A New Indicator of Competitiveness for Italy and the Main Industrial and Emerging Countries

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Bank of Italy

5 December 2005

BANCA D'ITALIA

Supplements to the Statistical Bullettin

Methodological Notes

A New Indicator of Competitiveness for Italy and the Main Industrial and Emerging Countries

New series

Volume XV Number 66 - 5 December 2005

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A NEW INDICATOR OF COMPETITIVENESS FOR ITALY AND THE MAIN INDUSTRIAL AND EMERGING COUNTRIES

Andrea Finicelli, Alessandra Liccardi and Massimo Sbracia*

1. Introduction

The very rapid growth in world trade in recent years has affected both the industrial countries and to an even greater extent the emerging and developing countries. The value of world trade in goods and services doubled between 1993 and 2003, when it amounted to $15.2 trillion. The increase over the period was 87 per cent for the first group of countries and 140 per cent for the second group, whose share of world trade rose from 31.6 to 37.1 per cent.[1]

Such growth also affected the geographical composition of Italy's trade, with an increase in the share of the non-industrial countries from 26.2 to 30.5 per cent. This was mainly due to the rapid growth in trade in goods and services with the central and eastern European countries, whose share of Italy's trade rose from 7.5 to 12.7 per cent. The share of the emerging Asian countries rose from 6.3 to 6.9 per cent, while that of the other developing countries remained virtually unchanged.

In view of the changes described above the Bank of Italy decided to broaden the scope of its indicators of price competitiveness. In fact those used previously were calculated with reference to 25 countries (basically the industrial countries or the non-industrial OECD countries) and excluded trading partners whose importance has increased considerably in

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1 The weight of an area (country) A with respect to the trade of an area (country) B is defined as the ratio between the sum of B's imports from and exports to A and the sum of B's total exports and imports. It follows that the weight of an area (country) A with respect to total world trade is defined as the ratio between the sum of A's total imports and exports and the sum of total world imports and exports.

recent years. For example, they did not consider Turkey, Poland, Russia or China, whose shares of Italy's trade in 2003 ranged from 1.6 to 2.6 per cent. By contrast, they included countries such as Ireland, Finland, Canada and Portugal, whose shares were less than 1 per cent.

The new indicators, published for the first time in *Economic Bulletin* no. 45 (see Bank of Italy (2005)), are calculated with reference to 62 countries and include the main non-industrial countries.[2] This paper describes the methodology adopted for the construction of the new indicators, the main differences compared with the old ones, and the results obtained for Italy and selected industrial and emerging countries.

The new methodology maintains two important features of the earlier one: the reference to the competitiveness of the manufactured goods sector, measured on the basis of producer prices, and a method of determining weights based on a double weighting scheme, i.e. one that takes account of the competition exporters face in each market from all producers, both local and not. Apart from the broader geographical coverage, the main differences with respect to the earlier indicators concern the particular double-weighting scheme adopted, the reference period for the calculation of the weights and the sources of the data on world trade (see Section 2).[3]

In Italy's case comparison of the old and new indicators shows that the long-term trends in the period from January 1980 to September 2005 were very similar; the divergences in the short term are very small from 1980 up to 1993, when they begin to grow

[2] The Bank of Italy's new indicators of competitiveness are published for selected countries (those of the G-7 and other industrial and non-industrial countries) in the *Economic Bulletin*, the *Supplements to the Statistical Bulletin*, and the Appendix to the *Annual Report*. They are also available from December 2005 onwards on the Bank of Italy's website in the BIP-on-line statistical data base.

[3] The new indicators use a slightly modified definition of the manufacturing sector which, as recommended by the World Bank, includes categories from 5 to 8 of the SITC classification, excluding category 6.8 (which includes non-ferrous metals). The latter category was included in the earlier definition, together with category 9, which includes the residual item transactions not classified elsewhere.

bigger, reaching a maximum of 5.5 percentage points (see Section 3).[4] The new indicator shows that, with respect to January 1980, Italy's price competitiveness improved, albeit with wide fluctuations, by 6.9 per cent, as against 4.5 per cent according to the old indicator. Moreover, from 1993 to September 2005 the new indicator shows a smaller loss of competitiveness (4.7 per cent, as against 9.4 per cent); this difference can be attributed to the gain in competitiveness recorded in the period with respect to the main central and eastern European countries and, at least until the middle of 2001, with respect to China.

2. The characteristics of the new indicators

2.1 The geographical coverage

In general, the broader an indicator's geographical coverage, the greater is its ability to measure a country's competitiveness. However, there is also a trade-off between geographical coverage and the availability and quality of the data on trade flows, prices and exchange rates: as the number of countries increases, the timeliness, reliability and homogeneousness of the statistics diminish, especially for non-industrial countries.

In view of this trade-off, it was decided to increase the number of countries from 25 to 62 (Table 1). More specifically, the countries added were: the ten new EU countries; the four countries with which EU membership negotiations have begun (Bulgaria, Romania, Turkey and Croatia); Saudi Arabia, Israel and Russia; the main Latin American countries (Argentina, Brazil, Chile, Colombia, Ecuador, Peru and Venezuela); the main emerging Asian countries (China, the Philippines, India, Indonesia, Kuwait, Malaysia, Pakistan, Thailand and Taiwan); and Algeria, Morocco, Nigeria and South Africa.

[4] For most countries the new indicators are available from January 1980 (the old ones date back to January 1970). For some non-industrial countries they have been calculated only from the start of 1993. For more details, see Section 2.3.

In 2003 the 62 countries in the new indicators accounted for 92.9 per cent of world trade in goods and services, compared with 71.3 per cent for the 25 countries in the old indicators. Thus, even though many of the new countries are of limited importance when considered separately, together they account for more than 20 per cent of world trade. In Italy's case, the 61 competitor countries covered account for 92 per cent of its trade and the new countries for about 20 per cent.

The new indicators include all the countries considered in the corresponding indicators prepared by the Federal Reserve, the European Central Bank and the Bank of Japan for their respective countries/areas (Table 1). As is shown in more detail in Section 3.4, the new geographical coverage is representative not only of Italy's foreign trade but also of that of the United States, the euro area and Japan. The new indicators therefore also provide a valid measure of the competitiveness of these three countries/areas. More generally, the broad geographical coverage ensures that they are adequately representative for each of the countries considered, including China.

2.2 The weighting scheme

With the double-weighting scheme the total weight of country *j* in the trade-weighted exchange rate indicator of another country, *i*, takes account of three components, which refer to the competition of *j*'s products vis-à-vis *i*'s on *i*'s market, on *j*'s market and on the markets of third countries. The first component measures the competition the firms of country *i* face from *i*'s imports from *j*; the other two components refer to the competition of *j*'s products vis-à-vis *i*'s on all the other markets, naturally including that of *j*.

In the old indicators the first component was measured by the share of *i*'s imports from *j* in *i*'s total imports, while to calculate and aggregate the other two components it was

necessary to estimate the sales of local producers on each market (see Banca d'Italia (1998)). These estimates were made on the basis of the value added of the manufacturing sector of each market considered, figures that are not readily available for non-industrial countries.

In order to overcome this problem, for the new indicators it was decided to adopt the weighting scheme used by the Federal Reserve to construct the nominal and real trade-weighted exchange rates of the dollar (see Leahy (1998)). Although it is less rigorous, this method has the advantage of using only information on trade flows.

In particular, for a given reference year let m_{ij}, z_{ij} and v_{ij} denote the weights of the competition of country *j* vis-à-vis country *i*, on respectively *i*'s market, *j*'s market and third-country markets. These weights are defined as follows:

$$m_{ij} = \frac{X_{ji}}{\sum_{h \neq i} X_{hi}} \ ,$$

$$z_{ij} = \frac{X_{ij}}{\sum_{h \neq i} X_{ih}} \ ,$$

$$v_{ij} = \sum_{\substack{k \neq i \\ k \neq j}} \frac{X_{jk}}{\sum_{h \neq i} X_{hk}} \cdot \frac{X_{ik}}{\sum_{h \neq i} X_{ih}} = \sum_{\substack{k \neq i \\ k \neq j}} m_{kj} \cdot z_{ik} \ ,$$

where X_{ij} is the value of *i*'s exports to *j*, which coincides with that of *j*'s imports from *i*.[5]

The component m_{ij} therefore represents the ratio of *i*'s imports from *j* to *i*'s total imports. In turn z_{ij} and v_{ij} measure the competition vis-à-vis *i*'s exports: the former is the ratio between *i*'s exports to *j* and *i*'s total exports and the latter is an average of the weight, for each third country, *k*, of *k*'s imports from *j*, weighted using the share of *i*'s exports going to country *k*.

[5] In reality, for a variety of reasons, the data on the value of *i*'s exports to *j*, reported by *i*, differ from those on the value of *j*'s imports from *i*, reported by *j*. The figures in the trade database used for this paper are adjusted to make them coincide. For a more detailed discussion of this issue, see Section 2.4.

Using n_{ij} to denote the overall weight of country *j* in country *i*'s indicator, to conclude the following expression is calculated:

$$n_{ij} = 0{,}5 \cdot m_{ij} + 0{,}5 \cdot w_{ij} \ ,$$

where:

$$w_{ij} = 0{,}5 \cdot z_{ij} + 0{,}5 \cdot v_{ij} \ .^{6}$$

According to some estimates made by the Federal Reserve, aggregating the prices of the countries competing with the United States and their respective bilateral exchange rates against the dollar with weights of the w_{ij} type, in which the z_{ij} and v_{ij} components have the same importance, the resulting indicator shows a good correlation with the performance of US exports.[7] The IMF uses the same type of weighting scheme for exports. The aggregation of the import and export weights using an arithmetic mean is not so much backed by solid empirical evidence as based on aesthetic considerations of simplicity and symmetry.

2.3 The reference period for the calculation of the weights

For the old indicators the reference period for constructing the weights (the base period) was moving: the weights used to calculate the indicators in a given year were derived from the trade flows recorded in the three years ending in that year.[8]

The burdensomeness of updating a variable-weight indicator led to the decision to opt for a fixed-weight indicator; the weights are now calculated with reference to the values of

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6 Before being aggregated with the z_{ij} weights, the v_{ij} weights are re-weighted so that: $\sum_{j \neq i} v_{ij} = 1$.

7 See Leahy (1998).

8 See Tristani and Zollino (1997).

trade in a given reference period. The weights obtained in this way are applied to all the years until the next revision. The ECB has also made the same choice and uses the three years 1999-2001 as its reference period. By contrast, the Federal Reserve and the Bank of Japan use a variable-weight system.[9] In order to take account of the change in the structure of world trade in the medium and long term, the weights need to be revised at intervals that are not too long, even in a fixed-weight system. Accordingly, the new indicators have been constructed using two weight matrices: the first, derived from trade flows in the three years 1989-91, serves for the calculation of the indicators from 1980 to 1992; the second, derived from trade flows in the three years 1999-2001, serves for the calculation of the indicators in the subsequent period, i.e. from 1993 onwards.[10]

The two matrices differ as regards not only the three-year reference period for trade flows but also the number of countries considered. In fact the first matrix covers a smaller number of competitor countries, 50 including Italy. The twelve countries excluded comprise eight formed in the early 1990s following the breakup of the Soviet Union (Estonia, Latvia, Lithuania and Russia), Yugoslavia (Croatia and Slovenia) and Czechoslovakia (the Czech Republic and Slovakia), three eastern European countries (Bulgaria, Poland and Romania) and China. The reason for the exclusion of these countries was the lack of reliable statistics, since in 1993 they still had not embarked on the transition to a market economy, and the limited role they played in world trade.

2.4 The data on world trade

To construct the weighting scheme described in the previous section, it is necessary to know the bilateral trade figures for manufactured goods in the reference period. Whereas for the old indicators these were mainly obtained from OECD publications, for the new ones,

[9] See European Central Bank (2004), Federal Reserve (2005) and Bank of Japan (2005).

[10] The choice of three years as the reference period reflected the need to attenuate the effect of the erratic movements of trade flows on the structure of the weights. Three years was also the reference period for the exchange rates the Bank of Italy calculated until 1998 (see Banca d'Italia (1987) and (1989)).

which cover both industrial and non-industrial countries, the main source is the World Trade Analyzer (WTA), a database produced by Statistics Canada and updated annually.[11]

The WTA data are prepared for a variety of purposes and start from those published by the United Nations Statistical Division, the most important source in the world for sectoral statistics on international trade. The first objective is to fill the numerous gaps in the UN database. This is achieved mainly by comparing the value of a country's bilateral exports with the corresponding value of its bilateral imports. In fact the Canadian Statistical Institute has calculated that although the UN database contains the values of both exports and imports for only 87 per cent of world trade at least one of the two values is present for nearly all world trade (98 per cent).[12]

The second objective is to make all the values consistent over time. In fact the UN data are not revised in light of the changes made to the international standards for the classification of the sectors producing goods and services. By contrast, the WTA data are adjusted on the basis of the categories defined in the Second Revision of the Standard International Trade Classification (SITC), further amended to make them more homogeneous with those used by the Canadian Statistical Institute.[13]

The third objective is to reconcile, for each pair of countries (*i*, *j*), the value of *i*'s exports to *j* with that of *j*'s imports from *i*. These values are nearly always different, for a variety of reasons, such as: the different way of attributing freight and insurance to the two items; the uncertainty that often surrounds the origin of imports and the final destination of exports; and omissions connected with tax evasion and the elusion of restrictions of various

[11] See. Bordé (1990); the latest update of the article is available on the Internet at http://www.statcan.ca; when the article was written the name of the database was World Trade Database.

[12] See Feenstra *et al.* (1997) and Feenstra (2000).

[13] The original aim of the WTA was to provide a database for the evaluation of Canada's competitiveness. It should be noted that most of the UN statistics on world trade are now published in accordance with the Harmonized System introduced in 1988 and amended in 2002, while a residual part uses the Third Revision of the SITC classification.

kinds. These problems do not only arise in connection with trade with developing countries but are also present in that among the leading industrial countries.[14] In the WTA the raw data on bilateral trade flows, consisting of the statistics reported by exporting countries, are accordingly adjusted using a complex procedure that renders them consistent with the aggregate flows reported by importing countries (see Bordé (1990)).

The latter adjustment procedure also tackles the problem of entrepôt trade, i.e. goods that pass through a country having another country as their final destination. Several studies have shown that the methodology adopted by the WTA can provide a good adjustment for entrepôt trade only for countries that tend to re-export within the same region, as in the case of the Netherlands (see Feenstra *et al.* (1997) and Feenstra (2000)). However, it fails to estimate China's entrepôt trade adequately, since the main transit country is in the same region (Hong Kong), while most of the final destination countries belong to other regions. This problem emerges when WTA data are compared with US Department of Commerce data. In fact, according to the latter, the values of US imports from China have been significantly higher since 1993. It follows that China has a much larger weight in the Federal Reserve's indicator of competitiveness than that derived from WTA data (see Section 3.4). On the other hand Feenstra *et al.* (1999) point out that the US Department of Commerce data are not without their own problems: in fact they tend to overestimate the value of US imports from China because they do not take account of the share of their value added that should be attributed to Hong Kong.

To overcome, at least in part, the problems connected with China's entrepôt trade, we decided to adjust the data on China's imports and exports and those on Hong Kong's exports using a database recently made available by the UN and the National Bureau of Economic

[14] The scale of the problem is such that, for example, as of 1989 the United States no longer records its exports to Canada, which were regularly underestimated, but uses Canada's data on its imports from the United States (see Feenstra *et al.* (1999)).

Research (NBER) that is based on the bilateral trade flows reported by importing countries.[15] There is in fact broad consensus in the literature on world trade that it is often difficult to determine the final destination of exports while shipping documents make it possible to reconstruct the origin of imports more reliably (see, among others, Schindler e Beckett (2005)).[16] In the matrix of trade flows used for the new indicators China's exports to individual countries were obtained from the latter's imports from China; the same holds for Hong Kong's bilateral exports. This led to a reallocation among all the other markets of China's exports to Hong Kong and a reduction in the latter's exports.

3. The results

This section presents the results obtained for the new weights and indicators of competitiveness for some important industrial and emerging countries. It also contains a comparison with the old weights and indicators.

3.1 Italy's weights

3.1.1 The weights of Italy's indicator

Table 2 shows the global weights calculated using the methodology described in Section 2.2 and the trade flows in the period 1999-2001 for Italy and the other countries considered. Italy's most important trading partners are found to be Germany, France, the United States and the United Kingdom, with weights of respectively 19.1, 12, 8 and 7 per cent.

[15] The database was described for the first time in Feenstra *et al.* (2005). The data are available on the Internet at http://www.internationaldata.org.

[16] It should be noted that although the WTA provides very broad geographical coverage, it does not contain trade data for some of the countries included in the new Bank of Italy indicators. In order to complete the matrix of bilateral flows recourse has been made to the processing of data contained in the UN-NBER database and statistics made available by the ECB.

The 24 countries competing with Italy included in the old indicator have a combined weight of 82.4 per cent. Rescaling the shares of these 24 countries so that their combined weight is equal to 100, a comparison can be made between the new weights and the old ones (Table 3). Among the main economies, it can be seen that Japan's weight fell slightly (from 6.2 to 4.7 per cent), while the weights of the Netherlands and Belgium rose. These changes may have been due not only to shifts in the structure of Italy's foreign trade between 1996-98 (the period considered for the weights in the old indicator) and 1999-2001 but also to the different methods of calculating the weights and the different sources of statistics. By contrast, despite the innovations, the weights of Italy's main competitors (Germany, France, the United States and the United Kingdom) did not vary significantly, so that there was no variation in their relative positions.

As for the other 37 countries competing with Italy, China had by far the highest weight of all the non-industrial countries (3.3 per cent); the other newly included Asian countries had a combined weight of 3.4 per cent. Adding in South Korea, Singapore and Hong Kong, which were present in the old indicators, the emerging Asian countries had a total weight of 9.8 per cent. In central and eastern Europe the only countries with a weight topping 1 per cent were Poland, Turkey and Romania; the total weight of this area nonetheless amounted to 8 per cent, the same value as for the United States, Italy's third-ranking trading partner. By contrast, Latin America had a very small combined weight of 2 per cent including Mexico, which was already included in the old indicators; Italy's most important trading partner in this region was Brazil, with a weight of 0.8 per cent, which was slightly higher than Mexico's (0.7 per cent). The last six countries considered in the new indicators, located in Africa and the Middle East, also had a very low combined weight (1.6 per cent).

The last column of Table 2 shows the weights for Italy of 49 trading partners for the period 1989-91. Comparing these weights with the appropriately rescaled weights for the period 1999-2001, it can be seen that there were significant changes over the ten years in

question. In particular there were decreases in the weights of Germany (from 25.1 to 21 per cent), France (from 14.9 to 13.2 per cent) and Japan (from 5 to 4.2 per cent), while there was an increase in that of the United States (from 8.1 to 8.8 per cent). There were also increases in the weights of some emerging countries, such as Mexico, Turkey and Hungary and some industrial countries, such as Spain and Ireland. Apart from providing additional support for the decision to enlarge the geographical cover of the indicators, these changes in the pattern of Italy's foreign trade suggest the need for the weights to be updated at intervals that are not too long.

3.1.2 The weight of Italy in the other countries' indicators

It is also of interest to examine the weight Italy has in the competitiveness indicators of the other countries and compare it with the weights of some of its competitors, such as Germany, France and China (Table 4).

Germany – which has a geographical bilateral trade pattern very similar to Italy's, concentrated mainly in European countries and with a limited involvement with America, Asia and Oceania – had a much higher weight than Italy in the indicators of nearly every other country (with the sole exceptions of Romania, Venezuela and Algeria). This was due to Germany's exports of manufactures to the countries included in the indicator being more than twice Italy's. In the European market, and especially among the new EU member states, the dominant position of Germany's manufacturing industry is thus confirmed with respect to that of France and, above all, Italy.

France also has a pattern of bilateral flows very similar to Italy's. Comparison of these two countries' weights in the competitiveness indicators of the other countries shows that the differences are much smaller than those found for Italy-Germany. In fact French and Italian manufacturing exports are of the same order of magnitude on average in the three years

1999-2001, respectively $240 billion and $210 billion. The importance of Italy as a competitor exceeds that of France in nearly all the markets of central and eastern Europe and in the main Latin American countries; the weights of France are higher instead for the United States, Japan, China, Germany and the other leading western European countries.

The comparison with China shows that Italy is still relatively more important as a competitor in all the European markets, both western and central and eastern, some Latin American countries (Argentina, Chile, Colombia and Ecuador) and Africa. China, whose total manufacturing exports averaged some $300 billion in the three years 1999-2001, has a higher weight instead in the United States, Canada, Japan, all the other Asian countries, Oceania and some Latin American countries, including Brazil and Mexico.

3.1 The performance of Italy's price competitiveness over time

The new indicator calculated on the basis of producer prices shows that between January 1980 and September 2005 Italy's price competitiveness improved by 6.9 per cent (Figure 1), albeit with very large fluctuations.[17]

After improving by 13 per cent in the two years 1980-81 as a consequence of the weakening of the lira, Italy's competitiveness followed a downward trend over a long period that ended in September 1992. The loss of competitiveness in this period amounted to 24 per cent and was mainly due to Italy's high inflation. In the wake of the EMS crisis there was a large improvement in Italy's competitiveness: between August 1992 and April 1995, the depreciation of the lira against all the other leading currencies brought a gain of approximately 30 per cent. Between mid-1995 and December 1998, the eve of the start of the third stage of Economic and Monetary Union, Italy's competitiveness deteriorated by 23 per cent, returning close to its level in 1993. The loss was due mainly to the performance of

[17] An increase in the index indicates a loss of competitiveness.

the exchange rate since the lira appreciated against nearly all the currencies included in the indicator. From 1999 onwards the movements in Italy's indicator mainly reflected the fluctuations of the euro: a period of improving competitiveness until the end of 2000 was followed by a deterioration that lasted until the end of 2004; from the beginning of 2005 onwards competitiveness improved again.

Between January 1980 and September 2005 Italy's bilateral indicators with respect to individual competitors made unequal contributions to the improvement in competitiveness. Gains of between 17 and 20 per cent were recorded with respect to Canada, Japan, the United Kingdom and the United States; a gain of 3 per cent with respect to Germany; and losses of 5 and 14 per cent with respect to France and Belgium respectively. As regards the new countries considered in the indicator, gains were recorded with respect to nearly all the Latin American countries (ranging from 10 to 60 per cent) and with respect to Hungary (14 per cent), while losses were recorded with respect to the Asian countries and Argentina.

It is also of interest to analyze the contributions made by the various countries to the variation in the new indicator of Italy's competitiveness starting from 1993, chosen as the base year, and January 1999, the start of the third stage of Economic and Monetary Union.

Between 1993 and September 2005 Italy recorded a loss of competitiveness of 4.7 per cent; the old indicator showed a larger loss of 9.4 per cent.[18] The difference can be attributed mainly to the gains achieved with respect to the countries of central and eastern Europe. In fact Italy's competitiveness improved with respect to all the countries in this group, which as a whole has a weight of 8 per cent. The gains recorded with respect to Bulgaria, the Czech Republic, the Baltic Republics, Romania and Russia ranged from 20 to 80 per cent. In the

[18] Figure 1 shows an indicator of competitiveness obtained by applying the new methodology (i.e. the same weighting scheme, fixed base and statistical sources) to the 24 countries considered in the previous indicator. Since the two indicators are almost identical, this suggests that the differences between the old and new indicators are entirely attributable to the contribution of the new countries considered and that the impact of the change in methodology is negligible.

same period Italy recorded a gain in competitiveness with respect to China of 8 per cent. By contrast, it recorded losses with respect to all the other emerging Asian countries as a consequence of the crisis that hit them in 1997; since 1993 Italy's competitiveness with respect to Indonesia, Malaysia, Thailand and Taiwan deteriorated by between 20 and 50 per cent[19].

Since the start of the third stage of Economic and Monetary Union, Italy's competitiveness has remained virtually unchanged according to the new indicator, while the old indicator showed a loss of 2.8 per cent. This difference, like that observed since 1993, is the result of two movements of opposite sign in the bilateral indicators with respect to the 37 non-industrial countries included in the new indicator. Italy's competitiveness has recorded gains with respect to the main central and eastern European countries and losses with respect to a group of Asian countries – including China (9 per cent), Thailand (5 per cent) and Taiwan (11 per cent) – and Argentina (38 per cent). The fact that the European countries were more important than the Asian countries explains the smaller loss of competitiveness of the new indicator.

It is also worth comparing the new and old indicators in the recent phase of dollar depreciation that began in February 2002. The new countries considered in the calculation of the new indicator include some emerging Asian countries, such as China, that have pursued policies aimed at stabilizing their exchange rates against the US dollar. One interesting question is whether and to what extent such policies have influenced the performance of Italy's competitiveness. According to the new indicator Italy has recorded a loss of competitiveness of 6.5 per cent (7.3 per cent according to the old indicator). In addition to the United States, the countries contributing to this result were Japan, the emerging Asian countries (especially China, Hong Kong and Taiwan) and all the Latin American countries

[19] The loss of competitiveness with respect to South Korea, Hong Kong, and Singapore, which were present in the old indicators, was equal to 24, 36, and 12 per cent, respectively.

except Brazil. These losses were partly offset by the gains recorded with respect to the central and eastern European countries.

3.3 The weights and price competitiveness of the main industrial countries

3.3.1 The United States and Japan

The enlargement of the geographical coverage has also significantly increased the representativeness of the new indicators with respect to the United States and Japan. The 24 countries competing with the United States considered in the old indicators have a combined weight of 76 per cent in the new one. The 24 countries competing with Japan now have a combined weight of 64 per cent, so that the increase in representativeness achieved by the addition of the new countries is even greater.

The new indicators for the United States and Japan are comparable, in terms of the geographical coverage of their trade, with those calculated by the Federal Reserve and the Bank of Japan. The countries considered by these two central banks account for respectively 97 and 93 per cent of the total weight of the countries included in the new Bank of Italy indicators. For the United States, comparison of the Bank of Italy's 1999-2001 weights with those used by the Federal Reserve (calculated with reference to the same period) does not show significant differences. In particular, the weights of China (7.8 per cent) and Hong Kong (2.5 per cent) are similar thanks to the adjustment made to the basic WTA data to take account of entrepôt trade.[20] By contrast, comparison with the weights calculated by the Bank of Japan reveals many differences. For example, the United States has a weight of 23 per cent in the new indicator and of 33 per cent in that of the Bank of Japan. This difference depends above all on the fact that the weights used by the Bank of Japan only reflect the

[20] The Federal Reserve has also estimated the weights for the period 2002-05. In particular, in 2005 China's weight rose to 11.3 per cent while Hong Kong's remained stable at 2.3 per cent (for more details, see http://www.federalreserve.gov/releases/H10/Weights/).

geographical composition of its exports without taking account either of imports or of competition on third-country markets.

The enlargement of the geographical coverage of the US and Japanese indicators did not lead to significant changes in the patterns of their competitiveness (Figures 2 and 3). In fact for both countries comparison between the new and old indicators shows similar movements in the two historical series, with negligible divergences. The most pronounced divergence is found between 1993 and 1997 for Japan, with a gain in competitiveness of 20 per cent according to the new indicator, as against 13 per cent according to the old one. The difference is due to the inclusion of some Asian emerging countries which had pegged their currencies to the dollar; this amplified the effect of the yen's depreciation against the US currency in that period and produced a more pronounced improvement in Japan's competitiveness.

Significant differences are found, however, between the new Bank of Italy indicators for the United States and Japan and those calculated by the Federal Reserve and the Bank of Japan respectively (Figures 2 and 3). As regards the United States, the divergences are due exclusively to the difference between the performance of the consumer price index, used by the Federal Reserve, and that of producer prices. This conclusion is based on the fact that the new nominal trade-weighted exchange rate of the dollar shows only very small differences with respect to that of the Federal Reserve. As regards Japan, instead, the divergences are due to the different methodologies used to calculate the weights.

3.3.2 Germany and France

The paths followed by the new indicators of competitiveness and the old ones are also very similar for Germany and France, Italy's main competitors (Figures 4 and 5). Until 1993 the new indicators show a smaller gain in competitiveness for France and a larger loss for

Germany compared with the old indicators; subsequently, both Germany and France showed slightly larger gains (respectively 8.4 and 6.8 per cent) than those recorded with the old indicators (respectively 4.4 and 4.8 per cent). As for Italy, the differences found in the latter period were mainly due to the gains in competitiveness with respect to the countries of central and eastern Europe.

The path of the new indicator for Germany is very similar to that published by the Bundesbank, which is calculated with reference to 49 countries and on the basis of consumer prices (Figure 4).

3.3 The weights and price competitiveness of some emerging countries

3.3.1 China

China's main competitors are Japan and the United States, with weights of respectively 18.7 and 16 per cent (Table 2); South Korea, Hong Kong and Taiwan have a combined weight of 26.4 per cent. The European country with the highest weight is Germany (6.2 per cent); Italy has a weight of 2.3 per cent, slightly below those of the United Kingdom (2.5 per cent) and France (2.8 per cent).

From the beginning of 1993 to September 2005 China's indicator shows that country as having incurred a loss of competitiveness of 26.9 per cent (Figure 6). The variation was produced by a rise of 7.2 per cent in the nominal trade-weighted exchange rate of the renminbi and an increase of nearly 18.3 per cent in China's relative prices.

Until 1993 there was a dual foreign exchange market in China: in addition to the official exchange rate controlled by the authorities, the so-called swap-market rate was quoted on a parallel market that was more responsive to market forces and therefore more

flexible. On 1 January 1994 the authorities decided to unify the two markets and devalued the official exchange rate of the renminbi by 33 per cent (from 5.8 to 8.7 to the dollar) in order to bring it into line with the swap market rate obtaining at the time. Since then the bilateral exchange rate of the renminbi has remained pegged to values between 8.3 and 8.7 to the dollar.[21] For the purpose of calculating China's competitiveness indicator, it was considered preferable not to use the official exchange rate for 1993 but a weighted average of this rate and the swap market rate, with weights of respectively 20 and 80 per cent, as is common practice in the literature (see Fernald *et al.* (1998)).[22] On the basis of this average the devaluation of the renminbi with respect to the dollar in January 1994 was much smaller, equal to just 7 per cent. Nonetheless, between the beginning of 1993 and the beginning of 1994 China suffered a loss of competitiveness of 1.5 per cent, as a consequence of its producer prices recording a much larger rise (of the order of 24 per cent in 1993) than the average of its competitors. The deterioration in its competitiveness continued until the middle of 1998, with an overall loss of 40 per cent. This reflected both a rise in the nominal trade-weighted exchange rate of the renminbi – owing initially to the strengthening of the dollar and subsequently to the wide fluctuations of the currencies of the countries caught up in the Asian crisis of 1997-98 – and the rapid rise in domestic prices. After a slight recovery in the next 18 months, attributable to the fall in the nominal trade-weighted exchange rate of the renminbi, between the beginning of 2000 and September 2005 China's competitiveness closely followed the cycle of the dollar: in the first two years there was a loss of 11 per cent; while between the beginning of 2002 and December 2004 there was a gain of 14 per cent that took the indicator back to its average level in the mid-1990s. Part of this gain was eroded in the first 9 months of 2005 in connection with the strengthening of the dollar. The

[21] The Chinese currency remained fixed at 8.28 to the dollar from February 1998 to July 2005. On the 21st of that month the Chinese modified the exchange rate regime of the renminbi and at the same time revalued it by 2 per cent with respect to the dollar (to 8.11); since then the quotation of the renminbi with respect to the dollar has remained virtually unchanged.

[22] In 1993 the so-called "foreign exchange retention system" required Chinese exporters to convert 20 per cent of their revenues at the official exchange rate; the remaining part could be converted instead using the swap market. On the basis of estimates made available by the Chinese central bank, in the two years 1992-93 only 20 per cent of the volume of foreign exchange transactions involving the renminbi took place on the official market.

changes made in July 2005 to the exchange rate regime (see the chapter on "The world economy and international finance" in Banca d'Italia (2005)) had only a very limited effect (Figure 6).

3.3.2 South Korea

South Korea's main trading partners are the United States, Japan and China, with weights of respectively 21.5, 20.7 and 11.3 per cent (Table 2). The geographical composition of its trade appears less concentrated in Asia than that of China: in fact Taiwan and Hong Kong have a combined weight of 7.7 per cent, as against China's 18.5 per cent. Italy's weight is equal to 2.1 per cent.

Between January 1980 and September 2005 South Korea recorded a gain in competitiveness of 32 per cent (Figure 7). Essentially stable periods alternated with others of rapid change; a particularly large gain of 34 per cent was recorded between October 1997 and January 1998, in connection with the Asian crisis. In general, the improving trend under way from 1980 to 1995 can largely be attributed to the fall in the nominal effective exchange rate of the won, which amounted to 21 per cent over the period.

3.3.3 Poland

Among the emerging countries Poland is Italy's fourth-ranking trading partner, with a weight of 1.3 per cent; on the other hand Italy is Poland's second-ranking competitor, with a weight of 8.9 per cent. A large proportion of Poland's foreign trade is with Germany, its main trading partner with a weight of nearly 30 per cent (Table 2).

For a good part of the last decade the sharply downward trend of the zloty was accompanied by very high inflation; this led to a loss of competitiveness of 7.5 per cent

between 1993 and 1998. Following the abatement of inflation, in the last part of the 1990s and the early years of this century, the performance of the country's competitiveness was dominated by that of the nominal effective exchange rate of the zloty: between the end of 1999 and the middle of 2001 there was a large loss of competitiveness (19 per cent), which was followed by a recovery on the same scale through the end of 2003 as a consequence of the depreciation of the zloty. As of the beginning of 2004, the exchange rate rose again, with a consequent loss of competitiveness of 14 per cent (Figure 8).

3.3.4 Brazil

Brazil's main competitors are the United States, with a weight close to 30 per cent, Germany (8.5 per cent), Argentina (8.3 per cent) and Japan (6 per cent). Despite its geographical closeness, Mexico's weight is only 3.6 per cent, which is less than France's (4 per cent) and Italy's (4.7 per cent) and similar to China's (3.4 per cent).

Brazil's indicator of competitiveness, available from 1980 onwards, shows wide swings in connection with the monetary instability that has been a feature of the country, including recently (Figure 9). Since October 2002, when the real reached a historical minimum against the dollar in view of the uncertainty surrounding the outcome of the latest elections, Brazil has suffered a loss of competitiveness of nearly 70 per cent as a consequence of a rise in the nominal effective exchange rate of the real (46 per cent) and an increase in its relative prices (16 per cent).

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APPENDIX A:

CALCULATION METHOD

CALCULATION METHOD

The price competitiveness of a country *i* (IC_i) is obtained as the ratio of the producer prices of that country's manufactures, expressed in a given currency, to a weighted average of the corresponding indexes, expressed in the same currency, of its main competitors on international markets. Accordingly, an increase in the index signals a loss of competitiveness.

With reference to period *t*, P_i^t denotes the index of producer prices of country *i* expressed in domestic currency and E_{ij}^t the nominal bilateral exchange rate of the currency of country *i* with respect to that of country *j* (the quantity of the currency of country *i* for a unit of the currency of country *j*). The ratio between the values of the index of competitiveness of country *i* in the periods *t* and *h* is defined as:

$$\frac{IC_i^t}{IC_i^h} = 100 \cdot \left[\prod_{j \neq i} \left(E_{ij}^t / E_{ij}^h \right)^{n_{ij}} \right]^{-1} \cdot \frac{P_i^t}{P_i^h} \cdot \left[\prod_{j \neq i} \left(P_j^t / P_j^h \right)^{n_{ij}} \right]^{-1},$$

where n_{ij} is the overall weight attributed to country *j* in the index of country *i*.

It should be noted that the factor:

$$\frac{IN_i^t}{IN_i^h} = 100 \cdot \left[\prod_{j \neq i} \left(E_{ij}^t / E_{ij}^h \right)^{n_{ij}} \right]^{-1},$$

represents the variation of the nominal effective exchange rate of the currency of country *i* (an increase in the index signals an appreciation).

APPENDIX B:

TABLES AND FIGURES

Table 1. List of countries in the new indicators of Italy's effective exchange rates and comparison with the indicators of other central banks (1)

	BI-25 (2)	ECB-54 (3)	ECB-35 (4)	FED (5)	BoJ (6)
Canada	x	x	x	x	x
United States	x	x	x	x	x
Japan	x	x	x	x	x
Belgium/Luxembourg	x	x	x	x	x
France	x	x	x	x	x
Germany	x	x	x	x	x
United Kingdom	x	x	x	x	x
Netherlands	x	x	x	x	x
Switzerland	x	x	x	x	
Italy	x	x	x	x	x
Ireland	x	x	x	x	x
Denmark	x	x	x		
Austria	x	x	x	x	x
Sweden	x	x	x	x	
Spain	x	x	x	x	x
Australia	x	x	x	x	x
New Zealand	x	x			
Finland	x	x	x	x	x
Norway	x	x	x		
Greece	x	x	x		x
Portugal	x	x	x	x	x
Mexico	x	x		x	x
South Korea	x	x	x	x	x
Singapore	x	x	x	x	x
Hong Kong	x	x	x	x	x
Bulgaria		x			
Cyprus		x	x		
Croatia		x			
Slovenia		x	x		
Estonia		x	x		
Latvia		x	x		
Lithuania		x	x		
Russia		x		x	
Malta		x	x		
Poland		x	x		
Czech Republic		x	x		
Slovakia		x	x		
Romania		x			
Turkey		x			
Hungary		x	x		
Israel		x		x	
Argentina		x		x	
Brazil		x		x	
Chile				x	
Colombia				x	
Ecuador					
Peru					
Venezuela				x	
Saudi Arabia					
China		x	x	x	x
Philippines		x		x	x
India		x		x	
Indonesia		x		x	x
Kuwait					
Malaysia		x		x	x
Pakistan					
Thailand		x		x	x
Taiwan		x		x	x
Algeria		x		x	
Morocco		x		x	
Nigeria					
South Africa		x		x	

(1) The countries listed are those included in the new indexes; an "x" denotes the presence of the corresponding country in the indicators in the column. - (2) Indicator previously published by the Bank of Italy (25 countries). - (3) ECB indicator for the euro area calculated on the basis of consumer prices (54 countries). - (4) ECB indicator for the euro area calculated on the basis of producer prices (35 countriesi). - (5) Federal Reserve indicator for the United States. - (6) Bank of Japan indicator for Japan.

Table 2. Global weights structure (1999-2001) for selected industrial and emerging countries (1)

(percentages)

	Italy	USA	Japan	Germany	France	China	Korea	Poland	Brazil	Italy 88-91
Canada	1.0	14.3	2.5	1.1	1.0	2.6	1.9	0.4	3.3	1.0
United States	8.0	---	22.9	9.8	9.2	16.0	21.5	4.3	29.3	8.1
Japan	3.9	12.2	---	5.2	3.9	18.7	20.7	2.1	6.0	5.0
Belgium	5.3	1.9	1.3	6.3	8.3	1.2	0.9	4.2	1.8	5.5
France	12.0	3.6	2.7	9.9	---	2.8	2.4	7.6	4.0	14.9
Germany	19.1	7.2	6.2	---	18.5	6.2	5.2	28.1	8.5	25.1
United Kingdom	7.0	4.8	3.2	7.7	8.7	2.5	2.6	5.6	3.0	8.0
Netherlands	4.6	1.7	1.3	5.6	4.4	1.1	1.3	4.4	1.4	4.3
Switzerland	3.3	1.2	1.3	4.1	2.8	0.9	0.8	1.9	1.5	4.3
Italy	---	2.9	2.3	8.1	9.5	2.3	2.1	8.9	4.7	---
Ireland	1.6	1.4	1.1	1.9	1.9	0.5	0.8	1.0	0.6	0.8
Denmark	0.8	0.4	0.4	1.5	0.8	0.3	0.3	2.0	0.4	0.8
Austria	2.2	0.5	0.4	4.1	1.3	0.4	0.3	2.3	0.6	2.6
Sweden	1.6	1.0	0.9	2.0	1.6	1.2	0.7	2.8	1.3	2.0
Spain	5.0	1.0	0.7	3.5	7.1	0.8	0.7	2.5	2.3	4.3
Australia	0.4	0.7	0.8	0.3	0.2	0.7	0.9	0.1	0.3	0.3
New Zealand	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1
Finland	0.9	0.5	0.4	1.3	0.9	0.9	0.4	1.6	0.6	0.7
Norway	0.3	0.2	0.2	0.5	0.3	0.2	0.3	0.7	0.1	0.5
Greece	0.7	0.1	0.1	0.4	0.3	0.1	0.2	0.2	0.1	0.8
Portugal	0.9	0.2	0.1	1.1	1.2	0.1	0.1	0.6	0.4	0.9
Mexico	0.7	11.0	1.7	1.0	0.7	1.5	1.5	0.2	3.6	0.2
South Korea	1.4	3.8	6.2	1.5	1.2	7.9	---	1.3	2.5	1.1
Singapore	0.7	2.7	4.1	1.1	1.0	2.6	4.0	0.5	0.9	0.7
Hong Kong	1.0	2.5	3.2	1.2	1.0	9.3	2.9	0.4	1.0	1.3
Bulgaria	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	
Cyprus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Croatia	0.4	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.0	
Slovenia	0.6	0.1	0.0	0.5	0.3	0.0	0.0	0.5	0.1	
Estonia	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	
Latvia	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	
Lithuania	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.6	0.0	
Russia	0.7	0.5	0.6	0.7	0.4	1.1	0.6	1.3	0.4	
Malta	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.3
Poland	1.3	0.2	0.1	2.1	0.9	0.2	0.2	---	0.3	
Czech Republic	0.8	0.2	0.1	2.2	0.6	0.2	0.1	3.2	0.1	
Slovakia	0.5	0.1	0.0	0.7	0.2	0.0	0.0	1.2	0.0	
Romania	1.1	0.1	0.0	0.4	0.3	0.0	0.1	0.4	0.0	
Turkey	1.2	0.4	0.2	1.2	0.9	0.2	0.3	0.7	0.2	0.7
Hungary	1.0	0.2	0.2	2.0	0.7	0.2	0.2	1.6	0.2	0.3
Israel	0.5	1.0	0.5	0.5	0.4	0.3	0.5	0.3	0.6	0.5
Argentina	0.2	0.4	0.1	0.1	0.2	0.2	0.1	0.1	8.3	0.2
Brazil	0.8	1.4	0.5	0.5	0.5	0.4	0.6	0.4	---	0.7
Chile	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.0	1.4	0.0
Colombia	0.1	0.3	0.1	0.0	0.1	0.0	0.1	0.0	0.6	0.0
Ecuador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Peru	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Venezuela	0.1	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.7	0.1
Saudi Arabia	0.3	0.3	0.3	0.1	0.1	0.2	0.3	0.0	0.1	0.3
China	3.3	7.8	15.2	3.7	3.2	---	11.3	2.4	3.4	
Philippines	0.2	1.0	1.9	0.4	0.2	0.8	1.3	0.1	0.3	0.1
India	0.6	0.8	0.6	0.5	0.4	0.5	0.7	0.3	0.5	0.4
Indonesia	0.3	0.7	1.7	0.4	0.3	1.0	1.1	0.2	0.3	0.3
Kuwait	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Malaysia	0.5	2.1	3.6	0.8	0.7	2.0	2.4	0.4	0.7	0.3
Pakistan	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.1	0.1	0.2
Thailand	0.5	1.3	2.8	0.5	0.5	1.6	1.3	0.3	0.5	0.4
Taiwan	1.2	3.8	6.4	1.7	1.2	9.2	4.8	1.0	1.8	1.3
Algeria	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2
Morocco	0.2	0.0	0.0	0.1	0.7	0.1	0.0	0.1	0.1	0.2
Nigeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
South Africa	0.4	0.3	0.3	0.5	0.3	0.2	0.3	0.1	0.4	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(1) Weights of the row countries in the competitiveness indicators of the column countries; the null values are the result of rounding to one decimal place. The last column shows the weights for Italy calculated on the basis of the trade flows in the three years 1989-1991.

Table 3. Comparison between the global weights in the new indicator (rescaled) and the old indicator for Italy (1)

(percentages)

	New index	Old index
Canada	1.2	0.8
United States	9.7	10.7
Japan	4.7	6.2
Belgium	6.4	5.0
France	14.6	14.4
Germany	23.2	23.3
United Kingdom	8.5	8.9
Netherlands	5.6	4.2
Switzerland	4.0	3.7
Italy	---	---
Ireland	1.9	1.1
Denmark	0.9	0.9
Austria	2.7	2.6
Sweden	2.0	1.9
Spain	6.1	5.7
Australia	0.4	0.7
New Zealand	0.1	0.1
Finland	1.1	1.0
Norway	0.3	0.6
Greece	0.8	1.0
Portugal	1.1	1.0
Mexico	0.9	0.5
South Korea	1.7	2.1
Singapore	0.8	1.4
Hong Kong	1.2	2.4

Table 4. Weights of Italy, Germany, France and China (1999-2001) in the competitiveness indicators of their competitors (1)

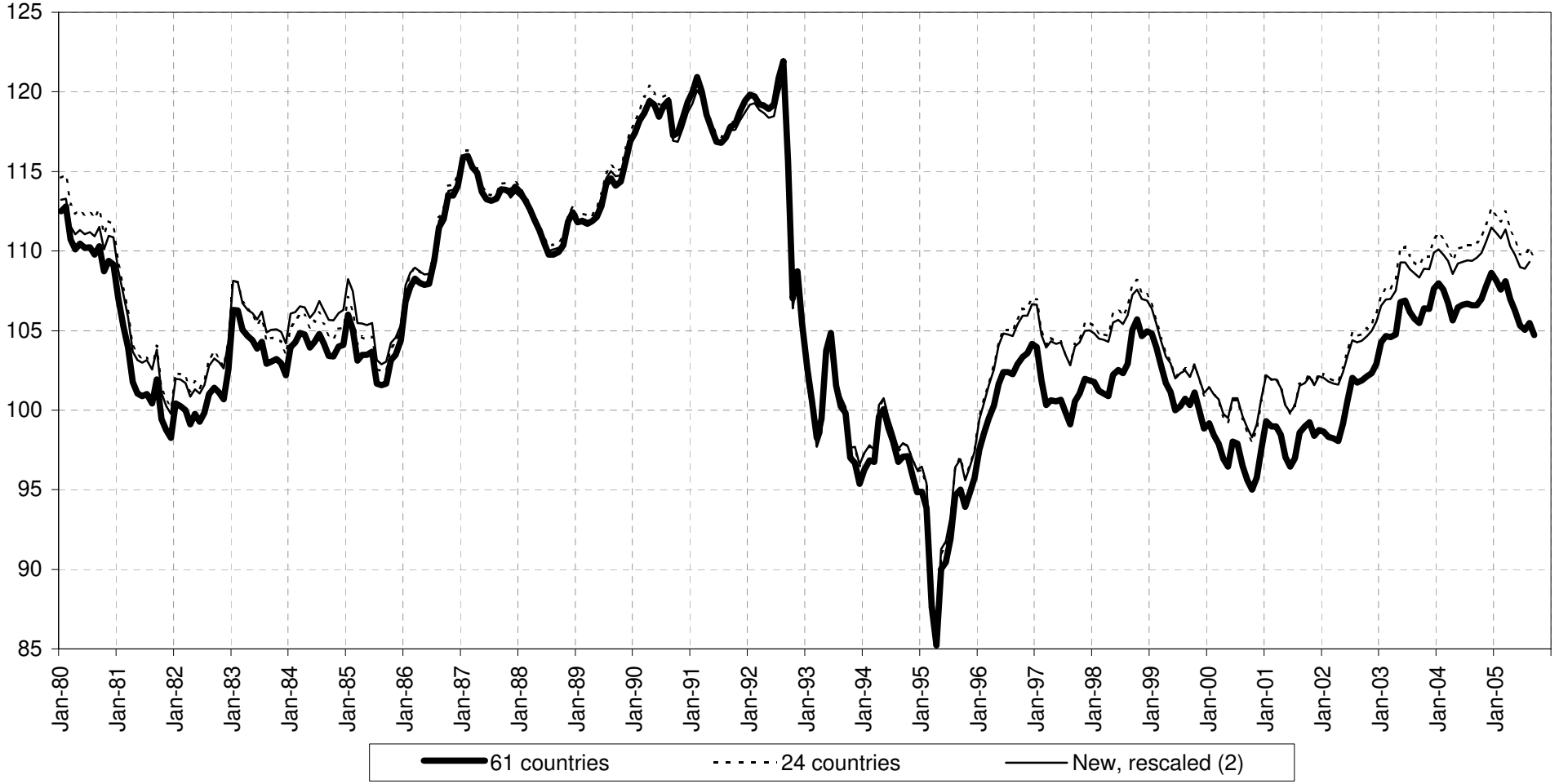
(percentages)

	Italy	Germany	France	China
Canada	1.4	3.3	1.7	4.6
United States	2.9	7.2	3.6	7.8
Japan	2.3	6.2	2.7	15.2
Belgium	6.1	18.7	13.0	2.5
France	9.5	18.5	---	3.2
Germany	8.1	---	9.9	3.7
United Kingdom	5.6	14.2	8.8	2.8
Netherlands	5.5	17.6	7.7	2.9
Switzerland	8.5	24.4	9.3	2.6
Italy	---	19.1	12.0	3.3
Ireland	4.0	10.1	6.5	2.2
Denmark	4.9	20.1	5.9	3.0
Austria	7.9	33.7	5.9	2.1
Sweden	4.5	15.7	6.7	3.0
Spain	10.0	16.6	17.6	2.7
Australia	2.9	5.6	2.4	8.0
New Zealand	2.6	5.0	2.3	6.9
Finland	4.7	16.6	5.8	4.4
Norway	3.8	13.4	4.9	3.1
Greece	13.1	16.4	7.2	2.5
Portugal	8.0	17.6	11.7	1.4
Mexico	1.5	3.9	1.3	3.5
South Korea	2.1	5.2	2.4	11.3
Singapore	1.6	4.5	2.4	6.5
Hong Kong	1.9	4.5	2.3	27.4
Bulgaria	14.8	19.0	8.5	1.7
Cyprus	7.0	8.8	5.1	2.6
Croatia	20.2	21.8	6.2	1.5
Slovenia	16.1	24.7	9.5	1.7
Estonia	3.3	11.8	3.0	1.4
Latvia	4.7	19.1	4.0	1.3
Lithuania	5.7	20.1	5.6	1.2
Russia	6.8	16.6	4.2	7.6
Malta	9.7	9.9	12.5	2.4
Poland	8.9	28.1	7.6	2.4
Czech Republic	6.2	35.7	6.3	2.1
Slovakia	8.5	30.3	5.5	1.6
Romania	21.6	19.9	8.6	1.7
Turkey	9.4	18.6	8.6	2.9
Hungary	7.9	29.1	6.5	2.6
Israel	4.7	8.4	4.1	3.3
Argentina	4.5	5.8	4.1	4.5
Brazil	4.7	8.5	4.0	3.4
Chile	3.2	4.9	3.5	5.5
Colombia	2.8	4.6	2.7	2.9
Ecuador	2.5	4.2	1.7	2.2
Peru	2.6	4.5	2.5	4.2
Venezuela	4.6	4.0	2.3	2.2
Saudi Arabia	4.8	6.9	3.5	6.5
China	2.3	6.2	2.8	---
Philippines	1.2	4.2	1.7	4.9
India	3.6	7.8	3.6	5.2
Indonesia	2.2	6.6	2.6	7.3
Kuwait	5.7	8.3	3.7	8.3
Malaysia	1.5	4.2	2.1	5.4
Pakistan	4.1	7.8	3.8	9.5
Thailand	1.7	4.8	2.5	7.3
Taiwan	1.6	5.2	2.2	10.3
Algeria	15.2	9.0	23.4	2.5
Morocco	7.7	9.9	27.8	2.6
Nigeria	8.1	9.5	7.7	4.3
South Africa	4.6	14.2	5.2	4.2

(1) Weights of the column countries in the competitiveness indicators of the row countries.

Figure 1. Price competitiveness of Italy: comparison between old indicator (24 countries), new index (61 countries) and new indicator rescaled to 24 countries (1)

(monthly data; indexes, average 1993 = 100)

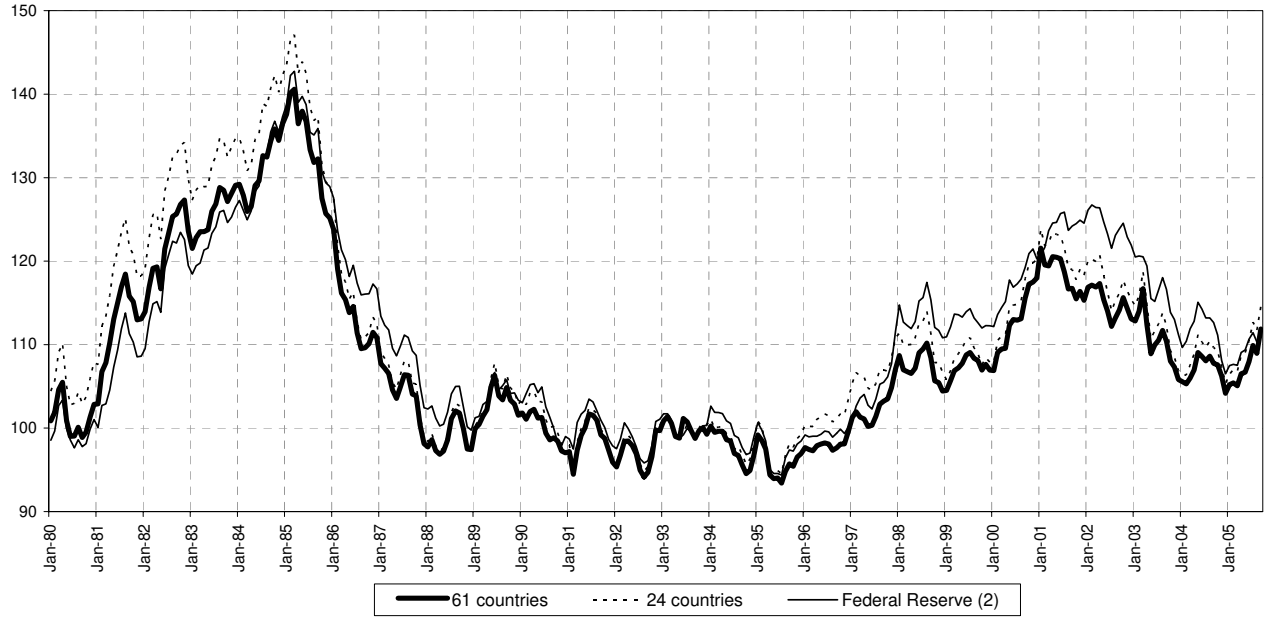


(1) An increase in the indexes signals a loss of competitiveness.

(2) Calculated by applying the new methodology to the 24 countries included in the old index.

Figure 2. Price competitiveness of the United States: comparison between old indicator (24 countries), new indicator (61 countries) and Federal Reserve indicator (37 countries) (1)

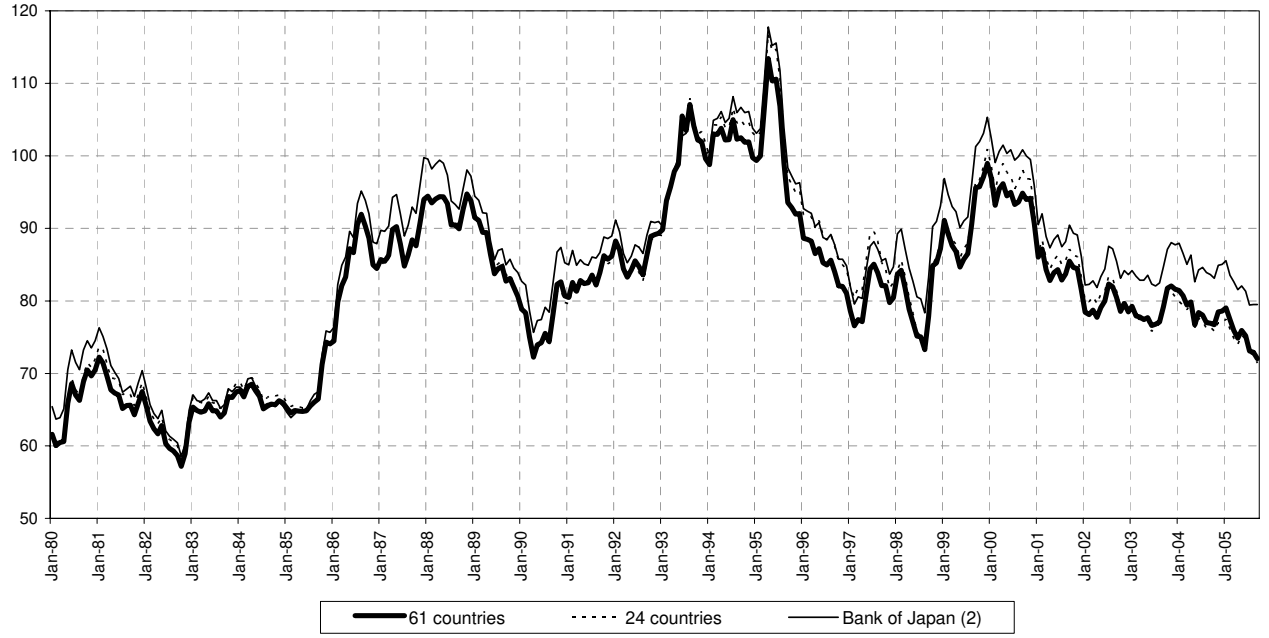
(monthly data; indexes, average 1993 = 100)



(1) A rise in the indexes signals a loss of competitiveness.
(2) Calculated on the basis of consumer prices.

Figure 3. Price competitiveness of Japan: comparison between old indicator (24 countries), new indicator (61 countries) and Bank of Japan indicator (25 countries) (1)

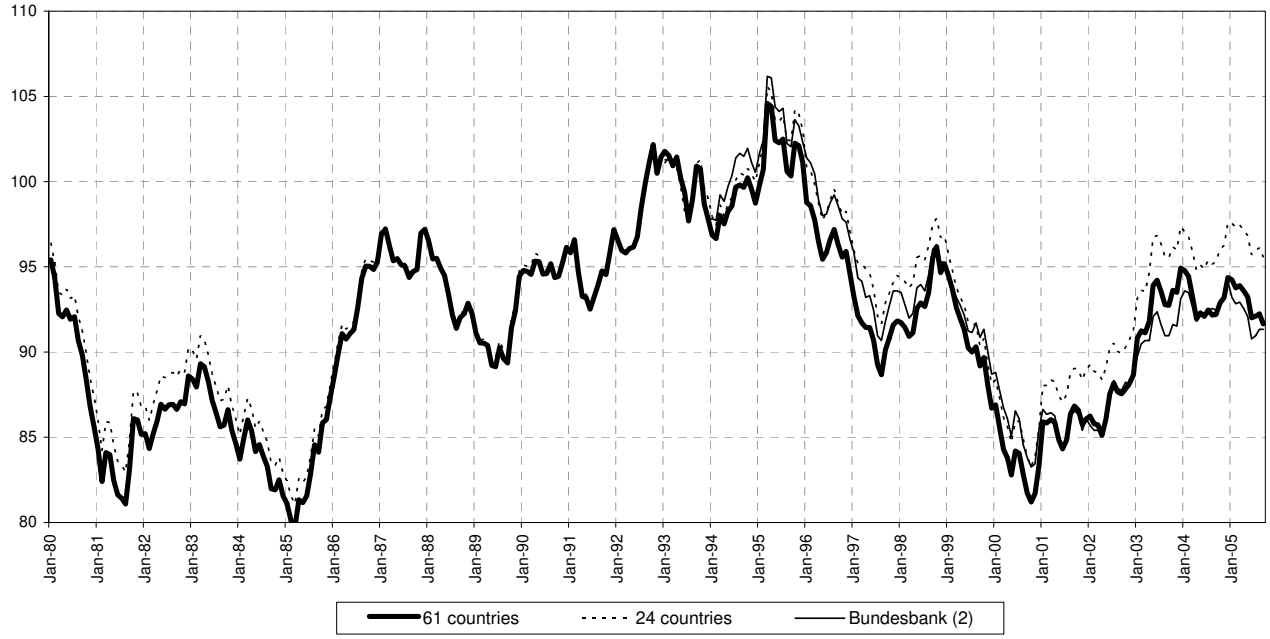
(monthly data; indexes, average 1993 = 100)



(1) A rise in the indexes signals a loss of competitiveness.
(2) Calculated on the basis of the geographical composition of exports and producer prices.

Figure 4. Price competitiveness of Germany: comparison between old indicator (24 countries), new indicator (61 countries) and Bundesbank indicator (49 countries) (1)

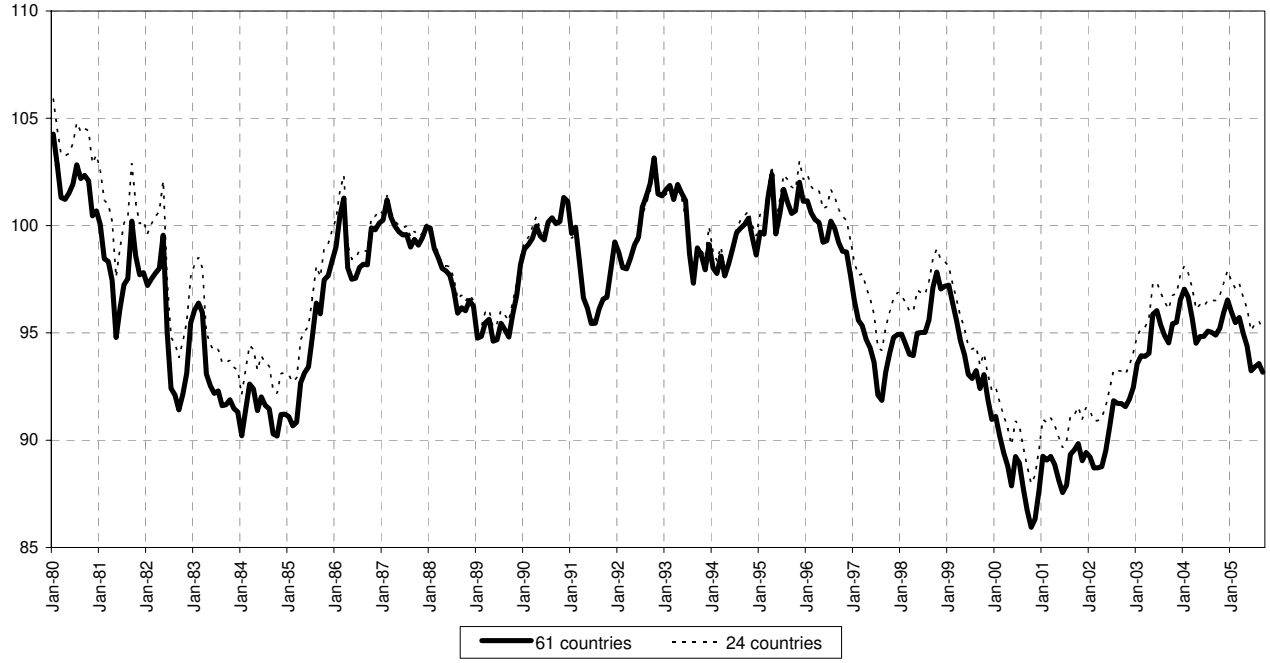
(monthly data; indexes, average 1993 = 100)



(1) A rise in the indexes signals a loss of competitiveness.
(2) Calculated on the basis of consumer prices; available from January 1993 onwards.

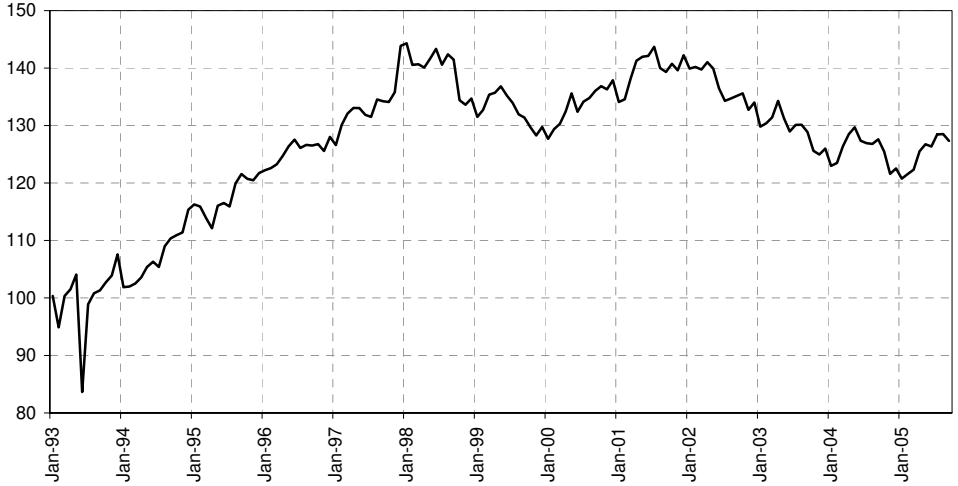
Figure 5. Price competitiveness of France: comparison between old indicator (24 countries) and new indicator (61 countries) (1)

(monthly data; indexes, average 1993 = 100)



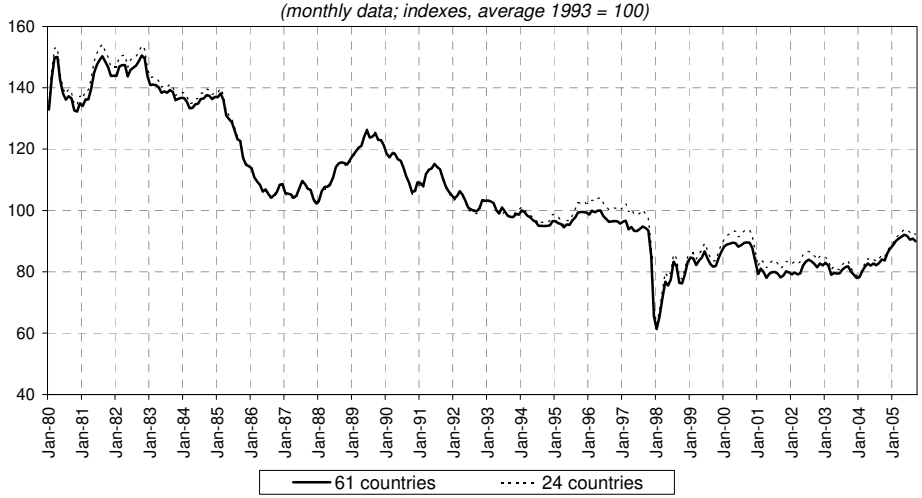
(1) A rise in the indexes signals a loss of competitiveness.

Figure 6. Price competitiveness of China: (1)
(monthly data; index, average 1993 = 100)



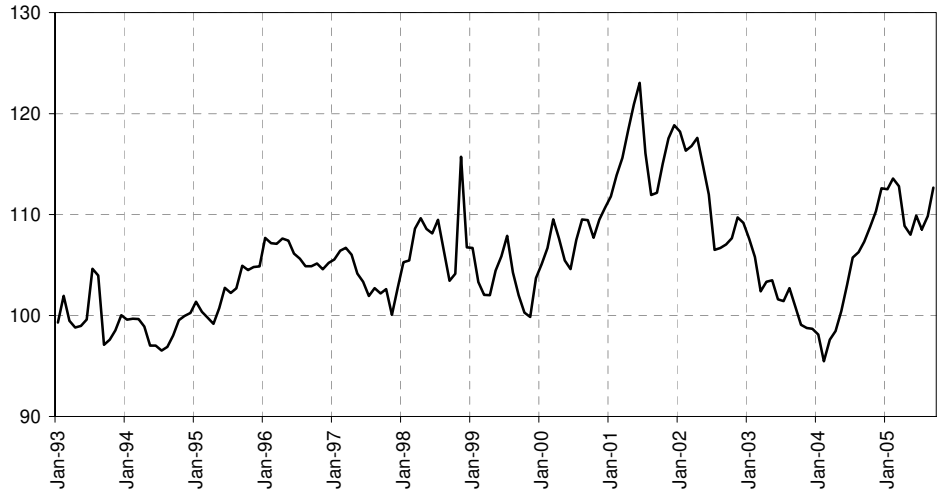
(1) Calculated with reference to 61 competing countries; a rise in the index signals a loss of competitiveness.

Figure 7. Price competitiveness of South Korea: comparison between old indicator (24 countries) and new indicator 61countries) (1)
(monthly data; indexes, average 1993 = 100)



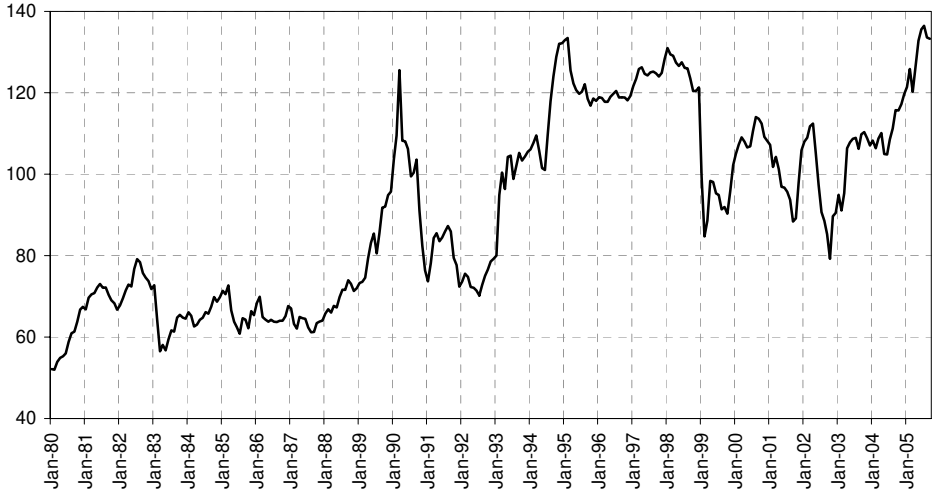
(1) A rise in the indexes signals a loss of competitiveness.

Figure 8. Price competitiveness of Poland (1)
(monthly data; index, average 1993 = 100)



(1) Calculated with reference to 61 competing countries; a rise in the index signals a loss of competitiveness.

Figure 9. Price competitiveness of Brazil (1)
(monthly data; index, average 1993 = 100)



(1) Calculated with reference to 61 competing countries; a rise in the index signals a loss of competitiveness.