What is the right price for a currency?

The fear of a «currency war» has been recurring since the world economy entered a phase of financial and economic turbulence in 2008. And this is not surprising since, within an environment of low economic growth, it is appealing to resort to devaluation in order to increase competitiveness and thereby boost activity through exports. However, devaluation does not come cheap: not only does it impose economic risks, fundamentally in the form of inflation, but it can also lead to reprisals by other countries whose exports are affected by the measure or that simply see it as a threat. Nonetheless, accusing a country of depreciating its currency too much is no simple task. We must first determine the right value for the currency in order to judge whether it is over or undervalued.

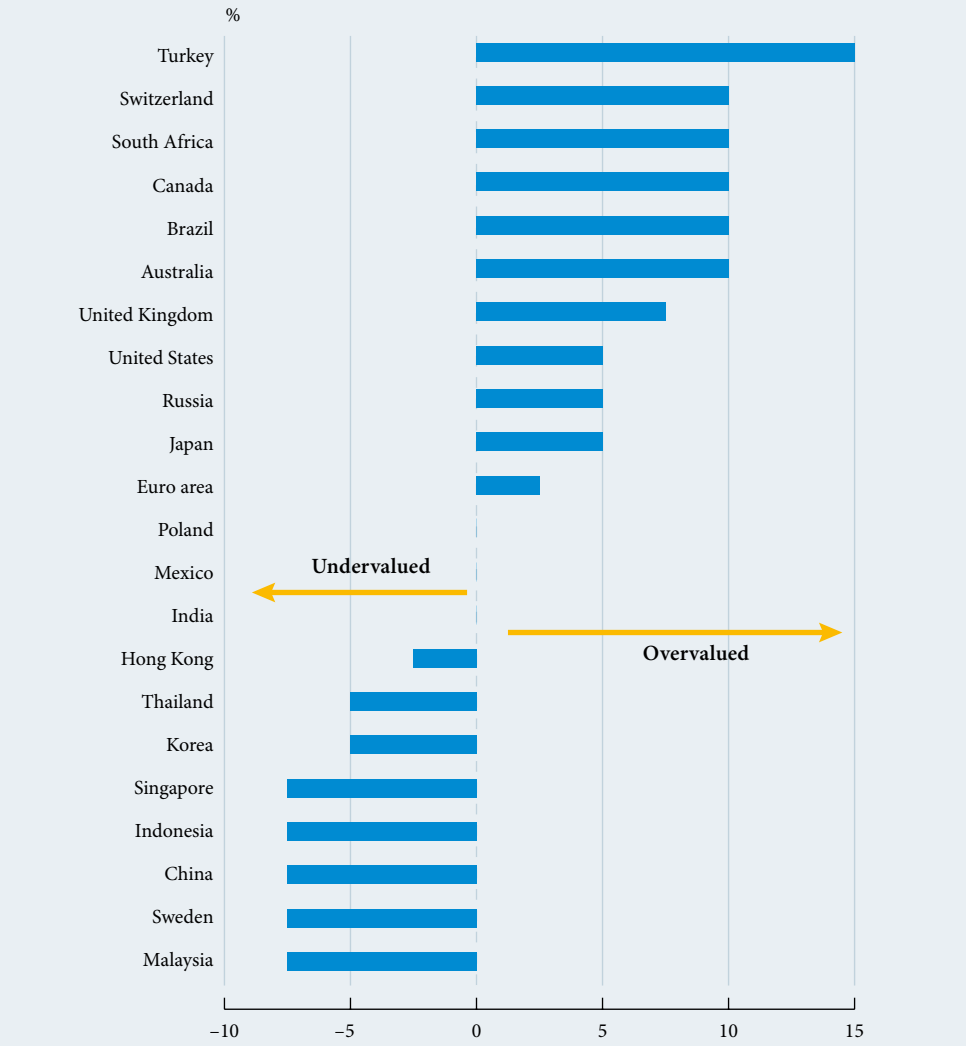
This value would be what academic literature calls the «equilibrium exchange rate»: the one that allows an economy to achieve, in the medium term, both internal and external balance. An economy is internally balanced when it is using all its resources available for production without putting pressure on prices. External equilibrium also requires its current account balance to be in line with its demographic and macroeconomic fundamentals, compared with those of its trading partners.

The equilibrium exchange rate is therefore a theoretical construct and, as such, is not directly observable. However, a variety of methods have been designed to estimate this, though not always with coinciding results. In its desire to standardize methodology, the International Monetary Fund (IMF) combines three different procedures. Two of these («current account regression» and «real exchange rate regression») are based on an econometric analysis while the third («external sustainability») is not based on any model, neither econometric nor theoretical, but on a simple arithmetical calculation of the current account balance that guarantees sustainable external debt (with this sustainability being defined more or less arbitrarily).

The «current account regression» method estimates the equilibrium exchange rate as that which would take the current account balance to the theoretical level which the economy in question should exhibit. The approach is divided into three stages. First, an econometric regression model is estimated that relates the current account balance with a set of explanatory variables identified as relevant by economic theory. These include demographic factors, relative per capita income, economic growth, the oil balance if this exceeds 10%, the net international investment position or net foreign assets (NFA) to gross domestic product (GDP) ratio, cyclical factors (such as the

MOST REFERENCE CURRENCIES ARE NOT TOO FAR FROM THEIR EQUILIBRIUM EXCHANGE RATES

Deviation of the real effective exchange rate from the equilibrium exchange rate (*)



NOTE: (*) A positive sign indicates the currency is overvalued while a negative sign indicates it is undervalued. The values represented are the mid-point in the intervals estimated by the IMF for each currency.
SOURCE: IMF, Pilot External Sector Report, July 2012.

output gap and commodity terms of trade gap) and a series of economic policy indicators (all related to the country's trading partners).

The relationship between these variables and the current account balance is intuitive. For example, the current account in emerging or developing economies, with strong investment needs, will tend to be in deficit. As their level of income increases, the current account balance should also become more positive. On the other hand, an older population tends to have a higher saving rate and therefore a more positive current account balance. With

regard to the net international investment position, a stronger NFA position helps to finance deficits without jeopardizing the country's external solvency; at the same time, the higher the NFA to GDP ratio, then normally the larger the income balance and, consequently, the current balance.

After reaching the model estimate for the equilibrium current account, the deviation is calculated of the existing current balance compared with the equilibrium current balance, calculated as the model forecast based on current data from explanatory variables. In other words, the deviation of the current account balance from its equilibrium level is estimated as the regression residual. Once the gap between the current account and the benchmark figure is determined, the necessary variation is calculated in the exchange rate to eliminate the gap between the existing current account and the equilibrium current account. By way of example: let us assume that country X records a current account surplus of 5% of GDP while its equilibrium current account, according to this methodology, is estimated at a surplus of 1% of GDP. This gap of four percentage points must be narrowed via the country's currency appreciating in real terms. The extent of this appreciation results from the econometric relation between the real effective exchange rate and the current balance.(1) If, for example, each point of appreciation in the exchange rate results in a reduction in the current account balance of 0.5 percentage points, country X would need to record an appreciation of 8% in its exchange rate to close the gap between the benchmark and actual current account. Therefore, according to this methodology, the equilibrium exchange rate of country X would be 8% above its current exchange rate, so that its currency would be undervalued.

The second of the methods used by the IMF to evaluate exchange rate imbalances, namely real exchange rate regression, is based on the same theory as before but divided into two stages. The first stage also specifies an econometric model but, in this case, it directly relates the real effective exchange rate with a set of variables which the economic literature has identified as determining factors. Essentially, this method and the previous one are based on the premise that most economic and demographic fundamentals that determine the current account balance also determine the exchange rate, so that the set of explanatory variables in the econometric specification is very similar for both of them. Once the model has been estimated, the the real exchange rate gap is calculated as the differences of its present value and the model's forecast.(2)

The last of these methods, namely external sustainability, follows a similar procedure to that of «current account regression» but with two crucial differences. First, the equilibrium current account balance is calculated as the one that would stabilize the net international investment position at a level deemed to be reasonable (more or less arbitrarily). Second, the deviation of the current account balance is estimated as the gap between this equilibrium balance and the medium-term forecast, within a base forecast scenario, for the current account balance. From here on, as in the current account regression model, the required variation is calculated in the exchange rate to eliminate, in this case, the gap between the forecast current account and equilibrium current account, based on the estimated sensitivity of this current account to the exchange rate.(3)

(1) The exchange rate used to estimate the equilibrium rates is the real effective exchange rate, an artificial index that takes into account bilateral exchange rates and the relative variation of national prices compared with the price of their trading partners, adjusted by the relative weight of each trading partner in that country's total foreign trade.
(2) To ensure multilateral consistency, regression errors are adjusted by the global weighted average of the errors of all countries.
(3) For more detailed information on the three methodologies, see IMF, Pilot External Sector Report, July 2012, and External Balance Assessment (EBA): Technical Background of the Pilot Methodology, August 2012.

These three approaches have their strengths and limitations but complement each other. In general, the «current account regression» approach tends to take priority as it is considered to be the most informative and reliable. However, it also has some limitations. These tend to be most apparent in analyzing «extreme» countries (different from the average), such as those with a very important or dominant special sectors (e.g. large oil exporters or small economies that have important financial centres). However, the exchange rate regression method can be useful when the previous method faces a particular difficulty. On the other hand, it can lead to bias if the sample has a very short data span. For its part, the external sustainability approach is attractive due to its simplicity but suffers from leaving too many variables up to the analyst. As a result, it can be particularly appropriate for countries with large NFA imbalances and for which there is a clear view of the NFA level required to ensure sustainability.

By way of example, after the latest analysis of global external imbalances carried out by the IMF (July 2012), which uses these three approaches, we would conclude that the world economic map has no generalized or extreme exchange rate imbalances. As illustrated by the above graph, only six economies (Turkey, Switzerland, South Africa, Canada, Brazil and Australia) show deviations (in all cases, overvaluations) in the region of 10% or more compared with their equilibrium exchange rates. At the other end of the scale, the Chinese renminbi, often suspected of being undervalued, has been confirmed as undervalued, although its deviation is not extraordinary either. Among the rest of the reference currencies, most are at rates close to their equilibrium, as is the case of the euro and, to a lesser degree, the yen and dollar (all three are minimally overvalued).

Between the publication of the report in 2012 and the present, the trend in effective real exchange rates has not fundamentally altered the above conclusions although it is true that most emerging economies have seen their real exchange rates appreciate (this has allowed China, for example, to correct half of its undervaluation) and the Japanese currency has depreciated notably, which may have pushed it below its equilibrium exchange rate.

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