

ESSAYS IN INTERNATIONAL FINANCE

No. 136, December 1979

EXCHANGE-RATE EXPERIENCES
AND POLICIES OF SMALL COUNTRIES:
SOME EUROPEAN EXAMPLES OF THE 1970s

NIELS THYGESEN



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY

Princeton, New Jersey

This is the one hundred and thirty-sixth 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 author, Niels Thygesen, is a professor of economics at the University of Copenhagen. He has been adviser to the Bank of Denmark and a member of various expert groups on monetary integration set up by the Commission of the European Communities. From 1974 to 1979 he was President of the Danish Economic Association. He is the author of books and articles on monetary economics, including THE SOURCES AND THE IMPACT OF MONETARY CHANGES and THE ROLE OF MONETARY POLICY IN DEMAND MANAGEMENT (with K. Shigchara for the OECD).

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. 136, December 1979

EXCHANGE-RATE EXPERIENCES
AND POLICIES OF SMALL COUNTRIES:
SOME EUROPEAN EXAMPLES OF THE 1970s

NIELS THYGESEN



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY

Princeton, New Jersey

INTERNATIONAL FINANCE SECTION
EDITORIAL STAFF

Peter B. Kenen, *Director*
Ellen Seiler, *Editor*
Susan Ciotti, *Editorial Aide*
Kaeti Isaila, *Subscriptions and Orders*

Library of Congress Cataloging in Publication Data

Thygesen, Niels

Exchange-rate experiences and policies of small countries.

(Essays in international finance ; no. 136 ISSN 0071-142X)

Bibliography: p.

1. Foreign exchange problems—Europe. I. Title. II. Series: Princeton University. International Finance Section. Essays in international finance ; no. 136 HG136.P7 no. 136 [HG3942] 332.042s [332.4'56094] 80-140

Copyright © 1980 by International Finance Section, Department of Economics, Princeton University.

All rights reserved. Except for brief quotations embodied in critical articles and reviews, no part of this publication may be reproduced in any form or by any means, including photocopy, without written permission from the publisher.

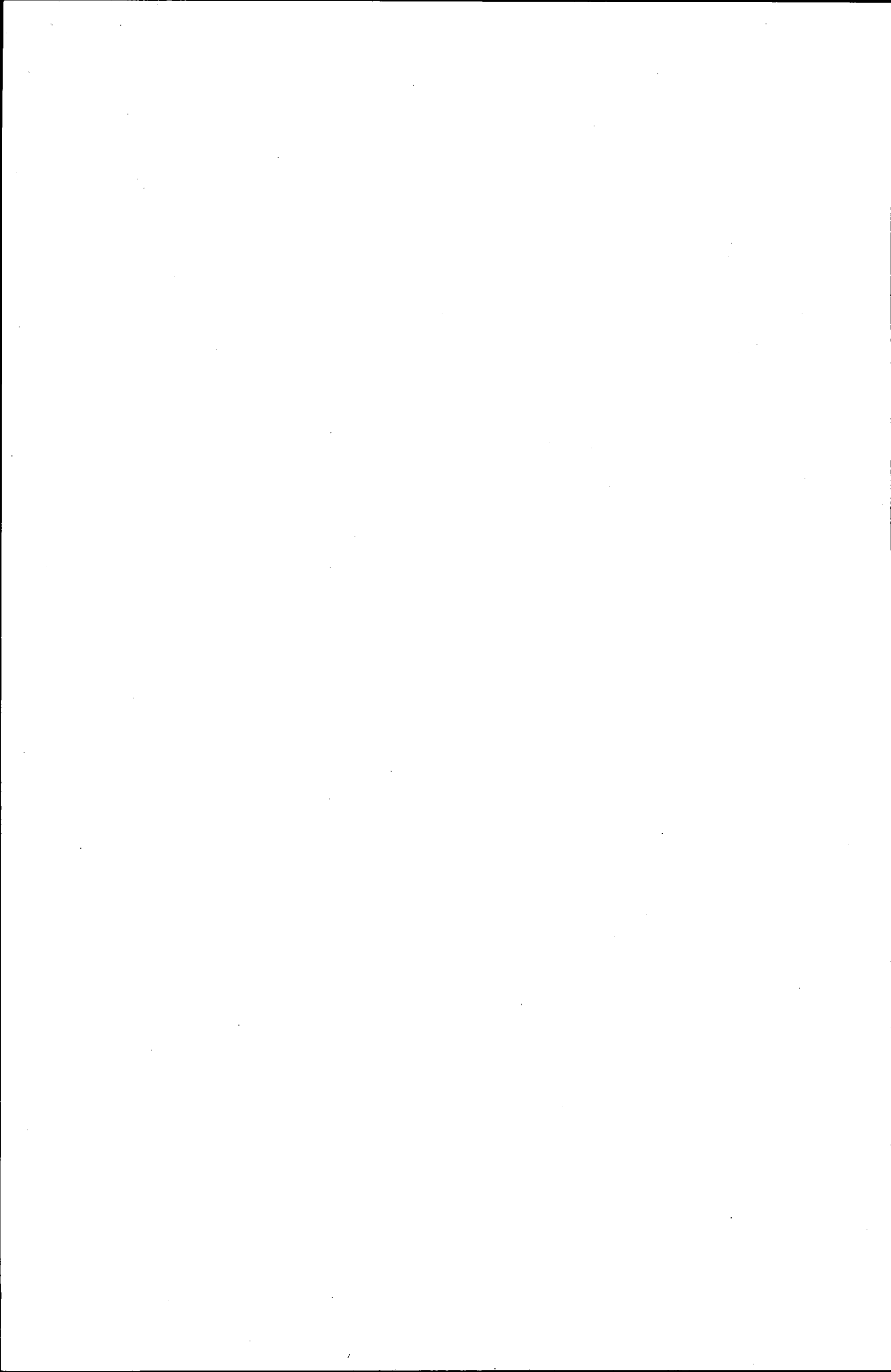
Printed in the United States of America by Princeton University Press at Princeton, New Jersey.

International Standard Serial number: 0071-142X

Library of Congress Catalog Card Number: 80-140

CONTENTS

INTRODUCTION	1
CHANGES IN NOMINAL AND REAL EXCHANGE RATES, 1970-79	2
APPRAISING THE CHANGES IN REAL EXCHANGE RATES	5
A DIGRESSION ON THE MEASUREMENT OF COMPETITIVENESS IN A SMALL OPEN ECONOMY	8
EXCHANGE RATES IN THE SNAKE	12
INTERPRETING EXPERIENCE WITHIN THE SNAKE	15
DENMARK AS A CASE STUDY OF THE CONSEQUENCES OF CHOOSING THE STRONG-CURRENCY OPTION	24
CONCLUSIONS	29
REFERENCES	30



Introduction

The exchange-rate experiences and policies of the smaller European economies in the 1970s span a wide range, from the management of strongly appreciating currencies to the defense of others against large and rapid depreciation. As any study of interventions will demonstrate, only pure floating—in the sense of the absence of any exchange-rate target—is missing. Table 1 summarizes the present and past practices of thirteen smaller European countries.

It would be unsatisfactory to attempt to cover this wide range, from the Swiss franc to the Portuguese escudo, in an essay. Rather, I shall concentrate on the “median” case of the smaller European countries that have pegged to the deutsche mark during most or all of the past decade. This narrows the subject to past members of the snake—the Benelux and Scandinavian countries and, unilaterally, Austria—and present members of the European Monetary System (EMS)—the Benelux countries, Denmark, and Ireland. While there are obvious differences among these countries with respect to both macroeconomic experience and design of exchange-rate policies, one common element is the attempt to peg to an external currency or unit facing less rapid inflationary prospects than domestic prices and costs. This policy is sometimes labeled “the strong-currency option” to distinguish it from the individually managed floating, with or without a declared exchange-rate target, practiced by some other European countries. By concentrating on the countries that have taken up the strong-currency option, it becomes possible to identify more clearly the likely costs and benefits to such countries of participation in the EMS on various assumptions concerning the management of the EMS.

In discussing the experiences of countries that have taken up the strong-currency option, the example of Denmark will be used frequently simply because of my greater familiarity with that country. However, much of the analysis is applicable to other small economies in Western Europe that have participated in the joint currency arrangements of the European Community. The Danish experience will be contrasted with that of Finland, Norway, and Sweden, all currently pegging to their individual baskets of currencies.

This paper was presented at the Ford Foundation-Bank of Spain conference on Macroeconomics under Flexible Exchange Rates in September 1979 and published in Spanish by the Bank of Spain. The part of the paper that relates to Danish experience was presented at the Summer Seminar on Small Open Economies at Trinity College in Dublin in July 1979.

TABLE 1
EXCHANGE-RATE REGIMES OF SMALLER EUROPEAN ECONOMIES

Country	Mid-1979	1973-78
Austria	Informally in EMS	Informally in snake
Belgium ^a	EMS	Snake
Denmark	EMS	Snake
Finland	Basket pegger ^b	Basket pegger from Nov. 1977
Greece	Basket pegger	Basket pegger from Mar. 1975
Iceland	No announced margins	No announced margins from June 1973
Ireland	EMS	Pegged to U.K. pound
Netherlands	EMS	Snake
Norway	Basket pegger ^b	Snake until Dec. 1978
Portugal	Crawling relative to basket	Crawling relative to basket from Aug. 1977
Spain	No announced margins	No announced margins from Jan. 1974
Sweden	Basket pegger ^b	Snake until Aug. 1977
Switzerland	No announced margins	No announced margins

^a Belgium/Luxembourg Economic Union.

^b Composition of basket shown in Table 5.

SOURCE: *IMF Annual Report on Exchange Restrictions*, and *International Financial Statistics*, June 1979.

Changes in Nominal and Real Exchange Rates, 1970-79

Both nominal and real exchange rates have shown greater changes in the 1970s than during the previous two decades. Table 2 and Figure 1 summarize the evidence for Canada, Japan, the United States, and eleven European countries—the four large ones and seven smaller ones. Five different indices of costs and prices are used in Table 2: (1) unit labor costs (ULC), (2) “normalized” ULC, i.e. wage costs adjusted for trend productivity, (3) value-added (GDP) deflators, (4) wholesale prices, and (5) export unit values. All five indices refer to the manufacturing sector; they are presented quarterly in recent issues of *International Financial Statistics*.

Several comparative studies, notably Artus (1978) and “The International Competitiveness of Selected OECD Countries” in OECD (1978, pp. 35-52), have demonstrated that conclusions about competitiveness are highly sensitive to the choice of cost or price index. Even leaving aside the

TABLE 2
 INDICES OF RELATIVE COSTS AND PRICES
 VIS-À-VIS OTHER INDUSTRIAL COUNTRIES, 1978
 (1970 = 100)

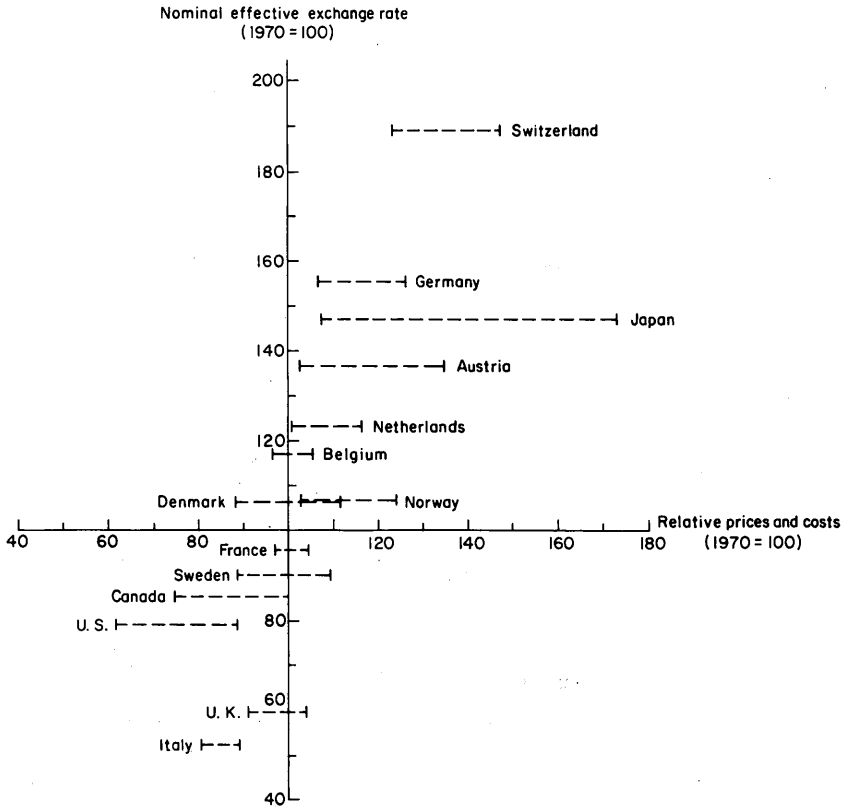
Country	Nominal Effective Rate	Costs and Prices in Manufacturing					Effective Rate Change Agreed at Smithsonian
		Unit Labor Costs	Normal- ized ULC	Value- Added Deflators	Whole- sale Prices	Export Unit Values	
Austria	136.5	122.4	134.7	123.2	119.3	102.6	102.0
Belgium	117.2	102.7	105.5	101.3	96.6	105.2	102.1
Denmark	106.9	91.6	88.4	103.4	111.8	107.7	99.2
France	95.8	104.6	104.0	100.1	97.1	103.3	99.4
Germany	155.3	114.3	126.3	114.5	116.9	107.1	105.7
Italy	52.4	88.8	80.7	88.9	86.2	89.1	99.6
Netherlands	123.1	113.5	109.6	116.3	110.5	100.7	101.8
Norway	106.6	124.0	109.6	113.3	102.7	104.4	99.4
Sweden	90.3	106.9	88.6	98.9	97.6	109.3	99.4
Switzerland	189.0	134.6	123.3	147.4	136.7	138.2	104.9
U.K.	60.1	95.4	91.3	93.6	97.8	104.0	99.4
Canada	85.9	86.9	88.2	100.0	89.8	74.7	105.2
Japan	147.1	173.2	152.6	143.8	122.5	107.6	113.6
U.S.	79.0	61.4	66.7	68.3	79.4	88.8	91.5

SOURCE: *International Financial Statistics* and unpublished data from the IMF Research Department.

extraordinary Japanese case, where the estimates of real appreciation over the eight years 1970-78 vary from 8 per cent in the case of export unit values to 73 per cent in the case of unit labor costs, the variation among the indices is very large. Generally, as one would expect, the indices heavily weighted with traded goods—wholesale prices and export unit values—show closer conformity to purchasing power parity (PPP) than the broader-based price indices such as the GDP deflator and consumer prices (not shown in Table 2). But even in terms of traded-goods prices, the real exchange rates of some of the smaller countries' currencies have changed significantly.

The surprisingly wide range of answers supplied by the different indices makes it impossible to write a story that fits all the observations well. The most that can be said is that there appears to have been, on average, a positive association between appreciations in nominal and real terms. The slope of a line through the first and third quadrants of Figure 1 suggests that a 3 to 5 per cent change in the nominal effective exchange rate has been associated with a change in the real rate of 1 per cent. Departures from this average pattern may be found among

FIGURE 1
 CHANGES IN NOMINAL EFFECTIVE EXCHANGE RATES AND IN
 RELATIVE COSTS AND PRICES, 1970-78



SOURCE: *International Financial Statistics* and unpublished data from the IMF Research Department.

both strong and weak currencies for some or most of the indices, and it would be naive to put any great faith in the stability of the relationship. Behind each national constellation for the 1970-78 period there is a separate and detailed story to be told, involving national policy reactions and institutional arrangements. A cross-country regression would not make much sense.

Theoretical considerations suggest that conformity to PPP depends on the degree of openness of the economy: The more open the economy, the more sensitive domestic costs and prices will be to changes

in the nominal exchange rate, *ceteris paribus*; conversely, the more difficult it will be to maintain any given nominal rate in the face of a trend in domestic costs and prices diverging from some international average. Indeed, the two largest and least open economies in terms of foreign-trade shares—the United States and Japan—do show the largest departures from PPP, at least when ULC or the GDP deflator is used for reference. But there is no clear evidence that the seven small European countries and Canada have had less scope for changing their real exchange rates than have the four larger European countries. On most definitions, Canada and Sweden retained in real terms most of the devaluation of their nominal effective rate, while Austria, the Netherlands, and Switzerland retained about half their substantial revaluations. These are rather larger shares than those for Germany and Italy, which have had the largest changes in nominal effective rates, in one direction or the other, among the bigger European countries. They are much larger than the share for the United Kingdom; by 1978 higher inflation had already offset the very large 1972-76 depreciation of sterling. The nominal effective rate of the French franc has not changed much, nor has French competitiveness. The cases of Belgium and Denmark are both ambiguous on the basis of the data in Table 2, the direction of change in competitiveness depending on the index chosen. I shall argue below, however, that in the case of Denmark, at least, there seems little doubt on the basis of broader evidence that substantial real appreciation has taken place over the 1970s.

Appraising the Changes in Real Exchange Rates

Even if we tentatively conclude that there has been scope for changing the real exchange rate or competitiveness on most definitions of that concept, not only in the largest and least open economies but also in the smaller European countries, we must still ask whether such changes were desirable in the specific context of the 1970s. PPP is a convenient starting point for an analysis of the longer-run interaction between national inflation rates and movements in nominal exchange rates. But it should not be elevated into a firm norm, in the sense that departures from PPP must be regarded as undesirable from the viewpoint of the international adjustment mechanism or national policy preferences.

From a policy-oriented viewpoint, we must ask first which changes in real exchange rates were desirable, looking back to the balance-of-payments constellation of the base period (1970) and subsequent policy-induced or exogenous disturbances. Even when we find that real rates

have changed in the right direction, we must go on to ask whether it was worthwhile to let nominal rates move as far as required, in the light of the observed tradeoff between nominal and real changes, rather than rely on domestic policy measures to bring about the required adjustment.

Following this strategy, the first thing to note is that the base period was far from being one of equilibrium. Indeed, the Smithsonian Agreement of December 1971, one year after the end of the base period, was an implicit reply to the first of the policy questions raised above. The Agreement resulted in a comprehensive exchange-rate realignment, designed to alter exchange rates in order to achieve an acceptable constellation of current balance-of-payments positions among the Group of Ten countries and, indirectly, all countries in the Organization for Economic Cooperation and Development. The outcome of the negotiations was very close to the patterns of exchange rates produced by simulations using the world trade models developed by the IMF and OECD staffs—simulations aimed at approximate current-account equilibrium on a cyclically adjusted basis by 1974, i.e. after a lengthy period of adjustments. (The one exception may be the Canadian dollar; the simulations did not indicate the need for the revaluation embodied in the political compromise.) Since little attention was paid in these calculations to the feedback from the suggested exchange-rate changes to domestic costs and prices, it would be fair to say that the Smithsonian Agreement was an attempt to agree on what national and international officials felt were the required real rate changes. These changes, expressed in terms of U.S. dollar rates, ranged from revaluations of 17 per cent for the yen to 7.5 per cent for the lira and the Swedish krona. Expressed in terms of effective rates, they were generally small relative to the changes in real rates that have actually been observed over the 1970-78 period (see the final column of Table 2).

If all subsequent disturbances to the industrialized countries had been primarily of a monetary nature, i.e. accelerations and decelerations in national money creation relative to other countries, which would not call for changes in relative competitiveness, subsequent exchange-rate changes could have been expected to roughly match inflation differentials over the 1972-78 period. There have, indeed, been large differences in rates of national money creation, particularly in the United Kingdom in 1972-73 and in Italy in 1975, that subsequently led to doses of depreciation and accelerating inflation in those two countries. Since the speed of reaction to monetary disturbances in foreign-exchange markets is typically faster than in the market for domestic output, monetary ac-

celerations have led to temporary real depreciations. The mirror image of this process could be observed most clearly in Germany in 1973-74, when the Bundesbank tightened monetary policy earlier and harder than most other central banks, and in Switzerland during much of 1975-77. In these cases, the nominal appreciations ran well ahead of the improvement in relative inflation performance, leading to substantial real appreciations. This phenomenon of "overshooting" has been documented recently for a number of currencies (see, e.g., Swoboda, 1979; Artus and Young, 1979; and Korteweg, 1979).¹

In any case, purely monetary disturbances may lead to temporary, but not to permanent, changes in the real exchange rate. By implication, a careful analysis of monetary policies may explain some of the variability of real exchange rates but not the longer-term trends observed in some of them over the 1970-78 period.

There is no shortage of possible nonmonetary explanations, however: the oil-price hike of 1973-74; changes in the international division of labor and in the structure of foreign trade, particularly with respect to the role of nonprice factors; and the timing of fluctuations in real economic activity. All of these have to some extent affected the OECD countries differently and have elicited somewhat dissimilar policy responses. In particular, the timing of the initial deflationary reactions in 1973-74 and the vigor of reflationary actions in 1976-77 varied considerably, resulting in a sharp desynchronization of the growth rates of real output in the three major countries, the United States, Japan, and Germany.²

The desynchronization swamped other factors, including the changes in real exchange rates that had already taken place and were operating to bring current-account balances closer to equilibrium. There followed rapid real depreciation of the dollar paralleled by unprecedentedly rapid real appreciations of the yen and Swiss franc and by a slower but still significant real appreciation of the deutsche mark, producing the realiza-

¹ The latter study, like other recent monetarist macroeconomic work on the determination of real output, attributes to unanticipated changes in the money stock a significant impact on the real exchange rate over the short and medium run; anticipated monetary changes, by contrast, have more nearly parallel effects on the nominal exchange rate and domestic price level and accordingly have only a minor impact on the real exchange rate. One may have difficulty accepting the particular measure of unanticipated monetary changes Korteweg uses, but there can be little doubt that the distinction he attempts to draw is highly relevant to the analysis of exchange-rate determination.

² For a discussion of these policy differences, see Izzo and Spaventa (1979). Some of these differential policy reactions appear in Korteweg's (1979) analysis as unanticipated changes in real government expenditures.

tion that too much of the burden of adjustment had been placed on the foreign-exchange market. This realization resulted in major revisions of policy, most dramatically in Switzerland and the United States, in the fall of 1978. Though the most violent movements were in a few key bilateral exchange rates, notably in the dollar rates for the yen and Swiss franc, they are very visible in the 1978 annual averages of effective rates listed in Table 2. By implication, the final observation for 1978, like the 1970 base period, is not one of equilibrium in which we could expect PPP to hold even if all shocks had been of the monetary kind favorable to the observation of this long-run state.

The main topic of this paper, however, is not the analysis of the changes in real exchange rates of the main currencies that were floating individually (or at least had no announced exchange-rate targets). I have dwelt on them mainly to make one point: Whatever we may think of the size of those changes, the direction of change was undoubtedly right—upward for countries in strong current-account positions, downward for the dollar. My chief concern here is with the smaller European countries, whose currencies did not float individually (with the exception of the Swiss franc). The changes in their exchange rates were more nearly a by-product of the movements of one or more of the major currencies than the outcome of national developments, real or monetary. I shall be concerned, in particular, with the interaction between the currency arrangements of the European Community—the “snake” up to the end of 1978—and the more global system of exchange-rate flexibility surrounding those arrangements.

A Digression on the Measurement of Competitiveness in a Small Open Economy³

As I pointed out in my commentary on Table 2, there is little agreement among empirical researchers as to which of the many available or conceivable indices of relative prices and costs is most appropriate for assessing developments in competitiveness.

In highly competitive markets, where producers from several small countries produce and sell under conditions that are fairly similar with respect to technology and organization, one would ideally look for some weighted average of hourly earnings corrected for total factor productivity as the starting point for measuring competitiveness. That is why some researchers select unit labor costs (or the smoothed concept of

³ This section owes much to the major study of Denmark's competitiveness by Blomgren-Hansen and Petersen (1977) and to discussions with the authors.

normalized unit labor costs also shown in Table 2); they argue that changes in output per manhour are a close approximation to changes in the unobservable total factor productivity. Confidence in this conclusion is easily dispelled, however, by looking at developments in the 1970s. If hourly earnings rise faster at home than abroad, production and employment will be reduced until output per manhour has risen to offset the increase in wages. The more similar the domestic and foreign economies with respect to output structure and production functions, the more tightly will measured unit labor costs be tied together, regardless of differences in rates of change of hourly earnings.

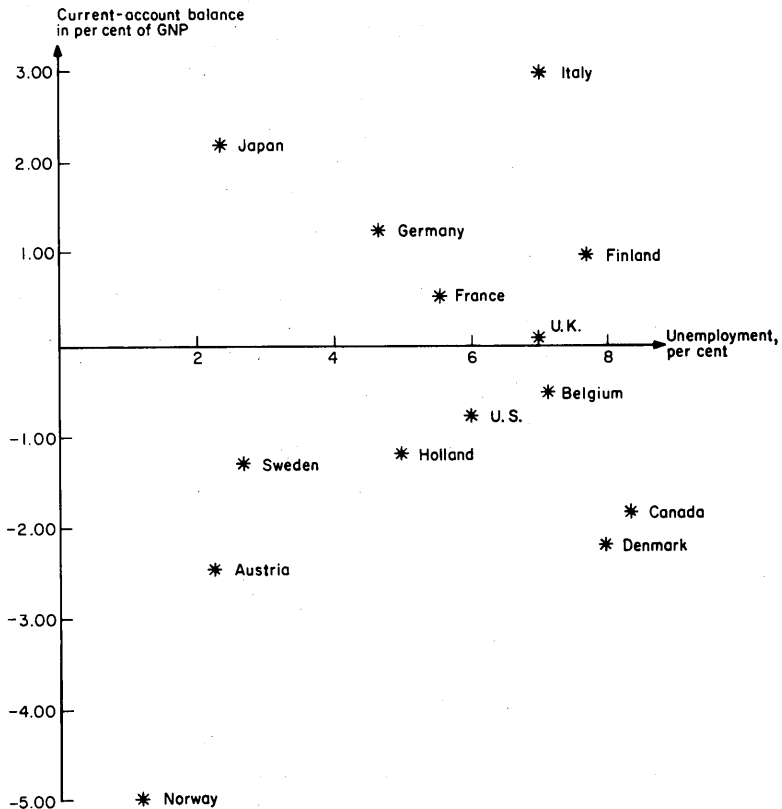
In practice, imperfection in competition and time lags in the responses of producers will assure that changes in unit labor costs are positively correlated with changes in hourly earnings. But measuring competitiveness (or the real exchange rate) by relative unit labor costs expressed in a common unit may lead to underestimation of the changes in relative competitive positions that are really taking place, because changes in output per manhour are in part endogenous responses to changes in hourly earnings. Furthermore, the correction made for changes in output per manhour is excessive to the extent that it is offset by opposite movements in the productivity of other factors. Such offsetting movements are particularly likely for the other main factor, capital. And the error may then be compounded in cases where the cost of capital has been kept high and rising as part of a defensive monetary policy.

Changes in total factor productivity in one country relative to another may be important in comparing a small European country to a developing country or, possibly, to Japan or the United States, but this is hardly the case in comparisons between small European economies such as the Scandinavian or Benelux countries. In these cases, we are likely to get closer to a measure of changes in competitiveness by omitting altogether the correction for changes in output per manhour and relying directly on hourly earnings.

The results for several countries change in quite a remarkable way when we move from comparisons based on unit labor costs or normalized unit labor costs to comparisons based on relative hourly earnings. In the case of Denmark, the change is particularly striking. Using the first two measures, we obtain an 8 to 12 per cent real depreciation; using hourly earnings, we obtain a real appreciation of 25 per cent. The latter figure is much easier to reconcile with the observed changes in relative wholesale prices and export unit values, which showed a real appreciation of 12 and 8 per cent, respectively, over the 1970-78 period. To reconcile these last figures with a decline in relative labor costs of

the same order of magnitude, we would have to look for an explosive rise in profits, and this is strongly at variance with the evidence. The salient facts are rather that the competitive sector has shrunk to such an extent that the Danish combination of unemployment and current-account performance has been persistently worse than that found in other OECD economies (see Figure 2). The unemployment percentage for 1978 was matched only by that of Canada; the current-account deficit, at $2\frac{1}{2}$ per cent of GNP in 1978, a relatively good year, was exceeded clearly but temporarily only by that of Norway—hardly the position of a country that had improved its competitiveness.

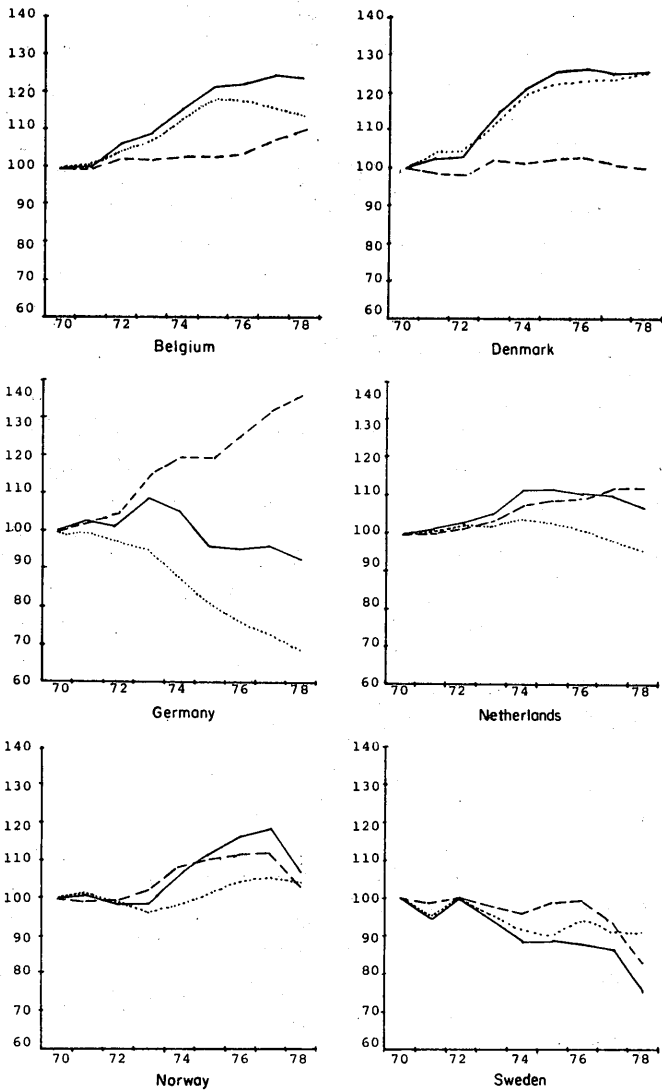
FIGURE 2
CURRENT ACCOUNT AND UNEMPLOYMENT IN
SELECTED OECD COUNTRIES, 1978



SOURCE: Det økonomiske Rad (1979, p. 20).

Figure 3 shows for each of six countries—Belgium, Denmark, Germany, the Netherlands, Norway, and Sweden—indices for relative hourly earnings and the nominal effective exchange rate, using trade shares

FIGURE 3
RELATIVE WAGES IN MANUFACTURING (...), THE EFFECTIVE EXCHANGE RATE (---), AND COMPETITIVENESS (—), 1970-78
(1970 = 100)



in manufacturing as weights in both cases, and indices for the product of the two. The figures point to substantial real appreciations of the Belgian franc and Danish krone and to smaller appreciations of the Dutch guilder and Norwegian krone but, in both the Dutch and the Norwegian cases, some recent improvement in competitiveness. By contrast, the deutsche mark and the Swedish krona have both depreciated in real terms, the krona rather strongly over the two years 1977 and 1978.

On the measure used in Figure 3, the contrast with the previous period, under the adjustable peg, is less clear than when using other measures of the real exchange rate. In the cases of Denmark and the Netherlands, the deterioration in competitiveness (real appreciation) continues a trend that became visible from 1961 in the case of Denmark and from 1963 in the case of the Netherlands. For the other four countries, real rates were more stable prior to 1970 than after, particularly in the short run. But even under the adjustable peg of the 1960s, the pressure to keep changes in relative wages within narrow bounds did not operate very strongly.

Exchange Rates in the Snake

It is useful to distinguish two subperiods in the 1970s, at least for the Scandinavian currencies. During the first, Denmark and Norway were in a clear "conflict" situation; the impact of relatively faster wage increases was compounded by an appreciating nominal effective exchange rate because the countries' currencies were pegged to the other snake currencies and to the deutsche mark in particular. The Norwegian krone even followed the deutsche mark and the Dutch guilder in the series of 5 per cent revaluations of 1973 (see Table 3). Both Denmark and Norway took part in the snake arrangements from the start in March-April 1972, and Norway remained in the snake despite a referendum of September 1972 in which Norway rejected membership in the European Community.

The Swedish case is more complex. Up to 1974, the economy had been less overheated than other OECD economies, and relative wages were falling between 1972 and 1974. There was thus serious discussion in 1974 of the need to revalue the Swedish krona in order to forestall a boom generated by high profits. Some revaluation did indeed take place in 1975-76 as a result of the link to the deutsche mark. But, at the same time, the trend in relative wages was sharply reversed, leading to a rapid deterioration in Sweden's competitive position and a worsening of the current account.

TABLE 3
CHRONOLOGICAL HISTORY OF THE SNAKE

1972:	
Apr. 24	Basle Agreement enters into force. Participants: Belgium, France, Germany, Italy, Luxembourg, the Netherlands.
May 1	The United Kingdom and Denmark join.
May 23	Norway becomes associated.
June 23	The United Kingdom withdraws.
June 27	Denmark withdraws.
Oct. 10	Denmark returns.
1973:	
Feb. 13	Italy withdraws.
Mar. 19	Transition to the joint float: Interventions to maintain fixed margins against the dollar ("tunnel") are discontinued.
Mar. 19	Sweden becomes associated.
Mar. 19	The DM is revalued by 3 per cent.
Apr. 3	Establishment of a European Monetary Cooperation Fund is approved.
June 29	The DM is revalued by 5.5 per cent.
Sept. 17	The Dutch guilder is revalued by 5 per cent.
Nov. 16	The Norwegian krone is revalued by 5 per cent.
1974:	
Jan. 19	France withdraws.
1975:	
July 10	France returns.
1976:	
Mar. 15	France withdraws again.
Oct. 17	Agreement on exchange-rate adjustment ("Frankfurt realignment"): The Danish krone is devalued by 6 per cent, the Dutch guilder and Belgian franc by 2 per cent, and the Norwegian and Swedish kroner by 3 per cent.
1977:	
Apr. 1	The Swedish krona is devalued by 6 per cent, and the Danish and Norwegian kroner are devalued by 3 per cent.
Aug. 28	Sweden withdraws; the Danish and Norwegian kroner are devalued by 5 per cent.
1978:	
Feb. 13	The Norwegian krone is devalued by 8 per cent.
Oct. 17	The DM is revalued by 4 per cent, the Dutch guilder and Belgian franc by 2 per cent.
Dec. 12	Norway announces decision to withdraw.

During this early period, the Benelux countries underwent a similar range of experiences. Both the Dutch guilder and the Belgian franc appreciated significantly in real terms, though in different ways—Belgium primarily through faster wage increases than those of its trading partners, the Netherlands through slightly faster wage increases combined with revaluation. The latter took place, as in Norway, not only as a result of the upward pull of the deutsche mark but also as a result of a decision in September 1973 to revalue by 5 per cent. It would appear that this revaluation, analogous to the Norwegian one two months later, checked the tendency for Dutch wages to continue to run ahead of those in other countries, whereas Belgium and Sweden faced a two- to three-year period during which wages accelerated relative to those elsewhere.

In the second phase, starting with the realignment in the snake in October 1976, the symmetry between the Scandinavian and Benelux experiences breaks down. The former embarked on a substantial downward adjustment of their currencies. Between October 1976 and October 1978, the Danish krone was devalued relative to the deutsche mark by 18 per cent in four steps, and the Norwegian krone was devalued by 23 per cent in five steps. The Swedish krona had been devalued by 9 per cent in two steps by April 1977, and Sweden withdrew from the snake in August. Thereafter, the Swedish authorities stabilized the krona in terms of a basket of currencies at a level implying a further 12 per cent devaluation relative to the deutsche mark.

The devaluations of the three Scandinavian currencies, clustering around 20 per cent vis-à-vis the deutsche mark, are smaller and more distinguishable from one another when expressed in terms of effective rates. The percentage changes since the realignment of October 1976 are 13 to 15 per cent for the Swedish krona, 11 to 13 per cent for the Norwegian krone, and 1 to 3 per cent for the Danish krone, depending on the precise weighting scheme adopted. And in real terms, still using the relative wages of Figure 3, they are even more strikingly different. The Swedish krona and Norwegian krone have depreciated by approximately 18 and 14 per cent, respectively, while the Danish krone has hardly changed at all. In other words, the four adjustments since October 1976 have maintained the *status quo* with respect to Danish competitiveness but have substantially improved Swedish and Norwegian competitiveness.

The adjustments of the Dutch guilder and Belgian franc vis-à-vis the deutsche mark have been very much smaller than those of the Scandinavian currencies, amounting to devaluations of 4 per cent made in two

equal steps (October 1976 and October 1978). Because of the general strengthening of the deutsche mark over this period, the effective rates for both Benelux currencies have appreciated by 5 to 7 per cent since October 1976. In the Belgian case, this appreciation roughly matches the extent to which domestic wages have risen more slowly than elsewhere; the real exchange rate has been stable. In the Dutch case, a real depreciation of 3 to 4 per cent appears to have taken place, because the appreciation of the guilder has matched only about two-thirds of the relative decline of Dutch wages. Comparable figures for Germany imply a real depreciation of approximately 3 per cent during the post-October 1976 period; the decline in relative wages has more than offset the 8 to 9 per cent appreciation of the effective rate for the deutsche mark.

This very brief review of two periods in the history of the snake raises two major questions: Why was such a long period allowed to pass after the early adjustments of 1973 before exchange-rate adjustments were finally made inside the snake in October 1976? And what guidance can the history of the snake supply for the management of the EMS?

Interpreting Experience within the Snake

After the realignment of the German, Dutch, and Norwegian currencies in 1973, which may be viewed as the aftermath of the violent dollar instability accompanying the transition to generalized floating early that year, there followed a period of nearly three years during which the smaller snake currencies stuck to their central rates for the deutsche mark. This period spanned the oil-price hike of 1973-74 and the dissimilar policy reactions to it; the deep recession of 1974-75; the departure, re-entry, and second departure of France from the snake; the rapid depreciation of two major currencies (the lira and sterling) of great importance to the participating countries; and, last but not least, periodic differences in monetary and other demand-management policies and more continuous differences in inflation performance. Looking back, it is indeed surprising that it was technically possible to maintain the snake—or “mini-snake” as it became known during the absence of France—with only intermittent and limited interventions.

The Bundesbank is the only central bank among those participating in the snake to publish the volume of its interventions. As Table 4 shows, intervention was on balance small in 1974 and 1975. During the months following the first departure of the French franc in January 1974, further defections were rumored and the Bundesbank intervened

TABLE 4
CHANGES IN THE BUNDESBANK'S NET EXTERNAL POSITION
(in billions of DM)

<i>Period</i>	<i>Total</i>	<i>Interventions in the Snake</i>	<i>Other Foreign- Exchange Movements</i>
1973:			
January-March	+ 19.9	- 0.6	+ 20.5
April-May	- 0.9	- 1.5	+ 0.6
June-July	+ 8.5	+ 5.8	+ 2.7
August-September	+ 3.4	+ 4.3	- 0.9
October-December	- 4.5	- 1.1	- 3.4
January-December	+ 26.4	+ 6.8	+ 19.6
1974:			
January	- 2.5	+ 0.2	- 2.8
February-June	+ 5.4	+ 4.1	+ 1.3
July-September	- 6.4	- 3.5	- 2.9
October-December	+ 1.6	- 0.7	+ 2.3
January-December	- 1.9	+ 0.2	- 2.1
1975:			
January-March	+ 5.0	-	+ 5.0
April-September	- 6.6	- 1.8	- 4.8
October-December	- 0.6	-	- 0.6
January-December	- 2.2	- 1.8	- 0.4
1976:			
January	+ 0.1	-	+ 0.1
February-March	+ 9.7	+ 8.7	+ 1.0
April-July	- 4.6	- 1.4	- 3.2
August-mid-October	+ 7.7	+ 8.0	- 0.4
Mid-October-December	- 4.1	- 3.5	- 0.6
January-December	+ 8.8	+ 11.9	- 3.1
1977:			
January-June	- 0.8	- 1.5	+ 0.7
July	+ 2.0	+ 0.0	+ 2.0
August-September	- 2.0	- 0.3	- 1.7
October-December	+ 11.3	+ 3.1	+ 8.2
January-December	+ 10.5	+ 1.3	+ 9.1
1978:			
January-March	+ 4.1	- 1.1	+ 5.2
April-June	- 4.1	- 0.1	- 4.0
July-mid-October	+ 12.8	+ 10.1	+ 2.7
Mid-October-December	+ 7.3	- 1.1	+ 8.4
January-December	+ 20.1	+ 7.8	+ 12.3

NOTE: Figures may not add to totals because of rounding.
SOURCE: Deutsche Bundesbank, *Annual Report*, 1973-78.

to support the smaller currencies, but its interventions were substantially reversed during the third quarter.

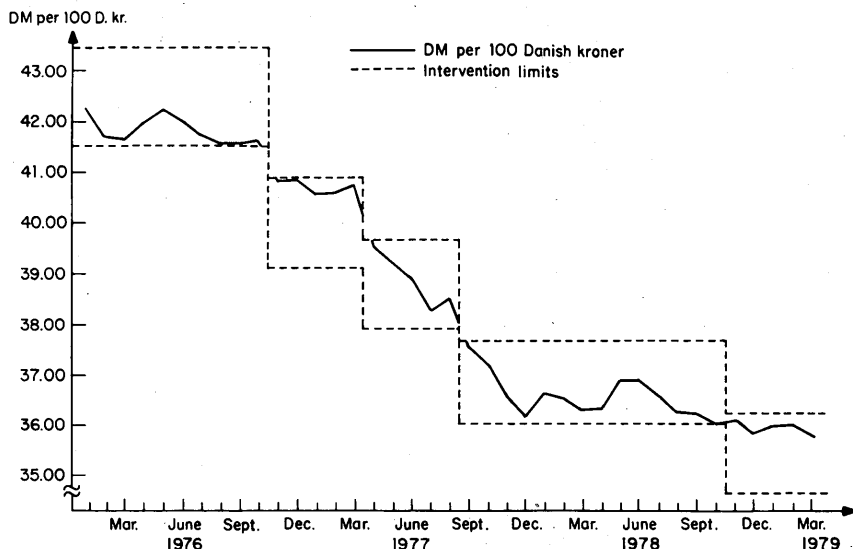
It was not until 1976 that the central banks had to intervene again on a major scale. Capital flows out of the weaker currencies into the deutsche mark were especially large in March 1976, just before and after the meeting of the finance ministers of the European Community, which ended in the second withdrawal of the French franc. The changes in central rates that had been expected by the market and, indeed, prepared for political decision did not materialize, and this failure to take action when the need was becoming obvious prolonged the period of intervention up to the first days of April. The situation was particularly serious for the Danish krone; nearly one-fourth of the Bundesbank's purchases of snake currencies were Danish kroner. On this occasion, moreover, the flows were reversed only to a minor extent in the following months.

Another difficult period followed from August to mid-October 1976, when expectations of a realignment became widespread at the time of the German elections. During the campaign, there was sharp criticism of the commitment to support the weaker snake currencies. Even though only the smaller ones were left within the snake, the amounts involved were not negligible; net interventions in the snake in 1976 amounted to 1½ per cent of the broad money stock (M_2) in Germany and to more than 6 per cent of the monetary base.

By the fall of 1976, opinion had converged in Germany and the smaller countries that tensions in the snake had become too great and some adjustments had to take place. Monetary measures had been taken that tended to widen the uncovered interest differentials in favor of the smaller countries, but these were insufficient to deal with the problem. A less expansionary monetary stance took some time to have an impact, given the generally high liquidity in the smaller countries, particularly in Denmark. In Denmark, a 25 to 30 per cent increase in the money stock in 1975 and early 1976 eased the way for domestic firms to repay foreign loans, thereby straining the maintenance of the central rates.

The realignment agreed upon in Frankfurt in October 1976 strengthened confidence in the survival of the snake. With the exception of the Danish krone, the adjustments of central rates were so small—2 or 3 per cent—that the band around the new central rate overlapped the band around the old rate, making possible a continuity of market exchange rates. Even in the case of the Danish krone, which was devalued by 6 per cent, the change in the market rate for the deutsche mark was less than 2 per cent (see Figure 4).

FIGURE 4
THE DM RATE AND INTERVENTION LIMITS FOR THE
DANISH KRONE, 1976-79



During the final two and a half years of the snake's existence, four more adjustments were made. In the case of Denmark, as was shown earlier, these changes sufficed to keep the effective exchange rate approximately stable. They did not go beyond that to reverse the cumulative real appreciation of the krone but merely prevented a further decline of competitiveness. The tendency for the Belgian franc and Dutch guilder to appreciate in real terms was similarly checked, and a small improvement in competitiveness took place between 1976 and 1978.

There were two major differences between the Benelux countries and Denmark: (1) In the Benelux countries, there was no external imbalance at the start of this second phase; both Belgium and the Netherlands were in approximate current-account balance. But Denmark had a current-account deficit amounting to some 5 per cent of GDP. (2) The breakaway from gradual real appreciation was achieved in the Benelux countries by slower domestic inflation; the nominal effective exchange rate actually continued to edge upward. In the case of Denmark, by contrast, the rate of change of wages and most other broadly based indicators of inflation continued to keep up with the average inflation rate abroad. It should be remembered, however, that the larger weight of Germany in the trade of the Benelux countries than in the trade of

Nordic countries means that the effective rates of the Nordic currencies will tend to appreciate more strongly when linked to the deutsche mark than will those of the Benelux currencies.

The actions of Norway and Sweden supply an interesting contrast to those of both Denmark and the Benelux countries. By 1976, Norway and Sweden were running very large current-account deficits as a result of declining competitiveness and demand-management policies that deviated from the typical international pattern of slump and slow growth more clearly than any others in the OECD area (see Paunio, 1978). The exchange-rate experiences of these two countries deserve careful study as illustrations of the limits to policy autonomy in small open economies.

A combination of weakening competitiveness and relatively high demand pressure prompted the Norwegian and Swedish authorities to push for rapid realignments of their real exchange rates, initially inside the snake, of which they had been associate members since 1972 and 1973, respectively. The initiatives of April and August 1977 came from these two associate members, although Denmark found it convenient to join in on both occasions.

In August 1977, however, the Swedish government decided that the scope for real adjustment inside the snake was too limited, and Sweden opted out, choosing to peg henceforth to its own basket of currencies. Its policies were translated into a 6 to 7 per cent depreciation in the effective exchange rate for the Swedish krona. Remarkably, however, the downward adjustments did not tend to drive up Swedish wages faster than those of competitors. Admittedly, there were at least two reasons why a deceleration in Swedish relative wage costs should have been expected by 1976-77: (1) The pressure of demand and employment was no longer markedly higher than elsewhere in the OECD area, as had been the case in 1974-75. (2) Indirect labor costs were rising particularly strongly in 1975 and 1976, probably adding a few percentage points to total labor costs, on top of the rapid rate of increase of take-home pay. Merely discontinuing the policy of adding to taxes on employment would in itself have caused some deceleration in total labor costs. Nevertheless, the very clear break in the trend toward a deterioration in Swedish competitiveness was remarkably swift. (For a full account of this reversal, see Calmfors, 1979.)

A similar turnaround can be observed in the case of Norway, though here it was largely achieved without leaving the snake. The Norwegian krone had been adjusted downward three times vis-à-vis the deutsche mark, but the much larger Swedish devaluation, combined with con-

tinued rapid increases in wages, made Norwegian products lose market shares both at home and in foreign markets. A fourth devaluation inside the snake was undertaken by Norway in February 1978, but this time in isolation and by 8 per cent—the largest single step in the history of the snake. There was considerable debate at the time as to whether Norway should leave the snake and follow the Swedish policy of pegging to a basket, given the continuing global instability and prospects for an updrift of the snake currencies vis-à-vis the dollar, but not until December 1978 was this course adopted.

The February 1978 devaluation of the Norwegian krone was accompanied by a temporary price freeze, extended in September to the end of 1979. More significantly, it was also supplemented by a ban on nominal increases in all categories of wages and salaries, which is supposed to keep the average wage level of 1979 from rising by more than 4 per cent above that of 1978. Together with a decrease in employer contributions to social insurance and a small wage subsidy to most enterprises, these measures should ensure that unit labor costs in Norway remain nearly constant for more than a year.

In the light of this remarkable turnaround, it may seem puzzling that Norway chose to leave the snake and to stay outside the EMS. The strong-currency option would not appear to be too demanding for a country that has achieved so rapid a deceleration of inflation. Indeed, the Norwegian krone has been highly stable in terms of the EMS currencies since the transition to basket pegging in December 1978.

Several plausible arguments may explain the Norwegian and Swedish preference for pegging to a basket rather than continuing as associate members of the snake (now the EMS).

The first reason is a straightforward political argument. As cooperation among member countries of the European Community becomes more formal and communitarian in monetary and exchange-rate policies, it will be less attractive to those with only associate status. Once the taboo of sticking rigidly to agreed central rates was broken in October 1976, the snake had the advantage of arriving at decisions quickly and without too much formality. There was a certain understanding about the frequency with which adjustments could take place and, particularly, about the maximum size of any individual adjustment. (Norway tested the upper limit of this range by its 8 per cent devaluation in September.) There is understandably more uncertainty about how the EMS will operate. In any case, the decisions will become more complex in view of the larger membership, the link to agricultural-price adjustments, the use of the European Currency Unit (ECU) as a pivot in the

exchange-rate system, and the direct participation of the European Council, involving the heads of state and government in the supervision of the EMS. All these factors increase the risk that decisions to adjust exchange rates will be delayed, leading to a recurrence of crises like those of the Bretton Woods system and the first years of the snake.

The second argument is the lack of any assurance that membership in the EMS also implies a high degree of short-term stability in the effective exchange rate for a participating currency. Experiences during the periods of dollar instability in 1973, 1975, and 1977-78 all demonstrated that pegging to the deutsche mark was not only a strong-currency option—in the sense of implying a slow and gradual strengthening of the effective rates for the participating currencies—but also a recipe for sizable short-term instability in effective rates, because the snake did not have a joint policy vis-à-vis third currencies, notably the dollar. This line of reasoning is very close to the criticism raised by France during its absence from the snake and to the worries that prevented the United Kingdom from rejoining the snake or, so far, from taking part in the EMS. This argument would be answered if a joint dollar policy were to be developed, or if the EMS were based on either the SDR or some other unit reflecting more approximately the weight of the dollar, and of currencies related to it, in the trade of the participants.⁴ Table 5 illustrates the extent to which the weighting schemes designed by Norway and Sweden in selecting their own individual baskets differ from the weights used by the EMS for the ECU (shown in the column under the Danish krone). For comparison, Table 5 also shows the weights used in the basket to which the Finnish markka has been pegged since the Finnish stabilization program of 1975 succeeded in reestablishing external balance.

The third and most interesting argument used to explain why the Norwegian and Swedish currencies have not resumed their earlier association with the deutsche mark and other snake currencies is that these links are no longer seen as a necessary insurance against short-term exchange-rate volatility or as an externally set disciplinary guideline for noninflationary behavior. Maintenance of a fixed exchange rate between the smaller snake currencies and the deutsche mark seemed essential during most of the 1970s because it gave relief from short-term nervousness about being involuntarily pushed off an exchange-rate target adopted unilaterally. The reserves of other participating central banks

⁴ For a discussion of the inward-looking nature of the snake, see Thygesen (1979, pp. 99 ff). For criteria in choosing what to peg to, see Branson and Katseli-Papaefstratiou (1978) and Heller (1977).

TABLE 5
COMPOSITION OF CURRENCY BASKETS TO WHICH NORDIC CURRENCIES WERE
PEGGED IN MID-1979 AND (IN PARENTHESES) MERM WEIGHTS
USED IN CALCULATING EFFECTIVE EXCHANGE RATES

<i>Currency</i>	<i>Danish Krone^a</i>		<i>Finnish Markka</i>	<i>Norwegian Krone</i>		<i>Swedish Krona</i>	
Austrian schilling	—	(2.1)	1.3	—	(1.2)	1.9	(2.2)
Belgian franc	9.6	(3.0)	2.2	2	(3.7)	3.7	(4.9)
Canadian dollar	—	(2.6)	—	—	(2.5)	1.2	(3.2)
Danish krone	3.1	—	3.8	7	(7.5)	9.5	(9.4)
Deutsche mark	33.0	(16.5)	13.4	14	(17.1)	17.0	(16.3)
Dutch guilder	10.5	(4.3)	3.8	4	(5.2)	5.2	(6.0)
Finnish markka	—	—	—	3	—	7.1	—
French franc	19.8	(5.5)	4.1	4	(6.0)	5.4	(7.8)
Irish pound	1.2	—	—	—	—	—	—
Italian lira	9.5	(5.3)	2.3	2	(5.0)	3.4	(5.1)
Japanese yen	—	(3.5)	2.2	6	(3.5)	2.6	(3.7)
Norwegian krone	—	(7.0)	3.9	—	—	10.1	(9.4)
Spanish peseta	—	—	1.0	—	—	1.3	—
Swedish krona	—	(15.3)	17.5	18	(15.5)	—	—
Swiss franc	—	(3.4)	2.2	2	(2.0)	2.5	(3.7)
U.K. pound	13.3	(20.0)	13.7	13	(19.9)	13.1	(16.9)
U.S. dollar	—	(11.5)	9.3	25	(10.9)	16.0	(11.3)
U.S.S.R. ruble	—	—	19.3	—	—	—	—
	100.0	(100.0)	100.0	100	(100.0)	100.0	(100.0)

MERM = multilateral exchange rate model (of the IMF).

^a Weights shown are percentage shares of currencies in the basket defining the ECU on the starting date of the EMS (Mar. 13, 1979).

SOURCES: For basket composition, national central banks; for MERM weights, OECD (1978, p. 51).

could be mobilized quickly, and this availability indirectly improved a country's creditworthiness in private international capital markets, helping it to finance large short-term outflows. More important still, the fixed link to the deutsche mark communicated to the domestic labor market and to strategic price setters more efficiently than any purely domestic target the determination of the national authorities to decelerate inflation gradually to the German level.

For Norway and Sweden, this insurance no longer seemed necessary once a significant real devaluation had reconciled the conflict between the strong-currency option and the ambitious policy of keeping demand high during the recession. Domestic efforts were more important, in particular the slowdown in the rate of increase of nominal incomes achieved by various combinations of less expansionary demand-management policies and direct intervention in price and wage setting. These measures were sufficient to lower inflationary expectations at home and strengthen the confidence of domestic firms and foreign banks in the feasibility of financing the remainder of the adjustment period.

Recent Norwegian and Swedish experiences suggest that the real exchange rate can be reduced significantly if external action is bolstered by strong domestic measures. In Denmark and the Benelux countries, the scope for such an adjustment is still seen to be very limited. Admittedly, the clear deceleration in both the Dutch and Belgian inflation rates to levels very near that of Germany has also removed immediate concerns about competitiveness, though both currencies have come under pressure at times since the start of the EMS. Anyway, the composition of Belgian and Dutch foreign trade resembles the composition of the ECU basket much more closely than does the composition of the trade of Scandinavian countries, so that pegging to the ECU implies less risk of significant fluctuations in the effective rates for the Belgian franc and Dutch guilder.

As was argued earlier, the most relevant questions for assessing a country's exchange-rate experience are: (1) Which changes in the real exchange rate are desirable for external adjustment? (2) How can they best be made in view of the impact on domestic prices and costs of a change in the nominal exchange rate, the constraints on monetary policy implicit in the various options, and other considerations?

Given the initial situation of the early 1970s and subsequent events in the larger international economy, including the policy responses of the United States and Germany, the snake undoubtedly contributed to an appreciation of the smaller currencies participating in it. This trend was not justified by their inflation or balance-of-payments performances. When the snake entered the second phase, from late 1976 onward, the weakest members started to make sizable nominal adjustments. But it is significant that the countries that were most successful in reducing their real exchange rates did so by a combination of nominal devaluations and relative decelerations in domestic costs and prices—a combination in which the domestic contribution was very important. Once a clear deceleration of costs and prices was under way, moreover, it

seemed to matter less whether the country was pegging to a basket or was a member of the snake.

In Denmark the nominal adjustments undertaken were smaller than those for the other Scandinavian countries and did not meet the need for an improvement in competitiveness. It is therefore in Denmark that the consequences of the strong-currency option can most clearly be studied.

Denmark as a Case Study of the Consequences of Choosing the Strong-Currency Option

An externally strong (appreciating) currency yields important benefits by lowering inflation and strengthening the home country's terms of trade, at least in the short run. But it also makes more difficult the simultaneous achievement of high employment and current-account equilibrium. As Figure 2 showed, the Danish performance with respect to these two targets has been so unsatisfactory that it cannot be justified even by the reduction of the inflation rate in 1974-76 and the subsequent stabilization.

Increasing awareness of the persistence and severity of macroeconomic imbalance in the Danish economy has turned attention both to exchange-rate policy and to domestic institutional factors that impede higher employment and push up domestic inflation, particularly the level of unemployment compensation and the partial indexation of wages, salaries, and transfer payments. A thorough assessment of the costs and benefits of choosing the strong-currency option has not yet been made, but some of the main elements are readily available.

There would be obvious advantages in a real depreciation of the Danish krone—if it could be achieved. The independent Danish Economic Council has repeatedly argued in recent years that a 10 per cent real depreciation could drastically lower unemployment by breaking the worsening trend in the current account; no other change in policy would be required. Even when all wage and salary earners are assured of a steady 1 per cent annual increase in real take-home pay by means of a gradual lowering of income taxes, simulations show that a 10 per cent real depreciation would produce an output-employment path far superior to that achievable by tightening fiscal policy enough to produce the same impact on the current account (see Det økonomiske Rad, 1979).

Similar results have been reported by Blomgren-Hansen and Petersen (1977), who attribute the bulk of the deterioration in Denmark's current-account balance to real appreciation, using this term, as in Figure

3, to mean relative wages in manufacturing corrected for changes in the effective exchange rate of the krone. Their study distinguishes clearly between the effects of two different ways of achieving a real devaluation—through a relative decline in wages or through a nominal devaluation. While the two methods—still assuming that there is an operational choice between them—appear to lead to nearly identical results in the long run, the adjustment proceeds much faster in the former than in the latter case. In particular, the initial J-curve effect on the current account is absent in the situation where the adjustment is triggered by the relative decline of domestic wages.

Assuming that recent studies have correctly assessed the sensitivity of the Danish current balance to the real exchange rate, it may seem surprising that the observed real appreciation was allowed to persist up to 1976. The current account was in a weak position at the start of the 1970s, when the deficit was already running at more than 3 per cent of GNP (see Table 6). In practice, however, the external pressure either to conform to the inflation performance of the main partner country (Germany) or to adjust the nominal exchange rate accordingly has been remote over most of the 1970s, because the scope for financing sizable semipermanent current deficits has widened enormously. Membership in the snake relieved the authorities from short-term nervousness about their ability to defend the exchange rate, since the combined resources of the partners were clearly adequate to the task. Membership also bolstered creditworthiness, which might otherwise have been eroded by the failure to adjust more quickly. Given the advantages of membership and the weak starting position, further exposed by the hike in the oil price in 1973-74 and a large short-term foreign debt, it was thought that the options of floating individually or pegging unilaterally were both too risky.

It is impossible to say for sure whether these other options would have been feasible. They have proved to be feasible for several other small economies in the 1970s—Austria and Finland for several years and Norway and Sweden more recently. But in none of these four countries was the external imbalance as long-lasting as in Denmark. Net foreign debt relative to GNP may be larger for Norway and of similar size in Finland, but in Norway there was the prospect of an early current-account improvement due to North Sea oil and in both Norway and Finland (from 1975) the authorities displayed a firm determination to reduce domestic inflation prior to the experiments with the exchange-rate regime.

This analysis should logically lead to the conclusion that the strong-

TABLE 6
SELECTED FINANCIAL AND GENERAL ECONOMIC INDICATORS FOR DENMARK

<i>Indicator</i>	1970	1971	1972	1973	1974	1975	1976	1977	1978
Percentage changes during year:									
Money stock:									
<i>M</i> ₁	-2.0	8.5	17.0	10.2	5.8	26.4	6.1	9.0	16.0
<i>M</i> ₂	2.9	8.8	15.0	12.7	8.9	25.5	11.3	9.8	6.7
Commercial-bank lending	5.1	3.5	11.5	14.5	7.6	0.4	19.5	12.6	11.4
Circulating bonds (nominal value)	14.6	16.6	17.1	20.0	19.0	20.5	18.9	17.8	18.8
Per cent, end of period:									
Drawings against commercial-bank loan commitments	65.2	64.4	66.8	73.1	76.2	70.3	79.1	82.3	83.1
Average domestic bond yield	11.5	11.2	11.2	13.8	14.5	12.7	15.6	16.8	17.4
International bond yield ^a	8.1	7.8	7.6	8.3	9.4	8.5	7.4	8.0	8.5
Per cent of GNP:									
Current balance	-3.5	-2.5	-0.3	-1.7	-3.0	-1.4	-5.0	-3.9	-2.7
Change in foreign-exchange reserves	—	0.6	0.8	1.2	-0.4	-1.0	0.1	2.3	1.7
Central-government financial balance ^b	—	2.9	0.8	1.4	3.0	-0.2	-4.2	-2.4	-2.8
Percentage changes:									
Real GDP	2.7	3.6	4.3	2.8	0.2	-0.5	5.4	1.6	2.0
Implicit GDP deflator	7.7	6.2	8.6	10.3	11.3	12.2	8.6	9.2	9.2
Per cent of dependent labor force:									
Unemployment rate	—	—	—	1.1	2.5	6.0	6.1	7.3	8.0

^a Long-term issues by U.S. companies in U.S. dollars.

^b Budget basis; balance on current, investment, and lending accounts; financial year ending March.

SOURCES: Danish National Bank and Morgan Guaranty Trust Company.

currency option has a deflationary impact on a small open economy like Denmark's. Fading competitiveness checks the demand for domestically produced tradables and creates increasing unemployment. But in Denmark much of this impact on output and employment has been offset by a relatively expansionary fiscal policy. Through tax reductions in 1974-75 and faster growth of public spending in 1977-79, employment was brought substantially closer to the rapidly growing supply of labor. Though the surplus or deficit of the central government on current, investment, and lending account is not an adequate measure of the stance of fiscal policy, the swing from a surplus of 3 per cent of GNP in 1974 to a deficit of 4 per cent in 1976 (Table 6) was exceptionally large both by Danish historical standards and in the international context.

If fiscal policy can be used to offset much of the deflationary impact of an appreciating real exchange rate, it would appear that the best of both worlds has become feasible; the link to a strong currency supplies assurance without imposing pressures to adjust quickly. Contrary to what textbooks in international economics may teach, policy autonomy is sometimes greater for a small than for a large country. The United Kingdom and Italy reached the limits of their ability to finance external imbalances and thereby the limits of their policy autonomy around 1976, when the IMF was called upon to review domestic policies and supply conditional lending. This was at a time when British and Italian external imbalances and debts were relatively small compared with those of Denmark. Absolute amounts matter; the European Community and its main creditor country, Germany, have been able to take a fairly relaxed attitude to the absence of formal policy coordination with the smaller member countries.

This background leads me to conclude that the deflationary effect on the strong-currency option did not clearly materialize in Denmark in the medium term. What did materialize as a result of the combination of real appreciation and expansionary fiscal policy was a renewed push like the one during the long growth period of the 1960s toward a change in the composition of demand and output—toward a greater share for consumption, particularly in the public sector, and a lower share for private investment and exports. Whether or not one considers such a push desirable depends on political preferences; it is likely to appeal more to those to the left of the political center than to conservative or liberal opinion.

A shift of demand toward the public sector does bring relief to the current account in the short run, because most public expenditures have an import content below that of private consumption and investment.

Blomgren-Hansen and Petersen show that Denmark might have had a current-account deficit equal to 5 per cent of GNP in 1977 instead of 3 per cent if the composition of demand and output had remained unchanged from 1960. While this estimate may be exaggerated, notably because it neglects the long-run effects on productivity of maintaining a high level of private capital formation, the argument in favor of employment-creating expenditures in the public sector is important in the short run. It is further reinforced when, as in Denmark, unemployment compensation reaches 90 per cent of average hourly earnings for unskilled workers and well above 80 per cent for all wage earners.

My tentative conclusion is that for Denmark the deflationary bias inherent in the strong-currency option has been compensated by an expansionary fiscal policy, which has affected the composition of demand and output. But this process is not sustainable in the longer run, for two main reasons: (1) It builds up a foreign debt, the mere servicing of which is approaching 2 per cent of GNP, and there are both internal and external reasons for not allowing it to rise further. (2) It imposes severe constraints on monetary management and requires tight controls on movements of private capital.

Over the past decade, monetary policy has almost continuously been designed to protect Denmark's international reserves, in accordance with the Mundell-Fleming assignment principle (see Hoffmeyer and Hansen, 1978). Interest rates have been kept an increasing distance above international rates, as represented by the Eurodollar market, and a ceiling on loan commitments of commercial banks has acted as a brake on any sudden desire by Danish firms to shift financing from the international to the domestic market. In combination—there is less than full agreement on relative roles—these two instruments have assured financing of the large current-account deficit through net private capital inflows. Danish residents are effectively prevented from investing in foreign financial assets. At the same time, government borrowing has been stepped up in recent years, so that Denmark's international reserves have increased (see Table 6).

This considerable buildup may be explained by the experience of 1968-69 and 1975-76. In both periods, monetary policy was eased relative to the prevailing stance in other countries. Very large foreign-exchange outflows in 1969 and 1976 drove home the lesson that external constraints arise quickly if monetary policy is assigned an expansionary role.

Apart from its role in achieving short-run external balance, Danish monetary policy, with its high interest rates and increasingly tight credit ceilings, also contributes to current-account adjustment by reducing private consumption and investment. But this latter contribution is

mainly of a short-run nature, particularly as it reduces private fixed investment, either directly through higher borrowing costs or indirectly by supplying in the form of government debt financial assets more attractive than most forms of physical assets. By dampening private investment, monetary policy reinforces the effects of fiscal policy. It shifts the composition of demand in a direction that is not sustainable in the long run, because it undermines the possibility of increasing exportable output through the creation of new productive capacity in the internationally competitive sectors. This possibility can be brought within reach only by a fundamental policy revision with more emphasis on fiscal restraint and less on monetary restraint.

Conclusions

This review of the exchange-rate experiences of the small open economies in Europe that have chosen the strong-currency option suggests conclusions that are also lessons for the management of the EMS:

1. It is obvious that central rates have to be adjusted from time to time in the absence of much stronger policy coordination than has been practiced so far in the European Community. It is important that the EMS continue the snake's 1976-78 practice, when it was beginning to look more like a crawling peg system than the Bretton Woods system to which it is so often compared. Another long learning period like the one from 1973 to 1976 could prove very costly; sticking to the initial central rates for long periods would create tensions between high- and low-inflation countries and require large interventions that could make monetary management extremely difficult. Fortunately, the first realignment in the EMS on September 24, 1979, in which the deutsche mark was revalued by 2 per cent and the Danish krone devalued by 3 per cent, suggests that the system will be managed flexibly and that its largest member, Germany, is prepared to take the initiative to modify EMS central rates in small and not infrequent steps.

2. The experiences of the 1970s suggest that while flexibility in nominal exchange rates is essential in order to offset inflation differentials and make appropriate changes in real exchange rates, the main contribution to changes in real rates must come from the domestic efforts of the participants. This has been the lesson of the Norwegian and Swedish experiences.

3. Once a small open economy has been successful in decelerating domestic inflation, it may have less incentive to participate in a currency bloc like the snake or the EMS unless the bloc gives its participants greater assurance of stabilizing their effective exchange rates than the snake was able to do in the 1972-78 period.

References

- Artus, Jacques, "Methods of Assessing the Long-Run Equilibrium Value of an Exchange Rate," *Journal of International Economics* (May 1978), pp. 277-299.
- Artus, Jacques, and John Young, "Fixed and Flexible Rates: A Renewal of the Debate," International Monetary Fund, Research Department, DM/79/31, May 1979.
- Blomgren-Hansen, Niels, and Jørgen Petersen, "Arbejdsmarked og betalingsbalance" [Labor Market and Balance of Payments], *Nationaløkonomisk Tidsskrift* (No. 3, 1977), pp. 375-394.
- Branson, William H., and Louka Katseli-Papaefstratiou, "Income Instability, Terms of Trade and the Choice of Exchange-Rate Regime," Center Discussion Paper No. 277, Economic Growth Center, Yale University, 1978.
- Calmfors, Lars, "Lönebildning, Internationell Konkurrenskraft och Ekonomisk Politik" [Wage Formation, Competitiveness, and Economic Policy], in *Vägar til ökad Valfärd* [Paths toward Increased Welfare], Stockholm, 1979.
- Det økonomiske Rad [Economic Council], *Dansk Økonomi* [The Danish Economy], Copenhagen, 1979.
- Heller, H. Robert, "Choosing an Exchange Rate System," *Finance & Development* (June 1977), pp. 23-66.
- Hoffmeyer, Erik, and Leif Hansen, "Danish Monetary Policy during the Last Decade," *Kredit und Kapital* [Credit and Capital] (Heft 2, 1978), pp. 159-179.
- Izzo, Lucio, and Luigi Spaventa, "Macroeconomic Policies of Western European Countries, 1973-77," paper for the Conference on Macroeconomic Policies for Growth and Stability, Kiel, 1979.
- Korteweg, Pieter, "Exchange Rate Variability under Flexible Exchange Rates: Some Euro-American Experiences," paper for the Ford Foundation Conference on Macroeconomics under Flexible Exchange Rates, Madrid, 1979.
- OECD, *Economic Outlook: Occasional Studies* (July 1978).
- Paunio, Jouko, "Betalingsbalans, inflation och sysselsättning—en jämförelse mellan de nordiska länderna" [The Balance of Payments, Inflation, and Employment—A Comparison of the Nordic Countries], *Ekonomisk Debatt* [Economic Debate] (No. 6, 1978), pp. 406-417.
- Swoboda, Alexander K., "Exchange-Rate Flexibility in Practice: A Selective Survey of Experience since 1973," paper for the Conference on Macroeconomic Policies for Growth and Stability, Kiel, 1979.
- Thygesen, Niels, "The Emerging European Monetary System: Precursors, First Steps and Policy Options," in Robert Triffin, ed., *EMS*, National Bank of Belgium monthly bulletin (April 1979), pp. 87-125.

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 (within U.S.) or \$10 (outside U.S.) to cover the period January 1 through December 31, 1980. 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. PLEASE ADD \$.60 FOR POSTAGE. (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 08544

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 are available on demand 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

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)
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)

¹ Some earlier issues are still available from the Section. For a complete list of publications, write to the Section.

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)
128. K. Alec Chrystal, *International Money and the Future of the SDR*. (June 1978)
129. Charles P. Kindleberger, *Government and International Trade*. (July 1978)
130. Franco Modigliani and Tommaso Padoa-Schioppa, *The Management of an Open Economy with "100% Plus" Wage Indexation*. (Dec. 1978)
131. H. Robert Heller and Malcolm Knight, *Reserve-Currency Preferences of Central Banks*. (Dec. 1978)
132. Robert Triffin, *Gold and the Dollar Crisis: Yesterday and Tomorrow*. (Dec. 1978)
133. Herbert G. Grubel, *A Proposal for the Establishment of an International Deposit Insurance Corporation*. (July 1979)
134. Bertil Ohlin, *Some Insufficiencies in the Theories of International Economic Relations*. (Sept. 1979)
135. Frank A. Southard, Jr., *The Evolution of the International Monetary Fund*. (Dec. 1979)
136. Niels Thygesen, *Exchange-Rate Experiences and Policies of Small Countries: Some European Examples in the 1970s*. (Dec. 1979)

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 Collyer, *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. Hutcheson 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)
43. Mordechai E. Kreinin and Lawrence H. Officer, *The Monetary Approach to the Balance of Payments: A Survey*. (Nov. 1978)
44. Clas Wihlborg, *Currency Risks in International Financial Markets*. (Dec. 1978)
45. Ian M. Drummond, *London, Washington, and the Management of the Franc, 1936-39*. (Nov. 1979)

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)
13. Louka T. Katseli-Papaefstratiou, *The Reemergence of the Purchasing Power Parity Doctrine in the 1970s*. (Dec. 1979)

REPRINTS IN INTERNATIONAL FINANCE

18. Peter B. Kenen, *Floats, Glides and Indicators: A Comparison of Methods for Changing Exchange Rates*. [Reprinted from *Journal of International Economics*, 5 (May 1975).] (June 1975)
19. Polly R. Allen and Peter B. Kenen, *The Balance of Payments, Exchange Rates, and Economic Policy: A Survey and Synthesis of Recent Developments*. [Reprinted from Center of Planning and Economic Research, Occasional Paper 33, Athens, Greece, 1978.] (April 1979)





