Exchange Rates, Interest Rates and the Mobility of Capital: A Comment

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By Allan H. Meltzer

In October 1979, the government of the United Kingdom removed many, long-standing restrictions on capital movements. In the following year, the pound appreciated against the dollar and other major currencies. At the time of the announcement, the dollar exchange rate stood below $2.20 per pound; a year later the dollar exchange was above $2.40. The appreciation of the pound against other currencies—for example the mark and the yen—is proportionally greater during this period because the dollar appreciated against the mark and the yen and the pound appreciated relative to the dollar.

The paper by Andrew Britton and Peter Spencer analyzes the effect of increased capital mobility on the value of a currency. The paper is in two parts. The main relation between the parts is that both discuss capital mobility.

The theory section develops some short- and long-term responses to a change in the mobility of capital with prices fixed. The authors justify the assumption of fixed prices on the ground that money is neutral in the long-run. They neglect effects on wealth because, they say, "the public sector is in principle nothing other than the private sector in a different guise" (p. 8). Having dismissed the political struggle over the distribution of income and the inflation tax as inconsequential for the aggregate, the authors are able to reduce the problem to one that can be handled in the standard framework.

Prices are assumed to be fixed, also, in the short-run while the monetary authority achieves pre-announced targets for the growth of money. (Would that it were so.) The authors do not recognize the inconsistency or the unreality of these assumptions. The authorities have a credible policy of announcing and achieving targets for money, but the public ignores the announcements when setting prices. Expectations are ignored throughout.

The empirical section simulates responses to various changes using the Treasury's model. The model appears to suffer from many of the drawbacks of models of this kind. Some examples are: the effects of anticipated and unanticipated changes are not distinguished; anticipations are not fully rational or consistent with the model's properties; prices are fixed in the short-run.
The principal problems I have with the authors’ paper is that I do not think the authors’ analysis captures the relevant features of the problem they address. In the following section, I discuss the model with emphasis on long-run aspects where the analytical problems are seen most easily. I then comment on some reasons for the appreciation of the pound in the recent past and suggest that part of recent appreciation is likely to persist.

The Model

The authors solve their long-run model for the real rate of interest and the "real" exchange rate, π, as functions of foreign interest rates, r_f, (fixed) real income, y, and some parameters. They do not define π explicitly, but the context suggests that π is measured in units of foreign currency per unit of domestic currency. A rise in π appreciates home currency and reduces spending on goods and services produced at home.

There are two principal equations, one for the output market and one for external balance, shown as equations (1) and (2), just as in the authors’ paper.

Output: \[ y = A - br - dr \]  
External Balance: \[ B - eπ + j(r - r_f) - ty = 0 \]

A, B, b, d, e, j and t are parameters. The authors note that equation (2), for the trade balance, determines a flow equilibrium. There are, surprisingly, no stocks, and the long-run model is never extended to incorporate stocks. Stocks are mentioned in a later section, however, where the authors note that the removal of exchange controls increases desired holding of foreign assets by domestic residents. This, one expects, depreciates the pound sterling.

If we picture equations (1) and (2) in the π, r plane, there is a negatively sloped equilibrium relation for the domestic output market and a positively sloped equilibrium relation for external balance. A rise in the real interest rates is compensated by a depreciation of the "real" exchange rate to maintain equilibrium in the output market, \[ \frac{dπ}{dr} < 0 \] (1), and by an appreciation of the exchange rate to maintain equilibrium of the foreign balance or the external accounts, \[ \frac{dr}{dr} > 0 \] (2).

Removal of exchange controls is equivalent to an increase in the effective rate of interest earned by domestic residents who purchase or hold foreign assets. A rise in r_f shifts the external
balance equilibrium, in the $\pi$, $r$ plane, lowering $\pi$ and raising $r$. At the new equilibrium, the domestic interest rate is higher, and the currency depreciates. The size of the depreciation depends on the value of $j/e(j, e > 0)$, but there is no ambiguity about the sign.

The depreciation of the exchange rate is a clear implication of the model, but the authors do not draw the conclusion I draw because they analyze the problem in a peculiar way. Anyone can see from the authors' reduced form equations (3) and (4) that a rise in $r_f$ lowers $\pi$ and raises $r$. The authors avoid this implication by treating the elimination of exchange controls as an increase in the parameter $j$. They argue that $j$ measures the degree of capital mobility, and they treat the removal of exchange controls as an increase in capital mobility.

The mistake is, I believe, a confusion between the slope of a curve, $j$ in this case, and an impulse or policy change. A change in $j$ has an ambiguous effect that depends on the parameters of the model. A more appropriate model would analyze the impact of removing exchange controls as an increase in $a$ (see footnote (1)), then trace out the effects on the new equilibrium achieved when $r = ar_f$ and $a$ is nearer (or equal) to unity as a result of the policy change.

The authors' note, in section 15, that the interest differential between domestic and foreign rates narrowed after removal of exchange controls, but they do not see this change as a cause of depreciation (following an increase in $a$). Throughout their emphasis is on the parameter $j$.

Neither the authors' model, nor their method of analyzing the problem seems appropriate to the task. I shall not comment further on these aspects. I note, however, that in the authors simulations, a rise in foreign rates of interest depreciate the nominal and real exchange rate, so I expect they would share my conclusion if I could persuade them to think about the effect of removing exchange controls in a different way.

Appreciation of the Pound

The reason for removing exchange controls in October 1979 may have been a desire to depreciate the pound as a means of increasing exports and reducing the (then) anticipated and

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1An alternative way of incorporating the effect of exchange controls is to multiply $r_f$ by a parameter, $1 > a > 0$, that expresses the "cost" borne by domestic investors under exchange controls. Removing all exchange controls makes $a = 1$.

2The parameters $b$, $e$, $j$ and $d$ are positive.
(now) actual rise in U.K. unemployment. The appreciation of the pound does not show that these effects did not occur; the appreciation might have been greater if exchange controls had not been removed.

An argument of this kind is empty unless one can provide a reason for appreciation. In this section, I point to three real changes that have affected the exchange rate. All three imply that the appreciation of the pound is not a temporary phenomenon but is likely to persist. Of course, other factors—including removal of exchange controls and the temporary effect of unanticipated changes in monetary growth—have affected the exchange rate. I conclude, however, that it is a mistake to believe that the appreciation of 1980 is either entirely, or mainly, transitory.

One reason underlying this conclusion is that the contrary conclusion places excessive emphasis on the role of monetary policy in the appreciation of the pound. The argument for a strong monetary influence is rather weak. The market been encouraged to use £M3 as an indicator of the stance of monetary policy. The growth of £M3 has been higher, not lower, than was announced and, I believe, higher than anticipated. Part of the excess growth followed the removal of the "corset", so the measured growth rate is overstated. Nevertheless, there is no reason to believe that the perceived growth rate, adjusted for elimination of the "corset" and the special deposits, is lower than anticipated at the start of the year, so there is no reason to conclude that an unanticipated decline in monetary growth is the dominant force driving the exchange rate to a temporary appreciation.

Another reason for believing the appreciation is likely to persist is that there is evidence of persistence. Appreciation has occurred in each of the last three years. From third quarter 1977 to third quarter 1978, the pound appreciated against the dollar by 12%; in the following four quarters, the pound appreciated against the dollar by about 11%; and in the most recent four quarters, despite removal of exchange controls, the pound appreciated by an additional 9%. If we adjust the rate of appreciation for the difference in rates of inflation, using deflators for national products, the "real" appreciation is approximately 15%, 16% and 19% in the three years.

What, then, are reasons for appreciation of the pound? I find three principal reasons. The first is well-known—the U.K. has discovered relatively large quantities of oil, and the value of the oil has increased. The second is the effect of changes in taxation—the shift in the tax burden from taxes on income to taxes on consumption. The third is the belief that the present government intends to slow the growth of the public sector and lower the rate of inflation. I discuss each in turn.
The effect of oil prices on the pound is widely recognized. Following the collapse in Iran the relative price of oil rose, so desired investment in oil wells rose. One need only compute the revaluation of oil shares on Canadian, U.S. and U.K. stock exchanges in 1979 to get a quick estimate of the change. The effect of higher oil prices on the capital flow toward the U.K. is, in part, offset by a higher price of net imports of oil to the U.K., however.

The Thatcher government, on taking office, reduced taxes on income and increased taxes on spending. The shift of taxes away from saving appreciates the pound. One way to state the reasoning is that the tax on consumption spending reduces spending on home goods and imports, while the reduction in taxes on income increases both spending and saving. The net effect increases measured saving relative to income and reduces consumption spending relative to income. Imports fall, the trade balance becomes more positive, and this appreciates the currency. An alternative way of describing the change emphasizes the increase in the after-tax return to saving. The higher after-tax return increases saving and the assets demanded by domestic residents. If the real rate of interest is equal in all countries, the higher after-tax return in the U.K. diverts domestic saving from foreign to domestic assets (and attracts foreign savers if they were previously subject to income tax).

It is encouraging to note, though by no means conclusive, that the ratio of saving to disposable income rose by two percentage points in 1979. The ratio is not an ideal, or even good, measure of saving, but the change is in the required direction, and the size of the change is large enough to be of interest.

A third factor appreciating the pound is the reduction in the anticipated rate of inflation. A lower anticipated rate of inflation increases the amount of real money balances willingly held.

The medium-term strategy to reduce the rate of inflation is a statement of the government's intention to pursue less inflationary monetary policies than in the past. Steps taken during the past year reinforce the belief that a change in policy has occurred. These include a three percentage point increase in the minimum lending rate (MLR) of the Bank of England in the fall of 1979 and a manifest unwillingness to reduce MLR in the summer and fall of 1980 despite rising unemployment, falling profits and a rising failure rate for firms.

The rise in the MLR at about the time exchange controls were reduced, the evidence of strong commitment to anti-inflation policy, combined with the effect of the change in tax policy
could easily have swamped the effect of removing exchange controls. The conclusion is strengthened if the commitment to slower growth of the public sector, smaller subsidies to state enterprises, and further tax reduction are perceived to be the start of a policy to encourage saving and incentives to produce.

In summary, there are reasons for believing that the "real" exchange rate has increased permanently, or at least as long as there is foreign investment in North Sea oil, a higher saving rate and lower anticipated inflation. One need not search for peculiar responses to the removal of exchange controls to explain the appreciation of the pound. Nor should one believe that monetary expansion can reduce the inflation adjusted exchange rate except by reversing the progress that has been made toward a lower anticipated rate of inflation.