

## Box I

### Annual review of the reference value for monetary growth

At its meeting on 5 December 2002 the Governing Council of the ECB reviewed the reference value for monetary growth. On the basis of this review, the Governing Council decided to reconfirm the existing reference value for monetary growth, namely an annual growth rate of 4% for the broad aggregate M3. This box provides some background information on this decision.

The first pillar of the ECB's monetary policy strategy assigns a prominent role to money in reflection of the fundamentally monetary origins of inflation over the medium to longer-term horizons. In order to signal this prominent role to the public, in October 1998 the Governing Council decided to announce a quantitative reference value for the growth rate of a broad monetary aggregate. The reference value refers to the rate of monetary growth which is consistent with –and serves the achievement of –price stability over the medium term. In December 1998 the Governing Council announced the first reference value of 4% for the annual growth rate of the broad monetary aggregate M3.

At that time, empirical evidence confirmed that the condition for announcing a reference value, namely the stability of money demand, was satisfied for the euro area. Furthermore, studies had shown that M3 has good leading indicator properties for future price developments over medium-term horizons. Over recent years, further studies became available which confirmed that M3 has the desired empirical properties needed for announcing a reference value.<sup>1</sup>

The derivation of the reference value is based on the ECB's definition of price stability as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2%. In addition, in order to be consistent with the medium-term orientation of the ECB's monetary policy strategy, the reference value is derived using assumptions for the medium-term trends in M3 income velocity and potential output growth.

On 5 December 2002 the Governing Council reviewed the estimates of these medium-term assumptions for M3 income velocity and potential growth on the basis of additional data that had become available since the last review of the reference value in December 2001. The Governing Council confirmed the assumptions that M3 income velocity declines at a trend rate in the range of ½% to 1% per annum and that trend potential output growth is between 2% and 2½% per annum in the euro area.

The Governing Council also announced that it will continue to monitor monetary developments in relation to the reference value on the basis of a three-month moving average of annual growth rates. It will also continue to focus its assessment of the liquidity conditions in the euro area on the analysis of the persistent deviations from the reference value and of the underlying reasons for such deviations.

With regard to the assumption for trend potential growth, the Governing Council considers that there is no clear evidence that structural changes have taken place in the euro area which would warrant a revision of this assumption. The attainment of higher potential growth in the euro area, which is urgently needed, remains conditional on further progress in structural reforms, especially in the labour and goods markets. The Governing Council will continue to monitor the evidence with regard to developments in productivity growth in the euro area, and the ECB's monetary policy will take such evidence into account as appropriate.

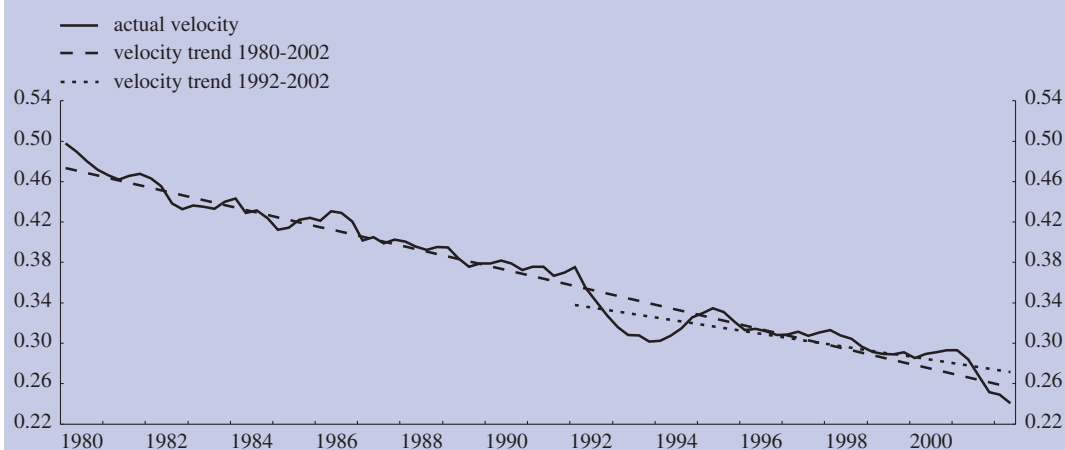
<sup>1</sup> See, for instance, Coenen and Vega (1999), 'The demand for M3 in the euro area', ECB Working Paper No. 6; Brand and Cassola (2000), 'A money demand system for euro area M3', ECB Working Paper No. 39; Calza, Gerdesmeier and Levy (2001), 'Euro area money demand: measuring the opportunity costs appropriately', IMF Working Paper 01/179 and Nicoletti Altimari (2001), 'Does money lead inflation in the euro area?', ECB Working Paper No. 63.

Concerning the empirical evidence for M3 income velocity in the euro area, the confirmation by the Governing Council of a trend decline in M3 income velocity within a range of  $\frac{1}{2}$  to 1% per year was based on the following considerations. A simple trend estimate over the sample period from 1980 to 2002 suggests that the historical decline is close to 1% per annum. Over a shorter and more recent time span the trend decline in velocity in the last decade turns out to be closer to  $\frac{1}{2}$  (see chart below). However, the simple trend estimate may not represent the best estimate of future trends in velocity, since it may fail to take into account that the decline in inflation and nominal interest rates over the past two decades increased the demand for liquid assets and contributed to the past decline in velocity.

In an environment of price stability, the trend decline in velocity is likely to be less pronounced than over a period dominated by disinflation and falling nominal interest rates. This additional information on the evolution of the opportunity costs of holding money is incorporated in money demand models which are able to isolate the effect that the disinflation process over the 1980s and 1990s had on the historical trend decline in velocity. In the context of these models the trend decline of M3 income velocity is around the middle of the range of  $\frac{1}{2}$  to 1% per annum. This result is fairly robust across different money demand models and different methods for aggregating euro area data.<sup>2</sup>

### M3 velocity trends for the euro area

(log levels)



Sources: ECB (M3) and ECB calculations based on Eurostat data (GDP).

Note: Velocity is measured as the ratio of nominal GDP to M3. The underlying quarterly series are seasonally adjusted and constructed by aggregating national data converted into euro at the irrevocable exchange rates applied as from 1 January 1999 and as from 1 January 2001 in the case of Greece. The M3 series is based on the headline index of adjusted stocks (for further details, see the technical notes in the 'Euro area statistics' section of the ECB Monthly Bulletin). M3 quarterly data are averages of end-month observations.

The reference value for monetary growth is a medium-term concept. Short-run movements in M3 may be difficult to interpret and may stem from a number of temporary factors which do not necessarily have implications for future price developments. For this reason, the Governing Council already made it clear in 1998 that the announcement of the reference value does not imply a commitment on the part of the ECB to mechanically correct deviations of monetary growth from the reference value. Rather, the reference value, by making explicit the rate of growth of money which is consistent with the maintenance of price stability over the medium term, is a tool for monetary analysis. It provides monetary policy with a "compass" which ensures that the central bank, when analysing the risks to price stability, does not lose sight of the fact that the rate of

<sup>2</sup> For further details, see Brand, Gerdesmeier and Roffia (2002), 'Estimating the trend of M3 income velocity underlying the reference value for monetary growth', ECB Occasional Paper, No. 3.

growth of money must be consistent with its price stability objective over a sufficiently extended period of time.

Moreover, while the analysis of the deviations of annual M3 growth from the reference value represents an important element in the evaluation of monetary developments and their implications for future price stability, monetary analysis is not limited to this. First, other monetary indicators (such as components and counterparts of M3, in particular M1 and loans to the private sector) also contain significant information. Second, it is important to take into account past deviations of monetary growth from the reference value in order to come to a broadly based assessment of the liquidity conditions in the euro area. In this respect, also measures of excess liquidity, which are represented by the deviation of the real money stock from an estimated equilibrium level, may be useful (see Chart 4 in the main text). Third, developments in M3 need to be analysed in conjunction with other indicators (e.g. real GDP, prices, interest rates and other financial market indicators) in order to understand the nature of the shocks affecting monetary developments and to best extract the indications for future price developments.

The experience of high M3 growth since mid-2001 has to be seen in the context of the high level of uncertainty and distress in financial markets and notably the protracted and unprecedented decline in stock prices over the past two years. These exceptional developments have prompted non-MFI residents in the euro area to reduce their holdings of relatively risky assets such as shares and increase their demand for relatively liquid and low-risk assets included in M3. This explanation is supported by the analysis of flow of funds data (see Box 2) which shows, over this period, a significant decline of net inflows into equities and a contemporaneous strong increase in the acquisition of components included in M3, in particular money market funds.

It is clear that the protracted phase of financial uncertainty has made it more difficult to extract the information contained in the deviations of M3 growth from the reference value. In the light of this recent experience, it is not surprising that money demand models for the euro area show that some signs of instability have emerged in the short-run dynamics of the demand for M3 since mid-2001, i.e. in the period of heightened global financial uncertainty.

However, these indications of short-run instability should not be over-emphasised. First and foremost, there are, at present, no signs of structural breaks or changes in the *long-run* fundamental relationship between money and prices in the euro area, which underlies the derivation of the reference value for monetary growth. Therefore, the condition for announcing a reference value for M3 growth remains satisfied in the euro area. Second, these signs of instability are close to the end of the sample period, a fact which calls for caution in drawing firm conclusions on the parameter stability of the models considered. Third, it should be kept in mind that monetary analysis was able to assess the impact of the exceptional developments in financial markets in real time and thus to roughly filter out underlying monetary trends and assess their implications for the risks to price stability. Finally, considering the exceptional nature of recent stock market developments in terms of the size and duration of the decline in stock prices, events such as those in the past two years would not be expected to occur regularly. This notwithstanding, it will be necessary in the future to continue monitoring closely the stability of the long-run money demand relationship in the euro area.

The next review of the reference value for monetary growth is scheduled for December 2003.