

Monthly Economic Review

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Demand to recover in late 2005

Asset price buoyancy due to excess money

Surprisingly good stock market in recent months

UK share prices are about 20% higher today than they were in mid-2004. The last few quarters have been good for company earnings, because UK oil and mining stock have benefited from the surge in energy and metal prices. More recently hopes of an interest rate cut have spurred gains in domestic sectors, such as retailers and housebuilders. However, the extent of the stock market's move is surprising. Why has it happened? Early 2005 was in fact a good period for most assets, with the major exception of residential housing which was due for a breather. Bond markets advanced across the industrial world, with UK gilt yields dropping to only 4 1/4%. Commercial property extended the gains of the last decade, as yields on the IPD's all-property index came down to 5.6%. Private-equity houses complained about the rising cost of corporate equity in prospective deals, because sellers required higher multiples of cash flow than had prevailed two or three years ago. In other words, excess demand for assets was a general characteristic of the economy.

Buoyant institutional liquidity and high money supply growth are part of the explanation

Meanwhile the big institutions enjoyed unusually strong cash inflows. The M4 holdings of non-bank financial corporations climbed by 14.4% in the six months to May (i.e., at an annualised rate of 30.7%). ("Non-bank financial corporations" included life insurance companies, pension fund managers, unit trust managers, stockbrokers and so on.) Plainly, these organizations faced a problem. Their money holdings were rising strongly, while many asset classes were expensive. As equities were reasonably valued by past standards, they tried to get rid of excess money by concentrating on purchases of equities. But the purchase of equities by one institution was typically matched by the sale of equities by another institution. Excess money holdings were therefore not eliminated by the disappearance of money from the institutional cash pool or, indeed, from the economy at large. Instead excess money caused the transactions to occur at higher prices and the rise in the stock market led to a fall in the ratio of money to the institutions' total assets. (See the research paper in the May 2004 issue of this *Review* for further discussion of the processes at work.) In short, the asset price buoyancy of early 2005 is to be interpreted as a by-product of high money supply growth. In the six months to May M4 climbed at an annualised rate of 14.3%, the highest figure since mid-1990.

Should money growth affect interest rate decisions?

A major debate is under way at present about the significance of recent trends in money and asset prices for interest rates. Some economists have emphasized the sluggishness of retail spending and the weakness of business surveys in a case for interest rate cuts. Others (including the author of this *Review*) argue that the high level of money growth and the buoyancy of asset prices are reminiscent of the early phases of previous periods of above-trend demand growth. So real-economy indicators clash with monetary indicators in interest-rate decision-taking. The research paper below sets out the view that - in assessing the monetary situation - it is only an all-inclusive (or so-called "broad") money measure which is relevant to the determination of national income and asset prices.

Tim Congdon

7th July 2005

Summary of paper on

‘Broad money vs. narrow money’

Purpose of the paper

The recent surge in M4 growth to the highest annual rate since 1997 has sharpened the debate about the significance of money aggregates to the macroeconomic outlook. The debate about the relative importance of broad and narrow money aggregates needs to be addressed again.

Main points

- To judge from remarks made by its Governor on 14th June, the Bank of England pays most attention to a broad money measure - with financial sector money deducted - in its macroeconomic appraisals.
- The apparent preference for broad money (which is similar to the views of economists at the European Central Bank) stems partly from difficulties with narrow money. This paper sets out three arguments for believing that narrow money has only limited relevance to the determination of national income and asset prices:
 1. *The money transfers argument.* If agents have excess or deficient narrow money balances, they can eliminate the excess or deficiency by transferring money between different types of balance (i.e., by money-into-money transactions), without any effect on expenditure. This is not possible with an all-inclusive (or broadly defined) money measure.
 2. *The money-in-portfolios argument.* Money has to be balanced against non-monetary assets in portfolios. But narrow money is hardly relevant to large portfolio decisions in a modern economy.
 3. *The black money argument.* Narrow money is held to a disproportionate extent in the black economy. (In the UK perhaps as much as half of M0 is held outside the formal and legitimate economy, to which most macroeconomic analysis relates.)
- None of these problems affects a broad money measure such as M4. When economists say “national income and asset prices are in equilibrium only when the demand for money equals the money supply, and in that sense the money supply determines national income”, they ought to be referring to an all-inclusive, broadly-defined measure of money.

This paper was written by Tim Congdon. Mr. Congdon will be leaving Lombard Street Research in late August to write a book on *Money in a Modern Economy*. The material in this research paper will form part of the argument of the book.

Broad money vs. narrow money

Taking the debate forward

If inflation is “a monetary phenomenon”, what concept of money is relevant to the determination of inflation?

In the 1970s and 1980s most central bankers said that they accepted Friedman’s dictum that inflation “is a monetary phenomenon”. More precisely, they followed Friedman and the monetarist school in believing that persistent and significant increases in the price level could not happen unless they were accompanied by increases in the quantity of money at rates above the trend rate of growth in real output. However, non-monetarist and anti-monetarist economists had an awkward question. Which definition of “the quantity of money” was relevant to the key monetarist propositions? The narrow definitions - which in the eyes of some economists consisted only of the monetary base (i.e., notes and coin held by the general public, and banks’ vault cash and central bank reserves) - were, and still are, hugely different in size and composition from the broad definitions, which are dominated by bank deposits. (See Chart 1.) It is fair to say not only that the monetarist school failed to reach a consensus on the relative appropriateness of the different aggregates, but also that the squabbles between competing points of view undermined the credibility of the monetarist case. Mr. Anthony Harris of the *Financial Times* compared the debate to that between Big Enders and Little Enders (about the best way to open a boiled egg) in Swift’s *Gulliver’s Travels*. The ritual repetition of the statement “inflation is a monetary phenomenon” became hollow and fatuous. By the late 1990s most key personnel in the central banks of the English-speaking world understood it to mean that inflation could be explained by monetary policy (i.e., by interest rate setting); they did not in fact believe that inflation was caused by excessive growth of the quantity of money, however defined.

In a statement on 14th June Mr. Mervyn King seemed to opt for broad money, minus financial sector balances

Given this background one part of a statement by Mr. Mervyn King on 14th June was a surprise. This was Mr. King’s observation that the high growth rate of M4 was a constraint on interest rate cuts in the UK. According to the report in the *Financial Times*, “Mr. King gave three reasons to remain concerned about inflationary pressure. First, money supply growth at an annualised rate of 13% in the first quarter of this year was ‘faster than at any point since 1997’ and ‘represents an upside risk to domestic demand’.” With the publication of the Monetary Policy Committee’s latest *Minutes*, it seems that the Bank of England’s worries about high money growth may have been exaggerated in the reporting of Mr. King’s remarks. According to the *Minutes*, the Bank regards financial sector money as of little relevance to the behaviour of demand or inflation, and monitors a measure of M4 without financial sector balances. It has been growing at a much more moderate pace than M4 as a whole. Although some research at the Bank of England has focussed on the M0 measure of money, it appears that the Bank favours a non-financial broad money measure in its appraisal of the macroeconomic outlook. This paper will argue that an all-inclusive, broadly-defined money measure is indeed the most useful. (The Bank of England’s exclusion of financial sector money from its analytical purview is, however, a serious mistake. See the May 2004 issue of this *Review* and the author’s *Money*

and Asset Prices in Boom and Bust, to be published soon by the Institute of Economic Affairs, for further discussion.)

It is important to concede at the outset that the appropriateness of an aggregate depends largely on the purpose of the analytical exercise being undertaken. If that purpose were to ascertain the likely retail requirement for bank notes, and hence the size and cost of the print run, of course it would be correct to concentrate on the M0 aggregate. But economists are not (usually) much interested in subjects like the printing cost of bank notes. Instead they want to understand the forces determining national expenditure and income, and the value of the assets which constitute national wealth. In the following pages it is taken for granted that the main task of monetary analysis is to determine the levels of national income and wealth.

**Three arguments
against narrow
money,**

There are three main arguments for believing that narrow money is not the right one in such monetary analysis,

1. The role of “money transfers” in nullifying a causal role for narrow money in the transmission mechanism from money to asset prices and demand (or, for short, “the money transfers argument”),
2. The insignificance of narrow money in asset portfolios and the implausibility of claims that narrow money has a major role in portfolio decisions (or the “money-in-portfolios argument”), and
3. The undoubted importance of the demand for certain types of narrow money (particularly high-denomination notes) in the black and/or criminal economies, which are not included in official measures of national expenditure and income (or “the black money argument”).

**which will also by
implication be
arguments for
broad money**

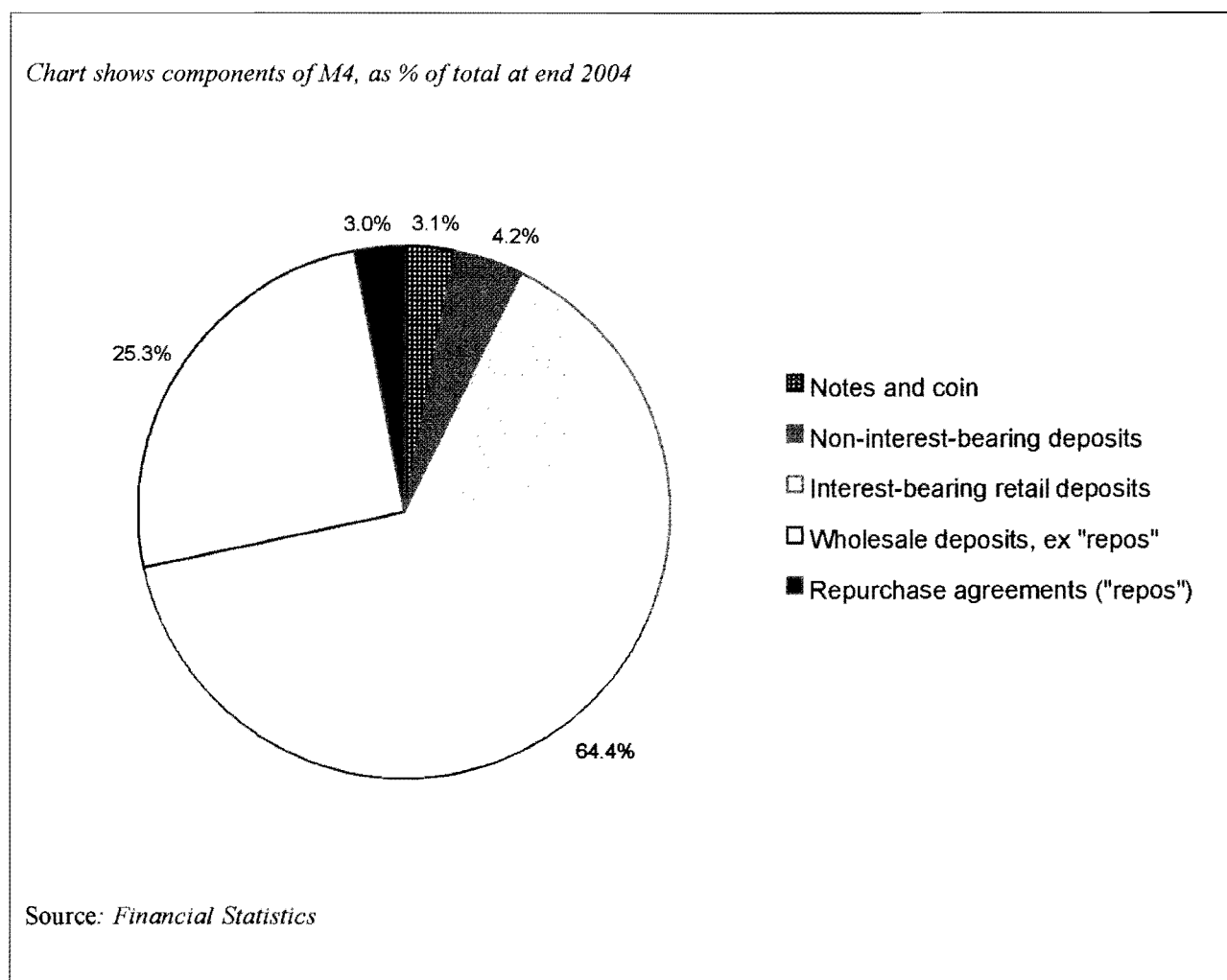
These arguments may all seem to be negative about narrow money rather than positive for broad money, but in the course of the discussion it will become clear that an all-inclusive, broad money aggregate is relevant to the determination of national income and wealth.

***1. The money
transfers
argument***

The view than an analyst takes of the transmission mechanism from money to national income is of course basic to his or her choice of money aggregate. A flood of articles has been written about *the transmission mechanism of monetary policy* in recent years, but this is a somewhat different subject from *the transmission mechanism from money to the economy*. Indeed, several descriptions of the transmission mechanism of monetary policy have been given in which the quantity of money plays no role at all in the determination of national income. These typically focus on the relationship between the central bank discount rate and the main components of national expenditure, and either do not mention money or mention it

Chart 1: Of what is the quantity of money composed?

Non-M0 money over 30 times larger than M0



The M4 measure of money consists of money balances altogether outside M0 and the bulk of M0. (It does not include banks' vault cash and cash balances at the Bank of England, which are about 15% of M0.) The pie chart shows the relative sizes of these constituents of M4 money. Plainly, non-M0 money is over 30 times larger than M0. This is a striking fact, particularly in the light of the even greater disparity between the value of transactions expedited by cash and the value of transactions settled via bank deposits. (Roughly speaking, the value of inter-bank clearings is about 150 times that of cash turnover. See footnote (4).) If about half of the currency issue is held in the black economy (as seems plausible, see pp. 12 - 14 below), non-M0 money balances in the UK are about 60 times the M0 balances held for legitimate transactions. Minford has claimed - in his book *Markets not Stakes* and elsewhere - that "monetary forces" are best represented by "the printing of money" and M0, and that such variables "are still central to our understanding of inflation". This seems implausible, particularly in view of the ease of switching between M0 and non-M0 balances in a wider money measure.

only as a variable which is determined *after* national income has been derived by adding up the demand components.

Analysts' preferences for a money aggregate strongly influenced by his or her view of the transmission mechanism from money to the economy, which is to be distinguished from the transmission mechanism of monetary policy

However, economics does have a tradition of thought in which money plays a central role in national income determination. It starts from the relatively uncontroversial notion that national income and wealth cannot be in equilibrium unless the demand to hold money balances is equal to the actual quantity of money in existence (i.e., "the money supply"). It then posits an injection of extra money balances, which comes adventitiously from outside the economy. (In the jargon the new money is "exogenous".) The question becomes, "given that the additional money has disturbed the pre-existing equilibrium, what happens to national income?". The answer is simple enough in principle. Agents have an excess supply of money and try to eliminate the excess balances by transactions between themselves (i.e., within a closed circuit of payments). Agent A with too much money (relative to income and wealth) purchases goods from another agent B, and so gets rid of the excess. But agent B, the seller of the goods to A, in turn has excess money, and purchases goods either from A or from another agent C. As all agents have excess money, the value of the transactions the economy rises and in due course prices increase. The successive rounds of transactions between A, B, C and so on raise the money value of transactions (i.e., national expenditure and income) until the demand to hold money is again equal to the money supply. Assuming that the demand to hold money balances in real terms is a function only of real variables (as is true, more or less, in all economies) and assuming also that nothing real is affected by the rounds of transactions, the equilibrium value of national income rises in proportion to the money supply. (Notice that – in the successive rounds of transactions – no credit granted. Although extra money may have entered the economy because of the growth of bank credit, the adjustment of expenditure and the price level to money has nothing whatever to do with credit.)

Friedman's account of the transmission mechanism

Numerous accounts of a transmission mechanism on these lines are available in the literature, from David Hume in the 18th century onwards. One of the clearest statements was given by Milton Friedman in testimony to the US Congress in 1959. (1) Any one person may think that he or she can control the amount of money in his bank account, but, in Friedman's words,

For all individuals combined, the appearance that they can control their money balances is an optical illusion. One individual can reduce or increase his money balance only because another or several others are induced to increase or reduce theirs; that is, they do the opposite to what he does. If individuals as a whole were to try to reduce the number of dollars they held, they could not all do so, they would simply be playing a game of musical chairs.

Nevertheless, the game of musical chairs is not futile. While individuals in the aggregate may be

frustrated in their attempt to reduce the number of dollars they hold [if they all have an excess supply of money], they succeed in achieving an equivalent change in their position, for the rise in money incomes and in prices reduces the ratio of these balances to their income and also the real value of these balances. This process will continue until this ratio and this real value are in accord with their desires.

Money matters because differences between demand for and supply of money eliminated only by change in national income

Suppose that this version of events is accepted as the preferred description of the transmission mechanism from money to national income. What are the implications for the choice of money aggregate? Note that the key to the power of money over the economy is that – when individuals try to reduce their own money holdings – they do not reduce money holdings in the aggregate. Because of this feature of the process, disequilibrium between money demand and money supply can be eliminated only by changes in aggregate spending and so in national income.

But - if that is the crux of the transmission mechanism - does narrow money work?

Does a narrow-money money aggregate work here? The economy under consideration has four types of “thing” in it – narrow money; money balances in an all-inclusive money measure, but not in narrow money; the goods and services that constitute national expenditure and output; and assets. If “assets” are put to one side for the moment, an individual A with excess narrow money can pursue two courses of action. First, he or she can use the excess to purchase goods and services from B. If B then also has excess money, he can try to get rid of by purchases of goods and services from C. And so on. A game of musical chairs is played in the Friedmanite manner, and expenditure and income adjust until equilibrium between money demand and supply is restored.

Difference between demand for and supply of narrow money can be eliminated by transfers between different types of money balance, with no effect on national income

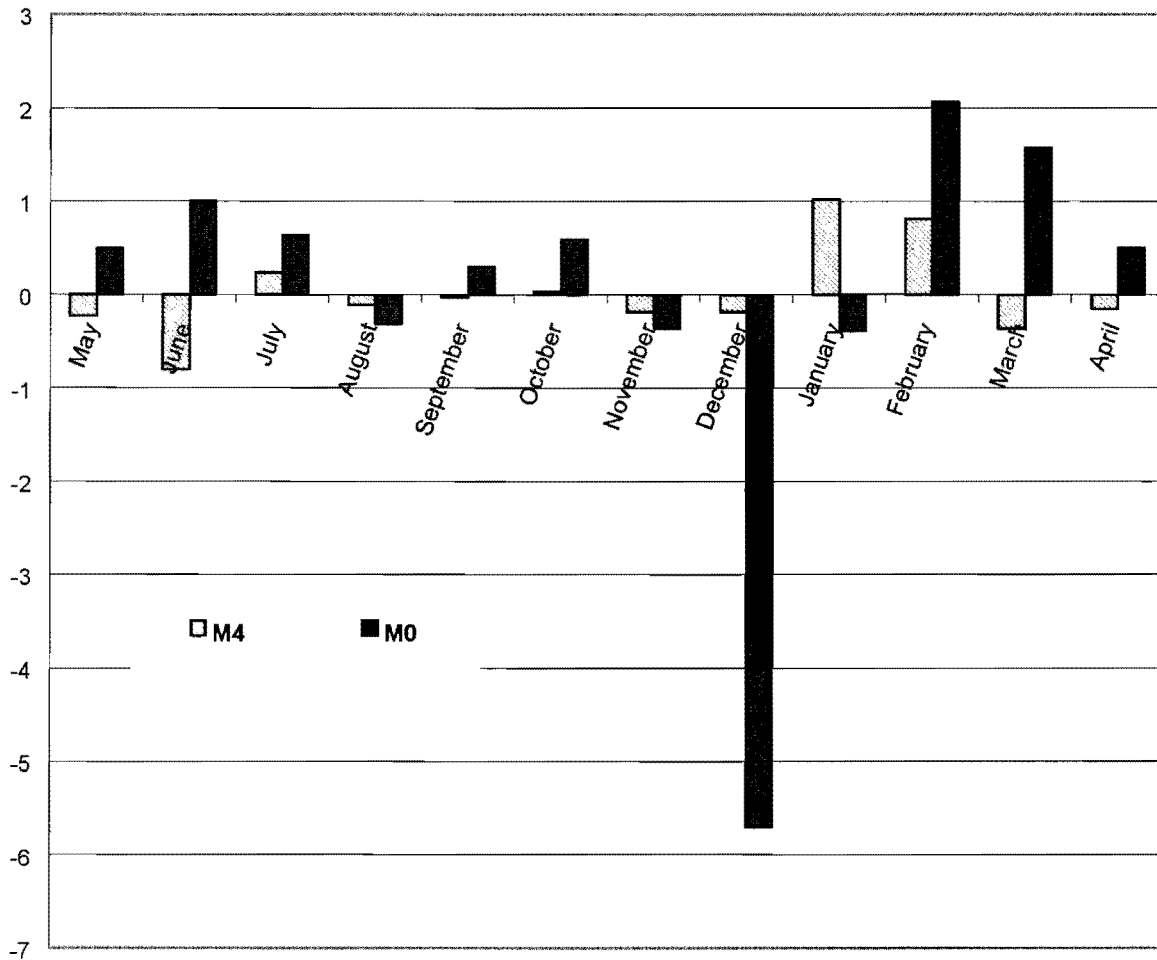
Alternatively, individual A can transfer money from its narrow-money form to a money balance not in narrow money. For example, money can be transferred from a sight deposit (included in the M1 money measure) to a time deposit (not in M1, but part of a broader measure such as M3 or M4). When an individual does this, his or her excess holding of M1 is reduced, and so also is the aggregate quantity of M1. Again, an individual may have too large a note holding relative to his or her expenditure requirements. The excess notes can be deposited with a bank, eliminating the disequilibrium in the individual’s money position and, on usual definitions, the aggregate quantity of narrow money. (2) In short, when an excess supply of or demand for narrow money is removed by a transfer between money balances (i.e., by money-into-money transactions or “money transfers” for short), the process has no effect on the demand for goods and services, and is without any wider macroeconomic interest. If disequilibrium in narrow money is ended by money transfers, such transfers nullify the causal role that narrow money might have played in the transmission mechanism from money to the economy.

The relative importance of the two ways of eliminating disequilibrium narrow money is an empirical matter. (See Chart 2.) If it were true that people often eliminate an excess supply of or demand for narrow money by purchases of, for example, important items of retail expenditure, it would have some macroeconomic

Chart 2: How important are money transfers?

M0 and M4 seasonal adjustment

Chart shows average of seasonal adjustment factors, as % of unadjusted values of M4 and M0, for all months. The average was calculated from official data in the five years to April 2005. Sum of factors in year is nil.



Source: National Statistics website

The force of the money transfers argument against M0 depends on the relative size of such transfers (or money-into-money transactions, which plainly do not affect national income) and money-into-goods or money-into-assets transactions. This is an empirical matter which, in principle, can be resolved quite simply by taking a representative sample of transactions in which currency is used. Circumstantial evidence that money-into-money transactions are a very high proportion of total currency transactions was given on p. 133 of the Grant, Vlieghe and Bridgen paper in the summer 2004 issue of the *Bank of England Quarterly Bulletin*, using data from APACS. (See footnote (8) for further discussion.) But also interesting is the relative size of seasonal adjustment factors for M0 and M4. Since money-into-money transactions are easy to make for seasonal reasons, a reasonable expectation is that seasonal adjustment factors for M0 should be larger than for M4. When expressed as a %age of the respective aggregates, the seasonal adjustment factors for M0 are indeed much larger than for M4.

Money transfers make narrow money endogenous and nullify its macroeconomic role

significance. But the reality of the modern world is that most people adjust their narrow money holdings by money transfers which are a routine and rather dull part of their financial planning (i. e., by frequent switches between notes and bank deposits, and between different types of bank deposit). (3) My weekend spending is not determined by my withdrawal of £100 in notes from the bank late on Friday, and by my possession of an average balance during the weekend of £50. On the contrary, my withdrawal of £100 in notes from the bank late on Friday is determined by my prior decision to spend £100 over the weekend, a decision which reflects numerous other considerations (including, to some extent, the size of my total bank deposit). Indeed, it is not going too far to say that money transfers make narrow money “endogenous”. When Kaldor poked fun at the exogeneity of money by asking whether the money supply (in the sense of the note issue) determined Christmas, he was making a good analytical point which the monetarists have never properly answered. (4)

But money transfers cannot nullify the macroeconomic role of an all-inclusive, broadly-defined measure of money.

A distinguishing feature of broad money is that it includes the widest possible range of monetary assets. The nearest alternative is therefore not a constituent of the money supply. This is crucial. If an individual economic agent... is in monetary disequilibrium, adjustment has to occur through [transactions in goods and services, or in assets]. It cannot take place through money transfers.

Consider a person who has an excess supply of broad money balances. He cannot remove this by switching into another money balance because, by definition, no such balance exists. He has to purchase an asset, a commodity or a service from another economic agent. Similarly, if someone has an excess demand for broad money balances, he cannot eliminate it by a money transfer from another bank account, because his holdings of broad money constitute his entire money balances. He has to sell something if he is to return to equilibrium (5)

But, with broad money, the usual account of the transmission mechanism works

In other words, with an all-inclusive money measure, the traditional account of the transmission mechanism from money to the economy works fine. Whereas narrow money is macroeconomically uninteresting (because it is nowadays largely determined by prior decisions to spend), broad money is of great macroeconomic importance. If an economy is in approximate monetary equilibrium and the quantity of broad money changes abruptly in a short period, the traditional account of the transmission mechanism applies. The equilibrium level of national income has been altered, and a sequence of expenditure rounds take place to change national income, and so to restore the equivalence of the demand for money with its supply. (6)

The ease of making money transfers explains superiority of narrow money in demand-for-money estimation

The money transfers argument is quite difficult, and its force depends on the analyst's acceptance that the view of the transmission mechanism set out above (“the-game-of-musical-chairs” view) is realistic and important in practice. Nevertheless, it is a decisive critique of the claim that, if money matters, it is narrow money which matters most. (Incidentally, the ease of making money transfers between narrow and broad money explains why demand-for-money estimation

invariably finds better statistical fits for narrow money than for broad money. The superiority of narrow money in econometric work reflects the way it is determined in the real world; it is unsurprising and does not mean that narrow money should be the aggregate on which policy-makers focus.)

2. The money-in- -portfolios argument

So far the account of the transmission mechanism has been concerned with how agents balance between their money holdings, on the one hand, and their expenditure on goods and services, on the other. However, in the real world every economy also has assets (financial securities, houses, land, antiques and so on). It follows that their asset portfolios, as well as their income and expenditure, are relevant to agents' demand to hold money balances.

Both narrow money and other forms of money have nominal value certainty, unlike goods and assets

To repeat, our economy has four "things" – narrow money, other money balances (i.e., balances in a broad money measure, but not in narrow money), goods and services, and assets. All money balances – both narrow and non-narrow – have two properties, that their nominal value is certain (or as near as certain, as makes no difference) and that their nominal value does not change in the course of transactions. By contrast, the future nominal value of goods and services, and assets, is uncertain, and their nominal value can change in the course of transactions. Obviously, in a full equilibrium, equilibrium relationships between all the "things" have to be satisfied. There is an equilibrium relationship between narrow money and asset values, between goods and services (or "national income", which is the aggregate value of all goods and services) and asset values (or "national wealth"), and so on.

Money has to be balanced in portfolios against non-monetary assets, but hardly any agents balance note holdings against major assets in modern circumstances

It is implicit that, starting from an equilibrium, a change in narrow money alters the equilibrium value of everything else, including asset values. However, the question needs to be asked whether this idea is serviceable in macroeconomic analysis. Two points need to be made. The first is that the money transfers argument applies here again. The nearest alternative to a money balance in narrow money (i.e., notes and coin in the M0 aggregate, and sight deposits in the M1 aggregate) is another money balance, not a non-monetary asset. When agents think about the place of narrow money in their portfolios, they are concerned with the choice between holding wealth in the form of notes rather than sight deposits, or in the form of sight deposits rather than time deposits. In a modern economy with deep capital markets very few agents balance their narrow money holdings against non-monetary assets.

Notes are expensive and inconvenient to use in large capital transactions

Secondly, the purpose of holding money is to minimise transactions costs. It is true that certain components of broad money – such as large-denomination certificates of deposit – cannot be used in small-scale retail transactions. According to Sir Alan Walters, "one would clearly not count £50,000 negotiable CDs as money; so far as I am aware no one would ever accept such an instrument to pay an outstanding expense". (7) But it is also true that notes are an extremely inconvenient way of

settling debts arising from major capital transactions, such as the purchase of houses, large blocks of commercial property or financial securities. The costs of counting and bundling up notes are heavy compared with the cost of making entries in bank statements. As a result the most important participants in capital markets typically have small or negligible holdings of notes, and these notes play no role in portfolio decisions. (Walters is in fact misleading in his comments on a £50,000 negotiable CD. A large institutional or corporate holder of such a CD can sell it merely by a phone call to a broker. As real-time or next-day settlement is now commonplace, the proceeds could appear – minus trivial brokerage fees – in a bank account the following day.)

Note holdings are irrelevant to portfolio decisions of large financial institutions

As the Office for National Statistics collects data on the currency and money holdings of different sectors, the relevance of these points to the financial sector's demand for money is easily demonstrated. At the end of 2004 the currency holdings of all non-bank financial intermediaries in the UK were a mere £83m. By contrast, the value of all currency and deposits (including foreign currency deposits, and both sterling and foreign currency deposits outside the UK) was £634,536m., and the value of all their assets was £1,721,539m. In other words, these organizations' total money holdings were over 7,500 times larger and their total assets were more than 20,000 larger than their currency holdings. (See Table 1 below on the insignificance of currency relative to *sterling* deposits.) It seems likely that the bulk of the £83m.

Table 1: The insignificance of financial institutions' currency holdings

	Non-monetary financial institutions' holdings of:		Multiple of deposits held to currency held
	Sterling deposits £m	Currency £m	
1987	40,082	55	729
1988	51,008	59	865
1989	73,142	63	1,161
1990	86,210	70	1,232
1991	77,177	74	1,042
1992	88,140	77	1,145
1993	99,866	79	1,264
1994	106,180	81	1,311
1995	144,709	83	1,743
1996	173,317	83	2,088
1997	200,529	83	2,416
1998	216,459	83	2,608
1999	200,617	83	2,417
2000	247,853	83	2,986
2001	286,958	83	3,457
2002	279,597	83	3,369

Source: National Statistics website

of currency was held by minor financial institutions with some retail business, such as some hire purchase companies and pawnbrokers. For all significant financial institutions, and for all the big institutional players in the UK asset markets, note holdings are trifling compared with bank deposits. Similar patterns are found in all advanced industrial societies. To summarise, in a modern economy notes are not used in large capital transactions and play virtually no role in the balance-sheet decisions of substantial financial institutions.

The theory of the demand for narrow money is not a special topic in the theory of capital

The M0 holdings of financial institutions are tiny relative to other money holdings and total assets, and have no major bearing on any portfolio decision. If the behaviour of a modern economy is to be understood, it is essential to integrate capital goods and asset prices into the analysis. This is plainly impossible with the M0 measure of money. The management of the sight and overnight deposits in M1 is not an entirely mechanical exercise in large financial institutions, but the relative size of different types of deposit within the overall liquidity total is a much less significant influence on returns than either decisions on the relative size of monetary and non-monetary assets or decisions on asset allocation more broadly understood (i.e., the relative size of holdings of equities, bonds and so on). In his influential 1956 paper on 'The quantity theory of money: a restatement' Friedman – following the lead of Hicks and Keynes – argued that money needed to be analysed as part of wealth portfolios. In his words, "the theory of the demand for money is a special topic in the theory of capital". But it is clear – that as a practical and empirical matter – the theory of the demand for narrow money is *not* a special topic in the theory of capital.

3. The black money argument

Who, then, are the big holders of narrow money? Data on the sector breakdown of currency holdings – and so on the M0 aggregate – are available in the UK, but a series has not been estimated for M1 since the 1980s. Much of the rest of this section is therefore concerned with the composition of M0 ownership in the UK. (M0 consists of currency held by both banks and non-banks, and bankers' operational deposits at the Bank of England. Bankers' operational deposits are now tiny and are ignored.) The discussion deals with the situation at mid-2003, for which good data have now been published.

Retailers and banks have large, legitimate currency holdings

In mid-2003 M0 was £38.9b. before seasonal adjustment and the total of all currency held in the economy was £39.1b. (So we are talking about essentially the same thing.) The three holders of currency were,

	£b
- Households and non-profit institutions	29.6
- Financial corporations	5.5
- Non-financial corporations	4.0

	39.1

What were the motives here? Of the £5.5b. held by financial corporations, £5.4b. was in the hands of bank and building societies. They needed to keep cash in their tills to meet deposit withdrawals. As already discussed, less than £0.1b. was held by non-monetary financial institutions. Retail stores were much the most important non-financial corporate holders of currency. Plainly, both the banks' and retailers' demands for currency were legitimate and straightforward.

But what about households?

But what is to be said about the £29.6b. held by "households and non-profit institutions"? In mid-2003 the population of the UK was roughly 60 million, with 22% under the age of 17 (and so presumably still minors in financial affairs). The adult and money-bearing population of the UK was therefore about 47 million. It follows that the average cash holding per adult was *almost* £650.

Large discrepancy between cash holding implied by cash withdrawal behaviour and cash holding per person implied by official data

A serious problem immediately arises. It is known that the average withdrawal from cash machines is about £50 - £60. (The data are published every year in the page on 'Cash dispensers/automated teller machines: usage' in *The Annual Abstract of Banking Statistics*, published by the British Bankers' Association.) Now people would be rather silly to make a withdrawal if they already have sufficient cash for their expenditures. Surely their cash is instead at its maximum after a withdrawal, is then depleted and is at its minimum just before the next withdrawal, and so on. By implication, the average cash holding of the people who use cash machines is *about* £30 - £35 (i.e., a bit more than half the average withdrawal). The average cash withdrawal of people who draw cash over the counter is much higher, with the cash demands of small cash-intensive unincorporated businesses (corner groceries, newsagents, farms, cafes, etc.) being worth special mention. (8) However, to reach an average figure of almost £650 for legitimate use among the British people at large seems incredible. Even if one were to scale up the £30-per-head figure by three times (i.e., to £100 per head) and multiply by 47 million, the implied currency holding of the British household sector would be £4.7b., far less than the £29.6b. that is known (from the official data) to be held within the sector.

How is this discrepancy to be explained?

Who, then, can be responsible between the average cash holding per head of £650 implied by official numbers and the £30 - £100 per head implied by information on cash withdrawals from ATMs (and indeed common observation)? Who holds these very large amounts of cash? One answer is that cash is held disproportionately in the black economy, where cash has the great advantage that ownership can be concealed until the bearer decides to make a payment. The following types of individual are to be mentioned,

- criminals who don't want their wealth known to the authorities at all,
- drug-dealers and prostitutes whose customers pay mostly in cash, and do not want the transactions recorded,
- taxi drivers and building sub-contractors whom it is legal to pay in cash, but

who themselves do not disclose all their income details to the tax authorities, and

- social security claimants who would lose entitlement to benefit (under means-testing rules) if the tax and social security authorities could identify a significant money holding (as they can if it is held in a bank account).

The economic significance of these behaviours is controversial. Several estimates for the UK are that “the black economy” is of the order of 10% of GDP. (See Feige ‘The UK’s unobserved economy: a preliminary assessment’, *Economic Affairs*, 1981 and the articles in the June 1999 issue of *The Economic Journal*.) In fact, some of the standard techniques of measuring, or attempting to measure, the black economy are based on the assumption that cash is its medium of exchange. Without delving into these matters here, it seems clear that a high proportion of the currency issue is held in the black economy. If the black economy were indeed 10% of the UK’s GDP, it would not be in the least surprising if black-economy operators of various kinds held half or more of the almost £30b. of currency in households’ hands in mid-2003. (The author’s view is that the black economy is quite small, at perhaps 2% - 3% of GDP [i.e., £25b. - £35b.], but this would still not be inconsistent with cash holdings by black-economy operators of the £15b. - £25b. order.)

Much of M0 is held outside the formal economy which is measured by GDP statistics

At any rate, there is not much doubt that a big chunk of M0 – perhaps as much of a half of it – is held and used outside the formal economy. (9) A case can be made that it therefore has no relevance for the analysis and prediction of GDP, which is the sum of legitimate expenditures and outputs. The good correlation between M0 and retail sales is well-attested, which may argue that M0 should still be taken seriously, but it is plausible that the value of retail sales is correlated with the value of items purchased in the black market (or “the informal economy”, “the underground economy” or whatever one wants to call it). Whether in the circumstances M0 should be regarded as an important monetary aggregate is perhaps a matter of taste.

Summary

The points made in this paper together constitute a powerful argument against paying much attention to narrow money aggregates. To summarize,

1. because of the ease of transferring money between different types of money (i.e., of making money-into-money transactions), it is unclear that narrow money plays a causal role in motivating expenditure decisions (i.e., money-into-goods-and-services transactions) or portfolio adjustments (i.e., money-into-assets transactions),
2. in modern circumstances, narrow money does not have a significant position in asset portfolios and it is difficult to believe that, for example, the note issue has any bearing on the portfolio adjustments which determine asset prices,

and

3. narrow money – and especially the very narrow concept of the monetary base (i.e., M0 in the UK) – is held disproportionately in the black economy and in that sense is of limited relevance to economic developments in the formal economy.

None of these points apply to an all-inclusive or broadly-defined money measure. Broad money is superior to narrow money in macroeconomic analysis.

Notes

(1) See Milton Friedman ‘Statement on monetary theory and policy’, given in Congressional hearings in 1959, reprinted on pp. 136 – 45 of R. James Ball and Peter Boyle (eds.) *Inflation* (Harmondsworth: Penguin, 1969). The quotations are from p. 141.

(2) Note that the balance is not eliminated if M0 is the money aggregate used, because M0 includes banks’ vault cash. The inclusion of banks’ vault cash in the definition of “money” is, however, most unusual, since – by definition – vault cash does not circulate among members of the public.

(3) If the movement of money between different types of bank account were expensive and inconvenient, this point would be less compelling. But nowadays such movements are cheap and straightforward.

(4) A 1998 Bank of England working paper contained a pie chart on ‘Sources of cash in 1997’. It showed that automated teller machines, withdrawals from bank or building society deposits and cash backs represented 66% of all such sources, with the rest being “state benefits” (presumably mostly from post offices) and employers. In other words, most cash arose from money-into-money transactions. The value of “cash turnover for individuals” was put at £238b. in 1997. This may sound substantial relative to gross domestic product in the year, which was just over £810b. at current market prices. However, both cash turnover and GDP pale into insignificance compared with the value of bank clearings, which was over £36,000b. in 1997. In other words, payments made via bank deposits had a value about 150 times larger than payments made with cash. (See Norbert Janssen ‘The demand for M0 in the UK reconsidered: some specification issues’, *Working Paper Series* [London: Bank of England], pp. 14 – 5 and any issue of *The Annual Abstract of Banking Statistics* [London: British Bankers’ Association] for the value of clearings.)

(5) See Tim Congdon ‘Broad money vs. narrow money’ *The Review of Policy Issues* (Sheffield: Sheffield Hallam University), vol. 1, no. 5 (autumn 1995), pp. 13 – 27. The quotation is from p. 21.

(6) See chapters one and two of Tim Congdon *Money and Asset Prices in Boom and Bust* (London: Institute for Economic Affairs, 2005 forthcoming), which extend the discussion to asset markets. This pamphlet is based on the May 2004 issue of Lombard Street Research’s *Monthly Economic Review*.

(7) Sir Alan Walters *Britain's Economic Renaissance* (Oxford: Oxford University Press, 1986), pp. 116 – 7.

(8) Some interesting facts about money-holding behaviour are given in Kathryn Grant, Gertjan Vlieghe and Andrew Brigden 'Assessing the stability of narrow money demand in the UK', summer 2004 issue of *Bank of England Quarterly Bulletin* (London: Bank of England, 2004), pp. 131 – 41. See, in particular, p. 133 on the size of various types of cash withdrawal.

(9) Footnote (5) of the Janssen 1998 working paper (referred to above under footnote (4)) noted that, at the time, the stock of M0 implied that "about £400 is held per head of the UK population. But if we assume that the personal sector adjusts its cash balances once every week, each adult would hold only around £100 of cash for transactions purposes. The remainder of the stock of M0 may be circulating in the black economy, or banks and the corporate sector may be holding part of it as till money". However, the paper proceeded to carry out a variety of econometric tests in which the demand for real M0 was estimated as a function of retail sales volume, "real net financial wealth" and such like, and indeed identified separate transactions, precautionary and speculative elements in the demand for UK narrow money. (In the opinion of the author of the current paper, the performing of such tests on M0 series was – to say the least – inappropriate. If about half of M0 is held in the black economy, a good relationship between M0 and retail sales may prevail, but only because the size of the black economy and retail sales are themselves correlated. Since well over half of M0 seems to be held in the black economy and as till cash for banks and retailers, the notion of a significant "portfolio demand" for M0 (as discussed by Janssen on pp. 22 – 29 of his paper) is untenable.)