability

In assessing the advantages of policies designed to limit movements that might otherwise take place in the exchange rate, attention must be paid to the costs and benefits that are likely to ensue. The case for firm intervention clearly becomes stronger the greater are the potential costs of variability relative to the benefits. The benefits of exchange-rate flexibility have been shown to accrue in the form of a somewhat greater monetary independence and a somewhat greater effectiveness of monetary policies. The costs are reviewed below.

Some of the costs of exchange-rate variability arise because floating exchange rates tend to move, at least in the short run, by amounts different from underlying cost-price relationships. This means that international transactions take place with a somewhat greater risk of exchange-rate changes during the period between contract and settlement of a transaction. Such short-term uncertainty is likely to be a relatively small added cost in international trade, however, since short-term exchange-rate variability is not normally great, and, in any case, hedging mechanisms exist (e.g., through forward markets) that enable traders to protect themselves against such risks at relatively modest cost.

Departures from longer-run equilibrium rates are potentially more serious when they continue for more than a few months. The costs of having a pattern of exchange rates that is not conducive to effective balance-of-payments adjustment are of three types: (1) the static welfare loss from a suboptimal allocation of world resources; (2) the adjustment costs that inevitably ensue when the disequilibrium is eventually eliminated; (3) the political frictions that result when countries' exchange-rate objectives clash.

The static welfare loss from a suboptimal allocation of a given volume of world resources is perhaps the least serious consequence of a pattern of exchange rates that diverges from longer-run equilibrium. So long as exchange-rate fluctuations are no greater than they have been, on average, in recent years, only a small amount of trade is likely to be displaced from "efficient" channels.⁶ And the welfare loss of such a misallocation

⁶ It is assumed that the appropriate equilibrium exchange rate has lain somewhere within the band of fluctuation of the actual rate.

is reduced by the fact that only trade flows that are marginal (in their contribution to welfare) are likely to be affected. Somewhat more significant may be the dynamic consequences of frequent sustained deviations from longer-run equilibrium rates. Such deviations may increase uncertainty and lead to a shift of investment away from the more exposed traded-goods sectors. The consequences may be slower growth of foreign trade, a weaker competitive climate, and decreased incentives for growth of productivity. The influences of uncertainty are very hard to quantify, however.

More serious are the adjustment costs of correcting a disequilibrium. These costs are apt to become greater the longer a disequilibrium has persisted. Effective balance-of-payments adjustment means shifting domestic resources from (or to) producing for domestic consumption into (or out of) exports or import substitution. This normally will involve a change in the relative profitability of industries, with the likely result of redundancies, and even bankruptcies, in certain sectors. Resources cannot be moved costlessly between industries, of course; there is likely to be transitional unemployment of both labor and capital, and perhaps also inflation as the industries that need to expand, relative to the others, bid for the necessary resources.

It is important to note that these adjustment costs fall not only on countries whose exchange rates have gotten out of line with longer-run equilibrium but also on their competitors and trading partners. For example, when the overvalued exchange rate of a country eventually moves to a more appropriate level, this country will inevitably increase its share of world markets at the expense of other producers of similar goods. These other countries then have to adapt, as best they may, to weakness of export demand. In all this, the social and political costs of unemployment and structural change have to be considered along with the direct economic costs in terms of loss of production.

Last, and perhaps most important, are the political consequences of a world in which there is no mechanism for reconciling incompatibilities in exchange-rate policies. These costs are by their nature the least quantifiable. In judging them, it is necessary to balance the potential costs of such conflict (illustrated in extreme form by the events of the 1930s) against the unlikelihood of such a degeneration of international economic relations in a world where cooperation is the order of the day.

In addition to the misallocation and adjustment costs involved in disequilibrium rates, there may be a cost in terms of domestic price stability. This arises from the inflationary and deflationary impulses transmitted through the external sector when the exchange rate moves. In circum-

stances where inflation is a particular worry and there is thought to be downward price rigidity, an additional problem is a possible ratchet effect on prices. Downward price rigidity may result in prices going up more in response to exchange-rate depreciation than they come down when the exchange rate appreciates. If such an effect exists it would be a powerful argument for stabilizing the exchange rate against disturbances that might turn out to be temporary. The empirical evidence for such a phenomenon is not conclusive, however (see, e.g., Goldstein, 1977). The ratchet effect may be limited to countries where the authorities do not effectively control the money supply, possibly because the economic, social, and political costs entailed in achieving control are believed, either correctly or incorrectly, to be too high. In these countries, an asset-market-related depreciation of the exchange rate may indeed be a source of inflation, and the exchange-rate depreciation may be self-validating.

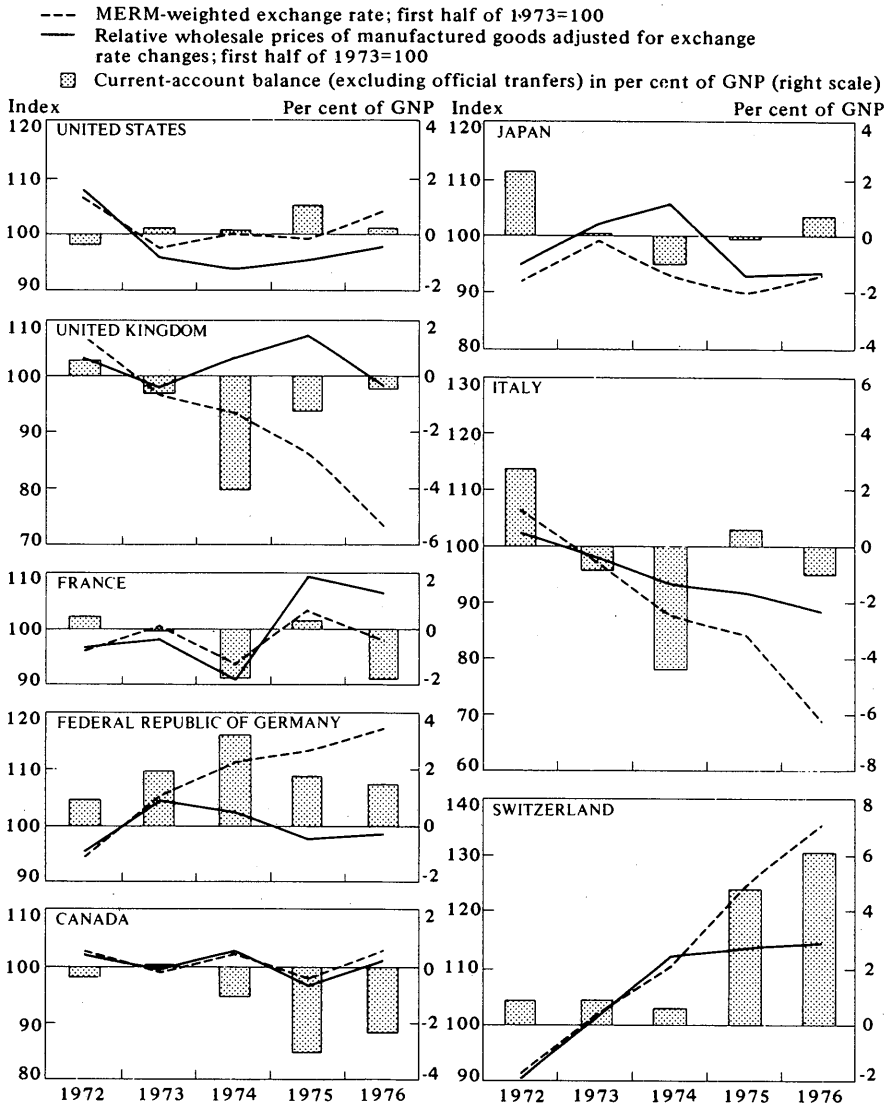
The Role of Exchange Rates in Eliminating Payments Disequilibria

At the beginning of the generalized-floating period, discussion of the role of the exchange rate in the international adjustment process was overshadowed by concern for the consequences of exchange-rate variability for matters such as inflation and the growth of foreign trade. Indeed, many observers seemed ready to assume that exchange-rate flexibility had solved the external-adjustment problem once and for all. Balance-of-payments developments in various countries put an end to this attitude rather quickly. As Marina v. N. Whitman remarked at the 1975 meeting of the American Economic Association:

The fundamental question to which we seek an answer from recent experience is, of course, whether greater flexibility of exchange rates is indeed an effective means of reducing or eliminating payments disequilibrium, thus alleviating the burden of adjustment which must otherwise be borne either by internal measures or by direct restrictions on international transactions (Whitman, 1975).

This was the crucial question during the pegged-exchange-rate period, and it remains the crucial question today. Many have come to believe that exchange-rate depreciations lead simply to higher inflation rates without any significant benefit for the current account (see, e.g., *Economistes Belges de Langue Française*, 1973). Certainly the evidence in Figure 2 indicates that during 1973-76 countries with depreciating currencies have had relatively high inflation rates and rather weak current-balance performances in spite of relatively large depreciations, while countries with appreciating currencies have had relatively low inflation rates and rather

FIGURE 2
EFFECTIVE EXCHANGE RATE, RELATIVE PRICES,
AND CURRENT BALANCE



strong current-balance performances in spite of large effective appreciations. One cannot, of course, conclude from this evidence alone that a currency depreciation is likely to push a country into a "vicious circle": Figure 2 does not indicate whether domestic sources of inflation have been the causal factor for the exchange-rate depreciation, or vice versa. It does indicate, however, that on the whole the period of flexible exchange rates starting in 1973 has been characterized by a certain divergence between countries with current-account surpluses and countries with current-account deficits rather than by a move toward a more balanced position, as might have been expected.

This section reviews, first, the "protracted" nature of external imbalances. It goes on to analyze the various forms of the vicious-circle hypothesis, and the effect of exchange-rate flexibility on the behavior of the authorities and of private economic agents as regards the inflationary process. The aim is to review the theoretical and empirical underpinnings of the vicious-circle hypothesis and to make a balanced judgment as to the appropriate role of the exchange rate in the external-adjustment process.

The Protracted Nature of External Imbalances

There is considerable empirical evidence that relative-price changes have a strong effect on the structure of demand and supply in goods markets and, in particular, on the foreign-trade performance of a country. However, economists have become more conscious over recent years of the slowness of the response to relative-price changes, and of the importance of nonprice factors in the determination of trade performance. Over a given period, relative-price changes may be significant and in the right direction but they may easily fall short of the changes that are necessary to offset developments in nonprice factors affecting competitiveness, and this may leave observers with the impression that price factors are of marginal importance.

Technological innovations and the marketing of new products, the right product mix at the right time, and a reputation for quality, reliable delivery schedules, and good after-sales service have been found to explain in large part the trade performances of countries such as the United States in the 1950s and early 1960s and the Federal Republic of Germany in the 1960s and 1970s. (The experience of the United States in the 1950s was reviewed by Kindleberger, 1958, and de Vries, 1956, while Kindleberger, 1976, reviewed the German experience.) Successful trade performance over the years also creates a certain orientation of the economy toward exports markets. Thus, it is unrealistic to expect a sudden relative-

price change, induced by an inflationary burst or an exchange-rate change, to affect rapidly a pattern of production and demand that reflects such "structural" factors. First, economic agents will have to be sure that the relative-price change is going to last before they undertake the large adjustment costs that are likely to be involved in any reallocation of factors of production or in any change in the allocation of demand among products and supplying countries. Second, even when economic agents are persuaded that the relative-price change is going to last, it may take years, in particular on the supply side, before the effects of the decisions they take are fully felt.

One of the consequences of the slow speed of adjustment in goods markets is the now well-known J-curve effect. In the period immediately following an exchange-rate change, the terms of trade tend to turn against a depreciating country and in favor of an appreciating country, and this may more than offset the volume effect of the exchange-rate change on the balance of trade. Figure 3 shows significant terms-of-trade effects from exchange-rate changes for four countries that have experienced substantial rate changes over the last four years.⁷ Combined with the empirical evidence that the volume effects on trade flows of relative price changes take place only with a lag, this suggests that the initial effects of exchange-rate changes on the current account may be perverse. Such perverse effects could result in excessive exchange-rate movements, in particular if developments in the current account affect speculative capital movements in the same direction.

Economic agents are, of course, likely to resist any attempt to eliminate a protracted payments imbalance that has become reflected in the structure of the domestic economy. The longer the imbalance has existed, the more entrenched are the social groups that benefit from it. Resistance to adjustment will first take the form of political pressure against the exchange-rate change. Once the exchange-rate change has occurred, resistance will take the form of an attempt by social groups that benefited from the imbalance to "pass along" the price effects of the exchange-rate change to other social groups. This can be the beginning of a vicious circle of exchange-rate changes and offsetting domestic price movements.

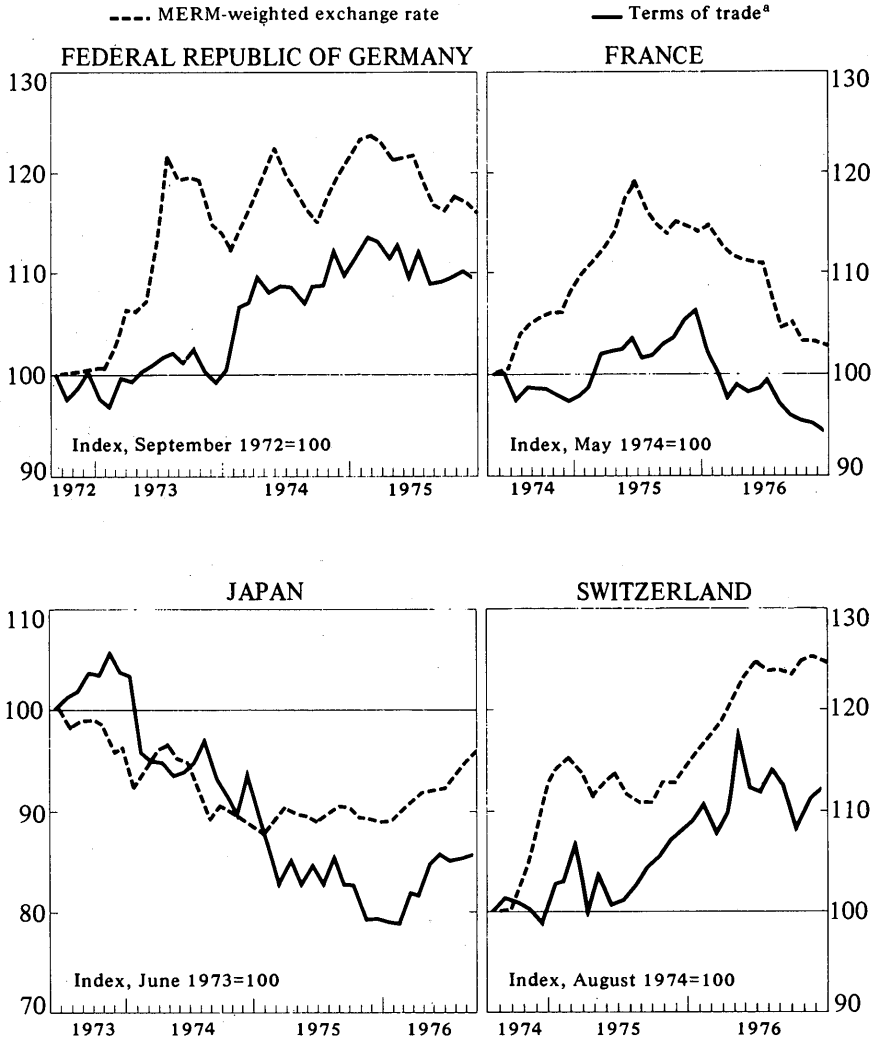
The Vicious-Circle Argument

A better understanding of the vicious-circle argument can be obtained by considering a country which, for whatever reason, needs to reduce

⁷ To obtain a precise estimate of the J-curve effect, one would need to adjust the prices of the trade flows for factors other than the exchange-rate change. The strong terms-of-trade effects are clearly apparent from the chart, however.

FIGURE 3

EFFECTIVE EXCHANGE RATE AND THE TERMS OF TRADE



NOTE: This chart considers four particular cases in which a sharp change in the effective exchange rate has occurred.

^a Export price index divided by import price index, scaled by a trade-weighted average of the terms of trade for the United Kingdom, France, the Federal Republic of Germany, Italy, and Japan.

its current-account deficit. To do so, it will have to reduce its absorption of goods relative to domestic output. It can do this in two ways: (1) it can reduce its domestic demand in terms of domestic currency, or (2) it can let its exchange rate depreciate and its price level increase in terms of domestic currency. If the policy used reduces the real wage rate, the adjustment can take place without a fall in output (an increase in unemployment); if the real wage rate cannot be reduced, the adjustment can be achieved only with a fall in output. Thus the relative effectiveness of the exchange rate as a policy instrument depends in this case on its relative effectiveness in reducing the real wage rate.

The vicious-circle argument, in its extreme form, assumes that a depreciation of the exchange rate is automatically offset by an increase in the money wage rate. Thus, the authorities are left with the choice of letting the money supply rise to accommodate the wage-price increase, in which case they are back to square one, but after experiencing a temporary increase in inflation,⁸ or of refusing to accommodate the wage-price increase, in which case they arrive at the same unemployment rate they would have had if they had chosen to reduce nominal domestic demand rather than to let the exchange-rate depreciate. Under the first scenario, the exchange-rate depreciation will lead to further price increases and further depreciations of the rate in an endless succession. Under the second, it has the same consequences as the use of a deflationary policy, but without the added advantage of a temporary fall in the rate of inflation that a deflationary policy is likely to yield.

The issue behind the vicious-circle argument turns on the effectiveness of different policy instruments in bringing about the ultimate reduction in real wages that is essential for adjustment, while minimizing the harmful consequences for such other objectives as the maintenance of reasonable price stability and full employment. Fellner (1975), for example, argues that the exchange rate is more effective in reducing the real wage rate, because the concern of various labor unions with *relative* real wage positions makes it easier for the authorities to cut real wage rates by an increase in consumer prices induced by a change in the exchange rate. Such a change hits every labor group more or less equally and simultaneously, whereas a deflationary policy tends to affect labor contracts

⁸ The change in the rate of inflation is temporary because the policy change considered here is only a once-and-for-all change in nominal demand (relative to trend). Temporary changes can, of course, lead to permanent changes if, for example, they lead to changes in expectations and accompanying changes in the rate of growth of the money supply.

one at a time when they are renewed. However, in many industrial countries (France, Italy, Belgium, Japan, etc.) most labor contracts are renewed at the same time, and the bargaining process involves a few *national* labor unions. Another argument for using the exchange rate is based on the hypothesis that employees may be influenced by money illusion. This argument has been weakened by the probable erosion of money illusion in periods of high inflation and by the fact that the use of indexation clauses in labor contracts is becoming increasingly widespread (see Braun, 1976).

A strong argument against the vicious-circle view and its policy implication that exchange-rate adjustments should not be relied on is that the alternative policy strategy to reduce real wage rates, a restrictive demand-management policy, seems in many cases even less effective. Is it realistic, for example, to expect countries that in the past have been unable to maintain their inflation rates in line with those of their trading partners to succeed in bringing their inflation rates substantially *below* those of their trading partners so as to gradually restore their competitiveness? Thus, the case for using the exchange rate to bring about a readjustment in real wage rates rests less on its efficiency in doing so than on the evidence that other available instruments are even less efficient. Further, while the effect of an exchange-rate change on real wage rates may not be large, the available empirical evidence shows that it is not insignificant, at least if the proper supporting policies are implemented at the time of the exchange-rate change. The evidence presented in Figure 3 above, for example, of continuing terms-of-trade effects for countries with significant exchange-rate movements is consistent with the hypothesis that exchange-rate changes are not immediately offset by changes in domestic costs. Viewed in this light, the relevant question is how the authorities can increase the effectiveness of an exchange-rate change. Here, deflationary measures, temporary nullification of indexation clauses, etc., have a crucial role to play.

External Constraints on Inflationary Practices

Concern has often been expressed that the wider use of exchange-rate flexibility as a means of achieving balance-of-payments adjustment will weaken the discipline to adopt policies that promote price stability. Under fixed exchange rates, a country that inflates at a rate higher than that of its trading partners will tend to suffer a deterioration in its balance of payments and a loss of international reserves. If the fixed exchange rate is to be maintained, the country will ultimately have to take action to bring

its inflation rate into line with that of its trading partners. The usefulness of such a discipline was recognized in the 1970 report of the IMF Executive Directors, which stated:

... the need to defend a fixed exchange rate against depreciation may promote willingness to impose unpopular domestic restraints; and where the attempt to defend a parity is ultimately unsuccessful, the psychological shock of a devaluation may promote broad support for the adoption of the necessary associated measures to curtail domestic demand (International Monetary Fund, 1970, p. 32).

A commitment to fixed exchange rates may also act as a limitation on cost-push pressures in the domestic economy. If price setters, either in the labor or goods markets, are aware that the exploitation of market power will lead to a loss of competitiveness and therefore to a reduction in demand, they may be induced to moderate wage or price increases. Such a result is, of course, more likely in economies that are rather open to external competition; in addition, the authorities' commitment to an exchange-rate target must be perceived as strong enough to outweigh countervailing pressures to maintain full employment.

The disciplinary pressures that operate on high-inflation countries under fixed exchange rates have, however, a counterpart in the pressures that operate on countries that have low inflation rates and a tendency toward balance-of-payments surpluses. To the extent that current-account surpluses directly raise the pressure of domestic demand, countries with low rates of price increases will be likely under a system of fixed exchange rates to experience an increase in inflationary pressures.

Which kind of disciplinary pressure will be the stronger depends on a number of factors, including the availability of conditional and unconditional liquidity to finance balance-of-payments deficits. If international liquidity is scarce, or available only on strict conditions, a stronger discipline may be exerted on deficit countries, since the consequences of continued deficits will be perceived as more serious than the consequences of prolonged surpluses. On the other hand, if balance-of-payments finance is readily available deficit countries may be much more willing to accept deficits, and it will be the surplus countries that tend to take prompter action to stem the outflow of the real resources that their surpluses represent.

As Emminger (1973) has pointed out, where finance for payments deficits is relatively freely available, flexible exchange rates may well exercise more effective discipline over inflationary policies. Under fixed exchange rates, a substantial part of the price and output consequences of a high-inflation policy can be exported abroad through a balance-of-pay-

ments deficit. With flexible rates, however, such a policy is more likely to result in a depreciation of the exchange rate and, in turn, an increase in domestic prices in the high-inflation country. Thus, the cost of a high-inflation policy—declining purchasing power of domestic incomes over foreign goods—will be more easily and quickly noticed by the public under flexible rates. Assuming that inflation is unpopular and that governments are responsive to public opinion, the foregoing implies in turn that inflationary pressures will be restrained more quickly under flexible rates than under fixed rates when there is the option of financing them by reserve depletion. Even under flexible rates, however, it is still possible for high-inflation countries to use exchange-rate policy to avoid, for a while, the discipline of public opinion. Since governments are always seeking the least painful way to bring inflation down, there is a danger that countries with floating rates will try to resist exchange-rate depreciation through intervention and other ways of influencing the exchange rate.

Crockett and Goldstein (1976) have argued that neither *a priori* reasoning nor empirical evidence is conclusive in showing that anti-inflationary discipline is stronger under fixed than under flexible rates. Rather, inflationary disturbances can disrupt the smoothness with which the adjustment mechanism works under either exchange-rate regime if there are not sufficient pressures to adopt timely adjustment measures. Such a result is likely to occur if balance-of-payments finance is either too easy or too difficult to obtain. Too easy access to finance is likely to deter governments from taking effective adjustment action either through domestic policies or through permitting exchange-rate movement. A shortage of liquidity, on the other hand, can prompt overhasty external adjustment, with possible adverse consequences for the stability of domestic incomes and prices.

Assessing Exchange-Rate Policies

The Case for Intervention

The analysis of the two preceding sections suggests that the case for intervention (or any other form of active exchange-rate policy) is rather strong. Asset-market-related disturbances have been shown to be a considerable source of exchange-rate disturbance, at least in certain cases. They may lead to disorderly conditions in the foreign-exchange market, wide fluctuations in exchange rates, and even, in certain circumstances, to an exchange-rate level that interferes with smooth external adjustment

in the longer run. For certain countries, a case can also be made that a freely floating exchange rate is not necessarily conducive to effective external adjustment.

In practice, however, the case for intervention is not so strong. While the free play of market forces may have undesirable effects, in most cases it may be difficult to implement a rate-management policy that would not hinder but help the working of the external adjustment process in the longer run.

The desirability of intervening to prevent disorderly market conditions is widely accepted. It is not always easy, of course, to determine in advance whether a particular disturbance in foreign-exchange markets is a temporary aberration or the beginning of an underlying trend. This would be the case, for example, where a sudden movement in the rate is prompted by political fears. If the political situation that gave rise to the exchange-rate pressures disappears, it would have been appropriate for the authorities concerned to resist the exchange-market consequences. But if the change in political climate is permanent and gives rise to a permanent reappraisal of what constitutes an appropriate exchange rate, a rapid movement in the exchange rate to its new equilibrium might have been more conducive to orderly exchange-market conditions. The important point is that it is exchange-rate movements that are temporary and reversible, not just rapid, that are a cause for concern.

The need to intervene to preserve orderly exchange markets normally arises suddenly, and thus there is no alternative to relying on the judgment of the authorities regarding the suitability of intervention in particular cases. *Ex post*, however, it is relatively easy to reach a judgment on whether such intervention has been warranted. Smoothing intervention will normally cancel out over a short period; if it does not, this can be considered *prima facie* evidence that the authorities have misjudged the nature of exchange-market conditions. Conversely, sharp exchange-rate movements around a stable exchange-rate level (or trend), when unaccompanied by official intervention, would tend to suggest that an opportunity for stabilizing intervention has been missed.

The need for intervention to preserve orderly markets is likely to be less where exchange markets have reasonable depth and breadth. In such cases, individual large transactions can be absorbed without a significant impact on the rate, and a change in sentiment on the part of some speculators is not likely to carry the exchange rate very far before countervailing expectations of other speculators are encountered. It is where exchange markets are narrow (as in the case of many smaller countries or of countries imposing exchange restrictions) or where expectations are par-

ticularly volatile (perhaps because of political uncertainties) that the case for smoothing intervention is likely to be strongest.

Much more difficult to appraise is the case for sustained management of the exchange rate, whether by intervention or other means. There are basically two reasons why the authorities may wish to have a rate that is different from the one that would emerge in the absence of intervention.

The first reason is that the short-run market-clearing rate may differ substantially from the longer-run equilibrium rate. A number of causes of such a divergence were examined in the section on short-run variability of exchange rates. Apart from the possibility of irrational market behavior, the most important cause was the risk-averse behavior of private market participants. Faced with the need to assess the longer-term significance of disturbances in countries' balances of payments and monetary policies, private wealth owners seek to maximize the return on their assets and to minimize their risk. In acting to minimize risk, speculators are likely to require an additional incentive to hold open positions in weak currencies. This may mean that speculators will acquire such currencies only when they become "overdepreciated" and there is a significant expectation of capital gain.

The second reason why countries may wish to intervene to influence the exchange rate is that relying on exchange-rate adjustment may complicate the task of using domestic instruments of adjustment to achieve a viable balance of payments. The extreme version of this argument is the vicious-circle hypothesis. Although this hypothesis may not be acceptable in its pure form, there may be truth in the implication that subjecting private and public decision makers to an external constraint (in the form of an exchange-rate target) will make domestic stabilization policies more effective. Since longer-term adjustment requires effective action on domestic demand, it is arguable that the main emphasis of adjustment policies should be domestic. It must be recognized that this argument for intervention implies an acceptance of a "wrong" rate in the short term to improve the prospects of achieving a more durable "right" rate in the longer term. It therefore depends crucially on backing up exchange-rate intervention with a suitable package of measures to restore domestic stability.

Ultimately, the major weakness in the case for intervention is that it is so difficult to recognize cases when intervention is really called for. Further, national authorities are often unwilling to accept significant exchange-rate movements even when they are justified by underlying economic developments. Market forces may not always be "right," but the experience of the past decade indicates clearly that they have been

right more often than the authorities. Perhaps the strongest temptation to pursue an inappropriate exchange-rate policy results from viewing as temporary what eventually turns out to be a permanent change in exchange-market conditions. This temptation is likely to be particularly strong when the costs, both political and economic, of adjusting to the change are perceived to be high and when there is a considerable degree of uncertainty concerning future developments affecting the balance of payments. Exchange-rate changes affect the relative profitability of production of traded and nontraded goods. Switching resources between sectors imposes adjustment costs and may also involve transitional unemployment of factors of production. Since there may also be strong economic interests that benefit from the existing structure of production, governments may be unwilling to accept the political consequences of permitting an exchange-rate realignment.

Another temptation, which is particularly prevalent when countries are attempting to bring down excessive rates of price inflation, is to use the exchange rate as part of incomes policy. It is well-known that the rate of increase in prices, particularly consumer prices, is an important element in determining wage settlements. For this reason, governments that attach high priority to reducing the rate of increase in wages are often prepared to accept measures that distort the allocation of resources in order to retard the rise in the consumer price index. This can take place through domestic subsidies, but only at the cost of increasing the budget deficit and complicating the financing of the central government. A simpler mechanism, but one that has much the same result, is to subsidize imports by holding up the exchange rate. The attraction of such a policy is enhanced when the immediate goals of implementing an effective incomes policy bulk larger in the government's overall economic strategy than the more medium-term constraint of attaining external balance.

The costs of maintaining an overvalued rate for incomes-policy purposes should not be underestimated, however. Quite apart from the distorting effect on the allocation of production between traded and nontraded sectors, any beneficial consequences on the rate of price increase in the short term are achieved at the cost of adverse consequences later on, when the rate has to be allowed to move to an equilibrium level. Only if it can be argued convincingly that the consequences of favorable effects on inflation in the short term are likely to be stronger than the consequences of unfavorable effects later will there be a case for using the exchange rate as an anti-inflationary instrument. Even so, care must be taken that any advantages of an active exchange-rate policy for the country adopting

it are not purchased at the expense of offsetting disadvantages for trading partners.

Although, in present circumstances, the greater risk seems to be that countries will take action that has the effect of overvaluing their exchange rate, a more long-standing concern has been the use of competitive depreciation to improve domestic employment. The temptation to use exchange policy in this way would presumably become greater if the main objective of economic policy shifted from fighting inflation to promoting employment. Also, growth in output generated by rising exports (as against domestic demand) has the attraction that overall productivity is often thought to be higher in the export sector. Furthermore, in circumstances where finance for balance-of-payments deficits is not readily available, exchange-rate depreciation may appear preferable to domestic measures as a means of promoting employment, since it is less likely to run into an external constraint. The danger of such a policy, of course, is that it promotes domestic employment objectives at the expense of employment in other countries and thus risks retaliation and a chain reaction of beggar-thy-neighbor policies.

The Need for a Case-by-Case Approach to Surveillance

All countries are subject to disturbances in their balance of payments that may be external or internal in origin. The interest of the international community lies in ensuring that the combination of measures chosen by a country is such as to enable timely and effective adjustment to take place, consistent with its other obligations to achieve a satisfactory employment level with reasonable price stability and to avoid actions harmful to other countries.

The need to protect the international community from potentially harmful actions by individual countries is one of the basic *raison d'être* of the International Monetary Fund. The exchange-rate system of the original Bretton Woods Articles of Agreement sought to achieve this goal through the establishment of par values for currencies that could be changed only with international concurrence. When this system broke down in 1971 and finally collapsed in 1973, alternative means for avoiding harmful and inconsistent exchange-rate policies were sought.

In June 1974, the Fund adopted a set of nonbinding "Guidelines for the Management of Floating Exchange Rates." These guidelines reflected a widespread acceptance that the behavior of governments with respect to exchange rates was a matter for international consultation and surveillance. The main features of the guidelines were to provide encourage-

ment (1) to smooth out very short-term fluctuations in market rates; (2) to offer a measure of resistance to market tendencies in the slightly longer run, and in particular to rapid movements in the rate; and (3) to try to estimate, if possible, a medium-term "norm" for currencies' exchange rates, with a view to resisting movements that appeared to deviate substantially from that norm. In addition, it was recognized that intervention policies should take account of countries' reserve positions and of the effect of intervention on the exchange rate of the currency being used in intervention.

The themes of the guidelines are reflected in a number of academic contributions on the subject. In an earlier essay in this series, Ethier and Bloomfield (1975) suggested the establishment of "reference rates," which would work in much the same way as the "norms" of the guidelines. In other words, countries would not be under any obligation to defend a particular rate, but they would be prevented from intervening against their currency when it was below the reference rate and from intervening in favor of their currency when it was above the reference rate. Tosini (1977) picks up another element of the guidelines in suggesting that countries should always be encouraged to "lean against the wind" so as to moderate exchange-rate movements that would result from market forces. Her rationale for this prescription is that, in practice, rate fluctuations have proved to be excessive and that any action to dampen such swings would tend to lead to a smoother evolution of exchange rates. In a more elaborate analysis of different situations in which rate management might be considered, Mikesell and Goldstein (1975) examine a variety of circumstances in which intervention might be desirable and consider possible rules to protect the interests of the international community. Broadly speaking, their rules relate to permissible changes in official reserves between reporting periods.

The objective of formulating fairly explicit behavior rules for intervention runs into a number of theoretical and practical difficulties, however. Resistance to rapid movements in the exchange rate (or leaning against the wind) is optimal only so long as market forces are moving rates excessively in one direction. There seems to be no valid reason, however, to assume that large and sudden exchange-rate changes are necessarily inappropriate. If, for example, a major policy shift results in a substantial change in the assessment by market participants of the longer-run equilibrium exchange rate for a currency, it may be less disruptive to allow the rate to move quickly to a new value than to slow this movement down through intervention.

The possibility of using changes in official reserves as a standard for permissible intervention is also unlikely to be acceptable in practice. Quite apart from the difficulty of agreeing on country-by-country limits for reserve changes, it is by now widely recognized that official intervention affecting reserve holdings is only one among several ways of managing the exchange rate.

The establishment of an internationally agreed set of "norms" for exchange rates runs into severe practical difficulties, and although such norms were provided for in the IMF's 1974 guidelines, no attempt was made to establish them. Apart from the fact that the move toward greater exchange-rate flexibility has by now gone so far that the establishment of exchange-rate norms can no longer be considered politically feasible, it is obvious that the necessary conditions for the working of such a system, namely relatively stable underlying economic conditions in the major countries and some harmonization of national economic policies, are not satisfied at present.

Partly as a result of the perceived difficulties in applying rules with even the limited degree of precision involved in the 1974 IMF guidelines, the new Articles of Agreement express the obligations of Fund members in the exchange-rate field in more general terms. The relevant provision of the new Article IV is that members shall "avoid manipulating exchange rates or the international monetary system in order to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members."

At the time this provision was drafted, late in 1975, it was decided that this general rule would be further codified later on through the adoption of "specific principles" for the guidance of all members in their exchange-rate policies. In fact, however, the decision that was eventually reached by the IMF in April 1977 (and which is reproduced here in an Appendix) was to avoid introducing too much precision in defining members' obligations and to concentrate instead on establishing procedures that would enable continuous and effective surveillance to take place. In other words, the Fund opted for a case-by-case approach to its surveillance responsibilities that would not be based on a specific set of ground rules. However, the procedures that were adopted in 1977 do provide illustrative cases of developments that would be *prima facie* evidence of a need for international consultation and review. For the most part, these developments relate to policies pursued by countries that have the effect of influencing balances of payments and reserve flows. But it is also suggested that the Fund would have an interest in "behavior of the exchange rate that appears to be unrelated to underlying economic and financial condi-

tions . . . ,” implying that intervention to counter such exchange-rate developments is to be regarded as desirable.

These new procedures provide the necessary framework for Fund surveillance activities. They take into account that both misguided rate-management policies and the free play of market forces may lead to an “undesirable” exchange rate, but it is clear that misguided rate policies are expected to be the major source of problems.

Another advantage of these procedures is that they make allowance for the divergent interests and preferences of member countries. For a variety of reasons, countries attach different degrees of importance to the objective of exchange-rate stability. In part, these diverging preferences stem from differences among countries in the importance of the exchange rate as a price that influences the level and distribution of national output. For countries where the external sector is relatively small, the impact of external disturbances on the domestic economy is likely to be correspondingly reduced and the main objective will be to ensure that the external-adjustment mechanism does not interfere with the setting of domestic policy instruments. For countries with a larger external sector, however, the exchange rate is likely to be a price that has more pervasive effects on the level and distribution of national output. For this reason, such countries would suffer greater costs if, for whatever reason, market forces tended to move the exchange rate to a level judged incompatible with domestic objectives or inconsistent with medium-term balance-of-payments equilibrium.

The importance of the exchange rate as a disciplinary instrument may also vary between countries. In large, fairly closed economies, external developments will exercise relatively less influence over the setting of domestic policy instruments and over the wage-price formation process. For more open economies (for example those of the smaller snake members) prices and wages are likely to be much more responsive to external developments, so that exchange-rate flexibility will be less effective as an adjustment mechanism relative to domestic measures. Also, the degree to which wages and prices are indexed (formally or informally) will have important implications for the relative efficacy of different adjustment techniques.

Another possible reason for divergences in exchange-market policies is that exchange-market structures may vary between currencies. Not all countries have exchange markets with the depth and breadth of the major industrial countries, where a wide range of traders, arbitrageurs, and speculators participate. In particular, many smaller countries have a restricted market for their currencies, often centralized in the central bank.

Many countries also have capital controls, reducing the scope for arbitrageurs and speculators to smooth disturbances in the supply and demand for foreign exchange arising from current-account transactions. Furthermore, the current account itself may be somewhat unresponsive to exchange-rate variations, particularly where more direct means of controlling imports are employed and where the elasticity of supply of exports is low—as it may be for many primary producing countries.

These differences between countries are important in assessing the need for an active exchange-rate policy in particular cases. While a freely floating exchange rate can ensure a continuous equilibrium between the demand and supply for a country's currency in the foreign-exchange market, other measures may take considerably longer to achieve their intended effect on external payments flows. It has been argued above that exchange-rate flexibility, if unsupported by appropriate measures to influence domestic demand, is likely to be inadequate to achieve durable adjustment. To the extent that these supporting measures affect payments flows with a lag (particularly on current account), there will be a temporary disequilibrium in the balance on current and long-term capital account that has to be covered by short-term financing. If, however, the authorities do not intervene and there is weakness in private speculative demand, the exchange-rate movement needed to induce accommodating flows of private short-term capital may be excessive.

Ultimately, the exchange-rate policy of the authorities should reflect both their assessment of whether there is a large difference between the short-run market clearing rate and the longer-run equilibrium rate for their currency and their views on the appropriate role of the exchange rate in their overall economic strategy. To judge the appropriateness of the authorities' exchange-rate policy, there is no alternative to a full assessment of the implications for the balance of payments of the overall economic strategy adopted by the authorities. This involves an appraisal of the implications for the current account of existing domestic policies and prospective developments in the world economy, combined with an assessment of whether sustainable capital flows are likely to be forthcoming to finance whatever surplus or deficit emerges on current account.

These various points lead us to conclude that the only international monetary system consistent with existing economic and political realities is the present system, where the major countries rely heavily on market forces but intervene whenever these forces tend to push their exchange rates beyond what they assess to be appropriate. This mixed system, however, is bound to lead to frequent conflicts among countries with divergent interests, and surveillance by the International Monetary Fund

is needed to avoid harmful and inconsistent exchange-rate policies and to moderate international conflicts. Because of the real divergence in interests among countries and the many uncertainties inherent in the appraisal of exchange-rate policies—in particular, the difficulty of assessing the appropriateness of an exchange rate for the longer term—such surveillance cannot be based on a single objective indicator or even on any precise set of rules. Thus, in arriving at a judgment as to whether a country's exchange-rate policies constitute an unwarranted hindrance to the proper working of the international adjustment process, the Fund must make a comprehensive appraisal of these policies. These points have been taken into account in the new Article IV and in the Fund decision of April 1977. Whether this new system works satisfactorily depends primarily on whether the major countries show sufficient willingness to give it a fair chance.

References

- Artus, Jacques R., "Exchange Rate Stability and Managed Floating: The Experience of the Federal Republic of Germany," *IMF Staff Papers*, 23 (July 1976), pp. 312-333.
- Braun, Anne W. R., "Indexation of Wages and Salaries in Developed Economies," *IMF Staff Papers*, 23 (March 1976), pp. 226-271.
- Crockett, Andrew D., and M. Goldstein, "Inflation under Fixed and Flexible Exchange Rates," *IMF Staff Papers*, 23 (November 1976), pp. 509-544.
- De Vries, Tom, "De Theorie van het Comparatieve Voordeel en het Dollartekort," *De Economist*, 104 (January 1956), pp. 1-39.
- Dornbusch, Rudiger, "Expectations and Exchange Rate Dynamics," *Journal of Political Economy*, 84 (December 1976), pp. 1161-1176.
- Dornbusch, Rudiger, and Paul Krugman, *Flexible Exchange Rates in the Short Run*, Brookings Papers on Economic Activity No. 3, 1976, pp. 537-575.
- Economistes Belges de Langue Française, *Economies ouvertes face aux mutations internationales—Rapport du 2e Congrès des Economistes Belges de Langue Française*, Brussels, Centre Interuniversitaire de Formation Permanente, 1977.
- Emminger, Otmar, *Inflation and the International Monetary System*, Basle, Per Jacobsson Foundation, June 16, 1973.
- Ethier, Wilfred, and Arthur I. Bloomfield, *Managing the Managed Float*, Essays in International Finance No. 112, Princeton, N.J., Princeton University, International Finance Section, 1975.
- Fellner, William J., "The Payments Adjustment Process and the Exchange Rate Regime: What Have We Learned?—Comments," *American Economic Review*, 55 (May 1975), pp. 148-151.

- Friedman, Milton, "The Case for Flexible Exchange Rates," *Essays in Positive Economics*, Chicago, University of Chicago Press, 1953, pp. 157-201.
- Goldstein, M., "Downward Price Inflexibility, Ratchet Effects, and the Inflationary Impact of Import Price Changes: Some Empirical Tests," unpublished, Washington, D.C., International Monetary Fund, DM/77/34, April 1977.
- International Monetary Fund, *The Role of Exchange Rates in the Adjustment of International Payments*, Washington, D.C., 1970.
- Kindleberger, Charles P., "The Dollar Shortage Revisited," *American Economic Review*, 68 (June 1958), pp. 388-395.
- , "Germany's Persistent Balance-of-Payment Disequilibrium Revisited," *Banca Nazionale del Lavoro Quarterly Review*, 29 (June 1976), pp. 135-164.
- McKinnon, Ronald I., "Instability in Floating Foreign Exchange Rates: A Qualified Monetary Interpretation," *Money in International Exchange: The Convertible Currency System*, New York, Oxford University Press, forthcoming.
- Mikesell, Raymond F., and Henry N. Goldstein, *Rules for a Floating-Rate Regime*, Essays in International Finance No. 109, Princeton, N.J., Princeton University, International Finance Section, 1975.
- Rogers, James H., *The Process of Inflation in France, 1914-1927*, New York, Columbia University Press, 1929.
- Schadler, Susan, "Sources of Exchange Rate Variability: Theory and Empirical Evidence," *IMF Staff Papers*, 24 (July 1977), pp. 253-296.
- Sohmen, Egon, *Flexible Exchange Rates*, Chicago, University of Chicago Press, 1961.
- Tosini, Paula, *Leaning Against the Wind: A Standard for Managed Floating*, Essays in International Finance No. 126, Princeton, N.J., Princeton University, International Finance Section, 1977.
- Whitman, Marina v. N., "The Payments Adjustment Process and the Exchange Rate Regime: What Have We Learned?" *American Economic Review*, 65 (May 1975), pp. 133-146.

APPENDIX

Surveillance over Exchange Rate Policies*

General Principles

Article IV, Section 3(a), provides that "The Fund shall oversee the international monetary system in order to ensure its effective operation, and shall oversee the compliance of each member with its obligations under Section 1 of this Article." Article IV, Section 3(b), provides that in order to fulfill its functions under 3(a), "the Fund shall exercise firm surveillance over the exchange rate policies of members, and shall adopt specific principles for the guidance of all members with respect to those policies." Article IV, Section 3(b), also provides that "The principles adopted by the Fund shall be consistent with cooperative arrangements by which members maintain the value of their currencies in relation to the value of the currency or currencies of other members, as well as with other exchange arrangements of a member's choice consistent with the purposes of the Fund and Section 1 of this Article. These principles shall respect the domestic social and political policies of members, and in applying these principles the Fund shall pay due regard to the circumstances of members." In addition, Article IV, Section 3(b), requires that "Each member shall provide the Fund with the information necessary for such surveillance, and, when requested by the Fund, shall consult with it on the member's exchange rate policies."

The principles and procedures set out below, which apply to all members whatever their exchange arrangements and whatever their balance of payments position, are adopted by the Fund in order to perform its functions under Section 3(b). They are not necessarily comprehensive and are subject to reconsideration in the light of experience. They do not deal directly with the Fund's responsibilities referred to in Section 3(a), although it is recognized that there is a close relationship between domestic and international economic policies. This relationship is emphasized in Article IV which includes the following provision: "Recognizing . . . that a principal objective [of the international monetary system] is the continuing development of the orderly underlying conditions that are necessary for financial and economic stability, each member undertakes to collaborate with the Fund and other members to assure orderly exchange arrangements and to promote a stable system of exchange rates."

Principles for the Guidance of Members' Exchange Rate Policies

A. A member shall avoid manipulating exchange rates or the international monetary system in order to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members.

B. A member should intervene in the exchange market if necessary to counter disorderly conditions which may be characterized inter alia by disruptive short-term movements in the exchange value of its currency.

* Reproduced from *Annual Report of the Executive Directors for the Fiscal Year Ended April 30, 1977*, Washington, D.C., International Monetary Fund, Appendix II, pp. 107-109.

C. Members should take into account in their intervention policies the interests of other members, including those of the countries in whose currencies they intervene.

Principles of Fund Surveillance over Exchange Rate Policies

1. The surveillance of exchange rate policies shall be adapted to the needs of international adjustment as they develop. The functioning of the international adjustment process shall be kept under review by the Executive Board and Interim Committee and the assessment of its operation shall be taken into account in the implementation of the principles set forth below.

2. In its surveillance of the observance by members of the principles set forth above, the Fund shall consider the following developments as among those which might indicate the need for discussion with a member:

(i) protracted large-scale intervention in one direction in the exchange market;

(ii) an unsustainable level of official or quasi-official borrowing, or excessive and prolonged short-term official or quasi-official lending, for balance of payments purposes;

(iii) (a) the introduction, substantial intensification, or prolonged maintenance, for balance of payments purposes, of restrictions on, or incentives for, current transactions or payments, or

(b) the introduction or substantial modification for balance of payments purposes of restrictions on, or incentives for, the inflow or outflow of capital;

(iv) the pursuit, for balance of payments purposes, of monetary and other domestic financial policies that provide abnormal encouragement or discouragement to capital flows; and

(v) behavior of the exchange rate that appears to be unrelated to underlying economic and financial conditions including factors affecting competitiveness and long-term capital movements.

3. The Fund's appraisal of a member's exchange rate policies shall be based on an evaluation of the developments in the member's balance of payments against the background of its reserve position and its external indebtedness. This appraisal shall be made within the framework of a comprehensive analysis of the general economic situation and economic policy strategy of the member and shall recognize that domestic as well as external policies can contribute to timely adjustment of the balance of payments. The appraisal shall take into account the extent to which the policies of the member, including its exchange rate policies, serve the objectives of the continuing development of the orderly underlying conditions that are necessary for financial stability, the promotion of sustained sound economic growth, and reasonable levels of employment.

Procedures for Surveillance

I. Each member shall notify the Fund in appropriate detail within thirty days after the Second Amendment becomes effective of the exchange arrangements it intends to apply in fulfillment of its obligations under Article IV, Section 1. Each member shall also notify the Fund promptly of any changes in its exchange arrangements.

II. Members shall consult with the Fund regularly under Article IV. The consultations under Article IV shall comprehend the regular consultations under Articles VIII and XIV. In principle such consultations shall take place annually, and shall include consideration of the observance by members of the principles set forth above as well as of a member's obligations under Article IV, Section 1. Not later than three months after the termination of discussions between the member and the staff, the Executive Board shall reach conclusions and thereby complete the consultation under Article IV.

III. Broad developments in exchange rates will be reviewed periodically by the Executive Board, *inter alia* in discussions of the international adjustment process within the framework of the World Economic Outlook. The Fund will continue to conduct special consultations in preparing for these discussions.

IV. The Managing Director shall maintain close contact with members in connection with their exchange arrangements and exchange policies, and will be prepared to discuss on the initiative of a member important changes that it contemplates in its exchange arrangements or its exchange rate policies.

V. If, in the interval between Article IV consultations, the Managing Director, taking into account any views that may have been expressed by other members, considers that a member's exchange rate policies may not be in accord with the exchange rate principles, he shall raise the matter informally and confidentially with the member, and shall conclude promptly whether there is a question of the observance of the principles. If he concludes that there is such a question, he shall initiate and conduct on a confidential basis a discussion with the member under Article IV, Section 3(b). As soon as possible after the completion of such a discussion, and in any event not later than four months after its initiation, the Managing Director shall report to the Executive Board on the results of the discussion. If, however, the Managing Director is satisfied that the principles are being observed, he shall informally advise all Executive Directors, and the staff shall report on the discussion in the context of the next Article IV consultation; but the Managing Director shall not place the matter on the agenda of the Executive Board unless the member requests that this procedure be followed.

VI. The Executive Directors shall review annually the general implementation of the Fund's surveillance over members' exchange rate policies.

PUBLICATIONS OF THE INTERNATIONAL FINANCE SECTION

Notice to Contributors

The International Finance Section publishes at irregular intervals papers in four series: **ESSAYS IN INTERNATIONAL FINANCE**, **PRINCETON STUDIES IN INTERNATIONAL FINANCE**, **SPECIAL PAPERS IN INTERNATIONAL ECONOMICS**, and **REPRINTS IN INTERNATIONAL FINANCE**. **ESSAYS** and **STUDIES** are confined to subjects in international finance. **SPECIAL PAPERS** are surveys of the literature suitable for courses in colleges and universities.

An **ESSAY** should be a lucid exposition of a theme, accessible not only to the professional economist but to other interested readers. It should therefore avoid technical terms, should eschew mathematics and statistical tables (except when essential for an understanding of the text), and should rarely have footnotes.

A **STUDY** or **SPECIAL PAPER** may be more technical. It may include statistics and algebra and may have many footnotes. **STUDIES** and **SPECIAL PAPERS** may also be longer than **ESSAYS**; indeed, these two series are meant to accommodate manuscripts too long for journal articles and too short for books.

To facilitate prompt evaluation, please submit three copies of your manuscript. Retain one for your files. The manuscript should be typed on one side of 8½ by 11 strong white paper. All material should be double-spaced—text, excerpts, footnotes, tables, references, and figure legends. For more complete guidance, prospective contributors should send for the Section's style guide before preparing their manuscripts.

How to Obtain Publications

A mailing list is maintained for free distribution of all new publications to college, university, and public libraries and nongovernmental, nonprofit research institutions.

Individuals and organizations that do not qualify for free distribution can obtain **ESSAYS** and **REPRINTS** as issued and announcements of new **STUDIES** and **SPECIAL PAPERS** by paying a fee of \$8 to cover the period January 1 through December 31, 1978. Alternatively, for \$25 they can receive all publications automatically—**SPECIAL PAPERS** and **STUDIES** as well as **ESSAYS** and **REPRINTS**.

ESSAYS and **REPRINTS** can also be ordered from the Section at \$1.50 per copy, and **STUDIES** and **SPECIAL PAPERS** at \$2.50. Payment must be included with the order. (These charges are waived on orders from persons or organizations in countries whose foreign-exchange regulations prohibit such remittances.) In London, the Economists' Bookshop will usually have Section publications in stock but does not accept mail orders.

All manuscripts, correspondence, and orders should be addressed to:

International Finance Section
Department of Economics, Dickinson Hall
Princeton University
Princeton, New Jersey 08540

Subscribers should notify the Section promptly of a change of address, giving the old address as well as the new one.

List of Publications

The following is a list of the recent publications of the International Finance Section. Most of the earlier issues and those marked by asterisks are no longer available from the Section.¹ They may be obtained in microfilm and xerographic soft or library-bound copies from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan 48106, United States, and 18 Bedford Row, London WC1R 4EJ, England. Microfilm editions are usually \$6 and xerographic editions usually \$10.

ESSAYS IN INTERNATIONAL FINANCE

91. Fritz Machlup, *The Book Value of Monetary Gold*. (Dec. 1971)
- *92. Samuel I. Katz, *The Case for the Par-Value System, 1972*. (March 1972)
93. W. M. Corden, *Monetary Integration*. (April 1972)
94. Alexandre Kafka, *The IMF: The Second Coming?* (July 1972)
- *95. Tom de Vries, *An Agenda for Monetary Reform*. (Sept. 1972)
96. Michael V. Posner, *The World Monetary System: A Minimal Reform Program*. (Oct. 1972)
- *97. Robert M. Dunn, Jr., *Exchange-Rate Rigidity, Investment Distortions, and the Failure of Bretton Woods*. (Feb. 1973)
- *98. James C. Ingram, *The Case for European Monetary Integration*. (April 1973)
99. Fred Hirsch, *An SDR Standard: Impetus, Elements, and Impediments*. (June 1973)
- *100. Y. S. Park, *The Link between Special Drawing Rights and Development Finance*. (Sept. 1973)
101. Robert Z. Aliber, *National Preferences and the Scope for International Monetary Reform*. (Nov. 1973)
102. Constantine Michalopoulos, *Payments Arrangements for Less Developed Countries: The Role of Foreign Assistance*. (Nov. 1973)
103. John H. Makin, *Capital Flows and Exchange-Rate Flexibility in the Post-Bretton Woods Era*. (Feb. 1974)
104. Helmut W. Mayer, *The Anatomy of Official Exchange-Rate Intervention Systems*. (May 1974)
105. F. Boyer de la Giroday, *Myths and Reality in the Development of International Monetary Affairs*. (June 1974)
106. Ronald I. McKinnon, *A New Tripartite Monetary Agreement or a Limping Dollar Standard?* (Oct. 1974)
107. J. Marcus Fleming, *Reflections on the International Monetary Reform*. (Dec. 1974)
108. Carlos Díaz-Alejandro, *Less Developed Countries and the Post-1971 International Financial System*. (April 1975)
109. Raymond F. Mikesell and Henry N. Goldstein, *Rules for a Floating-Rate Regime*. (April 1975)
110. Constantine Michalopoulos, *Financing Needs of Developing Countries: Proposals for International Action*. (June 1975)
111. Gerald A. Pollack, *Are the Oil-Payments Deficits Manageable?* (June 1975)

¹ Essays 62, 67, 71, 73, 75, 88, and 90; Studies 12, 14 through 18, 20, 21, 23, and 24; Special Paper 1; and Reprints 6 through 12 are still available from the Section. For a complete list of publications issued by the Section, write to the Section or consult the publications list in Essay 91 or earlier.

112. Wilfred Ethier and Arthur I. Bloomfield, *Managing the Managed Float*. (Oct. 1975)
113. Thomas D. Willett, *The Oil-Transfer Problem and International Economic Stability*. (Dec. 1975)
114. Joseph Aschheim and Y. S. Park, *Artificial Currency Units: The Formation of Functional Currency Areas*. (April 1976)
- *115. Edward M. Bernstein *et al.*, *Reflections on Jamaica*. (April 1976)
116. Weir M. Brown, *World Afloat: National Policies Ruling the Waves*. (May 1976)
117. Herbert G. Grubel, *Domestic Origins of the Monetary Approach to the Balance of Payments*. (June 1976)
118. Alexandre Kafka, *The International Monetary Fund: Reform without Reconstruction?* (Oct. 1976)
119. Stanley W. Black, *Exchange Policies for Less Developed Countries in a World of Floating Rates*. (Nov. 1976)
120. George N. Halm, *Jamaica and the Par-Value System*. (March 1977)
121. Marina v. N. Whitman, *Sustaining the International Economic System: Issues for U.S. Policy*. (June 1977)
122. Otmar Emminger, *The D-Mark in the Conflict between Internal and External Equilibrium, 1948-75*. (June 1977)
123. Robert M. Stern, Charles F. Schwartz, Robert Triffin, Edward M. Bernstein, and Walther Lederer, *The Presentation of the Balance of Payments: A Symposium*. (Aug. 1977)
124. Harry G. Johnson, *Money, Balance-of-Payments Theory, and the International Monetary Problem*. (Nov. 1977)
125. Ronald I. McKinnon, *The Eurocurrency Market*. (Dec. 1977)
126. Paula A. Tosini, *Leaning Against the Wind: A Standard for Managed Floating*. (Dec. 1977)
127. Jacques R. Artus and Andrew D. Crockett, *Floating Exchange Rates and the Need for Surveillance*. (May 1978)

PRINCETON STUDIES IN INTERNATIONAL FINANCE

26. Klaus Friedrich, *A Quantitative Framework for the Euro-Dollar System*. (Oct. 1970)
27. M. June Flanders, *The Demand for International Reserves*. (April 1971)
28. Arnold Colclery, *International Adjustment, Open Economies, and the Quantity Theory of Money*. (June 1971)
29. Robert W. Oliver, *Early Plans for a World Bank*. (Sept. 1971)
30. Thomas L. Hutchison and Richard C. Porter, *The Cost of Tying Aid: A Method and Some Colombian Estimates*. (March 1972)
31. The German Council of Economic Experts, *Towards a New Basis for International Monetary Policy*. (Oct. 1972)
32. Stanley W. Black, *International Money Markets and Flexible Exchange Rates*. (March 1973)
33. Stephen V. O. Clarke, *The Reconstruction of the International Monetary System: The Attempts of 1922 and 1933*. (Nov. 1973)
- *34. Richard D. Marston, *American Monetary Policy and the Structure of the Eurodollar Market*. (March 1974)
35. F. Steb Hipple, *The Disturbances Approach to the Demand for International Reserves*. (May 1974)
36. Charles P. Kindleberger, *The Formation of Financial Centers: A Study in Comparative Economic History*. (Nov. 1974)

37. Margaret L. Greene, *Waiting Time: A Factor in Export Demand for Manufactures*. (April 1975)
38. Polly Reynolds Allen, *Organization and Administration of a Monetary Union*. (June 1976)
39. Peter B. Kenen, *Capital Mobility and Financial Integration: A Survey*. (Dec. 1976)
40. Anne O. Krueger, *Growth, Distortions, and Patterns of Trade among Many Countries*. (Feb. 1977)
41. Stephen V. O. Clarke, *Exchange-Rate Stabilization in the Mid-1930s: Negotiating the Tripartite Agreement*. (Sept. 1977)
42. Peter Isard, *Exchange-Rate Determination: A Survey of Popular Views and Recent Models*. (May 1978)

SPECIAL PAPERS IN INTERNATIONAL ECONOMICS

8. Jagdish Bhagwati, *The Theory and Practice of Commercial Policy: Departures from Unified Exchange Rates*. (Jan. 1968)
9. Marina von Neumann Whitman, *Policies for Internal and External Balance*. (Dec. 1970)
10. Richard E. Caves, *International Trade, International Investment, and Imperfect Markets*. (Nov. 1974)
11. Edward Tower and Thomas D. Willett, *The Theory of Optimum Currency Areas and Exchange-Rate Flexibility*. (May 1976)
12. Ronald W. Jones, "Two-ness" in Trade Theory: Costs and Benefits. (April 1977)

REPRINTS IN INTERNATIONAL FINANCE

13. Benjamin J. Cohen, *Sterling and the City*. [Reprinted from *The Banker*, Vol. 120 (Feb. 1970)]
14. Fritz Machlup, *On Terms, Concepts, Theories and Strategies in the Discussions of Greater Flexibility of Exchange Rates*. [Reprinted from *Banca Nazionale del Lavoro Quarterly Review*, No. 92 (March 1970)]
15. Benjamin J. Cohen, *The Benefits and Costs of Sterling*. [Reprinted from *Euro-money*, Vol. 1, Nos. 4 and 11 (Sept. 1969 and April 1970)]
- *16. Fritz Machlup, *Euro-Dollar Creation: A Mystery Story*. [Reprinted from *Banca Nazionale del Lavoro Quarterly Review*, No. 94 (Sept. 1970)]
- *17. Stanley W. Black, *An Econometric Study of Euro-Dollar Borrowing by New York Banks and the Rate of Interest on Euro-Dollars*. [Reprinted from *Journal of Finance*, Vol. 26 (March 1971)]
18. Peter B. Kenen, *Floats, Glides and Indicators: A Comparison of Methods for Changing Exchange Rates*. [Reprinted from *Journal of International Economics*, Vol. 5 (May 1975)]



