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## The Current Currency Situation

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The currency markets have been extremely disturbed for the last three months. The period witnessed a major strengthening of the US dollar in September, then the European currency crisis, a recovery of the euro when the markets believed that the crisis was being controlled, and then a rebound of the dollar. In view of these developments, those who follow currency movements need a new guide as to how the current values of currencies compare to our estimates of fundamental equilibrium exchange rates (FEERs).<sup>1</sup> That is the main object of this paper.

1. As set forth in earlier issues (e.g., Cline and Williamson 2011), Williamson's concept of the fundamental equilibrium exchange rate refers to the rate at which external imbalances and capital flows would be sustainable indefinitely. We apply a benchmark of +/- 3 percent of GDP as the limits on current account imbalances consistent with sustainability (except for oil-exporting economies). We assume that exchange-rate changes undertaken to move to a country's FEER would be accompanied by any necessary parallel changes in fiscal and monetary policy to maintain internal balance (in prices and employment). Our method applies a matrix inversion technique to translate needed changes in real effective exchange rates into a set of changes in bilateral rates against the dollar (see Cline 2008).

The first section is devoted to a brief exposition of the main changes that have occurred since April, which our previous publication used as the benchmark. The second section updates information on the levels of effective exchange rates consistent with the FEER targets identified in our most recent estimates (Cline and Williamson 2011), as well as the FEER-consistent dollar rates as of late October. The third section steps outside our normal frame of reference in order to make some comments about the situation within Europe in view of the sovereign debt crisis currently raging there.

### DEVELOPMENTS SINCE APRIL

From April through July the real effective exchange rate (REER) of the dollar remained virtually unchanged. However, beginning in August and especially thereafter, the dollar REER rose significantly, reaching 3.4 percent above the April level in the first two weeks of October.<sup>2</sup> By end-October, however, the REER stood only slightly above the April level (by 0.9 percent).<sup>3</sup> Even though the United States was downgraded from AAA by Standard and Poor's after the partisan fight about the debt ceiling, US Treasuries have still been treated by investors as a safe-haven asset to run to at a time of crisis. Hence the sovereign debt crisis in Europe, and the general flight from assets perceived as risky to which it gave rise, tended to strengthen the dollar. Presumably this strengthening would have been even greater in the absence of the downgrade. Even at its peak, however, the renewed safe-haven effect was much milder than in the previous episode, when the REER for the dollar rose 14.4 percent from July 2008 to March 2009 (Federal Reserve 2011).

The safe-haven increase was certainly present against the euro. Although the dollar-euro rate was fairly stable from April until early September, the euro then went into a significant decline, presumably as a result of the European crisis.

2. Using the Federal Reserve's broad real effective exchange rate index for April and September, and extrapolating to late October by applying the Federal Reserve weights to partner currencies and deflating by country inflation rates.

3. We use the average rate of October 27–31 for this update.

It hit a local minimum in early October, and by late in the month recovered practically all of the loss, before the surprise announcement on October 31 of a Greek referendum at least temporarily pushed the currency back to the September level.<sup>4</sup> The pattern of weakening in September and early October was replicated in many other currencies, contributing to the strength of the dollar.

The two major currencies in which the pattern appeared differently were the Japanese yen and the Chinese yuan. The Japanese yen has tended to strengthen throughout the period, in both bilateral and effective terms, until the intervention on October 31 pushed it down by 3 percent. As another safe-haven currency, it strengthened even more from early September onwards, in terms of the dollar and in terms of its effective rate. In contrast, the Chinese yuan is an administered currency, whose value depends upon government policy. It has been the policy of China to administer a gradual appreciation of the yuan in terms of the dollar (judging by deeds, although this is contrary to the inaccurate Chinese pronouncements on their policy which describe it as managed floating; see appendix A), and this process has been maintained throughout the period. It may appear paradoxical to the Chinese authorities, since they did not accelerate the appreciation of the RMB against the dollar, but the fact is that this policy and the movements of the other currencies resulted in the effective exchange rate of the yuan appreciating quite rapidly in September and early October, then easing slightly again as they continued to ride the dollar. Overall the RMB experienced an effective real appreciation of about 5 percent from April to late October, in part because of inflation above that of the United States and other key economies.<sup>5</sup>

The biggest problem throughout this period has been the sovereign debt crisis in Europe. This is not the place to rehearse the details, but the lack of exchange-rate flexibility was known to be a potential cost of European monetary unification from the start, and this is the first time that it has hurt since creation of the euro. Countries that have had Fund programs have normally had highly competitive exchange rates, either because they deliberately devalued, or because the Fund required devaluation, or because they had flexible exchange rates and the market took the value of their currencies lower. In the cases of Greece, Ireland, and Portugal, this was not

possible because the countries had locked their exchange rates by entering the euro. None of them were sufficiently large to imagine that the value of the euro would be determined, or indeed significantly influenced, by their policies or needs. Its value was as likely to change in what was a perverse direction from the standpoint of their needs as it was to change in a benign direction. This is presumably one of the factors—along with concerns about the magnitude of their debt burdens, and the contagious effects of their neighbors' problems—that has underlain the lack of market confidence in them. We have more to say about this issue in section 3.

## UPDATED EFFECTIVE EXCHANGE RATES

Our most recent estimates of how far exchange rates lie from the FEER levels were made in May and related to the data of April (see Cline and Williamson 2011). These estimates were based on the medium-term current account projections made by the International Monetary Fund (IMF) in its April 2011 issue of the *World Economic Outlook* (WEO), as updated from the IMF's February base to our April base.

We maintain our traditional practice of calculating FEERs only once per year. That is, we assume the set of FEERs published in May were correct (see table 1 for our estimates of FEERs in April), and seek to ask what the intervening changes in market exchange rates and differential inflation imply for the current degrees of misalignment of the major currencies.

Table 1 reports estimated FEERs and the real effective exchange rates for April and late October (final three days) of the 30 countries for which we have been estimating FEERs. Column 3 shows the percent change that was needed in order to reach the level that was estimated as the FEER in April. Column 5 shows the same thing as of late October (assuming that the FEER was unchanged from that calculated in May). The final column shows whether we judge a currency to be overvalued (O), undervalued (U), or within 2.5 percent of equilibrium (E). Table 2 reports the corresponding levels of recent bilateral rates in terms of the dollar as compared to the FEER-consistent exchange rates against the dollar. Table 3 summarizes. It can be seen that the US dollar has returned very close to the same level as in April, despite its strong intervening appreciation. (It appreciated again in early November, as we went to press.) The dollar thus remains overvalued by about the same amount as in April, about 9 percent. In contrast, the Chinese RMB is substantially closer to equilibrium, falling from 16.0 percent to 10.6 percent undervalued. The euro's depreciation has not been sufficient to make us change our judgment that it is close to equilibrium. The yen's appreciation carried it from a zone

4. The rate was 1.45 dollars per euro in April as a whole and an average of 1.43 in July–August. It then fell to 1.38 in September and 1.35 for the first two weeks of October, before rebounding to an average of 1.41 in October 27–31. By November 9 intensification of the crisis in Italy pushed the euro down further, to about 1.36 to the dollar.

5. Over this period the yuan rose 2.7 percent against the dollar, and differential inflation between the two economies amounted to 0.9 percent. The remaining rise in the REER of the yuan reflected its riding the dollar up, as the REER of the dollar rose 0.9 percent.

**Table 1 Changes in effective exchange rates and extent of misalignment, April–October 2011**

Country	FEER (2007REER=100)	April		Late October <sup>a</sup>		Misalignment late October 2011
		REER (2007=100)	Percent change needed	REER (2007=100)	Percent change needed	
Argentina	80.7	83.0	-2.7	85.3	-5.4	O
Australia	99.8	117.3	-14.9	118.1	-15.5	O
Brazil	117.1	130.3	-10.1	123.6	-5.2	O
Canada	107.8	108.5	-0.6	104.2	3.5	U
Chile	104.4	106.7	-2.1	104.2	0.2	E
China	131.0	113.0	16.0	118.4	10.6	U
Colombia	111.8	114.2	-2.1	112.1	-0.3	E
Czech Republic	114.5	115.7	-1.0	114.1	0.4	E
Euro area	96.1	98.3	-2.3	97.6	-1.6	E
Hong Kong	101.7	90.4	12.5	88.2	15.4	U
Hungary	97.5	103.5	-5.9	90.3	8.0	U
India	109.3	111.2	-1.7	106.8	2.4	E
Indonesia	103.9	105.7	-1.8	104.9	-1.0	E
Israel	119.0	120.1	-0.9	115.8	2.7	U
Japan	116.0	118.2	-1.8	127.5	-9.0	O
Korea	78.0	79.3	-1.6	78.0	-0.0	E
Malaysia	114.7	102.0	12.4	100.0	14.7	U
Mexico	99.1	99.8	-0.7	87.8	12.9	U
New Zealand	79.6	97.2	-18.2	100.8	-21.0	O
Philippines	105.7	107.3	-1.5	108.4	-2.5	E
Poland	95.3	100.1	-4.8	91.5	4.1	U
Singapore	141.2	113.8	24.1	116.2	21.5	U
South Africa	95.0	113.4	-16.2	100.6	-5.5	O
Sweden	109.2	101.9	7.2	101.1	8.0	U
Switzerland	132.9	120.3	10.5	125.3	6.1	U
Taiwan	108.7	96.5	12.7	92.4	17.7	U
Thailand	101.1	102.9	-1.8	100.5	0.6	E
Turkey	69.0	97.4	-29.1	88.2	-21.7	O
United Kingdom	78.7	79.7	-1.3	81.0	-2.8	O
United States	81.3	88.8	-8.5	89.6	-9.3	O

FEER = fundamental equilibrium rates

REER = real effective exchange rate

O = overvalued

U = undervalued

E = equilibrium

a. Average: October 27, 28, 31.

Source: Authors' calculations

close to equilibrium to an overvalued effective rate, and even the intervention of October 31 has left it effectively overvalued.<sup>6</sup>

6. As indicated in table 1, by late October the REER of the yen was 9 percent above our FEER estimate. The bilateral rate against the dollar remained weaker than the target that would attain if all countries realigned to their FEERs, however (table 2) reflecting the high share of regional trading partners with presently undervalued currencies.

Most other countries' effective exchange rates have to be understood in terms of not only their own changes (usually against the dollar), but also in terms of the changes among the four basic currencies. For example, Argentina has had an effective appreciation as a result of depreciating relatively slowly against the dollar despite relatively high inflation, so that it is now distinctly more overvalued (table 1). The Brazilian real

**Table 2 FEER-consistent and actual exchange rates against the dollar, April–October 2011**

Country	FEER-consistent rate, April	Inflation <sup>a</sup>		April		Late October <sup>b</sup>	
		Percent	Inflation-adjusted FEER rate	Actual	Percent change needed	Actual	Percent change needed
Argentina	4.00	11.5	4.17	4.07	1.5	4.24	1.7
Australia*	1.02	3.5	1.02	1.06	-3.8	1.07	-4.8
Brazil	1.65	6.6	1.68	1.58	-4.1	1.71	1.5
Canada	0.94	2.9	0.94	0.96	1.7	0.99	5.5
Chile	454	3.1	454	470	3.5	491	8.0
China	5.09	5.5	5.15	6.53	28.4	6.36	23.5
Colombia	1784	3.3	1786	1806	1.2	1866	4.4
Czech Republic	16.3	1.8	16.2	16.8	3.2	17.6	8.6
Euro area*	1.50	2.5	1.51	1.45	3.9	1.41	6.9
Hong Kong	5.92	5.5	5.99	7.77	31.3	7.77	29.7
Hungary	185	3.7	186	184	-0.9	215	15.6
India	41.0	10.6	42.5	44.4	8.2	49.0	15.3
Indonesia	7554	5.7	7652	8647	14.5	8840	15.5
Israel	3.29	3.4	3.30	3.43	4.2	3.60	9.3
Japan	75.8	-0.4	74.5	83.2	9.8	76.5	2.7
Korea	979	4.5	986	1085	10.8	1110	12.5
Malaysia	2.35	3.2	2.35	3.01	28.3	3.08	31.0
Mexico	11.6	3.4	11.6	11.7	1.2	13.2	13.5
New Zealand*	0.70	4.4	0.70	0.79	-11.2	0.82	-14.9
Philippines	38.2	4.5	38.5	43.2	13.0	42.7	10.9
Poland	2.76	4.0	2.8	2.75	-0.4	3.08	11.1
Singapore	0.90	3.7	0.91	1.25	37.9	1.25	37.4
South Africa	7.38	5.9	7.49	6.72	-8.9	7.77	3.8
Sweden	5.56	3.0	5.56	6.20	11.5	6.40	15.0
Switzerland	0.78	0.7	0.77	0.90	14.6	0.87	11.8
Taiwan	22.8	1.8	22.7	29.0	27.2	29.9	32.2
Thailand	27.0	4.0	27.1	30.1	11.5	30.6	13.1
Turkey	1.98	6.0	2.01	1.52	-23.1	1.75	-12.7
United Kingdom*	1.71	4.5	1.69	1.64	4.2	1.61	5.1
United States	1.00	3.0	1.00	1.00	0	1.00	0

FEER = fundamental equilibrium rates

\* US dollars per currency unit

a. Most recent available 12 months.

b. Average: October 27, 28, 31.

Source: IMF (2011a); authors' calculations

was appreciating against the dollar until September, but then it fell by more against the dollar than most other currencies did so that its effective exchange rate actually decreased, resulting in a net reduction in its overvaluation (which may still be underestimated, as a result of the relatively optimistic IMF projections). Similarly, after remaining almost unchanged against the dollar from April to August, the Malaysian ringgit

fell by about 5 percent against the dollar in September through early October, and then rebounded about half way, until there was a new fall at the turn of the month. As a result, its undervaluation increased. The same pattern occurred with considerably greater force for Mexico, as the peso depreciated by about 11 percent from April to late October relative to the dollar. As a result, the Mexican peso has become even more

**Table 3 Estimated overvaluations as of late October 2011**

Country	Effective overvaluation	Overvaluation against the dollar <sup>b</sup>
Argentina	5.4	-1.7
Australia	15.5	4.8
Brazil	5.2	-1.5
Canada	-3.5	-5.5
Chile	-0.2	-8.0
China	-10.6	-23.5
Colombia	0.3	-4.4
Czech Republic	-0.4	-8.6
Euro area	1.6	-6.9
Hong Kong	-15.4	-29.7
Hungary	-8.0	-15.6
India	-2.4	-15.3
Indonesia	1.0	-15.5
Israel	-2.7	-9.3
Japan	9.0	-2.7
Korea	0.0	-12.5
Malaysia	-14.7	-31.0
Mexico	-12.9	-13.5
New Zealand	21.0	14.9
Philippines	2.5	-10.9
Poland	-4.1	-11.1
Singapore	-21.5	-37.4
South Africa	5.5	-3.8
Sweden	-8.0	-15.0
Switzerland	-6.1	-11.8
Taiwan	-17.7	-32.2
Thailand	-0.6	-13.1
Turkey	21.7	12.7
United Kingdom	2.8	-5.1
United States	9.3	0.0

a. Average: October 27, 28, 31.

b. If all currencies move to their fundamental equilibrium rates.

Source: Authors' calculations

undervalued than the RMB. The shift from equilibrium in April to undervaluation by October for Mexico and (to a more moderate extent) Canada, combined with their large weights in US trade, plays a considerable role in the behavior of the REER of the dollar.

Most of the cases judged to be overvalued are old favorites: Australia, Brazil, New Zealand, South Africa, Turkey, and the United States. However, there are also three additions to the list: Argentina, Japan, and the United Kingdom. Argentina

presumably got there because the authorities placed electoral expediency ahead of maintaining the external position. Japan has become overvalued in effective terms as a result of the strong appreciation of the yen on account of its safe-haven properties. Of course, some competitors of Japan in the United States will still find Japanese competition to be extremely stiff despite the fact that our analysis suggests this cannot plausibly be attributed to the behavior of the yen, even after its recent depreciation. Britain's overvaluation is marginal.

**The dollar remains overvalued by about the same amount as in April, about 9 percent. In contrast, the Chinese RMB is substantially closer to equilibrium, with its undervaluation falling from 16 percent to 10.6 percent. ... [T]he Mexican peso has become even more undervalued than the RMB.**

The cases of undervaluation are again a mixture of the familiar and the new. Among the familiar, there are a number of East Asian economies, notably China, Hong Kong, Malaysia, Singapore, and Taiwan. In Europe, there are the two familiar cases of Sweden (whose undervaluation has increased) and Switzerland (whose undervaluation has been much reduced, but not eliminated, by the strong appreciation of the Swiss franc).<sup>7</sup> The most interesting cases are the many

7. The Swiss have been widely complaining of overvaluation, and anyone who has stayed in Switzerland recently is aware that Switzerland is a very expensive country. From the end of 2010 to its peak on August 9, 2011, the Swiss franc rose from 1.25 per euro to only 1.04 per euro. On September 6, the Swiss National Bank announced that "massive overvaluation of the Swiss franc poses an acute threat" and that it was "therefore aiming for a substantial and sustained weakening of the Swiss franc" (SNB 2011). The central bank announced that it would place a limit of at least 1.2 Swiss francs per euro, and in October the currency was back to a range of 1.22 to 1.24 per euro. Our criterion of absence of misalignment, however, is that the expected current balance in the medium term (when exchange rates have played through) be no more than +/- 3 percent of GDP. The most recent WEO places the 2016 current account surplus at 9.9 percent of GDP (IMF 2011a), and even after making our statistical adjustment cutting the estimate by 4 percent of GDP (see Cline and Williamson, 2010, p. 4), the expected current account surplus of Switzerland in 2016 would substantially exceed 3 percent of GDP without a further appreciation. Nor has the problem been a serious trade deficit masked by a huge capital services surplus. On the contrary, Switzerland has run enormous surpluses on trade in goods and non-capital services as well, reaching 7.4 percent of GDP in 2009 and 10.9 percent in 2010 (when the current account surpluses reached 11.4 percent of GDP and 15.8 percent, respectively; IMF 2011a, b). We can see no justification for the claim of "massive overvaluation" for an economy running surpluses this high, on both the trade and current account balances.

additions to this group: Canada, Hungary, Israel, Mexico, and Poland. Canada became marginally undervalued because it depreciated against the dollar along with many other currencies, but has almost no other countries that play an important role in the index of its effective exchange rate. The undervaluations of Israel and Poland are also marginal. The same cannot be said of Hungary or Mexico, however, whose depreciations were large.

**Japan and Switzerland experienced currency appreciation as a consequence of the safe-haven effect. ... [B]ecause the yen was already substantially overvalued whereas the Swiss franc remained substantially undervalued, Japan's intervention was justifiable whereas Switzerland's was not.**

It is also worth noting that areas judged to be in equilibrium are the euro area, India, Indonesia, Korea, the Philippines, and Thailand, as well as a number of smaller countries. The judgment that the euro area is in overall equilibrium does not imply that there are not serious disequilibria within it, which we discuss in the next section. Note that the euro area, and not the countries that constitute it, is the object of our analysis because it is a currency area. The findings that Indonesia, Korea, the Philippines, and Thailand are in overall equilibrium means that the undervaluations elsewhere in East Asia cannot be dismissed as a regional phenomenon that could equally well be described as a dollar overvaluation.<sup>8</sup> (Of course, there is also a dollar overvaluation, as our analysis has made clear.)

If one examines FEER-consistent dollar exchange rates (table 2), one finds that there are many more instances of undervaluation than of overvaluation. Only three countries, Australia, New Zealand, and Turkey, would need to depreciate with respect to the dollar, on the assumption that all other countries moved to equilibrium rates as well. To say the same thing another way, there are only three of the 30 currencies that we examine that were more overvalued than the dollar. The exchange rates of countries that were found

to be undervalued on an effective basis need to change far more in terms of the dollar. In addition, many countries that were in equilibrium on an effective basis would need to appreciate their exchange rates quite substantially with respect to the dollar if all other countries were to move to equilibrium. Even countries that were found to be overvalued on an effective basis (for example, Brazil, Japan, and South Africa) would need to appreciate against the dollar in the context of a general realignment to FEER-consistent exchange rates.

The FEER-consistent dollar rates are of course identical to those estimated in May of this year (after adjustment for inflation differentials); the difference lies in the distance that exchange rates need to traverse from their present levels (interpreted as the average of the last three days of October) in order to reach equilibrium. The Japanese yen was strongly overvalued on an effective basis (at least prior to the intervention of October 31), but it was not overvalued in terms of the US dollar. The euro is close to equilibrium on an effective basis, but it is undervalued relative to the dollar, and would therefore require a significant appreciation if all other currencies were moving to FEERs. The same contrast applies to an even greater degree for the Korean won. In the important case of the RMB, the decline in the extent of undervaluation of the REER (from 16 percent to 10.6 percent) exceeds the decline in undervaluation against the dollar in a context of global realignment (from 28 percent to 24 percent).

The Japanese intervention of October 31 has been widely condemned, but there was a case for it. Prior to the intervention the yen was overvalued by some 9.8 percent, which is about the margin where intervention can be judged reasonable (see, for example, Williamson 2007). There was not much overvaluation against the dollar, but this is an inappropriate nationalistic criterion. It would be interesting if those who condemned this intervention would lay out the conditions under which they judge intervention to be justified.

Comparison of Japan to Switzerland provides a useful prism for illuminating internationally responsible exchange-rate intervention. Both countries experienced major pressure for currency appreciation as a consequence of the safe-haven effect. Both countries intervened to resist this pressure. But because the yen was already substantially overvalued whereas the Swiss franc remained substantially undervalued, Japan's intervention was justifiable whereas Switzerland's was not.

## EUROPE

In the series of FEER estimates beginning in mid-2008, we have consciously treated the euro region as a single currency area, and have therefore regarded intra-euro-area imbalances

8. These four currencies *would* be undervalued individually against the dollar bilaterally in a range of 11 to 16 percent if all other currencies were to realign to their FEER levels, however (table 2). The difference reflects their high trade shares with regional trading partners that would all appreciate against the dollar in such a realignment.

as outside our remit. However, it was well known when the euro was created that there was a danger that there would be a price to pay for preventing the use of the exchange rate in the adjustment process, and there were many economists who warned against the danger of a premature move to European monetary union. Since this is the focus of the present crisis, however, it seems impossible to maintain the stance of ignoring intra-area imbalances at the present time.

In a currency union in which all governments are thought to pose zero (or identical) sovereign risk, and in which the commitment to the single currency is believed to be unambiguous, there should be no interest differentials across the sovereign obligations of the member states. This is an implication of uncovered interest rate parity, whereby under free capital flows the interest rate differential must be equal to the expected rate of depreciation of one currency against another.

For the first eight years of its existence, the euro area closely resembled this textbook case. The member governments were regarded as having essentially the same credit risk, probably reflecting the widespread belief that for modern industrial countries, sovereign default was a historical artifact of the 1930s. Thus, from the beginning of the euro in 1999 through 2007 the maximum spread above the 10-year German bund rate for any of the peripheral European economies was only about 40 basis points, essentially de minimus. The implication was perceived near-zero sovereign risk combined with assured exchange rate parity.

That paradigm has now collapsed for members of the euro area. The demise of assured sovereign solvency began with the emergence of country risk spreads among euro area members in the 2008 global financial crisis.<sup>9</sup> The opening up of interest rate differentials above the German bund meant that in the face of acute international uncertainty, investors had begun to question either the iron-clad certainty of continuation of membership in the euro, or the certainty of negligible sovereign credit risk, or both. The paradigm shift was forcefully escalated by the revelation of previously misleading data on Greek public debt at the beginning of 2010.

With the introduction of doubt about the euro and sovereign risk, euro area countries have become more like normal countries, which are vulnerable to sudden stops of capital flows. Even though the usual trigger mechanism for an external debt crisis—massive loss of reserves and forced devaluation—is much more attenuated, the rise in sovereign spreads for the vulnerable members constitutes a slow-motion

crisis. Moreover, perhaps in part because of the practice of treating (and usually, formally rating) private firms as, at best, no better than their sovereign, the interest rate pressures spread to the private sector. Under these circumstances, the vulnerable government needs not only to reduce government debt relative to GDP; it also needs to reduce the current account deficit to a level that the markets will finance.

The advent of a growing influence of current account imbalances on euro area sovereign risk spreads can be tested. For 13 euro area economies,<sup>10</sup> a pooled regression using quarterly data for 2010:1 through 2011:3 yields the following results for the 10-year sovereign spread above the German bund rate (with t-statistics in parentheses).

$$S = -1.74 - 0.176 CA + 0.0447 \frac{D}{Y}; \text{adj } R^2 = 0.47$$

(-2.7) (-3.32) (5.47)

Here,  $CA$  is the current account balance as a percent of GDP, and  $D/Y$  is the ratio of gross general government debt to GDP.<sup>11</sup> The test applies the gross debt ratio rather than the conceptually more appropriate net debt ratio, largely because the markets seem to focus primarily on the gross measure. Both the usual debt to GDP ratio and the current account ratio turn out to be statistically significant. The debt ratio appears to have the greater weight, however. Thus, a move from the 25th percentile current account deficit observation (1.7 percent of GDP surplus) to the 75th percentile (3.6 percent of GDP deficit) causes an increase in the sovereign spread by 94 basis points. In comparison, a move from the 25th percentile for the public debt ratio (54 percent) to the 75th percentile (96 percent) boosts the sovereign spread by 188 basis points.<sup>12</sup> Of course, not all the euro area countries were considered in danger of breaking with Germany. In short, within the euro area the level of public debt is the primary influence on the sovereign risk spread, but the size of the current account deficit also matters.

A popular view is that the peripheral economies grew into overvaluation because of excessive inflation relative to Germany. This position has been fortified by figure 1, which shows the movement of the unit-labor-cost-based REERs of six European countries relative to other members of the euro area since the

9. In the first quarter of 2009, the trough of the Great Recession panic, the spread between 10-year government obligations over those of Germany reached an average of 252 basis points for Greece, 215 for Ireland, 130 for Portugal, 134 for Italy, and 93 for Spain (Datastream).

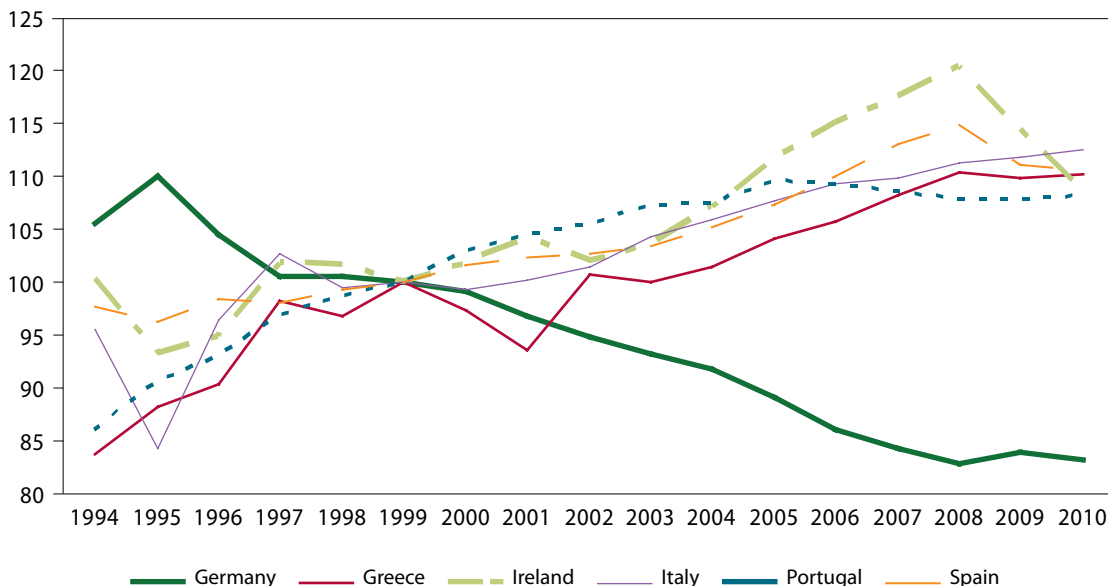
10. Excluding Cyprus, Estonia, Luxembourg, and Malta.

11. Both are from the IMF (2011a). Quarterly estimates are from moving weights on the relevant annual figures.

12. Note further that when applying a panel approach in which a dummy variable is applied for each economy to remove unobservable country-specific influences, the significance of the current account variable disappears and the explanatory power of the debt ratio rises sharply. However, it may be that the main country difference is precisely its balance of payments position, which varies more between countries than over time.



**Figure 1 Real effective exchange rates relative to the euro area (unit labor costs based, 1999=100)**



Source: European Commission's Price and Cost Competitiveness database. Available at [http://ec.europa.eu/economy\\_finance/db\\_indicators/competitiveness/documents/areea16.xls](http://ec.europa.eu/economy_finance/db_indicators/competitiveness/documents/areea16.xls)

start of the euro up until the present day. The six countries shown are Germany and the five countries in crisis. The real effective exchange rate is based on 1999 = 100. This chart suggests that the countries now in crisis have brought their woes upon themselves by inflating far more than in Germany (or, alternatively, that Germany has been the source of the problem because of excessive wage compression).

Figure 2 is one that we constructed based on IMF figures using instead relative unit labor costs (ULCs) against 27 advanced economies, again setting 1999 = 100. This measure is more relevant to each country's overall external sector performance than one comparing the country just to euro area partners. Although the broader base of comparison confirms the problem of rising overvaluation in Spain and Italy, it sharply reverses the diagnosis for Ireland (which by 2009–11 does better than Germany). It also leaves a much more moderate contrast between competitive performance for Germany on the one hand, and Greece and Portugal on the other, than indicated in figure 1. In short, the use of a more relevant gauge of relative unit labor costs weakens the persuasiveness of the popular view that the crisis can be blamed on differential inflation.<sup>13</sup>

13. Note that the current account performances discussed below tend to confirm that figure 1 is misleading in diagnosing overvaluation for Ireland (which is now in current account surplus), whereas the moderation shown in figure 2 may be misleading for the case of Portugal (which has a large current account deficit).

Differential inflation is not the only reason that nominal exchange rates need to change, even if it tends to be the largest single reason in the long run. Real exchange rates may also need to change in order to offset other factors. The hope of the advocates of monetary union is that the necessary changes

**“[W]ithin the euro area the level of public debt is the primary influence on the sovereign risk spread, but the size of the current account deficit also matters.**

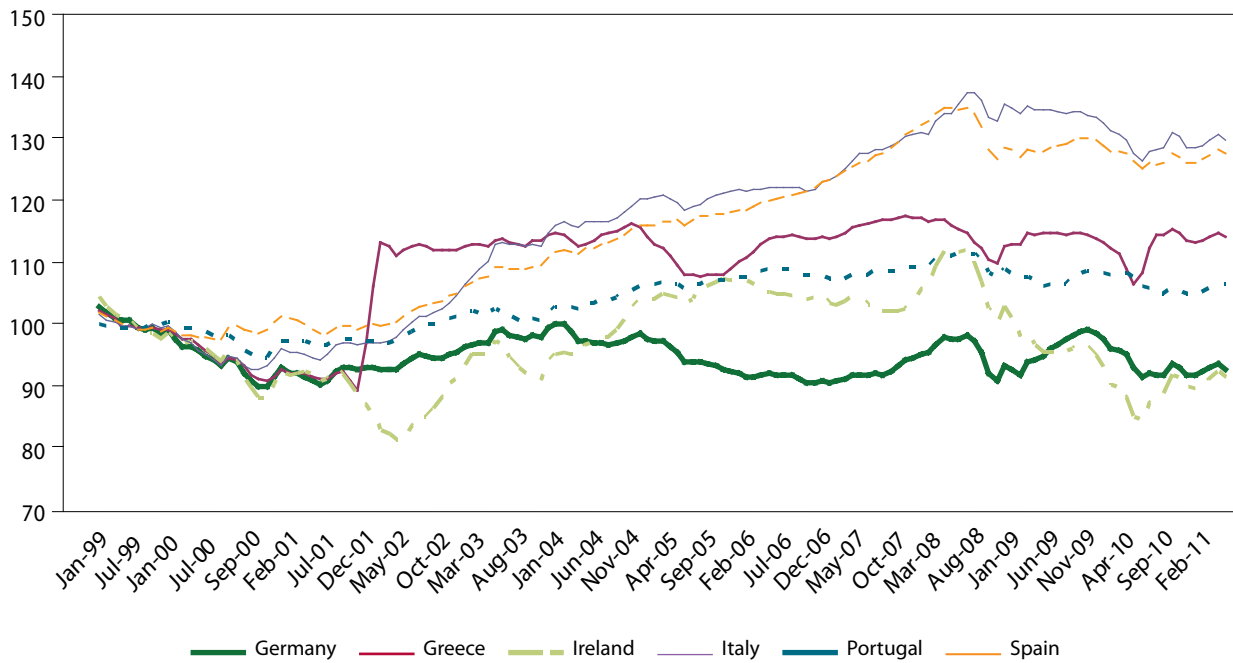
in real exchange rates will be sufficiently small that they can be accomplished by countries gaining or losing competitiveness while maintaining a constant nominal exchange rate. It is therefore worthwhile to form an estimate of how large a change in the real exchange rate would be needed to in order to reestablish payments equilibrium in the euro area.

Consider the case of Greece. According to the IMF (2011b), the present external position of Greece shows a net debt of \$327 billion,<sup>14</sup> which is about the same size as Greek

14. This figure is due to be reduced as a result of the 50 percent write down in private-sector Greek assets agreed between the Institute of International Finance (IIF) and the European Union on October 26, 2011, but a new figure for Greek debt will depend on the (“voluntary”) take-up of this offer by bond holders.



**Figure 2 Real effective exchange rates (unit labor costs based, 1999=100)**



Source: IMF (2011b)

GNP (converting to dollars at a rate of \$0.7 = €1). If one posits (with the IMF) that the Greek nominal growth rate will reach 3 percent or more again,<sup>15</sup> then Greece could afford a current account deficit of some 3 percent of GDP without further increasing its (foreign) debt/income ratio. Given that its forecast deficit is some 8.4 percent of GDP this year (according to the IMF data in the WEO database), one needs an improvement in the Greek current account of some 5.4 percent of GDP. Applying a current account impact coefficient of  $\gamma = -0.2$ <sup>16</sup> (1 percent REER depreciation reduces the current account by 0.2 percent of GDP), this suggests the need for a depreciation in the Greek real exchange rate of as much as 27 percent.

On the other hand, the WEO projects the Greek current account deficit at only 2 percent of GDP by 2016, on the usual WEO assumption of no change in the real exchange rate. In this case there would be no change needed in the Greek current account or exchange rate to remain within the present limit on net international liabilities relative to GDP. Hence if one believes the IMF forecast and one regards the somewhat anemic recovery of output as something that Greece could live with,

one would not be concerned about Greek current account prospects.

Table 4 displays the figures calculated for Greece in the paragraph before last, along with similar calculations for the other countries in crisis and for Germany. There are two variants for the current account target: the net international investment position (NIIP) stabilization just discussed, and the standard 3 percent of GDP imbalance used in our usual FEERs calculations. There are also two variants for the baseline current account: the 2011 base and the IMF’s 2016 projection (the usual benchmark in our FEERs estimates). The calculation of estimates for  $\gamma$  again follows Cline (2008). If the 2011 base is used, these figures suggest that Portugal faces the task of an even larger current account adjustment (and nearly as large a real depreciation) as Greece, but that the other European countries are considerably better off in this dimension, with Italy being the only conceivably problematic case. Ireland is already in current account surplus, while the Spanish adjustment is modest.<sup>17</sup> The figures for Germany indicate that Germany has

15. We use the IMF forecasts (IMF 2011a) average of 2012–16, to calculate nominal growth rates.

16. For calculation of this parameter see Cline (2008). Data on exports of goods and services for this calculation are from the IMF (2011b).

17. Note further that in the NIIP-based adjustment rules applied in table 4, a country with a net international liability position should adjust only to the extent needed to avoid a further deterioration in the NIIP/GDP ratio; a country in a net international asset position should adjust only to the extent needed to avoid a further increase in the NIIP/GDP ratio. Because Ireland is a net international debtor, it need not curb the current account surplus through

**Table 4 Evaluating the need for adjustment within Europe**

	2011 NIIP (billions of USD)	2010 GDP (billions of USD)	Nominal GDP growth (percent)	Target current account: NIIP basis (percent of GDP)	Forecast of 2011 current account (percent of GDP)	Forecast of 2016 current account (percent of GDP)	Current account impact parameter $\gamma$
Greece	-327	327	3.0	-3.0	-8.4	-2.0	-0.2
Ireland	-221	223	4.0	-4.0	1.8	1.0	-0.5
Italy	-593	2211	2.6	-0.7	-3.5	-1.7	-0.25
Portugal	-250	244	2.6	-2.7	-8.6	-2.6	-0.27
Spain	-1369	1518	3.4	-3.1	-3.8	-2.2	-0.23
Germany	1514	3531	2.3	1.0	5.0	4.0	-0.37
<b>Target change in current account (percent of GDP):</b>							
	NIIP basis 2011 base	Standard basis 2011 base	NIIP basis 2016 base	Standard basis 2016 base			
Greece	5.4	5.4	0	0			
Ireland	0.0	0	0	0			
Italy	2.8	0.5	1	0			
Portugal	5.9	5.6	0	0			
Spain	0.7	0.8	0	0			
Germany	-4.0	-2	-3.0	-1			
<b>Target change in REER (percent):</b>							
	NIIP basis 2011 base	Standard basis 2011 base	NIIP basis 2016 base	Standard basis 2016 base			
Greece	-27.0	-27.0	0.0	0.0			
Ireland	0.0	0.0	0.0	0.0			
Italy	-11.2	-2.0	-4.0	0.0			
Portugal	-22.0	-20.7	0.0	0.0			
Spain	-3.2	-3.5	0.0	0.0			
Germany	10.8	5.4	8.1	2.7			

NIIP: net international investment position

NIIP basis, 2011 base = Objective is reducing the c/a deficit so that NIIP/GDP will not increase, assuming the deficit was not scheduled to fall

Standard basis, 2011 base = Objective is to reduce the c/a deficit to 3 percent of GDP, assuming the deficit was not scheduled to fall

NIIP basis, 2016 base = Objective is reducing the c/a deficit so that NIIP/GDP will not increase, assuming the deficit falls as in IMF forecast

Standard basis, 2016 base = Objective is to reduce the c/a deficit to 3 percent of GDP, assuming the deficit falls as in IMF forecast

Source: Cline (2008); IMF (2011a); IMF(2011b); authors' calculations

scope to lose competitiveness while still retaining the confidence of the markets. However, if the 2016 current account projections are used instead, then the current account imbalances virtually disappear as a potential source of debt distress because the deficits are relatively small even for Greece and Portugal. Even so, one worries that the benign external balances projected for 2016 may depend unduly on sluggish domestic growth assumed in the IMF's baseline.

For some time the challenge of achieving external adjustment within the confines of the single currency has been

appreciation. In contrast, as a large international creditor with a large current account surplus, under the NIIP rule Germany needs to appreciate to avoid increasing the ratio.

approached with the strategy of "internal devaluation." In the European context, this term has referred primarily to what used to be called "wage deflation." In this process, curbs on wage growth (or outright wage reductions), together with such reforms as liberalization of labor markets (e.g., reducing restrictions on firing and shifting collective bargaining from the industry level to the firm) have been the main avenue for achieving increased competitiveness with an unchanged currency. An intriguing recent innovation which is being introduced into the programs for European countries adds another instrument for implementing internal devaluation: fiscal devaluation. This is accomplished by changing the tax system in favor of exportables. For example, it is possible to

reduce the taxes on factors used in producing exportables and increase those on domestic consumption. A program to this effect has been adopted by Portugal, which proposes to increase the value-added tax on domestic consumption while reducing the taxation of labor inputs to production, which will favor

**The current account deficit of 8.4 percent of GDP this year ... suggests the need for a depreciation of the Greek real exchange rate of as much as 27 percent ... Portugal faces the task of an even larger current account adjustment. However, if the 2016 current account projections [of the IMF] are used instead, the current account imbalances virtually disappear. ... We are less certain, and consider it important that the strategy of “internal devaluation” and its new variant, “fiscal devaluation,” be pursued vigorously ...**

inter alia exportables (since indirect but not direct taxes are rebated at the border), the total changes being calculated to be revenue neutral. An important question is how large a devaluation could be effected by this means. The answer is presumably that it is limited on the one hand by the maximum level of value-added taxation that is politically tolerable, and on the other hand by the size of pre-existing taxes on inputs. It seems unlikely that a country would be able to achieve an internal devaluation of greater than 10 percent or so, which even on a pessimistic reading of the above figures goes a significant part of the way—but only a part of the way—to resolving the Greek and Portuguese problems as diagnosed by the 2011 baseline. There would almost certainly be an adverse effect on income distribution, but given the trade-off with increased unemployment this might be accepted.

## CONCLUSIONS

In September and early October the US dollar temporarily emerged as a more substantially overvalued currency than before due to the run-up in the dollar, but by late October US overvaluation was approximately back to the same single-

digit level as in our previous estimates applying an April base (about 9 percent). Return to greater dollar overvaluation as a consequence of a renewed depreciation of the euro to enable Europe to export its way out of its problems is not a desirable policy option from the standpoint of global imbalances. If this happens, it could set the stage for a new dollar crisis, which might easily be of even greater severity than the European crisis that has so preoccupied the world in recent months. On the contrary, the euro is not only appropriately valued at present from the standpoint of the euro area's effective exchange rate, but it is also undervalued bilaterally against the dollar when judged against the rates that would result from a general realignment of exchange rates toward FEERs. Such a realignment would certainly involve major appreciations by the currencies that have been traditionally undervalued, in particular—though not exclusively—in East Asia. At the same time, the adjustment of international imbalances will also require a willingness to accept that an expansion of domestic demand has to be the basis of renewed growth in most areas that have not suffered big deficits in the past.

**Return to greater dollar overvaluation as a consequence of a renewed depreciation of the euro to enable Europe to export its way out of its problems is not a desirable policy option from the standpoint of global imbalances.**

It is an interesting fact that our analysis has concluded that neither the misalignment of the dollar nor the euro has changed much since April, while the undervaluation of the RMB fell and the yen became overvalued. Are these findings mutually consistent? Yes, but only because two of the smaller currencies which happen to play a big role in the US effective exchange rate—namely the Mexican peso and the Canadian dollar—both depreciated and emerged as undervalued currencies.

For its part, the current European crisis is first and foremost a crisis of confidence in sovereign debt driven by unsustainable fiscal imbalances, together with a much more stringent market treatment of high public debt levels now that there has been a paradigm shift recognizing that even industrial countries—and even ones belonging to the euro—can default. Within Europe, part of the solution to the present crisis will have to be reductions in the large current account deficits of Greece and Portugal. The IMF forecasts are optimistic that

these external adjustments can occur without further change in the two countries' nominal effective exchange rates. We are less certain, and consider it important that the strategy of "internal devaluation" and its new variant, "fiscal devaluation," be pursued vigorously to help ensure competitive real exchange rates that avoid a need to adjust through sluggish growth. But, particularly if the IMF projections are taken at face value, it is still possible that the needed external sector adjustment will take place without recourse to the extreme option of exit from the euro.

## REFERENCES

- Cline, William R. 2008. *Estimating Consistent Fundamental Equilibrium Exchange Rates*. Working Paper WP08-6. Washington: Peterson Institute for International Economics.
- Cline, William R., and John Williamson. 2010. *Estimates of Fundamental Equilibrium Exchange Rates, May 2010*. Policy Brief PB10-15. Washington: Peterson Institute for International Economics.
- Cline, William R., and John Williamson. 2011. *Estimates of Fundamental Equilibrium Exchange Rates, May 2011*. Policy Brief PB11-5. Washington: Peterson Institute for International Economics.
- European Commission. Price and Cost Competitiveness database. Available at [http://ec.europa.eu/economy\\_finance/db\\_indicators/competitiveness/documents/areea16.xls](http://ec.europa.eu/economy_finance/db_indicators/competitiveness/documents/areea16.xls).
- Federal Reserve. 2011. *Economic Research & Data*. Washington: Federal Reserve Board. Available at: <http://www.federalreserve.gov/econresdata/default.htm>.
- Hu, Xiaolian. 2010. A Managed Floating Exchange Rate Regime is an Established Policy. *BIS Review* 96/2010.
- IMF (International Monetary Fund). 2011a. *World Economic Outlook Database: September 2011*. Washington.
- IMF (International Monetary Fund). 2011b. *International Financial Statistics* CD-Rom Washington.
- SNB (Swiss National Bank). 2011. Swiss National Bank Sets Minimum Exchange Rate at CHF 1.20 per euro. Zurich. September 6.
- Williamson, John. 2007. *Reference Rates and the International Monetary System Policy Analyses in International Economics* 82. Washington: Peterson Institute for International Economics.

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APPENDIX A

THE CRAWLING PEG OF THE CHINESE YUAN AGAINST THE DOLLAR

Since June 2010, the official policy of China has been to pursue a “managed floating exchange rate regime based on market demand and supply with reference to a basket of currencies” (Hu 2010). In practice, however, the authorities appear to have pursued a crawling peg against the dollar, with little regard to other major currencies. Moreover, the market demand that is allowed to influence the exchange rate is by no means the full amount, because reserves have continued to accumulate massively as a consequence of intervention. Pure determination of a floating rate by market demand would mean no intervention. Thus, from end-June 2010 to end-August 2011 (the latest date with data available), China’s foreign exchange reserves rose from \$2.4 trillion to \$3.2 trillion (IMF 2011b).

Figure A.1 shows the path of the exchange rate of the yuan against the US dollar, euro, yen, and pound sterling from January 2010 through July 2011 (end of month rates),

expressed as indexes with January 2010 = 100. It is evident that there is a steady appreciation of the yuan against the dollar (gradual decline in the number of yuan per dollar). In particular, a simple linear regression of the index on time shows a highly statistically significant coefficient of  $-0.42$ , indicating that each month the yuan has appreciated by 0.42 percent against the dollar.<sup>18</sup> If China’s recent rate of inflation were to continue at about 5.5 percent per year and US inflation were to average 3 percent, the combined effect of the crawl and differential inflation would be to cause real appreciation of the RMB against the dollar by 7.7 percent per year (5.2 percent for nominal crawl plus 2.5 percent for differential inflation).

In contrast, it is evident in the figure that there is no corresponding steady path of the yuan against the other major international currencies.

18. With 15 observations, the adjusted  $R^2$  is 0.97 and the t-statistic is  $-22.8$ . This monthly rate translates to 5.2 percent annually ( $= 1.0042^{12} - 1$ ).

Figure A.1 Path of the Chinese yuan against the dollar, euro, yen, and pound Sterling (Index, January 2011 = 100)

