5

FEER Estimates

In this chapter, we calculate estimates for FEERs for the first half of 1995 (1995:H1) and for 2000. Why two dates? The last period for which there is complete data for all countries is 1995:H1. We can therefore compare the model's predictions with the actual exchange rate. We then focus on estimated trends in the FEER (including our estimated trends for GDP growth) to obtain a figure for 2000.

FEERs are derived in two stages. First, we calculate a trend current account. Then, we compare the trend current account with the medium-term current account assumptions discussed in appendix A. The FEER is the real exchange rate that is required to move the trend current account to this medium-term level. Thus, if sustainable capital flows imply a current account surplus, and the trend current account is in deficit, then the FEER will depreciate compared to the real exchange rate.[1] The size of the difference between the actual real exchange rate and the FEER will depend not only on the discrepancy between the medium-term assumptions and the trend for the current account, but also on the sensitivity of trade flows and prices to changes in competitiveness.

Trend Current Accounts for 1995:H1

For 1995:H1, the trend current account involves two adjustments compared to the actual current account. First, we put the activity variables to

1. This is strictly true only if the Marshall-Lerner conditions, allowing for debt interest revaluations, hold. In our model, they hold for the G7.

their trend levels and let the model calculate the impact this would have on trade flows. Second, we exclude temporary, short-term movements in trade flows and trade prices. Instead, we use the predicted values for these variables.

Table 5.1 summarizes the estimates of the trend current account for 1995:H1 and shows the size of the individual components of the current account as a percentage of GDP to give some indication of their relative importance. One common factor influencing the G7 is our estimate that G7 GDP was on average just under 1 percent below trend in 1995:H1. Moving to trend will therefore raise exports in each country.

The United States had a current account deficit of 2 percent of GDP in 1995:H1, while we calculate that it had a trend current account deficit of 1.3 percent of GDP. This difference is largely accounted for by lower imports of goods in the trend case. In turn, there are two factors behind the lower goods imports. One is our assumption that US GDP was above trend by 1.5 percent in 1995:H1. That, coupled with a high income elasticity, reduces trend imports. The other is recent underprediction in the US import volume equation (see figure C.1). The trend current account improves because the equation suggests that this unusually high level of imports will not continue. Another reason for the difference between the trend and actual current account deficit is that trend US exports were higher than actual levels, reflecting higher trend imports in most of the rest of the G7.

Japan had a current account surplus of 2.3 percent of GDP in 1995:H1, and our calculations suggest that its trend surplus was slightly higher, at 2.5 percent. This relatively small difference is again accounted for by goods imports, which are lower in the trend case. This seems surprising, because we assume that trend GDP is 2.8 percent higher than actual in 1995:H1. However, our Japanese-import-volume equation also suggests that Japanese imports were unusually high in 1995:H1. The unusual growth in Japanese imports is evident from figure C.5, which compares actual and predicted imports since 1980. This strong growth in imports clearly cannot be accounted for by an expansion in demand (see figure 4.3). In addition, the yen's real appreciation during and before this period was not unusual compared to earlier experience (figure 5.3). In any case, the model allows for it by including a reasonably high competitiveness elasticity. Consequently, the model regards some part of the high import volumes in 1995:H1 as temporary. This effect more than offsets the GDP effect, partly because the income elasticity of import demand is relatively low for Japan.

The German trend current account, as a percentage of GDP, is lower than the actual by 1 percentage point of GDP. Again, this mainly reflects the impact of imports. German GDP is assumed to be below trend in 1995:H1, which tends to raise imports of goods. This tendency is reinforced by our estimated equation for goods imports, which suggest that predicted goods imports were above actual in 1995:H1.

Table 5.1 Summary of the current account positions for 1995:H1 (percentage of GDP unless noted)

	Actual current account	Trend current account	GDP gap (percentage)	Exports of goods	Exports of services	Imports of goods	Imports of services	IPD credits	IPD debits
United States	−2.0	−1.3	1.5	7.94	2.76	10.21	1.93	2.49	2.62
Germany	−0.3	−1.3	−1.1	21.78	3.03	18.49	4.79	4.00	3.81
Japan	2.3	2.5	−2.8	8.20	1.20	5.90	2.29	3.57	2.69
United Kingdom	−1.3	−0.5	−1.0	22.65	5.62	22.33	4.97	12.29	11.76
France	1.6	0.5	−2.6	18.05	6.32	17.32	5.07	8.31	8.80
Italy	1.9	2.5	−1.4	21.08	5.83	19.72	5.73	3.03	4.57
Canada	−3.3	−4.0	−1.7	35.40	3.30	33.40	5.09	1.88	6.36
World			−0.7						

The French current account was in surplus in 1995:H1 by 1.6 percent of GDP, but we estimate a trend current account surplus of 0.5 percent. This difference is mainly accounted for by our assumption that French GDP was 2.6 percent below trend in 1995:H1, which raises imports by almost 5 percent according to our estimated equation. The UK current account was in deficit in 1995:H1, and our analysis suggests a smaller trend deficit of 0.5 percent. Again, an assumption that GDP was 1.0 percent below trend plays a role. However, other factors that dominate, including debt-service flows, tend to improve the trend current account. The trend current account surplus for Italy as a percentage of GDP is above the actual surplus by 0.6 percentage points of GDP. Trend GDP is above actual GDP in 1995:H1, which tends to result in higher imports. However, this is offset by our estimate that imports were unusually high over that period (see figure C.11). The trend current account for Canada had a larger deficit than actually occurred, mainly because GDP was assumed to have been below trend.

FEERs in 1995:H1

Table 5.2 compares our estimate of the trend current account with estimates of the target or sustainable current account based on the calculations in appendix A. The figures in appendix A are for 2000, but we assume that these can be applied to 1995:H1, with one exception: the assumed medium term current account surplus for Italy in 1995:H1 is set to 2.5 percent of GDP, compared to 3.5 percent for 2000.[2] In each case, we used the figures for published data set out in table 13 of appendix A, because these relate to the data used in our calculations.

The FEER is a real, effective exchange rate. For ease of comparison, the FEERs quoted in tables 5.2, 5.4, and 5.5 have been scaled so that they are relative to the actual real effective exchange rate for that country prevailing in 1995:H1. Therefore, the 1995:H1 actual real exchange rate is effectively set to one, so that a number greater than one implies that the FEER involves a depreciation.

Table 5.2 also gives as a memorandum item the actual average nominal bilateral dollar and deutsche mark rates over 1995:H1. Moving from the FEER to a set of implied bilateral rates involves a series of implicit assumptions about issues such as relative inflation rates. However, it is possible to use the nominal rates in existence in 1995:H1, a set of trade weights, and the implied movement in the FEERs to obtain a set of

2. In the calculation of a FEER for Italy for 2000, the current account target is, therefore, increased from 2.5 percent to 3.5 percent over the intervening period by increments of 0.05 percent of GDP per quarter.

Table 5.2 FEERs for 1995:H1

	Actual current account (percentage of GDP)	Trend current account (percentage of GDP)	Target current account (percentage of GDP)	FEER (1995:H1)	Exchange rate per US dollar (1995:H1)	Exchange rate per deutsche mark (1995:H1)	Competitiveness elasticities			
							Exports of goods	Exports of services	Imports of goods	Imports of services
United States	−2.0	−1.3	−2.0	0.962	1.00	0.70	−0.96	−0.40	−1.35	−0.95
Germany	−0.3	−1.3	−0.3	1.040	1.44	1.00	−1.15	−0.82	−0.37	−1.51
Japan	2.3	2.5	1.9	0.968	90.35	62.83	−1.36	−0.33	−1.16	−1.20
United Kingdom	−1.3	−0.5	−0.2	1.010	0.63	0.44	−1.26	−0.72	−0.22	−0.99
France	1.6	0.5	1.5	1.044	5.04	3.51	−0.67	−0.50	−0.36	−1.79
Italy	1.9	2.5	2.5/3.5	0.996	1,653.85	1,150.10	−0.44	−0.71	−0.34	−1.00
Canada	−3.3	−4.0	−1.9	1.040	1.39	0.97	−0.83	−0.68	−1.15	−1.15

Table 5.3 Nominal rates implied by the FEER

	1995:H1		2000	
	Per US dollar	Per deutsche mark	Per US dollar	Per deutsche mark
United States	na	(0.57–0.70)	na	(0.60–0.73)
Germany	(1.41–1.73)	na	(1.35–1.65)	na
Japan	(81.4–99.5)	(51.8–63.4)	(77.3–94.5)	(51.5–63.0)
United Kingdom	(0.60–0.74)	(0.38–0.47)	(0.60–0.74)	(0.40–0.49)
1/UK	(1.66–1.36)	(2.60–2.13)	(1.66–1.36)	(2.49–2.04)
France	(4.99–6.09)	(3.18–3.88)	(4.59–5.61)	(3.06–3.74)
Italy	(1,579–1,930)	(1,006–1,229)	(1,391–1,700)	(927–1,133)
Canada	(1.31–1.61)	(0.84–1.02)	(1.40–1.72)	(0.94–1.14)
	US dollar/ecu		US dollar/ecu	
Scenario 1	(1.307–1.069)		(1.387–1.135)	
Scenario 2	(1.312–1.073)		(1.404–1.149)	
Scenario 3	(1.316–1.077)		(1.395–1.141)	

na = not applicable.

consistent nominal bilateral rates. To quote a precise bilateral rate might give an erroneous impression of the precision of our estimates. Therefore, we provide ranges of plus and minus 10 percent for bilateral rates consistent with the FEER, and these are presented in table 5.3.[3]

For the United States, we calculate a trend deficit of 1.3 percent of GDP, while sustainable capital flows (based on the actual published measure) call for a 2 percent deficit. Thus, we require the FEER to appreciate relative to the real exchange rate in 1995:H1. The relatively high competitiveness elasticities for US trade imply that a movement in the current account of 0.8 percent of GDP requires a real exchange rate change of around 4 percent. A similar appreciation is required in the case of Japan. For Germany, the medium-term current account assumption is for a small deficit worth 0.3 percent of GDP, while our trend current account involves a larger deficit of 1.3 percent. A depreciation of about 4 percent is required to reach the FEER.

As the French trend current account is 1 percent short of the medium-term assumption of a surplus of 1.5 percent of GDP, a depreciation of slightly over 4 percent is required to reach the FEER. The depreciation required in the case of the United Kingdom is much smaller, 1 percent, because the gap between the trend current account deficit of 0.5 percent and the assumed medium-term deficit of only 0.2 percent is tiny. The difference between the Italian trend and medium-term current accounts is extremely small, so moving to the FEER requires only a tiny appreciation in

3. Of course, this qualification about the uncertainty of our estimates applies to the effective-rate FEERs quoted in table 5.2 and to our estimates of trend current accounts. However, to quote ranges at each stage of our analysis seems unnecessarily pedantic.

Table 5.4 Moving to the FEER in 2000

		Income elasticities				Trends in trade-volume equations (annual percentage rate)					
	Trend GDP growth	Exports of goods	Exports of services	Imports of goods	Imports of services	Exports of goods	Exports of services	Imports of goods	Imports of services	FEER 1995:H1	FEER 2000
United States	2.5	1.12	1.50	2.00	1.72	−0.40	0.27	[1.26]	0.04	0.962	0.990
Germany	2.8	1.00	1.00	1.20	1.10	−0.74	−3.38	0.25	0.10	1.040	1.055
Japan	3.0	0.91	1.00	1.20	0.97	[2.29]	−2.32	[−1.47]	−1.68	0.968	0.947
United Kingdom	2.3	0.91	1.00	2.00	1.00	−0.11	−4.31	−0.04	−0.22	1.010	1.060
France	2.1	1.00	1.00	1.93	2.00	−0.01	−1.81	−0.06	0.59	1.044	1.017
Italy	2.0	1.01	1.00	1.90	2.91	0.26	−0.02	0.20	−0.12	0.996	0.917
Canada	2.9	1.00	0.62	2.50	1.83	−0.56	0.53	[2.05]	0.50	1.040	1.126
World	2.6										

Table 5.5 The sensitivity of the FEER

	Changing the current account target					Changing the output gap				
	New target	FEER 1995:H1	Percentage change	FEER 2000	Percentage change	New gap	FEER 1995:H1	Percentage change	FEER 2000	Percentage change
United States	−1.0	1.015	5.45	1.022	3.31	2.5	0.951	−1.17	0.977	−1.22
Germany	0.7	1.078	3.69	1.075	1.96	−0.1	1.029	−1.10	1.043	−1.10
Japan	2.9	1.026	6.04	0.992	4.69	−1.8	0.962	−0.66	0.941	−0.66
United Kingdom	0.8	1.047	3.74	1.090	2.84	0.0	0.991	−1.85	1.039	−2.02
France	2.5	1.086	4.04	1.038	2.07	−1.6	1.024	−1.85	0.997	−1.91
Italy	3.5/4.5	1.077	8.15	0.963	4.95	−0.4	0.956	−4.02	0.879	−4.20
Canada	−0.9	1.059	1.82	1.138	1.13	−0.7	1.025	−1.40	1.110	−1.43

the real exchange rate. Canada requires a depreciation of around 4 percent to reach the FEER in 1995:H1.

Overall, our analysis suggests that exchange rates were quite close to FEERs across the G7 in 1995:H1. In every case, actual bilateral rates for 1995:H1 are within the bands we present for the FEER at that date. However, this is only just the case for the deutsche mark against the US dollar and yen and for the franc against the US dollar. Since then, however, actual nominal and real exchange rates have moved substantially, and our analysis suggests in general a movement away from the FEER, which we discuss further.

FEERs in 2000

There are four broad reasons why the trend current account for a country might change both over time and relative to other countries. First, there is an estimated trend in some component of trade. For example, a country's export share may be declining over time, or traded goods prices may be changing at a different rate than prices in general. Second, trend rates of GDP growth are different among the G7. Third, there are estimated differences in demand elasticities. For example, our estimate of the income elasticity for goods imports in the United States is 2.0, compared to 1.2 for Japan. Therefore, even if trend output growth is the same in each country, US imports would grow more rapidly than imports in Japan. Fourth, a country may be running a medium-term current account surplus (deficit), leading to higher (lower) debt interest receipts and a further improvement (deterioration) in the current account. Such a scenario would require an appreciation (depreciation) in the FEER. Other factors can also lead to trends, such as trend movements in commodity prices, but these are not significant for the G7 over this period.[4]

Table 5.4 presents some of the key figures and parameters used in calculating FEERs for 2000. Although our assumptions about trend growth are not uniform across the G7, the differences are relatively small compared to historical experience. In particular, our assumption about Japanese growth, at 3 percent per year, is substantially below rates achieved in earlier decades. We return to this point later. In addition, note the low rates of growth for France and Italy compared to Germany.

The estimated demand coefficients on goods-exports equations across countries are very close to one. Therefore, these parameters do not play a major role in generating trends in FEERs. Much more important are the

4. As our measure of the real exchange rate involves traded goods prices, the productivity-bias effect will not be a factor here. However, if we recalculate the real exchange rate in terms of consumer or output prices, the estimated trends in the linking equations for prices would produce a productivity-bias effect.

income elasticities in the goods-imports equations. Most of these elasticities are around two, but there are three outliers: Germany and Japan have elasticities of only 1.2, while Canada's elasticity is the highest, at 2.5. As these differences far exceed the variations in trend growth rates, German and Japanese current accounts will tend to improve over time, while Canada's will deteriorate. Other things being equal, this leads to an appreciation in the FEER for Japan and Germany.

We have allowed trends in export market share or import propensities that cannot be accounted for by competitiveness changes to be picked up by nonunit demand elasticities. However, in some cases parameters in the model's equations are imposed rather than estimated, and this may result in a trend in the equation's residuals. To allow for this and to check the overall consistency of the model with the data, we estimate a trend and a constant for each equation for given values of the chosen model parameters (see appendix C). In just one case (German exports of goods), we use a split trend.

Only a few of the trends in the trade-volume equations are quantitatively important. For the United States, import volumes have increased over time, tending to depreciate its FEER. The same is true for Canada. (In both cases, we imposed an income elasticity below the freely estimated value.) For Germany, the introduction of a split trend in the export-volume equation (see appendix C for details) introduces a negative trend in exports-goods volumes from 1986:Q1. This is the main cause of the depreciation in the FEER for the deutsche mark between 1995:H1 and 2000. Without this split trend, there would be a positive trend in export volumes, which, combined with the low income elasticity on German imports, would cause the deutsche mark to appreciate over time. (Excluding the split trend would also produce a small appreciation rather than depreciation in the German FEER for 1995:H1.) Japan is the only other country where trends in goods trade volumes are important. Here, we have a positive trend in exports and a negative trend in imports, both of which tend to appreciate the yen.

However, we noted in our general discussion of trade equations that the trends that have been observed will not necessarily continue, particularly if other factors influencing the economy change. This is especially true for Japan. As we mentioned, we assume that trend growth in Japan is significantly below historic averages. There are a number of reasons for linking positive (in the sense of current-account-improving) trends in trade with fast rates of economic growth. For example, if fast growth is associated with innovation in the variety and quality of goods produced in a country, the demand for a country's products will rise at home and overseas without any associated change in real exchange rates. If this explains the trends in the trade equations for Japan, then it would be a mistake to project these trends forward while revising down its trend growth rate.

These considerations have led us to override the favorable trends in both goods-imports and -exports equations for Japan in calculating the FEER for 2000.[5] We also overrode the strong positive trend in US goods imports, because there was some evidence to suggest that trend growth rates in imports had declined significantly since the early 1990s. In addition, we have set the positive import trend for Canada to zero. In this case, the imports-goods equation is dominated by an extraordinary rapid expansion of imports around 1990, and there are signs that recently imports have grown more slowly. In every other case, however, we have extrapolated historical trends forward.

These factors, together with numerous trends in relative prices and commodity prices that are small in impact, produce the following trends in estimated FEERs. In Japan, the low income elasticity for imports leads to a small appreciation, roughly 2 percent. There is a depreciation of just over 3 percent for the United States, because the import income elasticity is higher. However, for Germany the low income elasticity for imports only partly counterbalances the negative trend in exports, and, thus, there is a slight depreciation of just over 1 percent. In France and Italy, a relatively high import elasticity is partly offset by a low trend growth rate. At the same time, the current account surpluses implied by sustainable capital flows are also improving IPD flows, and this mainly accounts for the trend appreciations of around 3 percent and 8 percent, respectively. For the United Kingdom, it is assumed that the medium-term current account roughly balances. Therefore, the effects of the high import elasticity dominate, leading to a 5 percent depreciation. Despite our intervention on trends, the high income elasticity of import demand for Canada leads to a FEER depreciation of 8 percent between 1995:H1 and 2000.

FEERs and Current Parities

These calculations suggest broad ranges for nominal US dollar and deutsche mark exchange rates that are consistent with the FEERs for 2000. These are presented in table 5.3. Table 5.6 gives actual US dollar and deutsche mark exchange rates for 1995:H1 and mid-January 1998. While the actual deutsche mark/US dollar rate was at the lower end of our FEER band in 1995:H1, by January 1998 the actual rate was above the top of the 1995:H1 FEER band and even further above the band for 2000. The yen/US dollar rate was well within the FEER band in 1995:H1, but since then it has depreciated substantially and has moved well outside the band over the last year. Consequently, our analysis suggests that the US dollar is

5. We have not, however, changed the low estimated income elasticity for Japanese imports.

Table 5.6 Nominal exchange rates and forward rates

	Exchange rate per US dollar (1995:H1)	Exchange rate per deutsche mark (1995:H1)	Exchange rate per US dollar (1/16/98)	Exchange rate per deutsche mark (1/16/98)	One-year forward exchange rate per US dollar (1/16/98)	Implied one-year forward exchange rate per deutsche mark (1/16/98)
United States	na	0.70	na	0.55	na	0.56
Germany	1.44	na	1.83	na	1.79	na
Japan	90.35	62.83	128.99	70.60	122.55	68.30
United Kingdom	0.63	0.44	0.61	0.33	0.62	0.35
1/UK	1.59	2.27	1.64	2.99	1.61	2.89
France	5.04	3.51	6.12	3.35	6.01	3.35
Italy	1,653.85	1,150.10	1,799.55	984.92	1,793.30	999.44
Canada	1.39	0.97	1.44	0.79	1.43	0.80
US dollar/ecu	1.30	na	1.08	na	1.10	na

na = not applicable.

Sources: US dollar exchange rates for 1995:H1 were published in the IMF's *International Financial Statistics*. US dollar rates (including forward rates) for 1/16/98 were published in the *Financial Times*, 1/19/98. Deutsche mark rates in each case are derived from cross rates.

overvalued and the yen and the deutsche mark are undervalued. (Cross rates imply that the yen is undervalued compared to the deutsche mark.)

However, our FEER calculations do not necessarily imply that the foreign exchange markets have "got it wrong." An alternative explanation (particularly for Japan) for movements since 1995:H1, which would be consistent with our FEER estimate, is that the depreciation represents a response to a weak cyclical position and the reaction of monetary policy to this. We should stress, however, that our analysis is at risk if there have been important structural changes in the Japanese economy that we have not adequately allowed for. For example, if recent strong import growth indicates a permanent shift to a more open domestic trading environment, then it should be reflected in a depreciation in the FEER. However, risks run in both directions. Our assessment of trend GDP may be too optimistic given recent experience, and if trend GDP were lower, there would be, ceteris paribus, an appreciation of the FEER. Our analysis does imply that in the next few years the yen and the deutsche mark will tend to appreciate against the US dollar. This is consistent with recent forward exchange rates, shown in table 5.6, which reveal an expected movement in both the yen and the deutsche mark in the direction implied by our FEER calculations.

The position of the franc and the lira against the deutsche mark is far less problematic. Actual deutsche mark rates in 1995:H1 were within the bands implied by the FEER. Since then, both the franc and the lira have appreciated against the deutsche mark, but our FEER bands for 2000 also

imply an appreciation (largely reflecting Italian and French current account surpluses). Current franc and lira exchange rates against the US dollar are outside the bands implied for the FEER for 2000. In both cases, there is an implied need for an appreciation against the US dollar. The pound was within the FEER bands (in relation to both the US dollar and the deutsche mark) in 1995:H1, but the appreciation of the pound against the deutsche mark over the last year implies that it is now significantly overvalued. The pound/US dollar rate is less out of line with medium-term trends, reflecting the dollar's overvaluation. The actual and forward rates for the Canadian to US dollar for January 1998 quoted in table 5.6 are within the band implied by the FEER for 2000. However, the Canadian dollar/deutsche mark exchange rates are out of line with the FEER for 2000, with the implied rate involving a depreciation.

At first, movements in the bilateral FEER for the pound between 1995:H1 and 2000 appear paradoxical. Although our analysis suggests a real depreciation in the FEER between 1995:H1 and 2000, our ranges for the bilateral rates of the pound against the US dollar do not change between these dates. In addition, the depreciation against the deutsche mark implied by the bands for 2000 is relatively small. However, both the franc and the lira are appreciating against the deutsche mark, and the yen is appreciating against the US dollar. Therefore, stable rates for the pound against the US dollar imply that the pound will be depreciating against the yen. Similarly, a small deutsche mark depreciation implies a much greater depreciation against the franc and the lira.

Implications for the Euro/US Dollar Rate

FEER analysis can be used to examine the implications of different EMU membership compositions for the behavior of the euro. Obviously, to obtain a comprehensive analysis, FEERs would have to be calculated for all the currencies of European Union and a variety of different weighting systems considered. The analysis here, the results of which are presented in table 5.3, uses the ecu as a proxy for the euro.[6] Three different scenarios are considered. In the first, only Germany and France are involved in EMU; in the second, Germany, France, and Italy are considered; and in the third, Germany, France, Italy, and the United Kingdom are included. We

6. The ecu is a basket of currencies of the EU12 and is made up of different quantities of each currency. This currency composition was last fixed on 21 September 1989. Fixing the weights in terms of an actual quantity of each currency means that the importance of the currencies within the ecu will vary according to their relative strength. For example, because the weights were set in 1989, the sharp depreciation of the lira since then means that its weight within the basket is now relatively small. See Gros and Thygesen (1992) for a more detailed discussion of the ecu.

obtain bands for the US dollar/ecu for these scenarios by weighting the changes implied by the FEER in the individual parities for the US dollar against each of the European currencies.[7] Changing the composition of the currencies used to decide the movement in the US dollar/ecu rate makes little difference to the resulting bands, essentially because the lira and pound have a relatively low weight. Therefore, the change in the bands over time reflects the appreciation of all the European currencies except the pound against the US dollar. The January 1998 US dollar exchange rates for Germany, France, and Italy are all outside the bands implied by the FEERs for 2000. As would be expected, therefore, the January 1998 US dollar per ecu rate shown in table 5.6, as well as the one-year forward rate, are outside the bands implied by all the euro scenarios. In each case, the euro would be expected to appreciate relative to current ecu rates to be consistent with the FEERs for 2000.

Sensitivity

The calculation of FEERs, like macroeconomic forecasting generally, is an imprecise science. To indicate this, we present two general sensitivity exercises.[8] Table 5.5 shows the effect on the FEER of a decrease of 1 percent in trend output in each country. It also shows the effect of a medium-term current account that is in surplus by 1 percent of GDP more than our central estimates. As our model is approximately linear, the signs can simply be reversed for changes in the opposite direction.

We treat the rest of the world as fixed in these experiments. This is unlikely to be strictly true. For example, because current accounts across the world should add to zero in theory, a move to surplus in one country should be accompanied by a move to deficit in all others. Similarly, changing trend output in one country will have an impact on world trend output. In practice, however, such global feedbacks will have only a small impact on our calculations.

Table 5.5 shows that the FEER calculations are most sensitive to assumptions about the medium-term current account. A move into surplus worth 1 percent of GDP depreciates the FEER by between 8 percent and 2 percent in the immediate period. Even excluding Italy, where low competitiveness elasticities reduce the sensitivity of the current account to the real exchange rate, the range is still 6 percent to 2 percent. After five years, the depreciation in the FEER (relative to the central estimate for 2000) has fallen by between a third and one half in each case. A persistent increase

7. The weights are obtained from the percentage of the ecu accounted for by the individual currencies in 1995. The weights for the countries in the individual scenarios are then normalized to sum to one.

8. The issue of robustness is discussed more generally in Driver and Wren-Lewis (1996).

Table 5.7 Summary

	Exchange rate per US dollar (1/16/98)	Nominal rates per US dollar implied by the FEER for 2000	Real effective misalignment (percentage)
United States	na	na	21
Germany	1.83	1.35–1.65	−8
Japan	128.99	77.3–94.5	−29
United Kingdom	0.61	0.60–0.74	29
France	6.12	4.59–5.61	−3
Italy	1,799.55	1,391–1,700	−2
Canada	1.44	1.40–1.72	19
US dollar/ecu	1.08	1.387–1.135	na

na = not applicable.

Note: Misalignment is measured as the percentage change between the FEER for 2000 and the current real effective exchange rate. A positive number indicates overvaluation.

in the current account surplus (or reduction in the deficit) will lead to higher debt-interest receipts, which will reduce the necessary change in the trade balance and necessitate a smaller change in the FEER to achieve the new target.

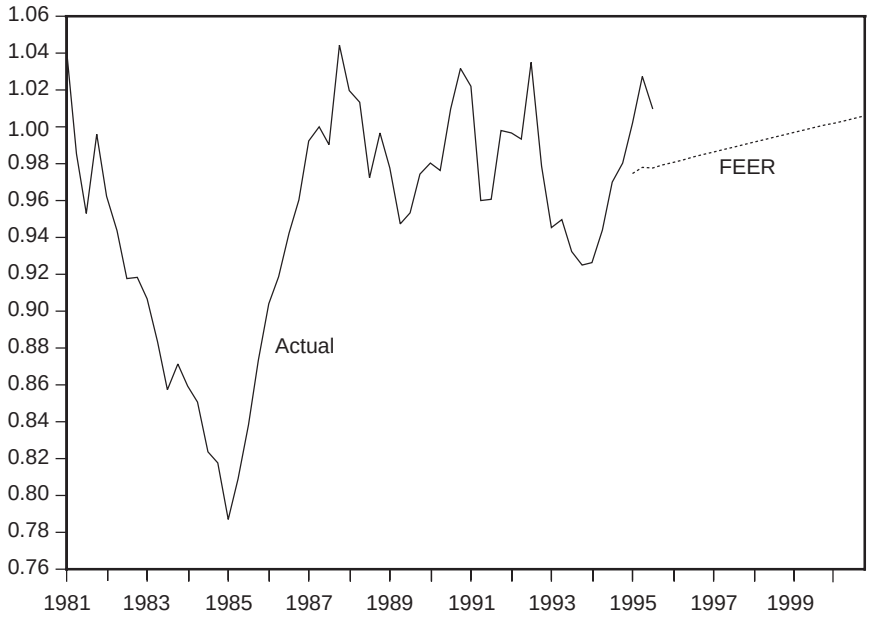
Although the sensitivity to the level of trend output appears smaller, it is quite conceivable that our estimates of the output gap could be off by more than 1 percent. For example, estimates of the output gap for 1990 made by Giorno et al. (1995) are on average 2.3 percentage points higher than the estimates used in Williamson (1994), which were based on the work of the International Monetary Fund (IMF). Furthermore, in the case of a change in the output gap, there is no real tendency for the necessary change in the FEER to diminish over time. Therefore, changes to the FEER in 2000 are of a similar magnitude to those necessary in 1995:H1.

Conclusions

Our analysis of FEERs in 2000 for the G7 and, particularly, the G3 produce estimates that differ from exchange rates observed during 1997 and early 1998 (see table 5.7). In particular, the US dollar is substantially overvalued (implying that it needs to depreciate in the medium term) and the yen is grossly undervalued. Although current pound parities are not particularly out of line against the US dollar, they do imply serious overvaluation against European currencies. In contrast, the exchange rates prevailing in 1995:H1 were within the bands implied by our FEER calculations for 1995:H1. What implications should be drawn from this?

We have been careful at each stage to point out the uncertainties and difficulties involved in deriving our estimates. In particular, the econometric analysis of chapter 4 shows that some of the trade relationships that

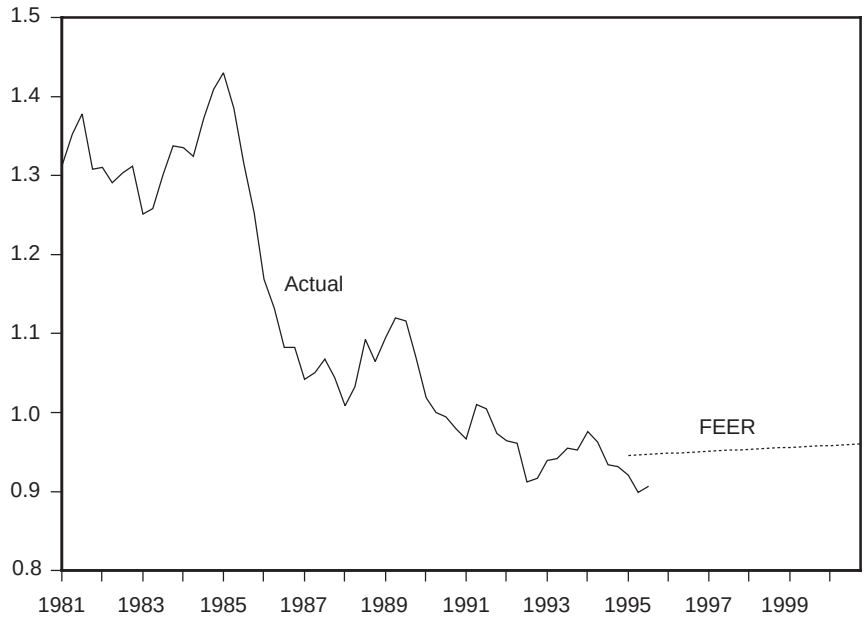
Figure 5.1 US real exchange rate, March 1981–December 2000



are at the heart of the FEER are not well determined. In addition, our sensitivity analysis in chapter 5 shows that plausible differences in assumptions about medium-term current accounts can produce large variations in estimated FEERs. This suggests that the central estimates of FEERs presented earlier should be treated cautiously. However, this same analysis also shows the weakness of PPP as a tool for calculating medium-term exchange rates. The low estimates of competitiveness elasticities derived here and elsewhere suggest that PPP will not hold. This is confirmed by figures 5.1–5.7, which show the real exchange rates for the G7 in recent years and provide no indication that these variables have been stationary. (The figures also contain the projected FEERs from 1995:H1 to 2000 for comparison.) We believe that our analysis confirms that the FEER approach, however uncertain, is a substantial improvement on PPP.

It is important to stress that our analysis, if broadly correct, does not necessarily imply that current exchange rates are in some sense wrong. The FEER is a medium-term concept, and there are many reasons why exchange rates may deviate from the FEER in the short term. It is worth noting that in most cases the forward rates reported in table 5.6 are closer to our FEER estimates than are current rates. Our analysis does imply that in

Figure 5.2 German real exchange rate, March 1981–December 2000



the absence of major shocks to the world economy, spot rates should tend toward our FEER estimates as we move toward 2000.

For much the same reason, our estimates do not necessarily carry an automatic implication for policy. As we stress in chapter 2, FEERs have applications other than target zones. Nevertheless, many believe that views about medium-term exchange rates should play a role in formulating macroeconomic policy. Our work has critical implications for those who hold such views. In a wider context, we believe that it is important that the foreign exchange market is guided by an analysis of medium-term fundamentals. The FEER is better suited for that purpose than is PPP.

We believe that our analysis has unambiguous policy implications for the European members of the G7 who are contemplating joining EMU. If countries join EMU at parities that differ from the FEER, then adjustment of real exchange rates toward the FEER can only take place through excess inflation or deflation. Neither of these options is normally desirable, and pursuing them would conflict with the goal of macroeconomic convergence within Europe. Our results suggest that joining EMU at current deutsche mark parities would not produce serious misalignments for the franc or the lira but would be disastrous for the pound.

Figure 5.3 Japanese real exchange rate, March 1982–December 2000

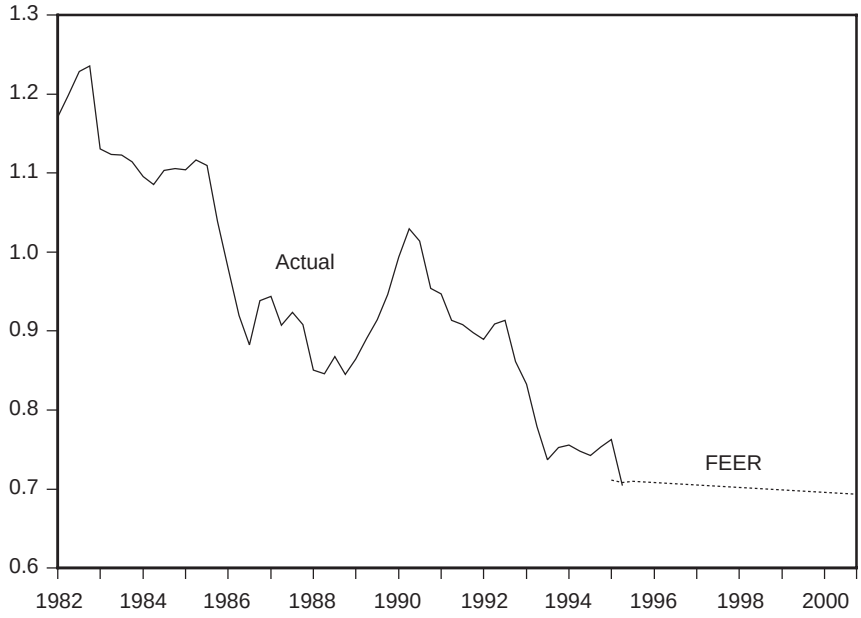


Figure 5.4 UK real exchange rate, March 1982–December 2000

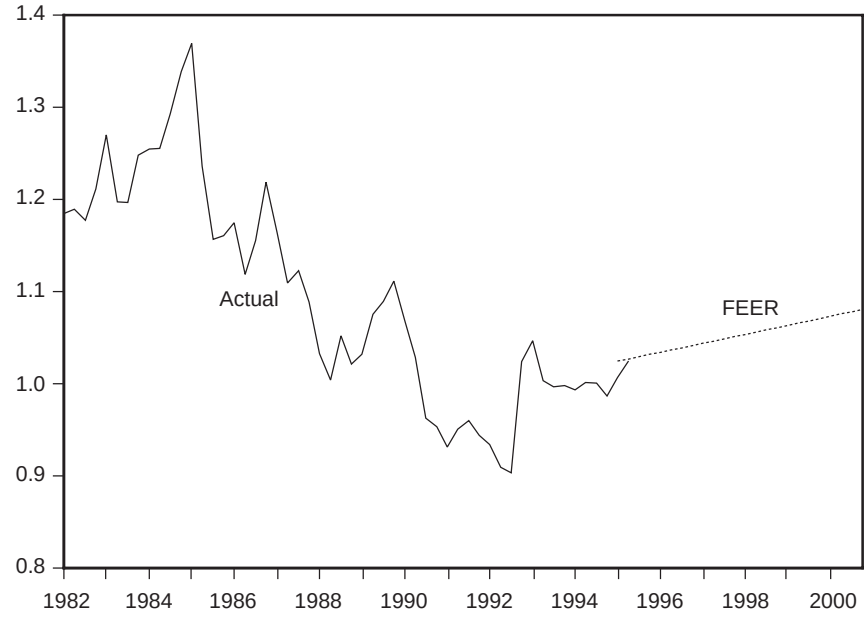


Figure 5.5 French real exchange rate, March 1982–December 2000

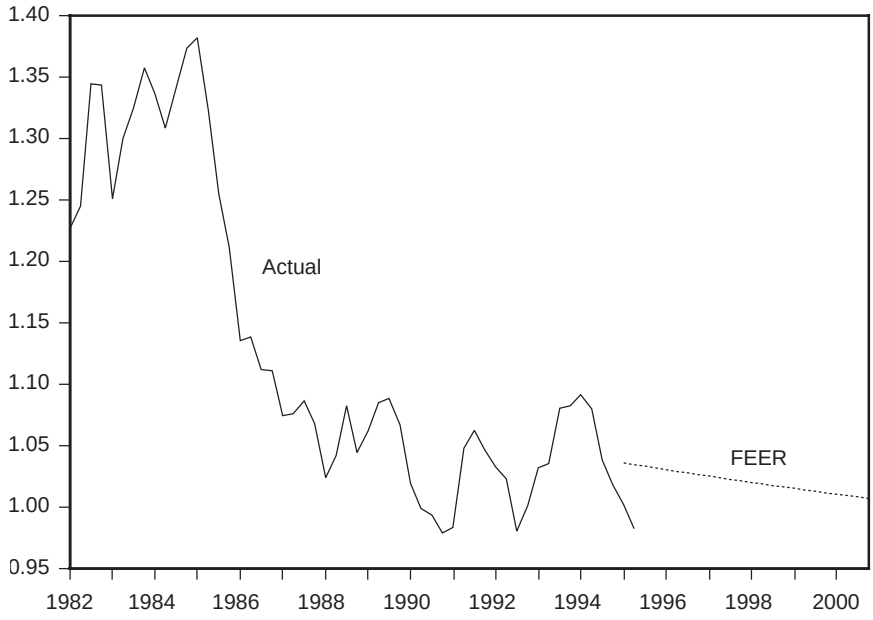


Figure 5.6 Italian real exchange rate, March 1982–December 2000

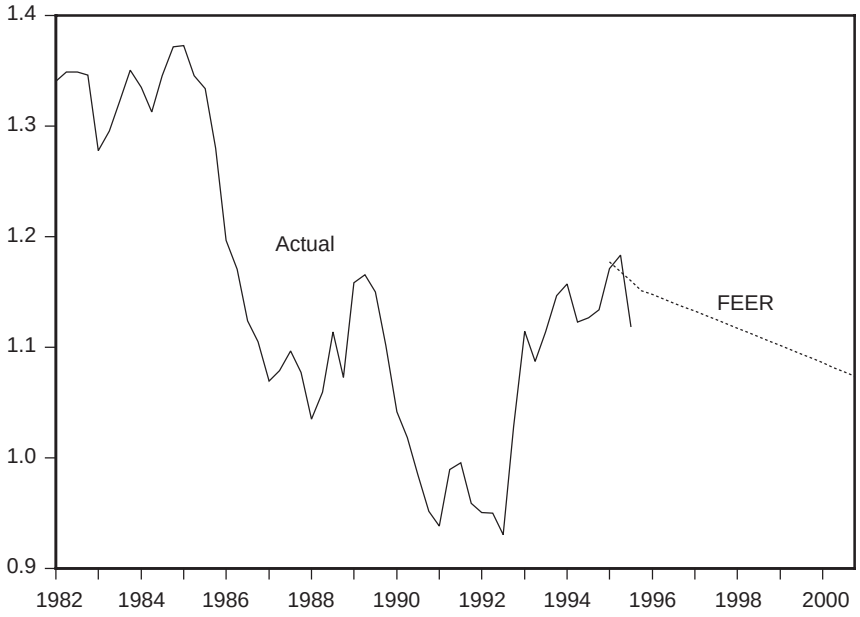


Figure 5.7 Canadian real exchange rate, March 1981–December 2000