

Box 3

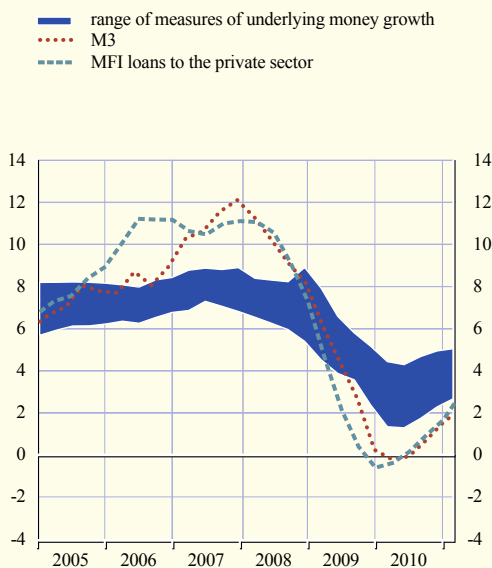
EURO AREA BROAD MONEY GROWTH AND THE UNWINDING OF ACCUMULATED LIQUIDITY

The parallel increase in annual M3 growth and a range of measures of underlying monetary expansion suggests a gradual, persistent pick-up in money growth (see Chart A). The increase in annual M3 growth has been accompanied by a strengthening in the dynamics of loans to the private sector, thus providing qualitative confirmation of an increase in the pace of underlying monetary expansion. The assessment that money and credit growth is gradually strengthening is broadly confirmed by the data for April 2011.

At the current juncture, a key question is whether the level of growth observed in monetary aggregates, which is still lower than that of current nominal income growth, should be characterised as weak. When account is taken of lead/lag relationships between the respective monetary series and economic activity, monetary dynamics are currently in line with business cycle regularities. Notably, the growth rates of M3 and loans to the private sector are evolving in line with the recent increase in economic activity. At the same time, M3 growth would be stronger were it not dampened by the unwinding of accumulated liquidity, which, despite some downward adjustment, remains ample. This box argues that the assessment of monetary growth needs to be complemented by an assessment of the stock of monetary liquidity in order to ensure a comprehensive analysis of risks to price stability over the medium term.

Chart A M3 and underlying M3

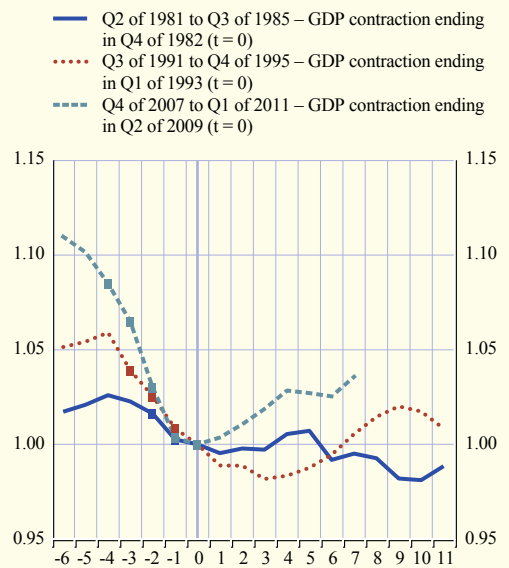
(annual percentage changes)



Sources: ECB and ECB calculations.
 Note: The range of measures of underlying money growth is derived using some of the methods described in the box entitled "Underlying monetary dynamics: concept and quantitative illustration", *Monthly Bulletin*, ECB, Frankfurt am Main, May 2008.

Chart B M3 income velocity around episodes of negative real GDP growth

(quarterly data; index: last quarter of negative quarterly real GDP growth = 1)



Source: ECB estimates.
 Notes: Episodes are defined as comprising at least two consecutive quarters of negative quarter-on-quarter real GDP growth. The squares denote quarters of negative quarter-on-quarter real GDP growth. Velocity is normalised to 1 in the last quarter of negative real GDP growth, which is indicated as 0 on the x-axis.

The unwinding of accumulated monetary liquidity is proceeding gradually

The relationship between money holdings and nominal spending is captured by income velocity. An excessive accumulation of monetary liquidity is reflected in income velocity deviating from its long-term trend.

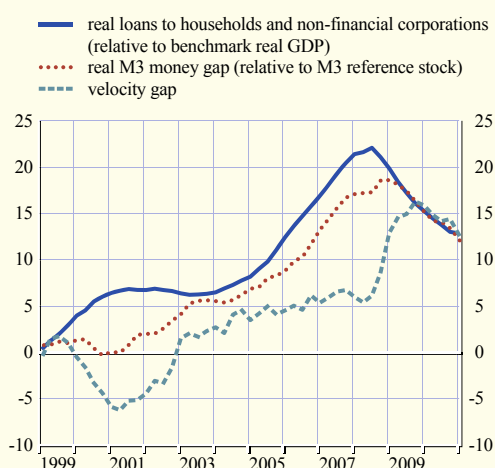
In the aftermath of episodes of negative real GDP growth, income velocity tends to rise in the euro area, as accumulated excess liquidity is drawn down to accommodate the extra nominal spending. This phenomenon is illustrated in Chart B, which shows M3 income velocity for three periods – 1981 to 1985; 1991 to 1995; and 2007 to 2011 – normalised on the basis of the values observed, for each period, in the last quarter of negative quarter-on-quarter real GDP growth. Looking at the current episode, during the crisis period between the third quarter of 2008 and the third quarter of 2009 the decline in velocity was sharper than in previous episodes. Since the third quarter of 2009 velocity has increased more rapidly than in the previous periods, as some of the accumulated liquidity has unwound. During the 1991-95 episode, velocity increased for six quarters before resuming its downward trend. In the current episode, it remains to be seen when income velocity, which has increased over the last seven quarters, will resume its downward trend. At the current juncture, the amount of accumulated excess liquidity has declined less and remains larger than during the 1991-95 episode.

There are various ways of illustrating the current imbalances between the stock of money or credit and economic activity. Chart C shows a selection of such measures, which all need to be interpreted cautiously, as they rely on an assessment of equilibrium relationships. All of these measures suggest that there has been a limited reduction in accumulated liquidity in recent quarters. It is unlikely that this recent reduction has led to a full unwinding of that accumulated liquidity, with the various measures instead suggesting that further significant adjustment remains necessary. Ultimately, excess liquidity can unwind: (i) through slower money and loan growth (i.e. through a decline in the creation of financial balances associated with deleveraging in the financial, public and private sectors); (ii) in the polar opposite scenario, through stronger nominal GDP growth (as liquidity supports aggregate demand and, ultimately, inflation); or (iii) through a combination of the two.

A model-based measure of excess monetary liquidity – a velocity gap – can be constructed using actual velocity and a time-varying long-run velocity based on an estimated

Chart C Various measures of excess monetary liquidity

(percentage points)



Source: ECB estimates.

Notes: The velocity gap is computed as the ratio of inverse actual velocity to the inverse of the time-varying long-run velocity derived using the model employed by Beyer (see paper referred to in footnote 1). The real money gap is defined as the difference between the actual level of M3 deflated by the HICP and the deflated level of M3 that would have resulted from constant nominal M3 growth at its reference value of 4½% and HICP inflation in line with the ECB's definition of price stability, taking December 1998 as the base period. Benchmark real GDP is calculated using a 2% annual growth rate, taking December 1998 as the base period.

model.¹ As shown in Chart C, this measure also indicates that excessive monetary liquidity has gradually accumulated in the euro area since late 2003 and has partly unwound in recent quarters.

Current impact of accumulated liquidity on consumer price inflation

Inflation indicators based solely on the evolution of money growth neglect the impact that accumulated excess liquidity can have on future price developments.² Measures of excess liquidity can also provide important information on future price developments, as a number of empirical studies suggest. The model underlying the quantification in Chart D is a variant of the “P-star approach”, which has featured prominently in the economic literature on the leading indicator properties of money for inflation.³ In this exercise, excess monetary

liquidity is quantified by the estimated velocity gap described above. According to this metric, the estimated contribution of excess monetary liquidity to consumer price inflation is positive, thus indicating that accumulated liquidity has exerted upward pressure on euro area inflation during the financial crisis (see Chart D). The results of such analysis should be regarded as indicative, giving a general sense of the direction and magnitude of developments, and cannot be applied in a mechanical way in order to derive risks to price stability over the medium term.

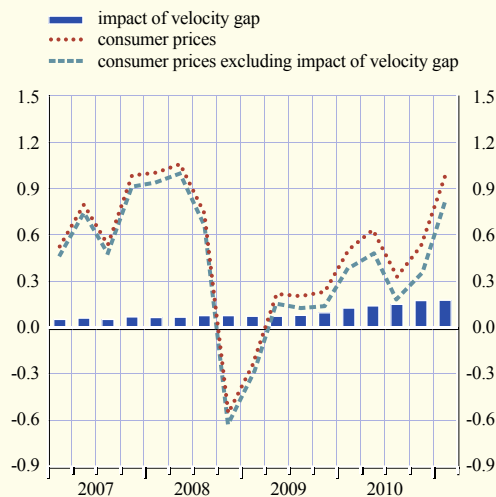
Conclusions

Overall, monetary liquidity in the euro area remains ample, despite some downward adjustment. At the same time, households and non-financial corporations continue to exhibit high credit-to-income ratios. The overall picture continues to point to a need for further liquidity absorption. Hence, the unwinding of excess liquidity may continue to dampen loan and money growth. In this case, low rates of money and credit growth would reflect the ongoing adjustment towards a level of money and credit relative to output which is sustainable in the long term.

At the same time, in the context of recovering economic sentiment and strengthening demand, the adjustment of accumulated liquidity may generate price pressures in both asset and product markets, even at low rates of money growth.

Chart D Impact of velocity gap on consumer price inflation

(quarter-on-quarter percentage changes; contributions in percentage points)



Source: ECB estimates.

1 An empirical measure of long-term velocity can be derived, inter alia, on the basis of an interest rate differential – measured as the difference between the short-term money market interest rate and the rate of remuneration on M3 – and the accumulation of real housing wealth. See Beyer, A., “A stable model for euro area money demand: revisiting the role of wealth”, *Working Paper Series*, No 1111, ECB, Frankfurt am Main, November 2009.
 2 See Papademos, L. and Stark, J. (eds.), *Enhancing monetary analysis*, Chapter 4, ECB, Frankfurt am Main, 2010.
 3 For details, see: Box 3 in the article entitled “Monetary analysis in real time”, *Monthly Bulletin*, ECB, Frankfurt am Main, October 2004; Hallman, J.J., Porter, R.D. and Small, D.H., “Is the price level tied to the M2 monetary aggregate in the long run?”, *American Economic Review*, 81 (4), 1991, pp. 841-858; Gerlach, S. and Svensson, L.E.O., “Money and inflation in the euro area: A case for monetary indicators?”, *Journal of Monetary Economics*, 50, 2003, pp. 1649-1672; and Treccoci, C. and Vega, J.-L., “The information content of M3 for future inflation”, *Weltwirtschaftliches Archiv*, 138 (1), 2002, pp. 22-53.