

7.1 This study has considered the question of whether nominal exchange rate flexibility aids macroeconomic adjustment, both in theory and in practice.

7.2 Optimal currency area theory highlights the conditions in which separate currencies may aid adjustment. It demonstrates that separate currencies may be beneficial in securing a real exchange rate change when other adjustment mechanisms, in particular wage and price adjustment, are sluggish. This is more likely to be the case when economies are not strongly integrated with each other, since this limits the extent to which price developments in one area get transmitted to another, and limits the extent to which resources such as labour and capital may flow between regions.

7.3 Irrespective of whether a country has its own currency or is part of a currency union, circumstances can arise in which its real exchange rate may need to change in order to maintain or restore macroeconomic balance. When nominal exchange rates are fixed, real exchange rate adjustment must necessarily come about through differential movements in inflation. That means that if the UK were in EMU, then UK inflation would tend to be higher or lower than the euro area average if a real exchange rate appreciation or depreciation were needed. Such changes have already occurred within the existing euro area, where inflation in the Netherlands has been relatively strong while inflation in Germany has been relatively weak.

7.4 Empirical 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 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.

7.5 Clearly, 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. 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 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 they still remain subject to real exchange rate changes.

7.6 While nominal exchange rate volatility against other euro area countries would be eliminated if the UK were to join the euro, volatility against other currencies would still be present. In recent years the euro has been more volatile against the US dollar than sterling has been. If recent trends were to continue then this would offset some, but not all, of the reduction in nominal exchange rate volatility that would arise from fixing the sterling-euro exchange rate.

7.7 Overall, the analysis in this study suggests that movements in the exchange rate more often help to stabilise the economy than to destabilise it. Consequently, fixing the euro-sterling exchange rate would remove one of the adjustment mechanisms that is currently available to the economy. However, the analysis has also highlighted that 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.

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A

ANNEX A: ECONOMETRIC ANALYSIS OF THE EXCHANGE RATE AND ADJUSTMENT IN THE UK ECONOMY

A1 This annex uses an SVAR model¹ developed by HM Treasury to analyse the shocks that have affected UK economic outcomes over the past twenty years.

A2 The model contains four variables:

- UK GDP;
- UK price level, as measured by the consumer expenditure deflator;
- UK real exchange rate, measured using the IMF measure of normalised relative unit labour costs; and
- UK interest rates.

A3 Each of the four variables is regressed on past values of itself and of the other three variables. Results from these regressions are reported in Table A1.

Table A1: Regression results for SVAR model of the UK economy

Estimation period 1980 Q1 to 2001 Q4				
Independent variables	Dependent variable			
	Output growth	Real exchange rate change	Interest rate	Inflation rate
Output growth (-1)	0.3376	0.5346	0.0037	-2.7301
Output growth (-2)	0.1151	-0.1308	0.0287	0.5782
Output growth (-3)	0.1281	-0.6700	0.0406	1.8192
Real exchange rate change (-1)	-0.0088	0.2715	-0.0004	-0.2053
Real exchange rate change (-2)	0.0100	-0.1011	0.0098	-0.1533
Real exchange rate change (-3)	-0.0313	0.0275	-0.0053	0.1014
Interest rate (-1)	-0.1875	3.3992	1.1772	3.0001
Interest rate (-2)	-0.4716	-2.8442	-0.3307	-0.5711
Interest rate (-3)	0.4911	-0.8199	0.1050	-1.3880
Inflation rate (-1)	-0.0038	0.1327	0.0070	-0.4815
Inflation rate (-2)	0.0064	0.0591	0.0041	-0.1745
Inflation rate (-3)	0.0065	0.0800	0.0060	-0.1996
Constant	2.4488	3.2247	0.0639	1.3068

Source: HM Treasury.

A4 The residuals from each regression represent ‘shocks’ to the system, in the sense that they are developments that could not be predicted from past observations of the variables in the system.

A5 By applying appropriate restrictions, it is possible to convert the residuals into ‘structural’ shocks that have a clearer economic interpretation. There are a number of ways in which restrictions can be applied, each of which provides differing perspectives on the way that shocks tend to affect the variables in the model, both initially and in the longer term.

¹ SVAR stands for structural vector autoregression. The vector is the four variables estimated in the model, autoregression means that the vector is regressed on its own past values, and the structural element relies on identifying restrictions explained in the study.

A6 In this annex, two different identification schemes are used. The first scheme loosely follows the approach used by Clarida and Gali (1994), and the second loosely follows that used by Artis and Ehrmann (2000). It turns out that, while the two schemes provide slightly different perspectives on how shocks affect the UK economy, they provide essentially the same insight into the relation between exchange rate changes and other economic variables.

Clarida-Gali style analysis: HM Treasury I

A7 The first way of analysing the model residuals follows Clarida and Gali (1994) by:

- constraining only one of the four shocks to have a permanent effect on the level of output, and denoting this as a supply shock; and
- constraining only one of the remaining three shocks to have a permanent effect on the level of the real exchange rate. This is labelled demand shock 1.

A8 Demand shock 1 can be thought of as mainly reflecting demand shocks that have a different impact on the UK economy than on other countries. Such asymmetric demand shocks may require the real exchange rate to change, whereas common demand shocks typically do not. These shocks are not identical to those identified by Clarida and Gali, since their approach models relative output rather than UK output alone. Hence their supply shock captures asymmetric shocks but not symmetric supply shocks, and their demand shock captures asymmetric demand shocks. By contrast, the supply shocks in the model used here capture all permanent supply shocks impacting on the UK, both asymmetric and shared with other countries, while demand shock 1 resembles Clarida and Gali in capturing asymmetric demand shocks, but may also capture asymmetric supply shocks that affect output in the rest of the world but not in the UK. An extension of the model to include rest of the world output would enable these supply shocks to be separately identified.

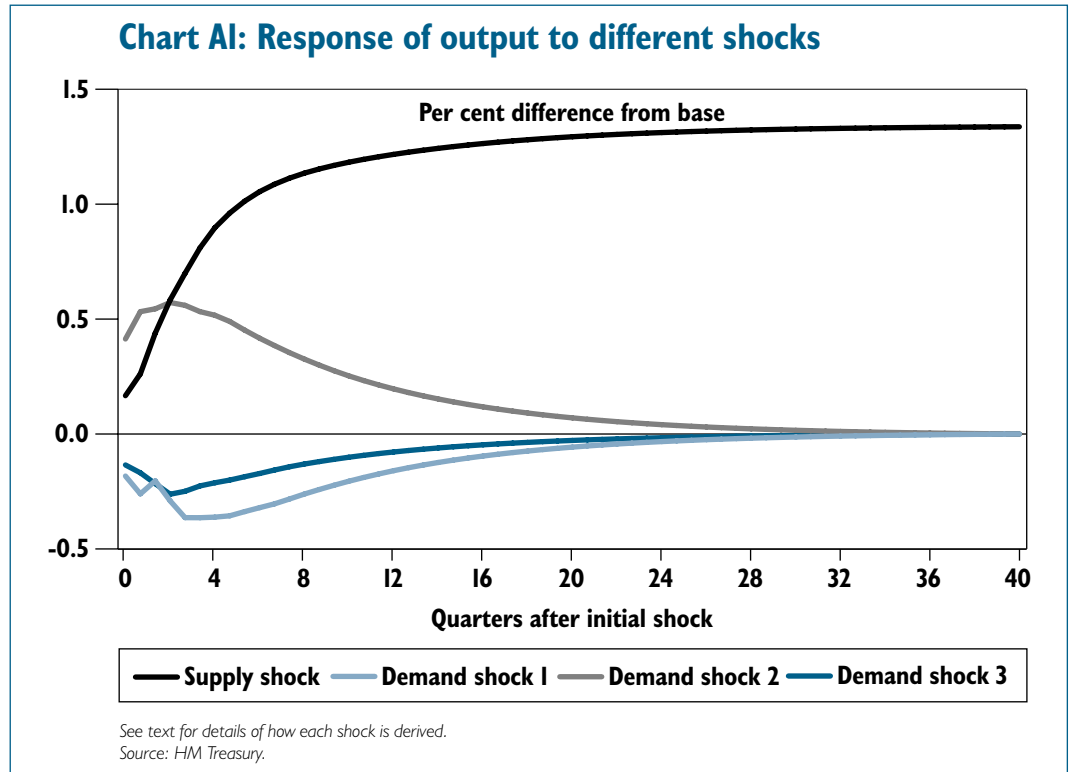
A9 The two remaining shocks cannot, by construction, have any permanent effect on either of the two real variables in the model (output and the real exchange rate), but may have a permanent effect on the price level. They may reflect real demand shocks that have a symmetric effect on the UK and other countries, or may reflect nominal shocks. They have been labelled demand shocks 2 and 3. These two shocks are separated by constraining one to include all interest rate policy reaction, while the other is not associated with an interest rate change.

A10 This identification scheme implies the following:

- supply shocks may affect all four variables (output, the real exchange rate, interest rate and price level) immediately and may affect output, the real exchange rate and the price level in the long run;²
- demand shock 1 may affect all four variables immediately, but only the real exchange rate and the price level in the long run;
- demand shock 2 may affect all four variables immediately, but only the price level in the long run; and
- demand shock 3 may affect output, the real exchange rate and prices immediately, but only the price level in the long run.

² The structure of the model implies that there are no permanent effects on either inflation or the real interest rate, and accordingly no permanent effects on the nominal interest rate.

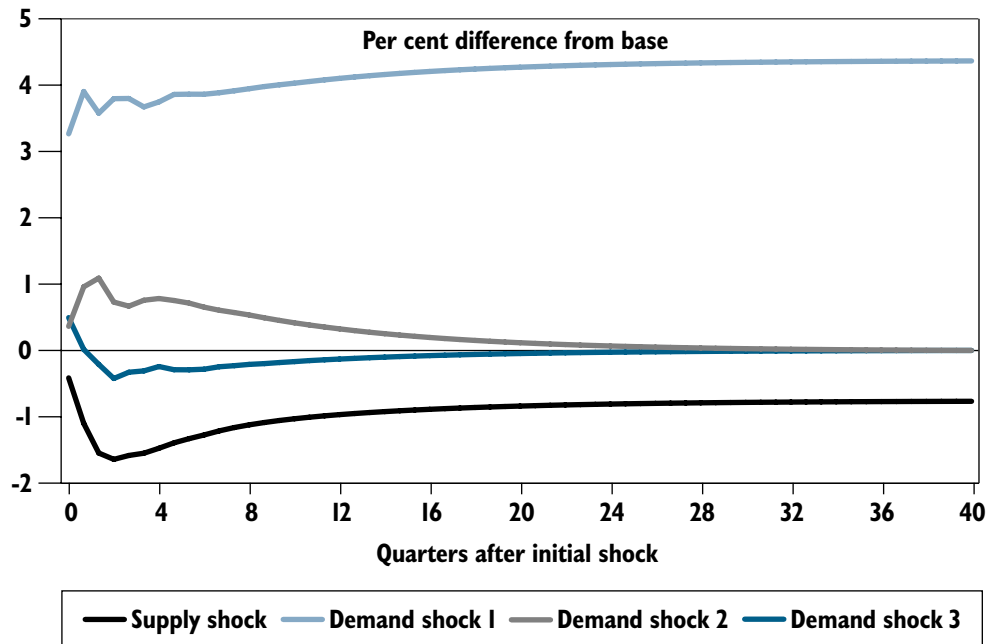
A11 Chart A1 illustrates how each of these shocks affects output, both initially and in the longer term. In each case a typical shock is applied, to allow a comparison of the relative magnitude of the impacts of each shock over different time horizons.³ This shows that demand shock 2 has most impact on output in the short run, while supply shocks tend to have a small effect initially, but to accumulate over time. By construction, the three demand shocks have no impact on output in the long run.



A12 Chart A2 illustrates the impact of each shock on the real exchange rate. The fact that demand shocks 2 and 3 do not have a long run effect on the level of the real exchange rate is a direct consequence of the restrictions used to derive the shocks. But other features are not. In particular the finding that demand shock 1 tends to have a much larger initial impact on the real exchange rate than the other shocks is not an imposed feature.

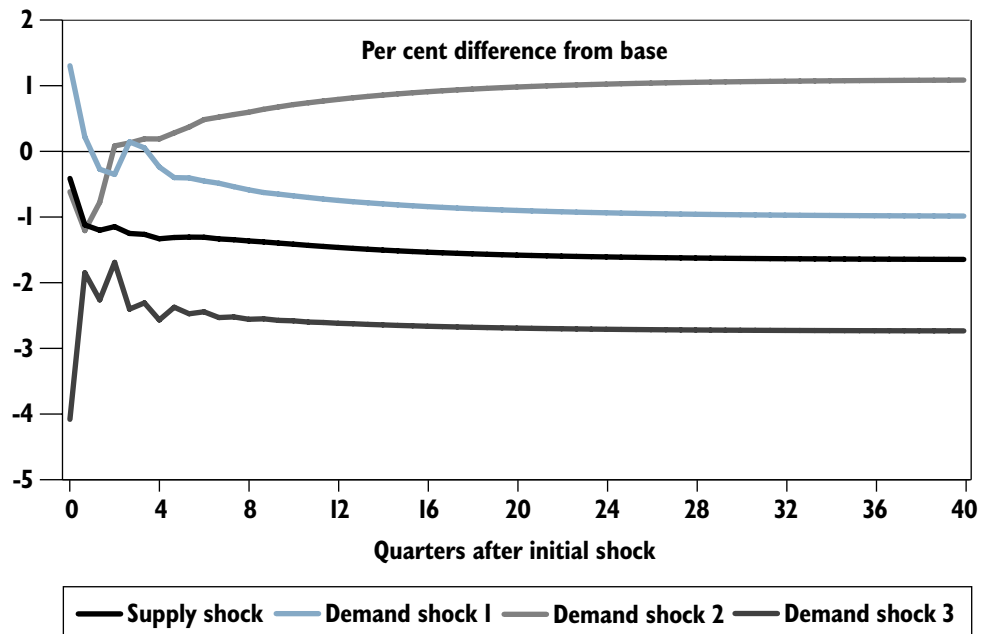
³Technically, the typical shock is equivalent to the standard error of the derived structural shocks over the whole sample period (1980 to 2001).

Chart A2: Response of the real exchange rate to different shocks



See text for details of how each shock is derived.
Source: HM Treasury.

Chart A3: Response of the price level to different shocks



See text for details of how each shock is derived.
Source: HM Treasury.

A13 The price level moves in response to all four shocks, in both the short and long run (Chart A3). The largest short run influences are associated with demand shock 3. Demand shock 1, which is associated with large exchange rate movements typically has less effect on the price level than the other shocks.

A14 Interest rates tend to move most in response to supply shocks and demand shock 2 (Chart A4). As with prices, this suggests that they do not tend to be particularly responsive to exchange rate changes, since the latter are primarily associated with demand shock 1.

A15 An alternative way of analysing these results is to consider the question of how much each of the shocks contributes to the unpredictability of the four variables in the model. This is done by calculating the contribution each shock makes to the variance of the forecast errors for each variable over different time horizons (Chart A5). This illustrates clearly that real exchange rate unpredictability is overwhelmingly associated with demand shock 1. This result is very similar to that found by Clarida and Gali, even though they model the difference between UK and foreign output rather than UK output alone.

A16 Demand shock 1 contributes little to the unpredictability of output, the price level or interest rates. In other words, the shock that typically causes large exchange rate movements tends to have rather moderate effects on other macroeconomic variables.

A17 This analysis suggests that the exchange rate is not a significant source of shocks to the economy. It is also consistent with the proposition that the exchange rate may be a significant shock absorber, with movements in the nominal and real exchange rate acting to absorb the impact of real demand shocks on other variables.

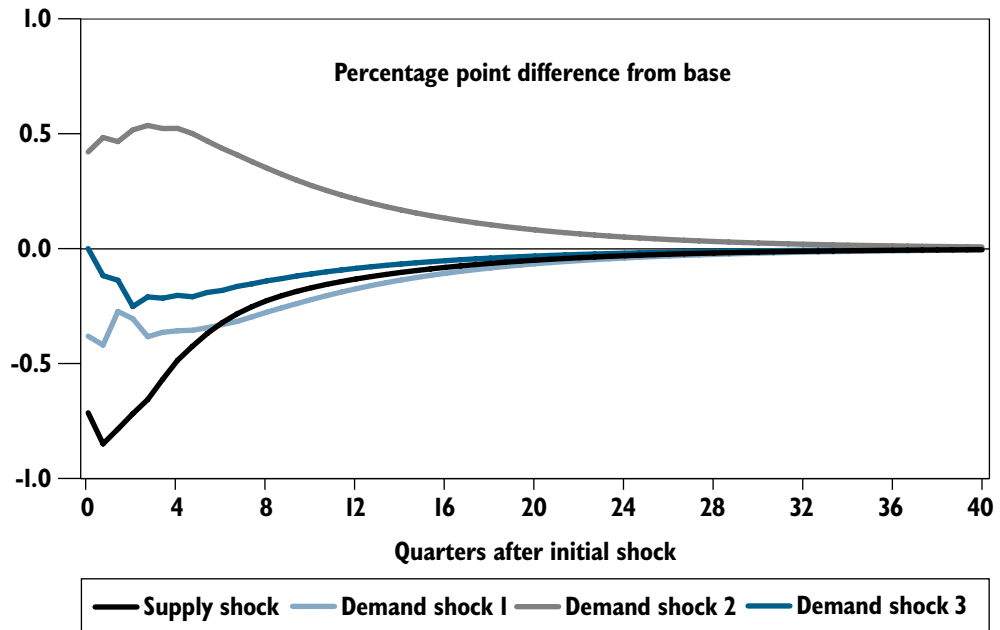
Artis-Ehrmann style analysis: HM Treasury 2

A18 The second way of analysing the model residuals follows Artis and Ehrmann (2000) by:

- constraining only one of the four shocks to have a permanent effect on the level of output, and denoting this as a supply shock; and
- constraining only one of the remaining three shocks to have an immediate effect on output. This is labelled demand shock A1. Its properties are that it accounts for all unexpected changes in output that are not associated with supply shocks.

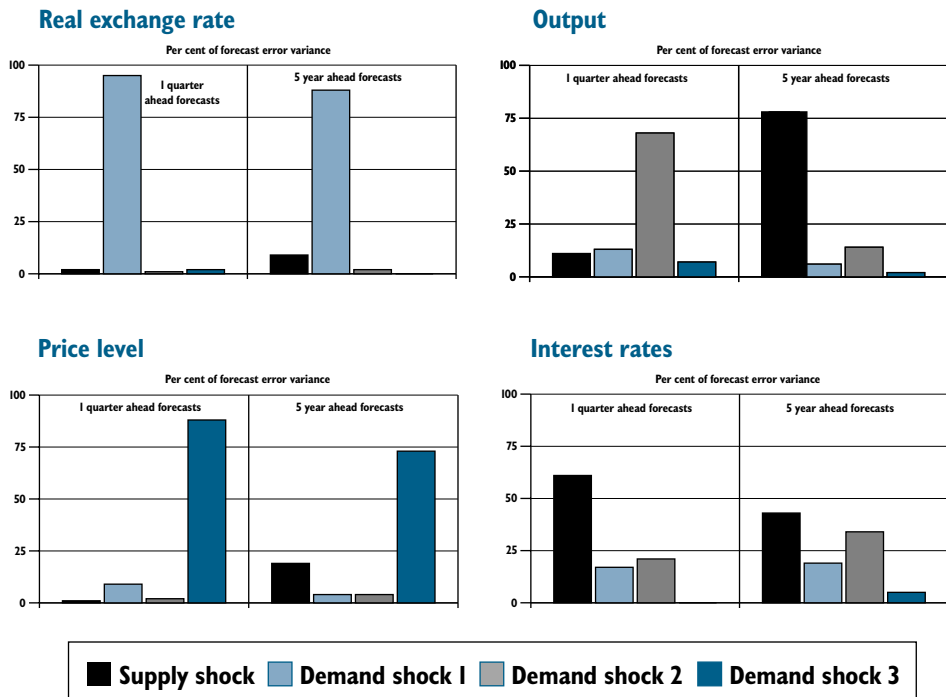
A19 The two remaining shocks are defined differently from Artis and Ehrmann. They are separated by constraining one to include all exchange rate movements. This is labelled an exchange rate shock. As a result of these restrictions, the fourth shock can have no immediate impact on output or the real exchange rate, but may have an immediate impact on interest rates and the price level. It turns out that it has very little effect on interest rates, and consequently may be viewed as a price level shock.

Chart A4: Interest rate response to different shocks



See text for details of how each shock is derived.
Source: HM Treasury.

Chart A5: Contribution of each shock to forecast uncertainty



See text for details of how each shock is derived.
Source: HM Treasury.

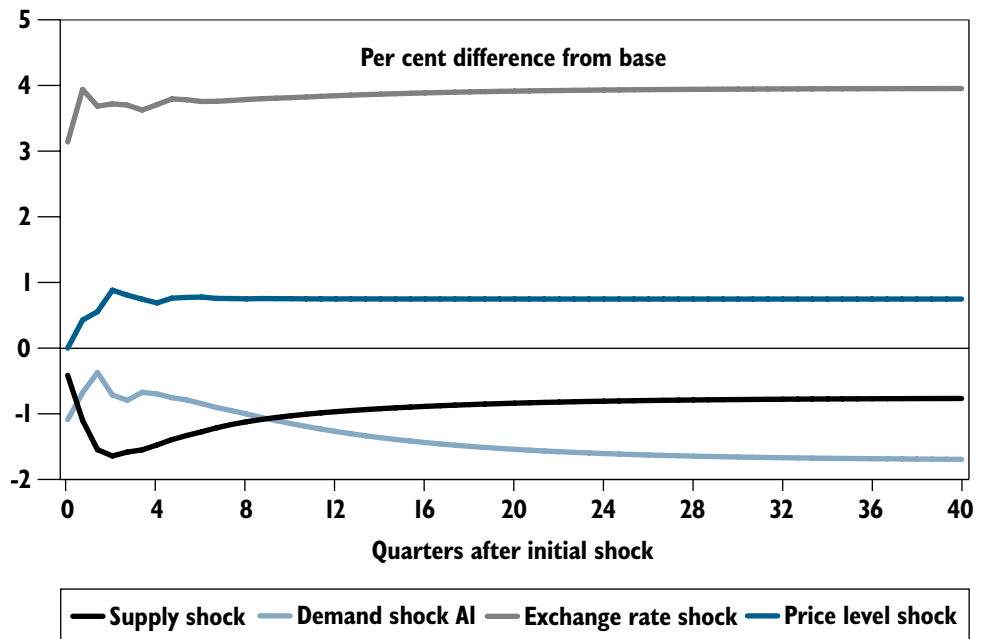
A20 This identification scheme implies the following:

- supply shocks are identical to the Clarida-Gali scheme considered earlier. Hence they may affect all four variables (output, the real exchange rate, interest rates and the price level) immediately and may affect output, the real exchange rate and the price level in the long run;⁴
- demand shocks may affect all four variables immediately, but only the real exchange rate and the price level in the long run;
- exchange rate shocks may affect the real exchange rate, the price level and interest rates immediately, but have no immediate impact on output. In the long run they only affect the real exchange rate and the price level; and
- price level shocks can only affect the price level and interest rates immediately, and only affect the real exchange rate and the price level in the long run.

A21 Unlike the Clarida-Gali scheme considered earlier, all four shocks have permanent effects on the real exchange rate (Chart A6). However, the response of the exchange rate shock captures most of the variation in the exchange rate, both initially and in the longer term. In this respect it closely resembles demand shock 1 analysed earlier. By contrast, demand shock A1 tends to be associated with a more modest movement in the real exchange rate. These findings are similar to those of Artis and Ehrmann.

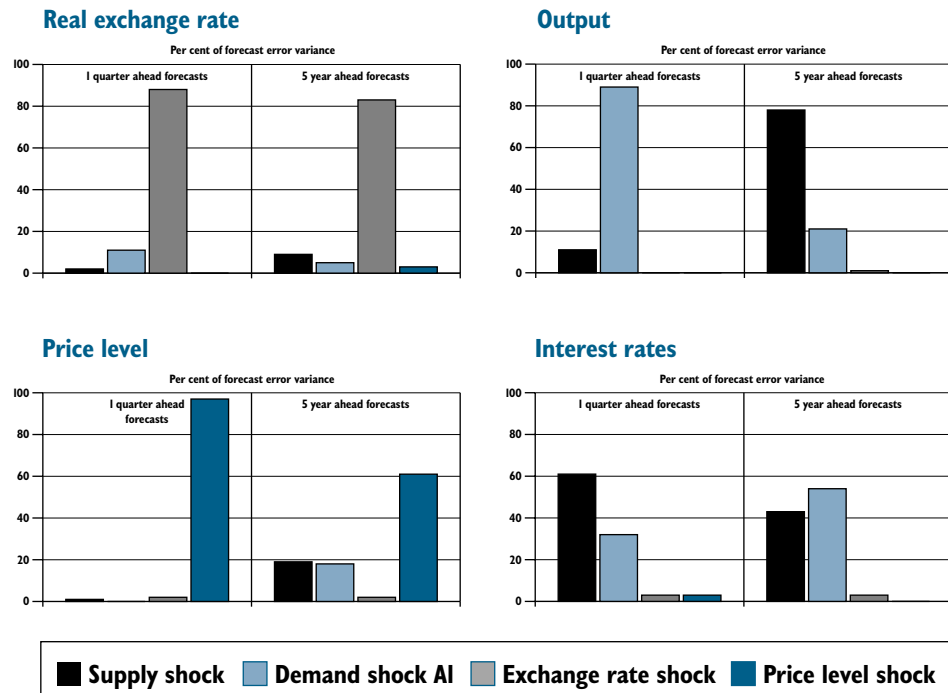
⁴ The structure of the model implies that there are no permanent effects on either inflation or the real interest rate, and accordingly no permanent effects on the nominal interest rate.

Chart A6: Response of the real exchange rate to different shocks



See text for details of how each shock is derived.
Source: HM Treasury.

Chart A7: Contribution of each shock to forecast uncertainty



See text for details of how each shock is derived.
Source: HM Treasury.

A22 Analysis of the contribution of these shocks to forecast uncertainty confirms that exchange rate shocks account for almost all of the unpredictability in forecasting the exchange rate (chart A7). It also shows that exchange rate shocks contribute very little to the uncertainty in predicting output, the price level or interest rates.

A23 Comparison of Charts A5 and A7 shows that the exchange rate shock derived using the Artis and Ehrmann scheme has very similar properties to demand shock 1 derived using the Clarida and Gali approach. In both cases the shock accounts for a high proportion of exchange rate volatility, but a low proportion of the volatility of other variables. Although their respective properties are not identical, they are sufficiently close to suggest that the exchange rate shock in the second scheme could be considered to be demand shock 1 from the first scheme under a different name.⁵ Labhard and Westaway (2002) obtain a similar result.

A24 That the two approaches should provide broadly similar results is reassuring and arguably unsurprising. The different approaches provide different perspectives on the same model of the UK economy, and it would be more perplexing if they yielded very different results.

A25 Both approaches indicate that the shock that causes the real exchange rate to move has limited effects on other macroeconomic variables. This runs counter to the claim that exchange rate movements have been a significant source of shocks to the economy, and is consistent with it acting as a shock absorber.

⁵ Indeed comparison of Charts A5 and A7 suggests: demand shock 1 in the first scheme broadly resembles the exchange rate shock in the second scheme; demand shock 3 resembles the price level shock; and demand shock 2 resembles, although less closely, demand shock A1. The supply shock is identical in both schemes, by construction.

B

ANNEX B: DETERMINING THE TRADE WEIGHTS TO USE IN ERI CALCULATIONS

B1 Section 6 of this study considers the likely effect on the UK's overall exchange rate volatility if the UK were to join EMU. In order to answer this question, a section of the analysis examines the impact of EMU membership on a UK-in-euro ERI. This UK-in-euro ERI is calculated by combining the bilateral rates for the UK with weights reflecting the importance of each rate for UK trade. This annex considers the issue of how to determine these weights.

How important is UK trade with the euro area? **B2** The EMU study by HM Treasury on *EMU and Trade* shows that the euro area is the UK's most important trading partner. Nonetheless, the importance of the euro relative to the US dollar may be overstated by the official exchange rate index. Four factors are important:

- **the definition of trade.** Specifically, whether income flows from foreign investments should be considered;
- **the existence of currency blocs.** Countries can be assigned to a US dollar, euro or yen currency bloc on the basis of economic or other ties;
- **differential regional growth.** Relatively slow growth in the euro area means that the euro bloc may decline in importance for UK trade; and
- **the existence of dollar-standard commodities.** Trade in certain goods and services can also be attributed to the dollar bloc because they are typically traded in US dollars.

Definition of trade **B3** Two recent studies have considered whether income flows should be taken into account in the construction of the ERI:

- Bootle (2001) argues that analyses of the importance of different currency areas should take account of investment income flows as well as flows generated by trade in goods and services. Exchange rate movements affect the sterling value of UK income from abroad and the foreign currency value of investment income paid abroad. Therefore, exchange rate movements affect the profitability of foreign investment. This plays a role in determining the level of foreign investment, and therefore economic activity; and
- Huhne and Canning (2002), by contrast, suggest that income flows are irrelevant when the question under consideration is the effect of exchange rate movements on trade. Furthermore, not all UK income flows are related to activities that improve economic efficiency. Taylor (2002) notes that UK-based banks intermediating between non-residents give rise to income credits and debits in the UK current account that have no real effect.

B4 On balance, it is important to pay attention to income flows when looking at the UK's international exposure, but not so much when looking specifically at trade.

Currency blocs **B5** Measures of the ERI often split the world into three currency blocs, with individual currencies assigned to a US dollar bloc, euro bloc or yen bloc, depending on the strength of their link with these leading currencies. For example, Latin American currencies have close links with the US dollar, reflecting the region's strong trade links with the US.

B6 Bootle (2001) argues that the US dollar bloc could also reasonably include much of Asia, the Middle East and some of Eastern Europe. The euro bloc is then made up of the EU, EFTA¹ economies and some African countries with colonial links. Using this broad definition of the two blocs, and looking at the current account as a whole, Bootle estimates that 55 per cent of UK transactions are with the euro bloc. This is slightly lower than the whole of Europe's share in the UK current account (see Tables B1 and B2 below). More importantly, this significantly increases the size of the US dollar bloc, which Bootle now estimates to account for about 40 per cent of UK transactions. The remaining 5 per cent of UK transactions are ascribed to a yen bloc.

B7 This definition of the US dollar bloc includes most of Central and Eastern Europe (CEE). For Russia this may be reasonable, given the reliance of its economy on the oil industry. But for countries such as the Czech Republic, Poland, Turkey and others, ties with Europe are much closer: they are geographically much closer to Europe; there is ongoing integration with existing EU members; and many of these countries are about to join the EU. Overall, it seems more reasonable to regard CEE (excluding Russia) as euro bloc members. According to Bootle's figures, this collection of economies accounts for about 4 per cent of UK current account transactions.

The UK current account

B8 Tables B1 and B2 provide a geographical breakdown of credits (exports) and debits (imports) for the UK current account averaged over the period 1999 to 2001. It is immediately apparent that the euro area, and the EU more generally, is the dominant region with respect to the UK's international trade. The EU accounts for over half of all UK trade in goods and services, while the euro area accounts for slightly less than half. For the current account as a whole, the EU is marginally less important but still represents about half of all current account debits and credits. This far exceeds the shares of the US and Asia, which both account for less than a fifth of all UK current account transactions.

Table B1: UK current account credits by region, per cent of category total (1999-2001 average)

	Goods and services					
	Total	Goods	Services	Income	Transfers	
Euro area	45.3	49.1	54.5	36.0	41.1	13.9
add ECB and EU institutions	47.1	49.2	54.5	36.4	41.4	60.2
add rest of EU	50.1	52.7	58.0	39.8	43.7	61.2
add rest of Europe	57.8	60.0	65.0	48.0	52.5	63.0
US	19.1	17.6	15.3	23.3	22.3	18.1
Asia	13.3	13.6	12.3	16.6	13.1	10.6
Other	9.6	8.9	7.7	11.7	11.3	7.9
£million, 2001	426,826	267,771	190,050	77,721	142,660	16,395

Source: Office for National Statistics.

¹ EFTA is the European Free Trade Association. EFTA economies are Iceland, Liechtenstein, Norway and Switzerland.

Table B2: UK current account debits by region, per cent of category total (1999-2001 average)

	Total	Goods and services	Goods	Services	Income	Transfers
Euro area	42.9	48.8	48.8	48.6	34.5	14.5
add ECB and EU institutions	45.6	48.8	48.8	48.6	35.4	61.1
add rest of EU	48.3	51.9	52.2	50.9	37.5	61.9
add rest of Europe	58.9	60.7	60.9	60.0	53.4	66.1
US	16.3	14.5	13.0	19.5	22.1	7.2
Asia	16.8	17.0	19.0	10.5	17.4	10.4
Other	8.2	7.9	7.4	9.6	7.3	16.6
£million, 2001	443,197	290,080	223,659	66,421	130,046	23,071

Source: Office for National Statistics.

Differential regional economic growth

B9 There are good reasons to think the relative importance of the euro bloc will decline over time. Developing economies tend to grow faster than developed economies, and most are in the US dollar bloc. In addition, and notwithstanding recent developments, potential growth in the US itself is still thought to be higher than in Europe.

B10 There are, though, factors working in the opposite direction. Growth in the developing CEE countries is also likely to be relatively high, so pushing up their share of UK trade. Also, ongoing and future integration of CEE with the current EU should further boost UK trade with these developing countries. In addition, if the UK were to join the euro area, this would provide an additional stimulus to UK trade with the euro area, as discussed in the EMU study *EMU and Trade*. More generally, the wealth of the EU and its proximity to the UK means the euro bloc will remain a very important region for UK trade, even if this importance falls back in the future.

B11 An example of this continuing importance is given in Bootle (2001). Using the more pessimistic of three scenarios, where EU GDP per capita grows at 2.5 per cent per annum compared to 3 per cent per annum for the rest of the world, Bootle projects that the existing EU will still account for about 33 per cent of UK current account credits in 2050. This is based on total current account credits, not trade, and ignores the likely enlargement of the EU or more general economic integration with CEE. Therefore, it is probably fair to assume the importance of the EU for UK trade will be higher than this figure suggests.

Dollar denominated commodities

B12 Beyond the country bloc aspects, trade in certain goods is US dollar related. Oil and gas are the obvious examples. The same argument may also apply to IT and pharmaceutical goods as well as financial and insurance services. On this basis, Bootle (2001) makes further adjustments to his estimates of the size of the euro and US dollar blocs. Assuming that 50 per cent of all UK trade in nine product categories² and seven service categories³ is US dollar related boosts the size of the dollar bloc from 40 per cent of UK current account transactions to about 47 per cent. Equally, the euro bloc share is reduced from about 55 per cent to about 47 per cent. On this view, the two blocs are now roughly equal in size.

² Inedible crude materials, excluding fuels; Mineral fuels and related materials; Office machines and computers; Telecoms/sound recording apparatus; Professional/scientific instruments; Other transport equipment; Power generating machinery and equipment; Other commodity and transactions; and Medicinal and pharmaceutical products.

³ Transport; Communication; Insurance; Financial; Computing and information; Royalties; and other business.

B13 The assumption that 50 per cent of all UK trade in nine product categories and seven service categories is US dollar related can be assessed through UK Customs data. Table B3 presents currency of invoicing data by commodity at the SITC⁴ one-digit level. While an even greater degree of disaggregation is ideally required, as is data on services, this still shows that the US dollar's share in UK trade was about 50 per cent in only two major categories – crude materials and mineral fuels and lubricants – and two other less important categories. More typically, the US dollar was used as the currency of invoicing for between around 20 and 40 per cent of UK trade in the commodities shown.

Table B3: UK trade, invoicing currency by commodity, per cent by value (excludes 'other' currencies, which constitute the remainder)

Commodity	Sterling	euro + DM	US Dollar	Value (£m)
Food/live animals	56	13	18	20239
Beverages and tobacco	70	6	18	7450
Crude materials	32	14	48	8851
Mineral fuels and lubricants	38	6	53	25671
Animal and vegetable oils/fats	16	5	64	707
Chemicals	38	16	37	51130
Semi manufactures	46	11	39	53943
Machinery, transport, misc. manufactures	44	17	29	246011
Other commodities	49	0	44	2221

Source: HM Customs and Excise 2001 and HMT calculations.

Currency of invoicing

B14 This discussion of US dollar denominated commodities raises more general issues concerning the currency used to invoice all trade deals. The currency of invoicing is only important in the short term while currencies fluctuate around their equilibrium levels, and when firms are more likely to be already locked into currency transactions. In the medium to long term firms can shift the currency they invoice in if volatility is a persistent problem.

B15 In choosing to trade, a firm must make a choice regarding which currency to invoice in. Given the nature of trade, regardless of the currency the firm decides to use, there will have to be some form of foreign exchange conversion along the way. For example, if a UK firm decides to invoice in sterling, importers from overseas will have to convert their currency into sterling. If however, UK firms decide to invoice in foreign currency then, assuming they desire ultimately to hold sterling, they must convert after the sale.

B16 Conversion of foreign currency is not a costless exercise. Not only is there an administrative charge on the actual conversion, but holding a foreign currency for any period of time also creates risks for firms. Hedging is a common method of avoiding risk, although it is not always possible for firms with limited access to capital markets, and hedging itself imposes costs on the firm.

B17 HM Customs and Excise produce data on the currencies used to invoice UK goods trade. It is important to recognise however, that the coverage of this data is very limited. The sample covers only 1½ per cent of all UK goods transactions, and less than 1 per cent of goods transactions with the EU, and so the figures are likely to vary greatly from year to year. Nevertheless, with this caveat in mind, the figures provide some pointers on invoicing behaviour.

⁴Standard International Trade Classification.

B18 Turning to the data, table B4 unsurprisingly shows that sterling accounts for the greatest share of UK trade invoices, with US dollars the second most important. Nevertheless, the US dollar is not used in 66 per cent of all UK trade. That said, the US dollar is the most used currency for UK trade with non-EU countries, while the euro is rarely used for this type of trade. For UK trade with the EU, though, both sterling and the euro are more important than the US dollar.

B19 Of course, these figures will partly reflect the euro's position as a new currency, and its importance is likely to increase over time. A recent survey by the Engineering Employers' Federation⁵ suggested that the euro is now more widely used in UK international trade, overturning the US dollar's dominance in previous surveys.

Table B4: Currency of invoicing for 2001 (per cent)

Currency	EU	Non-EU	Total
sterling	45	40	42
US dollars	18	52	34
euro + deutschmark	27	3	16
other	10	5	8

Source: HM Customs and Excise.

Pricing and invoicing

B20 When interpreting the data it is important to bear in mind that these figures make no distinction between pricing in a currency and invoicing in a currency. This is best illustrated using an example.

B21 Consider the situation of a UK exporter and euro area importer where the exporter rigidly prices in US dollars, which means they demand payment of a specified amount of US dollars. The bilateral exchange rates of interest here are the sterling-US dollar and euro-US dollar rates. If the US dollar appreciates against the other two currencies, the exporter gains and the importer loses, and vice-versa if the US dollar depreciates against the other two currencies. If the US dollar moves in opposite directions against sterling and the euro, then either both parties gain or both parties lose. Given these various possibilities, it seems unlikely that all traders would enforce rigid pricing in a third currency.

B22 It seems more likely that there will be some flexibility when goods are invoiced in a third currency, particularly if the firms involved have an ongoing relationship. If one firm gains while the other loses from US dollar movements, then they can to some extent agree to offset the gains against the losses. An ongoing relationship makes this more likely because the firms will be aware that at some point in the future the situation could be reversed. Certainly, a flexible approach can prevent the scenario of both firms losing when the US dollar moves in opposite directions against their domestic currencies.

B23 Under this flexible approach to the payment of invoices, the key exchange rate of interest is the bilateral sterling-euro rate. While the goods may be invoiced in US dollars, flexible pricing would mean that the sterling-US dollar and euro-US dollar rates are less relevant. At the extreme where an exporter only cares about revenue in domestic currency terms, regardless of whether the US dollar is used for invoicing, the bilateral rate that matters will be the sterling-euro rate. The same arguments can be applied where trade is invoiced in any third currency. The fact that the US dollar is used in invoicing a substantial proportion of UK transactions does not necessarily imply that it is much more important than less frequently used currencies.

⁵'Manufacturing and the euro – any change?' Available at www.eef.org.uk/Downloads/9896DF_Euro%20Survey%20Results%2020021.pdf

Summing up B24 It seems clear that the US dollar's importance exceeds the US share of UK trade or current account transactions. This is because the world can plausibly be thought to contain three currency blocs related to the euro, US dollar and yen. The main points are that:

- the euro bloc perhaps contains all of Europe (excluding Russia) and parts of Africa. The US dollar bloc is the rest of the world, excluding Japan;
- the importance of the euro bloc is likely to diminish somewhat because the majority of high potential growth regions of the world are outside of Europe.
- Against this, the EU is likely to enlarge to take in some high potential growth CEE countries and UK trade with the euro bloc countries could receive a further stimulus if the UK were to join EMU; and
- trade in US dollar-denominated commodities raises the US dollar's importance further still, though less than some commentators have suggested. Equally, even where UK trade is invoiced in US dollars, this does not necessarily mean that the exchange rate vis-à-vis the US dollar is the main concern.

B25 Table B5 below shows the detailed breakdown of the different trade weights used in Section 5.

Table B5: Weights used in the ERIs in Section 5

	Bank of England	Boote (2001)	55 per cent weight
Euro area + Denmark	66.53	45.40	55.00
Sweden	3.45	1.90	4.64
US	16.49	40.85	22.17
Japan	7.00	4.10	9.41
Norway	1.19	1.20	1.60
Switzerland	3.27	3.10	4.40
Australia	0.48	1.40	0.66
Canada	1.38	1.70	1.86
New Zealand	0.21	0.35	0.28
Total*	100	100	100

Sources: Bank of England and Boote, 2001.

* Final column does not sum to 100 due to rounding error

B26 The official ERI weights are based on guidance from the IMF. For further information on the calculation of ERIs see the Bank of England Quarterly Bulletin, February 1995 (available at www.bankofengland.co.uk).