

# Publication of narrow money data: the implications of money market reform

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*The published M0 series comprises notes and coin in circulation and bankers' operational balances at the Bank of England, with the latter accounting for a very small part of the whole. As part of the money market reforms to be introduced in 2006, banks and building societies will be able to hold interest-bearing reserve accounts at the Bank of England that will be much larger than their former operational balances. After the reform, the Bank plans to discontinue publication of M0 and instead publish separate series for notes and coin in circulation and banks' and building societies' reserves.*

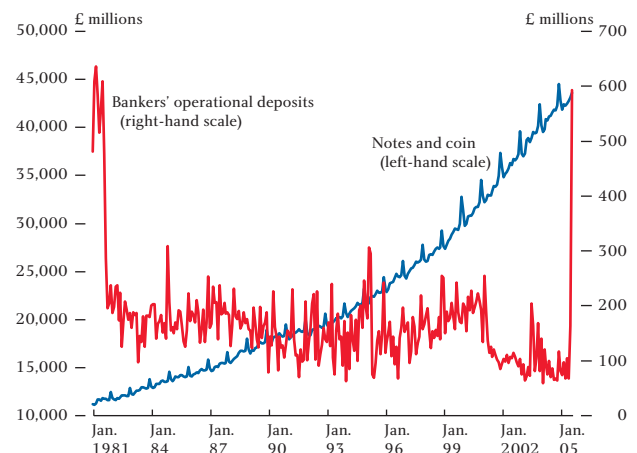
## Narrow money

Each month, the Bank of England publishes data on two measures of narrow money: notes and coin, and M0.<sup>(1)</sup> The former measure comprises sterling notes and coin in circulation outside the Bank of England (and therefore includes those held in banks' and building societies' tills), and the current definition of M0 adds bankers' operational deposits held at the Bank of England to the notes and coin series. The origins of M0 as a measure of narrow money (discussed in the box on pages 370–71) date back to March 1981, when it was described as the (wide) monetary base.<sup>(2)</sup> The original definition of the monetary base distinguished three elements: notes and coin in circulation with the public; banks' till money (or vault cash); and bankers' deposits (other than special deposits) at the Bank of England. Following the introduction of new arrangements for monetary control on 20 August 1981, bankers' non-operational cash ratio deposits were excluded<sup>(3)</sup> from the monetary base.<sup>(4)</sup> Although the definition of M0 has not changed subsequently, banks' till money has been included, without being identified separately, in the published series for notes and coin in circulation since October 1986.

Bankers' operational balances have constituted a tiny component of M0. In January 1981 notes and coin in circulation outside the Bank of England accounted for

almost 96% of M0, so bankers' operational balances amounted to just over 4%. Since then, the notes and coin series has grown at an average annual rate of nearly 6%, whereas bankers' operational deposits outstanding have fluctuated within a relatively narrow range (Chart 1). In August 2005, notes and coin in circulation accounted for 98.7% of the amount of M0 outstanding.

**Chart 1**  
Notes and coin and bankers' operational deposits outstanding (not seasonally adjusted)



## The implications of money market reform

Under the new money market arrangements to be introduced in 2006,<sup>(5)</sup> bank and building society

(1) The quantities are observed weekly on each Wednesday, and the monthly data are the average of the four or five weekly observations.

(2) For details of the construction of the monetary base, see Bank of England (1981).

(3) Special deposits would have continued to be excluded, had any been called.

(4) The monetary base was first referred to as M0 on page 14 of the *Financial Statement and Budget Report 1982–85*, 9 March 1982, whereas the statistical annex to the *Bank of England Quarterly Bulletin* introduced the term M0 in December 1983.

(5) See Bank of England (2005) and Clews (2005).

groups<sup>(1)</sup> will be able to hold reserve accounts at the Bank of England. For each reserve maintenance period they will choose a target for their reserve balances, up to a maximum of £1 billion.<sup>(2)</sup> If actual balances are within +/-1% of target on average over the maintenance period they will be remunerated at the Bank's current repo rate. Penalties will apply outside that range.

The total amount held in reserve accounts at the Bank will depend on the number of banks that choose to be part of the scheme and the level of reserves that they choose to maintain. As noted above, bankers' operational balances have been negligible as a proportion of M0 in the past. By contrast, under the new arrangements, bankers' reserves could form a large proportion — a third or more — of a combined aggregate.

The economic inferences which may be drawn from information on the growth of notes and coin in circulation and from information on the growth of banks' reserves will be very different. Notes and coin are overwhelmingly held in the household sector. They bear no interest, so we should expect households to hold them for transactions purposes, not as savings. Their rate of growth may therefore give some guidance as to the growth of households' current expenditure,<sup>(3)</sup> in particular retail sales. Banks' reserves, by contrast, will be influenced by several factors:

- The growth of banks' eligible liabilities. This aggregate should behave similarly to broad money (M4), and so should be correlated with the overall growth of nominal spending in the economy. But it may fluctuate according to the attractiveness to the non-bank private sector of holding certain types of bank deposit as against other possible forms of saving, and according to the banks' needs to attract deposits to finance their lending.
- Banks' decisions to increase or reduce their target reserves, subject to the maximum allowed by the Bank of England. These will reflect in part the interest rate return and other advantages offered

by reserves relative to assets offering comparable liquidity, and in part banks' overall demand for liquid assets.

- A variety of possible events which could influence the relationship between reserves held by the banking system and eligible liabilities, but which may have no obvious economic implications. For example: decisions by banks to join or leave the voluntary reserve scheme; mergers or acquisitions between banks; decisions by the Bank of England to vary the maximum amount, or the maximum proportion, of eligible liabilities that banks are allowed to hold as reserves; the periodic recalculation of each bank's reserve ceiling;<sup>(4)</sup> and short-term fluctuations in the reserves available to the banking system as a result of changes in the Bank of England's own balance sheet.

The levels of notes and coin in circulation and of banks' reserves will also have entirely different implications for the seigniorage income accruing to the government and the Bank of England. Seigniorage income is the interest earned on the assets that correspond to the level of non interest bearing liabilities of the government and the Bank. The box on pages 370–71 explains these implications for seigniorage in more detail.

### Publication plans

Since it is the Bank's view that the economic inferences to be drawn from the growth in notes and coin in circulation and from that in banks' reserves will differ significantly, the Bank proposes to cease publication of the aggregate series for M0 when the planned reforms to the money market have been implemented, currently scheduled between March and June 2006. But the Bank will still publish series for notes and coin in circulation as well as for banks' reserves held at the Bank of England.<sup>(5)</sup>

The series for notes and coin will be a continuation of the data that are currently published on a monthly basis, both in unadjusted and in seasonally adjusted terms, in Bank of England: *Monetary and Financial Statistics*. Series

(1) In the remainder of this article, the term 'banks' refers to both bank and building society groups. Within any group, only one entity may become a reserve scheme member.

(2) Or 2% of their sterling eligible liabilities, whichever is the higher. Sterling eligible liabilities broadly comprise sterling deposits (excluding deposits with other banks and building societies) and are intended to measure the size of a bank's sterling balance sheet after netting out interbank deposits. A fuller definition is provided in the Bank's monthly publication *Monetary and Financial Statistics*, available at [www.bankofengland.co.uk/statistics/ms/current/index.htm](http://www.bankofengland.co.uk/statistics/ms/current/index.htm).

(3) See Grant *et al* (2004) and Hauser and Brigden (2002).

(4) See Bank of England (2005), paragraph 38.

(5) It is possible that some banks will still hold non-reserve accounts with the Bank after the reforms.

for amounts outstanding, changes in these amounts, and various growth rates will continue to be published.<sup>(1)</sup>

The series for banks' reserves will replace the current data for bankers' operational deposits, leading to a discontinuity in the latter series (the back-run of data will continue to be available). Bankers' operational deposits have not been materially affected by seasonal factors, so the Bank has published only unadjusted data for this series. Likewise, the Bank will initially publish only unadjusted data on banks' reserves, in terms of amounts outstanding, changes in reserves, and growth rates. But over time, the Bank will analyse banks'

reserves for seasonality and, depending on the outcome of that analysis, will decide whether or not to publish seasonally adjusted data as well.

Readers and users of the statistics with views on these proposals are invited to write, by the end of November 2005, to:

The Head of Monetary and Financial Statistics Division  
Bank of England  
Threadneedle Street  
LONDON  
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(1) Long runs of all series can be downloaded from the Statistical Interactive Database, available at [www.bankofengland.co.uk/mfsd/iadb](http://www.bankofengland.co.uk/mfsd/iadb).

## The origins of the monetary base (M0) and its role in seigniorage

### The origins of the monetary base

In the second half of the 1970s, UK counterinflationary policy came to place greater weight on measures of aggregate money than before, evidenced by the publication of annual intermediate targets for broad money growth. The Conservative government elected in 1979 initially maintained targets for broad money growth, but, influenced by academic economists, it also considered monetary base control as an alternative technique to achieve its medium-term objective to reduce inflation.<sup>(1)</sup>

The theory behind monetary base control ran as follows. Given the definition of the monetary base ( $B$ ) we can write:

$$B \equiv C + R \quad (1)$$

where  $C$  is notes and coin in circulation with the public (ie the non-bank private sector) and  $R$  denotes banks' reserves (the total of banks' till money and bankers' operational deposits at the Bank of England). The broad money stock ( $M$ ) comprises sterling bank deposits held by the non-bank private sector ( $D$ ) as well as its holdings of notes and coin:

$$M \equiv C + D \quad (2)$$

Both (1) and (2) are identities rather than behavioural expressions. So, dividing (2) by (1), the broad money multiplier can be expressed as:

$$\frac{M}{B} \equiv \frac{C + D}{C + R} = \frac{c + 1}{c + r} \quad (3)$$

where  $c$  represents the ratio of notes and coin in circulation with the public to bank deposits and  $r$  is the ratio of banks' reserves to their deposit liabilities.

Banks needed to hold these high-powered cash reserves to maintain the convertibility of their deposit liabilities into legal tender (currency). So theoretically, the monetary authorities could use

open market operations to control the monetary base, and provided both  $c$  and  $r$  were stable and predictable, the authorities could then also determine the broad money stock.

The public's cash/deposit ratio,  $c$ , was thought likely to be predictable but to be affected by the opportunity cost of holding cash rather than interest-bearing bank deposits, as well as by technological developments in the payments system, such as the spread of automated teller machines. Historically, the banks' reserve ratio,  $r$ , had been steady, reflecting the UK policy of supplying additional reserves to the banking system on demand at an interest rate chosen by the authorities. However, monetary base control would imply that banks would be refused access at any price to reserves beyond those that the Bank of England planned to supply. That could lead to greater volatility in banks' desired reserve ratios and much greater volatility in short-term interest rates, which would then be determined by the market rather than monetary policy makers. Monetary base control was therefore rejected as policymakers were uncertain as to the amount of reserves that banks would wish to hold under such a system.

In fact, the multiplier linking the broad money stock ( $M4$ ) to  $M0$  has proved to be anything but stable. This reflected large movements in both  $c$  and  $r$ :  $c$  fell from 0.09 at the start of the 1980s to 0.03 in the early 1990s, whereas  $r$  fell from 0.02 to 0.01 over the same period. Both have remained around those levels since. Consequently,  $M4$  has tended to rise at a much faster rate than  $M0$ , especially in the 1980s.

### M0 as the basis for seigniorage

The narrow money aggregate ( $M0$ ) comprises liabilities of the government (coins) and the Bank of England (banknotes and bankers' operational deposits). The following simplified consolidated budget identity for the government sector<sup>(2)</sup> illustrates that the government can finance its net expenditure either by issuing government debt ( $N$ )<sup>(3)</sup>

(1) One of the first academic proponents of monetary base control was Meltzer (1969). For a fuller exposition of the arguments for and against monetary base control in the United Kingdom, see Foot *et al* (1979), HM Treasury and Bank of England (1980), Fforde (1983) and Goodhart (1989).

(2) In this simplified description, the government sector is taken to include both the government and the Bank of England.

(3) In practice, government debt is a net concept, reflecting government debt net of government assets.

or through monetary financing (increasing the stock of M0, ie the total change in  $C$  and  $R$  below):

$$\Delta C + \Delta R + \Delta N \equiv G - T + iN \quad (4)$$

where  $\Delta$  indicates the change in a variable,  $G$  is government spending,  $T$  denotes net taxes and  $i$  is the average nominal interest rate paid on government debt. Since no interest is paid to holders of notes and coin, nor, in general, on bankers' operational deposits, the total amount of M0 in its current definition is a non interest bearing liability either of the government or the central bank. But the government and the central bank earn interest on the assets that correspond to these liabilities, such that M0 forms the basis for seigniorage revenue accruing to the

government sector.<sup>(4)</sup> Following the impending money market reforms, banks' reserves (excluding banks' till money) will become interest bearing and thereby, in this simplified framework, comparable to government debt. Equation (4) can then be restated as:

$$\Delta C + \Delta R + \Delta N \equiv G - T + i(R + N) \quad (5)$$

Seigniorage will then only be earned on the amount of notes and coin in circulation outside the Bank of England, thus providing an additional reason to cease the calculation and publication of the stock of M0 and instead to publish data on notes and coin in circulation separately from banks' and building societies' reserves.

(4) In practice, seigniorage on notes and coin accrues to the government, while that on bankers' operational balances accrues in the first instance to the Bank of England. Seigniorage accruing to the Bank of England may be paid to the government as profit or in taxation, or may be retained by the Bank, to meet costs or as capital.

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