The exchange rate and macroeconomic adjustment

EMU study

HM TREASURY

Executive Summary

Key issue: do flexible exchange rates promote macroeconomic adjustment?

1 A central question when considering the costs and benefits of joining a monetary union is the role of the exchange rate in the economic adjustment process. If an independent flexible exchange rate were a mechanism that allowed the domestic economy to adjust to shocks and disturbances, then the loss of this mechanism as a result of joining a monetary union would entail a cost. Conversely, if an independent exchange rate were a source of shocks to the economy, for example if its movements were mainly driven by 'irrational' movements in financial markets rather than by economic fundamentals, then foregoing the independent exchange rate could be a benefit.

2 The role of the exchange rate in macroeconomic adjustment has been a feature of the debate over whether the UK should join Economic and Monetary Union (EMU). Currie (1997) argues that both views of the exchange rate have some element of truth: "*exchange rates do tend to play a useful role, but also incorporate a large arbitrary and disruptive element*" (page 6). Advocates of EMU entry often highlight the potentially disruptive role of exchange rate movements. For example Layard *et al.* (2002) state: "*An independent exchange rate is… …often a source of shocks to the economy rather than a means of offsetting them. These shocks may be large and potentially very damaging for an economy of Britain's size*" (page 9).

3 This issue was not considered in detail in the October 1997 assessment of the five economic tests (HM Treasury, 1997). The issue is more prominent now due to the persistent strength of sterling in relation to the euro during much of the past six years. It has been argued that this represents an overshooting that cannot be explained by economic fundamentals, and is a source of imbalance to the economy. Nevertheless output and inflation outcomes in the UK have compared favourably with those in the euro area.

Equilibrium exchange rates and adjustment

4 HM Treasury has produced four EMU studies on issues relating to the exchange rate. The EMU study by Professor Simon Wren-Lewis *Estimates of equilibrium exchange rates for sterling against the euro,* and the studies by HM Treasury *Modelling shocks and adjustment mechanisms in EMU* and *Modelling the transition to EMU* complement this study. Professor Wren-Lewis's study focuses on economic models of the medium and long-run real exchange rate, and estimates a medium-run equilibrium rate for sterling. The two HM Treasury studies consider how the macroeconomic costs of adjustment to economic shocks in the UK compare inside and outside of EMU, and the role of the exchange rate in determining the UK's transition path, if the UK were to decide to join EMU.

Exchange rate adjustment to economic shocks

5 This study focuses on short and medium run movements in the exchange rate and considers whether such movements tend to be a stabilising reaction to changes in aggregate supply and demand, or whether they tend to be destabilising. The study contains both theoretical and empirical analysis.

6 The Government believes that exchange rate stability can only be achieved on the basis of sound economic fundamentals, in particular low and steady inflation, steady and sustainable growth and sound public finances. The exchange rate is, therefore, an outcome that reflects other policies, both in the UK and in other countries.

Real and nominal exchange rates

7 The real exchange rate provides one of the adjustment mechanisms that balances aggregate demand and aggregate supply in the medium and long run. The real exchange rate is defined as the nominal (or market) exchange rate adjusted for price levels at home and abroad, and is a measure of the relative competitiveness of domestic and foreign production.

Real exchange rate adjustment in or out of EMU

8 If the UK were to join EMU then there would no longer be a nominal exchange rate between the UK and the current euro area countries. Within EMU, if a shock occurred that required a change in the real exchange rate, this could only be achieved if UK inflation were different from the rest of the euro area for a period of time. Outside of EMU, part or all of any real exchange rate adjustment may be achieved by a change in the nominal exchange rate.

Adjustment when nominal exchange rates are fixed

9 This point may be illustrated by a simple example. Consider an economic shock that leads to excess demand for UK production, for example an increase in demand for UK exports when the UK economy is already operating at full capacity. When exchange rates are fixed, this excess demand will put upward pressure on UK inflation, leading to a real exchange rate appreciation. This will encourage a switching of demand towards foreign suppliers and a switching of supply towards domestic markets. Both effects reduce, and eventually eliminate, the initial excess demand.

Adjustment in a floating exchange rate regime

10 By contrast, when nominal exchange rates are flexible, the effect of increased demand for UK exports may cause the nominal exchange rate to appreciate. This provides an alternative route for securing the real exchange rate appreciation needed to eliminate the initial excess demand.

Comparing fixed and floating exchange rate regimes

11 A country's real exchange rate will ultimately reflect underlying economic conditions, irrespective of whether nominal exchange rates are fixed or floating. But the adjustment mechanism is different, with adjustment in the domestic price level being greater under a fixed exchange rate regime. Under flexible exchange rates, the movement in the nominal exchange rate cushions some of the impact on the domestic price level, and consequently can be viewed as a shock absorber.

12 The chief advantage of a flexible exchange rate regime is that the nominal exchange rate can react rapidly to changes in economic conditions. Under a fixed exchange rate regime, changes to the level of domestic prices may take longer to occur. This may be especially important when a real exchange rate depreciation is needed, as under a fixed exchange rate system, this would require inflation to be lower than in other countries, and may even require wage cuts. Under both regimes the eventual real effects on the economy will be the same; real relative prices are adjusting even if it is nominal exchange rates that are facilitating the adjustment.

13 A high proportion of foreign currency transactions is associated with transactions relating to the trade of financial instruments and assets rather than transactions relating to the trade of goods and services. This has led some to argue that the exchange rate will often move in a direction that is inconsistent with restoring the balance of aggregate supply and aggregate demand in the economy. In other words, they claim that the exchange rate may fail to depreciate when UK output and employment are weak, or to appreciate when they are strong. According to this view, exchange rate movements may be at best an unreliable means of stabilising the economy, and at worst may be frequently destabilising. For example, Willem Buiter, in his contribution to the EMU study *Submissions on EMU from leading academics* describes sterling exchange movements in the late 1990s as follows: "*the UK exchange rate behaved rather like a rogue elephant, going its own way regardless of the behaviour of nominal interest rates . . . and other observable fundamentals*".

14 Whether exchange rate movements help to stabilise the economy or not depends in part on the context in which the exchange rate movement is occuring, including the pressures that are generating the exchange rate change itself. For example, if the domestic economy is already operating at full capacity, then the extra demand created by an exchange rate depreciation will tend to raise domestic inflation. This will take the real exchange rate back to its initial level, giving no permanent change in the price competitiveness of UK production in foreign markets. By contrast, if the domestic economy is operating at below full capacity,

domestic inflation is unlikely to offset fully the initial depreciation, leading to a sustained rise in the price competitiveness of UK products in foreign markets, which should raise the demand for UK exports. In the first case, nominal exchange rate changes will tend to destabilise the economy, while in the second case a depreciation can help to stabilise it.

15 Empirical studies have found that domestic consumer prices tend to react slowly to changes in the nominal exchange rate – a phenomenon known as 'exchange rate disconnect'. This could imply that the exchange rate has a weaker influence on consumption and production decisions than predicted by standard economic theory, and consequently plays a limited role in macroeconomic adjustment.

16 However, exchange rate changes have a much greater impact on the prices of imported goods, including imports that are used to produce other goods, than they do on final consumer goods. This implies that nominal exchange rate changes do change price structures in the domestic economy, even if the impact on consumer prices is muted. The changes in prices that do occur may still influence firms' purchasing and production decisions in a way that is consistent with macroeconomic adjustment. For example a nominal exchange rate depreciation will still tend to raise the domestic price of UK imports and reduce the foreign currency price of UK exports, and hence improves the competitiveness of UK production relative to foreign production.

Empirical evaluation suggests exchange rate changes act as a safety valve

17 A number of studies have used a range of empirical methods to evaluate the role of the exchange rate in macroeconomic adjustment. Econometric analysis suggests that exchange rate movements have not been a significant source of shocks to the UK economy as a whole. Instead exchange rate changes appear to have absorbed shocks that might otherwise have had a greater impact on UK output and prices. A striking example of this safety valve role is sterling's strong appreciation after 1996, which did not result in higher unemployment or a collapse in inflation, but nonetheless restrained the net export contribution to demand and probably alleviated some of the inflationary pressure that might otherwise have occurred.

18 Whether exchange rate flexibility is a significant stabilising mechanism or not is harder to resolve. Econometric evidence finds that large exchange rate movements do not typically affect other macroeconomic variables. This could be because the exchange rate change helps to absorb an otherwise unobserved shock. But it could be that observed exchange rate movements are purely extraneous. Both the size and the speed of exchange rate changes can be difficult to explain in terms of movements in fundamentals, suggesting that on occasion exchange rate changes may be at least partly driven by other factors, such as financial market sentiment. Without observing the counter-factual of what would have happened had the exchange rate not moved, it is not possible to establish conclusively the extent to which particular exchange rate movements have or have not been warranted.

19 As the experience of the past few years has confirmed, large exchange rate movements can be destabilising for individual business sectors, even when they help to stabilise the economy as a whole. Exchange rate movements impact more strongly on exporters and importers than on the economy as a whole, with large exchange rate changes posing particular difficulties for those sectors which are highly sensitive to exchange rate changes. But the potential benefit of fixed exchange rates to the traded goods sector may be less than is sometimes claimed. As already noted, real exchange rates can still adjust when nominal rates are fixed, with adjustment coming through movements in relative price levels. Since it is the real exchange rate that influences the price competitiveness of exporters and importers in their respective markets, they will still find their price competitiveness will tend to rise and fall in response to the differences in the strength of economic activity in different markets. Since domestic prices tend to move more slowly than exchange rates, companies tend to have more time to adjust when nominal exchange rates are fixed, but their price competitiveness will still be affected by real exchange rate changes.

Sterling strength since 1996

20 In recent years, sterling remained persistently above most estimates of its sustainable rate, including the central estimate derived by Professor Wren-Lewis in his EMU study *Estimates of equilibrium exchange rates for sterling against the euro*. This appreciation appears to be partly attributable to the relatively strong domestic demand growth in the UK compared with the euro area. This may have warranted a degree of sterling appreciation against the euro, both to prevent the UK economy overheating and to bolster demand for euro area production. It is important to emphasise that interpretation of recent events is made more difficult by uncertainty about both the scale and persistence of currency market reactions to the particularly high degree of global political and economic uncertainty.

Alternative adjustment mechanisms

21 Empirical evidence also suggests that countries with fixed exchange rates do not tend to experience greater macroeconomic volatility than countries with flexible exchange rates. This is consistent with the insight from optimal currency area theory that fixed exchange rate regimes need not impair an economy's ability to adjust to shocks, provided that alternative adjustment mechanisms operate effectively. These include appropriate levels of wage and price flexibility and the capacity to redeploy resources flexibly in response to changing economic conditions.

Exchange rate volatility within EMU

22 A second strand of empirical analysis developed for this study assesses whether entering EMU would lead to an overall reduction in UK nominal exchange rate volatility. If the UK were to join EMU exchange rate volatility against other euro area economies would be eliminated. But exchange rate volatility against other currency areas could conceivably increase. In recent years the euro has been more volatile against the US dollar than sterling has been against the US dollar. If these trends were typical, then the UK exchange rate against the US dollar would be more volatile within EMU than outside. Some studies have claimed that greater volatility against the US dollar would more than offset the elimination of volatility against euro area countries.

23 Measures of volatility need to be interpreted carefully. To the extent that exchange rate movements aid macroeconomic adjustment, some exchange rate volatility may be useful. But to the extent that exchange rate volatility disrupts the economy then it may be considered unwarranted. Summary measures of volatility are unable to distinguish whether observed volatility is warranted or not.

24 That said, the analysis in this study shows that, in general, overall exchange rate volatility would tend to be lower if the UK were to join EMU. But this result varies in different contexts. The reduction in volatility is greatest in situations where, if sterling were independent, it would be moving against an unchanged euro-US dollar rate. In these circumstances, fixing the sterling-euro rate not only eliminates volatility against the euro, but also eliminates volatility against other currencies as well. By contrast, in circumstances of sharp adjustment in the euro-US dollar rate, the overall volatility of sterling might be higher within EMU than outside. While such circumstances have arisen in the past, and can be expected to arise in the future, this analysis suggests that more typical scenarios are ones in which the elimination of nominal exchange rate volatility against the euro area economies would outweigh any increase in sterling volatility against non-euro currencies.

Conclusions: the role of the exchange rate

25 Although it can be difficult to relate exchange rate changes to changes in economic fundamentals, they do appear to have generally helped to stabilise the economy. Consequently, fixing the euro-sterling exchange rate would remove one of the adjustment mechanisms that is currently available to the economy. However, this need not be costly, provided that other adjustment mechanisms, such as labour market flexibility and fiscal stabilisation operate effectively. These issues are considered further in the convergence and flexibility tests – the first and second of the Government's five economic tests for EMU entry.