

Comment by Pieter Korteweg

1. Reading Rainer Masera's excellent survey of the first two years of the EMS for this conference and rereading Niels Thygesen's equally interesting survey of the EMS's first period for another conference has prompted me to address a puzzle Niels Thygesen recently confronted his readers with: "On the whole it is a puzzle why advocates of strict and gradually decreasing monetary targets are so scornful of exchange rate targets".¹ It is on this alleged puzzle that I shall concentrate my comments.

Why is it that a growing minority of economists when put before the choice between price level stability — or, for that matter, a low and stable rate of inflation — and exchange rate stability, tend to prefer the former to the latter and opt for a monetary rather than exchange rate target? In trying to uncover the reasons for such a preference it is helpful to start from the following identity:

$$\hat{e} = \hat{e}r + (\hat{p} - \hat{p}^*)$$

where e is the market rate of exchange, defined as the number of domestic currency units per unit of foreign currency, er the real exchange rate defined as $er = e/(p/p^*)$, p the domestic price level, p^* the foreign country's price level, and with hats (^) indicating percentage rates of change. According to the above identity, the rate of change of a country's exchange rate against another country's currency (\hat{e}) equals the sum of the rate of change of its real exchange rate against the other country's currency ($\hat{e}r$) and the inflation differential between them ($\hat{p} - \hat{p}^*$), with the currency appreciating if $\hat{e} < 0$ and depreciating if $\hat{e} > 0$.

2. Nominal changes in exchange rates tend to arise when the rate of inflation differs between countries ($\hat{p} - \hat{p}^*$). There exists wide agreement among economists that a country's inflation rate tends to mirror the speed at which that country produces money relative to the speed at which it produces goods and services. If the supply of money grows persistently faster than the

¹ NIELS THYGESEN: "The adjustable peg — a viable option for the EMS?", paper presented at the Conference on European Monetary Union and Currency Competition, organized by the Institutum Europæum, Brussels, December 1980.

real demand for money that arises from real output growth, the outcome is inescapably inflation, no matter whether the reasons why the monetary authorities produce money too fast are good or bad. Consequently, inflation differentials between countries reflect divergent monetary policies between them.

3. Real changes in exchange rates ($\hat{e}r$) reflect the fact that exchange rates move in deviations of purchasing power parity (PPP). Basically, real exchange rate movements tend to arise from two sources: the (random) arrival of "news" and structural shifts in technology and trading patterns.

As for the "news", the more durable assets or commodities are, the more subject they are to intertemporal substitution as "news" changes the outlook for the future, and the more sensitive their current prices are to "news" that changes their expected future values. If free to move, exchange rates, being the relative prices of any two durables called money, mainly reflect expectations about future events. National price levels, on the other hand, are based on prices of currently produced goods and services which are in part governed by contracts that prevent them to adjust instantaneously to current events, and in part refer to non-durables that are insensitive to future events. In sum, exchange rates more readily reflect expectations about future events whereas national price levels tend to reflect more present and past events. Consequently, in periods dominated by "news" departures from PPP will be the rule rather than the exception.

One of the many sources of "news" is monetary news. Sudden acceleration of the supply of money, for example, tend to depreciate the currency instantaneously whereas the upward effects on inflation come in with a lag. Sudden decelerations of the demand for money — triggered, for instance, by rising inflationary expectations because of the sudden monetary accelerations — likewise depreciate the currency at once but raise the inflation rate only with a lag. As a result, unforeseen monetary accelerations (decelerations) cause one's currency to depreciate (appreciate) in real terms.

4. As for the structural shifts in technology and trading patterns that affect the real external value of a country's currency two main examples can be mentioned.² One is a rise in a country's productivity in manufacturing tradables relative to its non-tradables and its competitors in the world market. The other is a shift in world demand toward a country's tradables and away from its competitors. On the assumption that wages are equal across tradables and non-tradables sectors, that exchange rates are free to move, and that competition ensures that tradables prices denominated in a common currency are the

² For a more extensive treatment, see my: "Exchange rate policy, monetary policy, and real exchange rate variability", *Princeton Essays in International Finance*, no. 140, Princeton, December 1980.

MARKET EXCHANGE RATES, REAL EXCHANGE RATES,
AND INFLATION IN MAIN EC-COUNTRIES AND THE US, 1970-1980
(period averages; percentage rates of change)

Country	Rate of appreciation (-) or depreciation (+) of currency against the DMark						Rate of increase of consumer prices	
	market exchange rate			real exchange rate ^{a)}			1970/78	1979
	1970/78	1979	1980	1970/78	1979	1980		
Germany	— %	— %	— %	— %	— %	— %	5.0%	4.1%
Netherlands	1.7	1.6	-0.1	-0.7	1.5	-1.1	7.4	4.2
Belgium	2.3	2.1	0.5	-0.1	1.8	-0.7	7.4	4.4
Denmark	4.1	4.7	8.0	-0.2	-0.8	1.2	9.3	9.6
France	6.2	3.4	0.1	2.5	-3.1	-7.7	8.7	10.6
Italy	11.6	7.2	3.8	4.6	-3.5	-11.9	12.0	14.8
UK	10.5	-0.9	-8.2	3.0	-10.2	-20.7	12.5	13.4
US	7.9	9.4	0.7	6.4	2.2	-7.3	6.5	11.3
DM/\$	-7.0	-8.9	-0.5	-5.5	-1.6	7.5		
£/\$	-5.4	-6.9	-1.0	-6.3	0.2	6.0		

^{a)} calculated by subtracting from the rate of change of the market rate of exchange the domestic rate of inflation and adding the German rate of inflation.

Sources: IMF - International Financial Statistics and Citibank.

TABLE

same everywhere, and given the growth rate of money, both developments mentioned tend to appreciate a country's currency against its competitors even if inflation differentials with the rest of the world would be absent, thereby appreciating the currency in real terms. Indeed, the discovery, exploitation, exportation and real price rise of North Sea oil natural gas in the case of Britain and the Netherlands can be viewed as a combination of these developments and so must, *ceteris paribus*, lead to a real appreciation of the currencies involved.

5. We have taken this long to explain the possible sources of real exchange rate movements since they are the basic reason why those in favor of monetary targets are so scornful of exchange rate targets. Real exchange rate movements — the sources of which are difficult to predict and their quantitative effects virtually unknown — tend to make fixed parity arrangements such as the EMS potentially harmful institutions indeed, that tend to intensify *purchasing power risk* and the trade cycle. In order to see this, let us look at the exchange rate and inflation experience in the main EC countries and the US before and since the creation of the EMS as recorded in Table 1.

Prior to the EMS, the DMark slowly appreciated against the currencies of Germany's small neighbouring countries with the rate of appreciation more or less corresponding to PPP, whereas it strongly appreciated against the currencies of Germany's large EC-partners and the US, with the rate of appreciation reflecting sizeable real exchange rate appreciations. As pointed out by Thygesen, since the creation of the EMS, developments have reversed themselves. The DMark still tends to appreciate, on average, against the currencies of the small neighbouring countries at a rate more or less in accordance with PPP. But rather than appreciating, the DMark is now strongly depreciating in real terms against the currencies of France, Italy, the UK and the US.

6. The dangers of fixed parity arrangements in the face of real exchange rate movements such as implied by the accompanying table can best be explained by reviewing the policies Germany had to conduct in order to keep its exchange rate within EMS-margins, as well as the policies that Britain would have had to conduct if it had effectively joined the EMS from the beginning in March 1979. Let us therefore turn again to our exchange rate identity:

$$\hat{e} = \hat{e}_r + (\hat{p} - \hat{p}^*)$$

From this it follows that *ex-ante* stability of exchange rates against the hegemonial currency is possible only if countries conduct their monetary policies so as to fine-tune their inflation differential with the hegemonial currency country that it exactly offsets any real exchange rate movement:

$$\hat{e} = 0 \text{ if } \hat{p} - \hat{p}^* = \hat{e}_r$$

In practice, however, this would seem hardly possible, not only because fine-tuning inflation differentials would involve degrees of international coordination of monetary policies that would seem difficult to obtain, but even more so because the direction and magnitude of real exchange rate movements prove difficult to predict and in view of the lags in effect of money on inflation. Even if the fine-tuning of inflation differentials would be possible, the lag in effect of money on prices would require that real exchange rate movements be predictable ahead for exchange rate stability to obtain. Since this is clearly not the case — as events since the creation of the EMS indicate — stability of market exchange rates can only be achieved *ex-post* by central bank interventions in the exchange markets, buying those currencies that tend to weaken and selling those that tend to strengthen, thereby tightening the growth rate of money in the weak-currency countries and boosting it in the strong-currency countries.

7. During 1980 it was the DMark that was weak, depreciating in real terms against most EMS-currencies, Sterling and the Dollar, whereas it was Sterling that was strong, appreciating in real terms against the EMS currencies and the dollar.

In order to stabilize the Dmark's market exchange rate and prevent the declining real value of the DMark from translating into a declining market value, the *Bundesbank* was forced during 1980 to intervene massively in the exchange markets in support of the DMark. As a result, during 1980 the *Bundesbank's* stock of base money (*Zentralbankgeldmenge*) fell far short of its targeted growth rate of 5-8%, whereas the growth rate of M1 collapsed from 7.5% in 1979 to about 1.8% in 1980. To achieve exchange rate stability in the face of a real depreciation of its currency, the *Bundesbank* was willing to abandon its monetary target. By forcefully cutting the rate of monetary expansion it needlessly added to Germany's economic contraction. If inflation adjusts slowly, then a reduction in the growth rate of money to achieve exchange rate stability in the face of a real currency depreciation creates a temporary *overvaluation* of the currency concerned that damages exports.

8. Let us, finally, turn to the policies that Britain would have had to conduct if it had chosen to join the EMS in 1979. As is apparent from the accompanying table, the period 1979/80 has seen Sterling strongly appreciating in real terms, against all EMS currencies. Had British monetary policy been aimed at market exchange rate stability — as would have been the case if Britain would have joined the EMS — massive purchases of foreign exchange would have had to be conducted by the Bank of England in order to prevent Sterling's real appreciation from affecting its market value. As a result, Britain's money stock would have been growing much faster than it already did, thereby intensifying inflation. And given the lags in the effects of money on prices, foreign exchange purchases to achieve stability of Sterling's market exchange rate in the

face of a real appreciation would, by creating temporary *undervaluation*, result in transitory over-expansion of the British economy.

9. What does all this mean for exchange rate and monetary policy? It means that adherence to a target rate of exchange at the expense of a monetary target in the face of real exchange rate depreciation causes unnecessary economic contraction, whereas adherence to a target rate of exchange at the cost of a monetary target in the face of real exchange rate appreciation causes unwarranted economic expansion. Since they are not allowed to adjust, fixed exchange rates tend to shift the burden of adjustment to real exchange rate changes on those variables that are free to adjust, thereby unnecessarily intensifying the trade cycle. Abandoning one's monetary targets in favour of exchange rate targets in a world of real exchange rate changes, it seems, adds to fluctuations in inflation, growth and employment.