

A Modification to the Construction of the Real Effective Exchange Rate (REER)

In addition to monitoring bilateral exchange rates of the Thai baht against other currencies, the MPC has been closely monitoring movements in the effective exchange rate calculated as a weighted average of the bilateral exchange rates, where the weights are determined by the proportions of trade between Thailand and its major trading partners.¹ Recently, the BOT has revised the construction methodology of the nominal effective exchange rate and real effective exchange rate to better reflect Thailand's competitiveness.

Modified concept

The choice of weights is one important issue that needs to be considered. Until now, the weights used are the proportions of trade, assessing competition in only two markets, i.e. the import and export markets. However, in order to better reflect Thailand's competitiveness, the BOT has modified these two indices by also taking into account the importance of trading partners as Thailand's competitors in the third market. For example, in assigning the weight for China, apart from taking into account competition between Thai products and imported Chinese products in Thailand and competition between Thai exports and products produced and sold in China, it is also important to consider competition between Thai exports and Chinese exports in the third country, for example, the US. This concept of weight construction is consistent with international practices.

Calculation method

To take into account the degree of competition of each country in all markets, the calculation of new weights of a country will be equal to the weighted average of competition of that country in all 3 markets (namely, the import, export and third markets), weighted by the importance of each market to Thailand (i.e. the summation of the products between the degree of competition with each country and the importance of each market).²

Table 1 Calculation of new weights w_i

$W_{Th,k} = \sum_j X_{Th,j} \cdot m_{j,k}$	$W_{Th,k}$ = Weight assigned to country k
j = All countries (markets)	$X_{Th,j}$ = Proportion of Thai products sold in country j to total Thai output
k = Trading partners	$m_{j,k}$ = Proportion of country k's products sold in country j to total sales in country j

¹ For details on the effective exchange rate formula, please see Mathinee Subhaswadikul, "Real Effective Exchange Index: REER", *BOT Monthly Bulletin* (August 1999). (Thai version only)

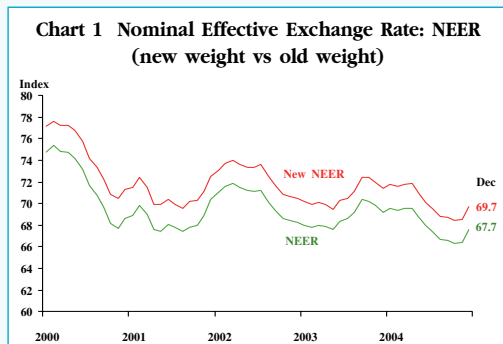
² Detailed concepts of the calculation can be found in Michael P. Leahy, "New Summary Measures of the Foreign Exchange Value of Dollar", *Federal Reserve Bulletin* (Oct 1998), pp. 811-818.

From the equation above, the first term ($x_{Th,\dots}$) measures the importance of the market to Thai exports, calculated as the ratio of products from Thailand sold in that market to the total output supply of Thailand. The second term ($m_{\dots,k}$) measures the degree of competition of exports from country k in each market, calculated as the market share of the products from country k sold in that market.

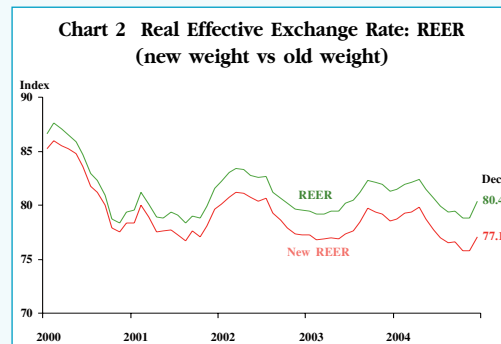
The calculation employed a new database of trade flows between Thailand and its trading partners in 2002, a more up-to-date database in comparison with the previous one which employed the average trade data of 1995-1997. The new database should therefore better reflect the more recent situation of the competition structure. Also, the composition of trading partners in the currency basket is modified from 22 countries to 32 countries (21 currencies, including the euro), which covers around 83 per cent of Thailand's total trade value. Since the Thai economic condition in 1994 was considered stable, the base year used in the calculation remained the same.

Such calculation gives weights that reflect competition in all markets, and could therefore better capture the effects of movements in other currencies on (price) competitiveness of Thai products as well as postulate a clearer pattern of trade.

Results



Source: Bank of Thailand



Source: Bank of Thailand

The calculation using new weights has resulted in a more dispersed weight assigned to Thailand's trading partners. While a significant proportion of the total weight remained with major countries like the US, Japan, and the EU, increased weight in the basket has been attributed to other trading partners such as China and countries in the Asian region recognized as important competitors. The movements in their currencies thus have greater impacts on Thailand's competitiveness. For analyzing purposes, the direction and movements in the indices should be of more concern than the level of the indices *per se*. An increase (decrease) in the indices means an appreciation (depreciation) in the Thai baht vis-à-vis currencies of Thai competitors, reflecting a reduction (increase) in Thailand's competitiveness. Assessment of the change in the indices at end-2004 in comparison with end-2003 shows that NEER and REER depreciated, reflecting sound competitiveness of Thai products.