

## THE DOLLAR IN THE G20

*The swelling of the United States' foreign debt is weakening the international monetary system and feeding expectations of a long term depreciation of the dollar. The required adjustment of the us current account thus appears as a burden to be distributed between the us and its trade partners, via adjustments in the exchange rate. The greater exchange rate flexibility which the G7 has called for concerns mainly the large emerging economies that are not included in it. The G20 may therefore appear as a forum better suited to furthering international monetary cooperation. This article evaluates the adjustments required, and their distribution within the G20, on the basis of an econometric description of the behaviour of the real exchange rate over the long term. If all countries had gone along with flexibility, then the euro would have been close to its equilibrium rate against the dollar in 2003. But a simulation of Asia's strategy for pursuing monetary stability vis-à-vis the dollar suggests that the euro needed to appreciate a further 10-15%.*

The accumulation of macroeconomic imbalances in the United States raises the issue of the real exchange rate of the dollar, the adjustment which has to be made and the way in which it can occur. More than anything else, the difficulty lies with the sustainability of the us current account deficit, running at nearly 5% of GDP.<sup>1</sup> From a pessimistic point of view, the deficit is the result of failing price-competitiveness by the us economy, which is condemned to being a structural net importer of goods. An optimistic interpretation, on the other hand, holds that the deficit actually reflects the dynamism of the us economy. In any case, the lion's share of the current account deficit stems from the federal budget deficit and the insufficiency of private savings in financing it. The consequences of these "twin deficits" are uncertain: public spending does not necessarily favour long term growth, and the debt/GDP ratio may rise dangerously.

The notion of sustainability is quite abstract in the case of the us, as long as international capital markets are centred on the dollar, as America can take on debt in its own currency. However, the demand for dollars by investors in general, and

foreign central banks in particular, is not infinite, with the result that the rise in the us foreign debt hangs over the international monetary system like the sword of Damocles, and feeds expectations of a long term depreciation of the dollar.

From this point of view, the required adjustment of America's current account deficit may be viewed as a "burden" to be borne by the United States, in the form of higher private and public savings. It will also have to be borne by America's trade partners, via a slowdown in their exports (that may follow from slower us growth and/or a weaker dollar). The sharing of this burden will depend on the distribution of foreign exchange rate adjustments. This fact has not escaped the members of the G7, which on several occasions have stated the wish that more countries should share in the game of monetary flexibility.<sup>2</sup> However, the countries which are implicitly criticised, led by China, are not members of the G7 and have little reason to comply with its exhortations. International monetary coordination may therefore move beyond the restricted framework of the seven most industrialised countries, to the more appropriate framework of the G20.<sup>3</sup>

1. See, for example, M. Aglietta, L. Berrebi & A. Cohen (2004), "Déséquilibres américains: menace mondiale?", Expertises Groupama Asset Management; A. Brender & F. Pisani (2004), *La nouvelle économie américaine*, Economica.

2. This was indeed one of the key conclusions of the G7 summit in Boca Raton, in February 2004 ([www.g7.utoronto.ca/finance/fm040207.htm](http://www.g7.utoronto.ca/finance/fm040207.htm)).

3. Cf. F. Bergsten, "The G20 and the World Economy", speech to the G20, 4 March 2004, available at [www.iie.com](http://www.iie.com). See also J. O'Neill & R. Hormats, "The G8: Time for a Change", *Global Economics Paper* No 112, Goldman Sachs. The G20 designates an informal group of 20 industrial and emerging countries, which was created in the wake of the Asian crises, with the aim of discussing international financial stability. It includes the G7 (the United States, Japan, Canada, the United Kingdom, Germany, France and Italy), the euro area, Australia, and eleven emerging countries (South Africa, Saudi Arabia, Argentina, Brazil, China, Korea, India, Indonesia, Mexico, Russia and Turkey).

## Equilibrium Exchange Rates in the G20

The diagnosis of an overvalued dollar focusses on the us situation, and hence refers to the effective exchange rate, *i.e.* the weighted average of bilateral rates with respect to the us's trade partners. It cannot be directly transposed to bilateral rates against the euro or the yen. Indeed, within the effective exchange rate of the dollar, the cumulative weight of the euro area (17% of us exports) and of Japan (8%) are less than those of the Canadian dollar and the Mexican peso (respectively 21% and 14%). At the same time, other Asian currencies, which are very often suspected of being overvalued against the dollar, account for nearly 16%.<sup>4</sup>

To provide an indication of the scale of bilateral adjustments needed, a first approach (developed in a previous *Lettre du CEPII*<sup>5</sup>) consists of determining the adjustment in the effective exchange rate of the dollar needed to bring the deficit back down to a more reasonable level: say about 3% of GDP. In this case, the dollar would have to fall by 25% against all other currencies. The euro/dollar rate would therefore shift from \$1.25 in early 2004 to \$1.56 per euro. But the euro needs to appreciate far more if several other key currencies of the international monetary system do not adjust.

However, this approach remains insufficient. First, it is very normative (targeting a current account deficit of 3%) and is based on the assumption that market forces will indeed lead the real exchange rate to its new equilibrium. Next, by imposing identical adjustments on all the us's partners, it ignores their very varied situations in terms of current account balances. It is very hard, for example, to argue that the Mexican peso is undervalued to the same extent as the Chinese yuan, as Mexico's current account is in deficit, while China is recording surpluses.

A second approach consists of describing econometrically the long term behaviour of the real exchange rate. Forex distortions are then identified as misalignments between the observed exchange rate and its long term level. This method has the advantage of being less normative and able to take into account the numerous determinants of the real exchange rate. But as in the case of all econometric analysis, it is backward looking, which makes forecasts fragile: a deficit level which was sustainable during the 1990s may cease to be so during the 2000s if, for example, international investment behaviour has changed.

In practice, both approaches are complementary. The second one will be developed here, in order to calculate forex distortions for the G20 countries.

### The Estimation Method

An equation is estimated linking the effective real exchange rate of each country at each point in time to two variables: the net external position of a country; and the ratio of consumer prices to producer prices.<sup>6</sup> The model described in the box specifies the theoretical foundations of this relationship.<sup>7</sup>

The choice of the G20 as a reference zone for the adjustment of exchange rates means looking at both the industrialised and the emerging countries. Still, the opening up and liberalisation of the latter are too recent to provide a robust analysis. Panel econometrics, which combines both time and cross-section dimensions, provide a way of getting round this problem. It yields a long term relationship between the real exchange rate and its determinants, common to all countries, which gives consistent, effective equilibrium exchange rates.

#### BOX – THE MODEL FOR EQUILIBRIUM EXCHANGE RATES

The real exchange rate is denoted by  $q$ , the nominal rate by  $e$ , the level of domestic prices by  $p$  and the level of foreign prices by  $p^*$  (all values being expressed in logs). By definition:  $q = e + p^* - p$  (1)

where  $q$  (or  $e$ ) increases when the currency depreciates in real terms (or nominal terms). If  $\alpha$  represents the share of the traded sector (which is assumed to be identical across countries), if  $p^E$  stands for the price level in this sector and  $p^A$  the price in the non-traded sector prices then, when denoting foreign prices with a star:

$$q = \alpha(e + p^{E*} - p^E) + (1 - \alpha)(e + p^{A*} - p^A) \quad (2)$$

$$\text{or even: } q = (e + p^{E*} - p^E) + (1 - \alpha)[(p^{A*} - p^{E*}) - (p^A - p^E)] \quad (3)$$

The first term gives the ratio of the foreign price of traded goods to the domestic one. Its equilibrium level is determined by the balance of payments: it rises (*i.e.* foreign goods are more expensive) when the domestic net external position worsens, as net interest payments fall (which leads to a deterioration of the current account), and because the rest of the world must be convinced of the advantages of holding more assets of the economy in question. The second term relates the relative prices of the foreign non-tradable/tradable sector to those of the country in question. The prices of the non-tradable sector are, in principle, lower in emerging countries than in advanced countries because wages are lower whereas productivity levels are comparable. This should lead to a weak currency in real terms ( $q$  has a high value), because of the non-tradable sector. However, economic catch-up leads to a rise in non-tradable prices, and hence an appreciation of the currency in question, in real terms. This effect, known as the Balassa-Samuelson effect, corresponds to internal equilibrium.

Overall, the real exchange rate equilibrium is given by:  $\bar{q} = q(\bar{NFA}, \bar{REL P})$

where  $NFA$  stands for the net external position and  $REL P$  the ratio of relative prices in non-tradable goods abroad compared to the economy in question. The net external position is expressed here in terms of GDP. As for the relative price variable, it is constructed using consumer and producer price indices. The equation can then be estimated econometrically.

4. In 2002. Source: CEPII-CHELEM.

5. A. Bénassy-Quéré, L. Fontagné & M. Fouquin (2003), "Heureux dollar", *La Lettre du CEPII*, No 225, July-August.

6. This follows the approach developed by E. Alberola, S.G. Cervero, H. Lopez & A. Ubide (2002), "Quo vadis euro?", *European Journal of Finance* 8 (4), December, and E. Alberola (2003), "Misalignment, Liabilities Dollarization and Exchange Rate Adjustment in Latin America", Banco de España documento de trabajo, No 0309.

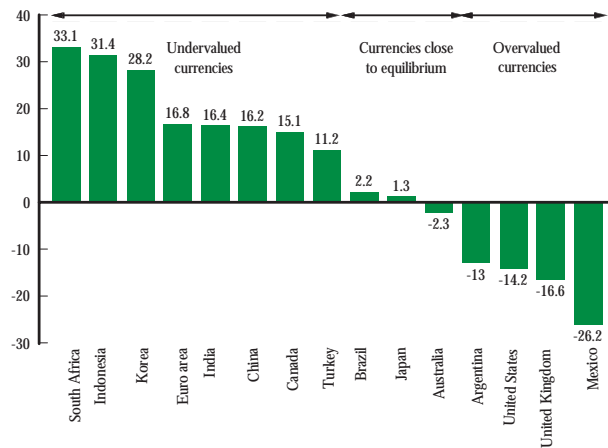
7. For more detail, see A. Bénassy-Quéré, P. Duran-Vigneron, A. Lahrière-Révil & V. Mignon (2004), "Burden Sharing and Exchange Rate Misalignments within the Group of Twenty", *CEPII Working Paper*, No 2004-13.

Bilateral equilibrium rates can then be derived. The sample includes fifteen countries<sup>8</sup>, for the years 1980-2001. By the way they are constructed, the effective real exchange rates are assumed to fluctuate around an equilibrium, on average throughout the period (this seems reasonable, as it is difficult to imagine an exchange rate which is far off its equilibrium for twenty years).

### Misalignments in effective terms

Graph 1 shows the spread which existed in 2001 between the effective real rates observed and the estimated equilibrium rates. Not surprisingly, the dollar seems to be overvalued, but only by 14%, while the above-mentioned estimates, based on a return of the US deficit to 3% of GDP, conclude that the currency was overvalued by 25%.

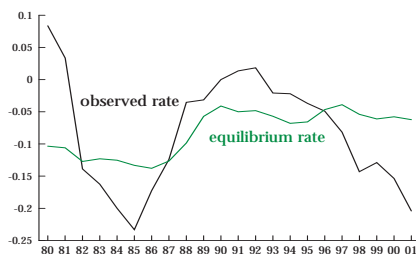
Graph 1 – Misalignment of effective real exchange rates in 2001, in %



Source: Authors' calculations.

Here, as shown in Graph 2, the effective real equilibrium exchange rate of the dollar was relatively stable for the period 1990-2001, as a result of the combined effect of a fall in the US's net external investment position (which leads to a depreciation of the equilibrium exchange rate of the dollar) and a rise in consumer prices *vis-à-vis* producer prices in the

Graph 2 – The real effective exchange rate of the dollar  
Observed level and equilibrium level, in logarithms



Source: Authors' calculations.

us (which, in contrast, would justify an appreciation). This latter effect has been largely commented upon, especially between 1999 and 2001, when the strong appreciation of the dollar seemed to flow from significant productivity gains, due in particular to new information technologies. It explains the limited level of dollar overvaluation in effective terms, for 2001, even though the current account deficit already exceeded 4% of GDP at the time.

Graph 1 also reveals an overvaluation for Mexico and the United Kingdom, whereas the Canadian dollar, the euro and the yuan appear to be undervalued. Generally speaking, all countries from emerging Asia appear to have undervalued currencies, but more surprisingly, the yen is at its equilibrium level, while the undervaluation of the yuan is similar in size to that of the euro area. It should be recalled that the figures relate to the *effective* real exchange rate: the modest undervaluation of the yuan in effective terms does not rule out that the yuan may be strongly undervalued against the dollar (*cf. infra*).

## Bilateral Exchange Rate Misalignments

Bilateral exchange rate misalignments can be calculated using the effective misalignments shown in Graph 1, as each effective rate is an average of 14 bilateral rates. Not including "the rest of the world" in the effective real exchange rate calculation makes it possible to avoid placing the burden of adjustment on third parties, as the G7 has tried to do with China. Here, the disequilibria specific to the G20 must be corrected by exchange rate adjustments within the Group. This means using one of the currencies as a numeraire: the euro is chosen as numeraire<sup>9</sup>; all exchange rates are subsequently expressed against the dollar, which is the common reference.

Table 1 presents the results for 2001 and for 2003, assuming that the real effective equilibrium exchange rate did not change between these two dates<sup>10</sup>. While undervalued by 22% against the US dollar in 2001, the euro was close to equilibrium in 2003, after two years of appreciation. For the pound sterling, the real exchange rate equilibrium in 2001 was followed by a 10% overvaluation in 2003. As for the yen, it appears undervalued by about 20% against the dollar in 2003, as in 2001, although it is close to equilibrium in effective terms (Graph 1).<sup>11</sup> The situation for the yuan is spectacular, as the effective undervaluation of 16% is accompanied by an undervaluation of about 40% against the dollar. Overall, the bilateral distortions with respect to the

8. All G20 countries, apart from Saudi Arabia and Russia (for which there is not enough data). Germany, France and Italy are grouped with the euro area, giving a total of 15 countries.

9. Using the dollar would rule out studying misalignments emanating from the United States, as the dollar cannot be overvalued against itself.

10. This hypothesis may of course be contested in the case of Argentina, which experienced a major crisis in 2001.

11. The yen is therefore overvalued against other Asian currencies.

dollar are much more marked than the effective distortions in Asia. In contrast, this means that intra-Asian disequilibria are limited. This raises fully the question of "burden sharing": if the Asian currencies do not appreciate violently against the dollar, then other currencies such as the euro must do so in their place if the dollar is to return to an equilibrium level in effective terms.

Table 1 – Misalignments of real bilateral exchange rates against the dollar, in 2001 and 2003, in %

	2001	2003
<b>Currencies undervalued in effective terms</b>		
South Africa	49.6	26.7
Indonesia	51.1	19.4
Korea	44.9	34.5
Euro area	22.0	-0.9
India	33.2	27.6
China	40.8	44.1
Canada	18.1	6.9
Turkey	29.6	-6.0
<b>Currencies close to equilibrium in effective terms</b>		
Brazil	15.1	23.4
Japan	18.8	19.1
Australia	17.3	-7.2
<b>Currencies overvalued in effective terms</b>		
Argentina	12.8	87.5
United Kingdom	2.6	-10.7
Mexico	-22.7	-13.9

\* A negative sign indicates an overvaluation.  
Source: Authors' calculations.

also presents the adjustments that are necessary in the euro-dollar exchange rate if the yuan (scenario S1) or all the Asian currencies of the G20 (scenario S2) remain fixed against the dollar (as for the other currencies, they converge on their long term, effective equilibrium level). In the S0 scenario, the value of the euro observed for 2003 is compatible with the equilibrium for all effective real exchange rates. This is no longer true if the yuan does not adjust. In this case, the level reached by the euro in 2003 is still undervalued by 9% *vis-à-vis* the dollar (scenario S1). If the yen and the other Asian currencies are included among countries with a stable value to the dollar, then the undervaluation of the euro in 2003 is 15.5% (scenario S2).

Table 2 – The undervaluation of the euro *vis-à-vis* the dollar for different scenarios, in %

	2001	2003
S0: all currencies of the G20 adjust (see Table 1)	22.0	-0.9
S1: all currencies adjust except the yuan	32.4	9.6
S2: all currencies adjust except the Asian currencies*	38.4	15.5

\* Asia here includes China, Korea, India, Indonesia and Japan.  
Source: Authors' calculations.

For the euro, the non-adjustment of the Asian currencies thus implies a 10-15% supplementary evaluation against the dollar. This is substantial, as in nominal terms it would mean a strengthening of the euro from \$1.25 in early 2004 to \$1.38-1.44 (given inflation rate differentials). It nevertheless remains within the range usually put forward for a euro-dollar equilibrium exchange rate.<sup>12</sup> It should be recalled, however, that the equilibrium exchange rates are calculated on the basis of behaviour dominated by a perhaps-excessive appetite by world markets for us assets.

## Burden Sharing

Table 2 presents three simulations which measure the impact of real exchange rate strategies by Asian countries on distortions within the G20. Line S0 describes the variation of the real euro-dollar exchange rate required for equilibrium as has been calculated above (Table 1). This corresponds to a situation in which all currencies of the sample reach levels of effective real equilibrium simultaneously. Such a configuration is, however, more of a pious hope by the G7 than the present reality of the international monetary system. Indeed, China, and to a certain extent Japan and the other East Asian economies are acting so as to stabilise their exchange rates against the dollar. This explains why Table 2

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12. See R. Driver & S. Wren Lewis (1998), "Real exchange rates for the year 2000", *Policy Analysis in International Economics*, Institute for International Economics, Washington.

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