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IN BANKING SYSTEMS

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Introduction

This paper proposes an unconventional division into two separate components of money created by banking systems, corresponding to a classification of the services provided by banking systems. Although it is, as far as I know, new in analysis, this approach is implicit in recent developments in banking practice. Its advantage is that the demand for the two components of bank money can be regarded as dependent on separate factors, so that the behaviour of the components can usefully be discussed separately in the analysis of monetary developments. The division of bank money into components which this paper proposes suggests that the factors which influence monetary developments may be different from those which are stressed by the various portfolio balance approaches to monetary theory, being more closely related to financial imbalances than those approaches allow. After defining the two components of bank money, this paper goes on to describe those differences. It then discusses two practical applications of this approach and finally explores some policy implications.

It is convenient to begin by classifying the services provided by banking systems into two categories, namely intermediation and pure liquidity creation.

Intermediation and liquidity creation

The distinction between intermediation and pure liquidity creation might be expressed briefly as follows. Pure liquidity creation may

*Many of the ideas in this paper were suggested to me by what I learned about international banking while working for the Bank for International Settlements. I am extremely grateful to Messrs. B. Brittain, M.G. Dealtry, C.A.E. Goodhart, K. Inoue and P. Isard for penetrating comments on earlier drafts of this paper. This does not mean, however, that they, the BIS, or the Bank of England agree with what I have said in the paper or the way I have said it; the opinions expressed are mine alone. I am also very grateful to Messrs. A. Jennings and P. Temperton for their help in computing the data in table 1.

be accomplished either by banks guaranteeing credit facilities to their clients, a method which does not involve any immediate deposit creation, or else by banks lending to their clients funds which the clients re-deposit in the banking system. This implies that deposits arising from pure liquidity creation are deposits that have been borrowed from the banking system.¹ By contrast deposits arising from intermediation have not been thus borrowed.

Intermediation consists of lending the deposits of one group of clients who are owed more by the banking system than they owe to it - i.e. net creditors - to a different group of clients - i.e. net debtors. The banking system is an institution which enables the financial wealth of creditors to be lent to debtors, but more than that, it accepts responsibility for its own debts. In measuring the amount of intermediation performed by the banking system, it is only net debts vis-à-vis the banking system as a whole that count. A client's net debt is calculated as the difference between the sum of the client's outstanding loans from banks and the sum of his deposits with banks. It is obvious that if the population of clients is sufficiently widely defined, then the sum of net debts is equal to part of the net worth of the banking system, which may be assumed to be of second-order importance.

Pure liquidity creation takes place when the banking system guarantees the client that he will be able to borrow money whenever he likes. This may be done in either of two ways. Firstly, a bank may lend a client a sum of money which the client holds as a bank deposit (perhaps in a different bank). During the term of the loan the client has the assurance that he can use the money if he wants to. The price charged for this service is the margin between the rate the bank pays the client for his deposit and the rate the bank charges him for the loan. Alternatively, the bank may guarantee credit facilities to the client, under which arrangement the client has no bank deposit but knows he can get one if he wants one.² A commitment fee may be charged for operations of this

1 Many definitions of "liquidity" have been proposed. A separate paper would be required to trace the relationship between "pure liquidity creation" defined in this paper and "liquidity" as defined elsewhere.

2 Unused overdraft facilities do not provide quite the same assurance that money will be available as do deposits matched by loans because overdraft facilities can be cancelled by banks more easily than deposits can be cancelled against loans.

second sort. Unused credit facilities do not, of course, appear in the banks' balance sheets.

It is important to notice that, while a particular person or corporation may be obtaining liquidity from the banking system as a whole, he or it may still be a debtor or creditor vis-à-vis individual banks. From the point of view of individual banks, then, liquidity creation may be indistinguishable from intermediation. However, this may not always be the case, as is explained in the footnote on page 11 below.

Although no statistics are easily available on this matter, it seems quite likely that pure liquidity creation through borrowed deposits is quite a recent phenomenon. The reason is that bank cartels were widespread in many industrial countries until there was a wave of competition and innovation in banking in the late 1960s and the 1970s; and as a result of the existence of these cartels the gap between the rates paid on deposits and charged on loans was so wide that liquidity creation was much more cheaply achieved (from the client's viewpoint) by means of credit facilities, which do not contribute to measured money supply.

Under such conditions, the approach to monetary analysis outlined in this paper boils down to the analysis of the demand for intermediation. According to the standard analysis of the motives for holding money, the demand for "intermediation balances" - i.e. for owned deposits - corresponds to the transactions demand for money, and perhaps partly to the speculative demand as well. However, the transactions demand is not analysed here in the manner of Fisher but rather in that of Hicks in the first of his "two triads" (1967), where the demand for money depends on the imbalances between receipts and spending in the system, rather than (as in Fisher) more vaguely on the volume of transactions and an assumed-to-be-predictable velocity. The analysis of the transactions demand is even further removed from that originated by the Cambridge school and pursued in recent times by both the Chicago and Yale schools, in which the transactions demand for money is assumed to depend simply on income.

Relationships with the banking system's balance sheet

If the balance sheets of the banks are consolidated in such a way that interbank deposits and loans are cancelled out, but so that a

particular client's deposits are not netted out against his outstanding loans, it is possible to arrive at measures of the quantities of intermediation and liquidity creation.

Let D_i be the total deposits of client i in the banking system, and let A_i be total loans outstanding to him. Then the net debt of i to the banking system is $A_i - D_i$ (if this amount is negative, then i is on balance a creditor of the banks). The total intermediation performed by the banking system is then the sum of the absolute values of the net debts of all clients - that is,

$$I = \sum_i |A_i - D_i| \quad (1)$$

where I = total intermediation.

The liquidity that the banking system has created for i is equal to the smaller of i 's deposits with and loans from the banking system, plus his unused credit facilities. This implies that

$$\begin{aligned} L &= \sum_i [\min(A_i, D_i) + UCF_i] \\ &= \left[\sum_i \min(A_i, D_i) \right] + UCF \end{aligned} \quad (2)$$

where L = total liquidity creation,

UCF_i = i 's unused overdrafts and

UCF = total unused overdrafts.

As they stand, the quantities L and I bear no relation to the usual monetary aggregates. However,

$$\begin{aligned} L + I &= \sum_i \left[|A_i - D_i| + \min(A_i, D_i) + UCF_i \right] \\ &= \left[\sum_i \max(A_i, D_i) \right] + UCF \end{aligned} \quad (3)$$

adding (2) and (3),

$$2L + I = A + D + 2UCF \quad (4)$$

where A = total loans and D = total deposits.

If it is permissible to make the approximation that $A = D = BM$ (total bank money), i.e. if it is possible to neglect the net worth of the banking system, then equation (4) may be rearranged to the following:

$$BM = \frac{1}{2}I + L - UCF \quad (5)$$

In other words, subject to the approximation mentioned above, the total stock of bank money has two components, one measuring the amount of intermediation done by the banking system (the coefficient of $\frac{1}{2}$ reflects the fact that in the calculation of I each act of intermediation is counted twice, once on the debtor side and once on the creditor side) and the other measuring the amount of pure liquidity creation, except for liquidity created by the granting of unused overdraft facilities. Equation (5) opens up the possibility of analysing developments in the total of bank money by looking separately at these two components. However, the possibility is worth pursuing only if there is some prospective profit in it, and the next two sections make the case that the demands for intermediation and pure liquidity creation depend on substantially different factors, so that it is useful to analyse them separately.

The demand for intermediation

The demand for intermediation depends first of all on the price of intermediation. But what is the price? Net debtors pay interest to borrow from banks and net creditors receive interest (which may be implicit) on their deposits. The banking system (excluding central banks) evidently has to set its interest rates at such a level that the demand from its clients (including the monetary authorities) for net creditor positions equals the demand for net debtor positions.* The general level of interest rates is therefore determined outside the banking system by the public and the monetary authorities (but see qualification (i) later in this section). The price charged by the banking system for performing its intermediation service is the difference between the rates it pays on its liabilities and the rates it receives on its assets.

The demand for intermediation depends as well on the surpluses and deficits of entities within the economy on transactions not involving banks as principals. Of course, these surpluses and deficits are, in

*Or else it has to resort to rationing. Of course, banking always involves rationing credit, even in conditions of unrestricted competition, but it is assumed here that the rationing is confined to what is regarded as necessary on grounds of the creditworthiness of individual clients.

normal circumstances, at least partly under the control of the client, and they are likely to respond to the interest rates offered by banks on deposits and charged on loans. Thus a bank deposit may be run down in order to buy a Treasury bill, or place a deposit with a non-bank financial institution, if an insufficient interest rate is offered by the bank. Indeed, where there is a wide variety of substitutes for bank deposits as repositories of financial wealth, and where economic agents are alive to the possibilities offered by these substitutes, the transactions approach outlined in this paper merges into the portfolio approach to the demand for money. (Note, however, that in the portfolio approach the demand for money depends on wealth rather than on income.)

However, there may be times when financial balances are not under the control of the client to any important degree. In particular during a recession corporations are likely to have larger deficits than usual. While there are certain measures that they can take to reduce their deficits - e.g. cutting stocks, cutting investment in fixed capital and laying off labour - sales revenue may fall so fast that even if these measures are taken as quickly as is possible they will not suffice to reduce the deficit.

Even where the problem of substitutability between bank deposits and other assets (and between bank loans and loans from other sources) is not important, the relationship between surpluses and deficits and the demand for intermediation is rather complicated.

Suppose that corporation A, which has low bank deposits and heavy loans from banks outstanding, is in deficit. Then, to finance its deficit it may have no choice but to increase its debts to banks (if the banks are willing), thus increasing the total amount of intermediation. But if corporation B, which has large bank deposits and small debts, is in deficit, it may finance the deficit by running down its bank deposits, which would entail a reduction in the total of intermediation done by the banking system. Similar considerations apply to surpluses. A corporation with small debts and a surplus has no choice but to allow its surplus to be reflected in extra asset holdings which, if they are held as bank deposits, represent extra intermediation by the banking system. But a corporation with large debts to banks which runs a surplus may well use its surplus to repay debt, thus reducing the total of intermediation by the banking system.

It should be noted that in the above presentation the demand for intermediation does not depend in any obvious way on the level of interest rates. However, the following points may be made:

- (i) to the extent that the banks do not pay interest on deposits, but do charge interest on loans, then a rise in interest rates means a rise in the price of intermediation and consequently a reduction in the demand for intermediation. However, banks in many countries pay explicit or implicit interest on those of their deposits which would be likely to be withdrawn if interest were not paid on them;
- (ii) the interest paid by banks on deposits increases the surpluses, or reduces the deficits, of net creditors; and the interest charged on loans increases the deficits, or reduces the surpluses, of net debtors. Assuming that net creditors tend to have surpluses and net debtors deficits, it follows that higher interest rates increase the demand for intermediation in this way;
- (iii) a level of interest rates which is such as to engender expectations of a future change in a particular direction may affect the demand for intermediation. For example, if interest rates are so high that a future fall is expected, then bank deposits are likely to be withdrawn in order to buy long-term bonds. This will reduce the demand for intermediation. However, some clients may borrow from the banks to buy bonds, thus increasing the demand for intermediation;
- (iv) low interest rates may stimulate investment by corporations in stocks or in fixed capital. If corporations are generally in debt to the banks, and if the investment is financed by bank loans, this means that low interest rates would increase the demand for intermediation. However, if the investment is financed by security issues, there would be no necessary change in the demand for intermediation.

The demand for pure liquidity

The price charged by the banking system for pure liquidity creation depends on how the liquidity is created. If it is by means of a borrowed deposit, then the price is the same as that charged for intermediation, viz. the margin between the rates paid by the banks for deposits and charged by them for loans. If, on the other hand, it is by means of a credit facility, with no deposit involved, then a commitment fee may be charged. It should be noted that the client can at his own discretion turn liquidity created by a credit facility into liquidity created by a borrowed deposit, simply by drawing on the credit facility and depositing the proceeds in a bank.

Apart from the price charged by the banks, the demand for pure liquidity is likely to depend on factors which are quite different from those which influence the demand for intermediation. Specifically, the demand for pure liquidity is likely to be a forward-looking demand, while the demand for intermediation depends very largely on things (i.e. surpluses and deficits) that have happened in the past.* The demand for liquidity is likely to depend on the amount of planned spending - cf. Keynes' "finance motive" for holding money - and on the degree of uncertainty surrounding the amount and timing of that spending. Keynes discussed the finance motive in terms of planned spending on consumption and investment, but it might equally well apply to planned transactions in financial assets.

Another important influence on the demand for pure liquidity is likely to be the prospects for the future availability of credit. If a credit squeeze is expected, there is likely to be a demand for pure liquidity in order to escape the effects of the expected squeeze.

The supply of banking services

An individual bank cannot know whether money borrowed from it is redeposited in another bank by the borrower or whether it is otherwise

*A stricter version of this statement would be untrue. If there are opportunities for speculation through, for example, purchases of equities, then the demand for intermediation will depend to some extent on forward-looking factors - in the example given, expectations about the future price of the equities in question.

disposed of. Hence individual banks do not know the extent to which their operations have contributed to pure liquidity creation, and the extent to which they have participated in intermediation. It follows that the supply conditions of pure liquidity creation services (at least as far as these are carried out by matched deposits and loans) and of intermediation services must be the same.

Apart from the price charged, what are the influences on the supply of banking services? Before answering this question it is useful to summarise what the provision of banking services involves for the banks. The banks have to perform the following services:

1. Administration of loans and deposits, including the maintenance of interbank clearing systems.
2. Acceptance of default risks on loans.
3. Maturity transformation. Typically, banks borrow short and lend long. Although long-term loans are often made at interest rates which float with short-term rates, so that there need be no risk to the bank arising from possible changes in the general level of interest rates, the bank nevertheless still has to ensure the refinancing of the loan a number of times before its maturity.

Item 1 is in part at least (e.g. maintenance of the clearing system) a fixed cost; as for the other part, there is no obvious reason to believe that returns to scale are either increasing or decreasing. Items 2 and 3 are more interesting. Both involve risk-taking - risk of default by the customer and risk of inability to refinance loans. The seriousness of these risks from the individual bank's point of view depends on the bank's ability to withstand adverse developments should they occur - that is, on the capital and reserves of the bank - and on the likelihood of the adverse developments actually occurring. This latter element depends in turn on the general economic, and in the case of international loans, political situation. Defaults are more likely in a recession than in a boom.

Possible practical applications

A. Cyclical developments in money supply

The great difficulty with the approach to monetary analysis suggested in this paper is that no statistics are available to the monetary authorities on the positions of banks vis-à-vis individual customers, at least in domestic banking systems. But nevertheless the broad pattern of developments in corporate and household finance during the business cycle is well-known enough for some qualitative observations to be made.

As a rough caricature of reality one might make the following observations:

1. In the United Kingdom, at least, bank money is mainly created by bank lending to the household and corporate sectors.*

2. The household sector is a net creditor of the banking system, while the corporate sector is a net debtor.

3. In a boom the financial surplus/deficit position of the corporate sector improves at the expense of that of the household sector, while in a recession the opposite happens.

What happens to the demand for intermediation during the course of the trade cycle? Suppose we begin with a boom. Corporations have increased incomes. Because they are in debt to the banks they will use some of their extra income to repay debt and some to build up their deposits, or at least their debt will increase more slowly and their deposits more quickly than usual. Their net debts to the banks will be reduced or grow more slowly, and so will the amount of intermediation through the banks. Consequently, the amount of intermediation is likely to grow more slowly than usual in a boom.

When the recession comes, corporations find their debts piling up faster than usual, and they are likely to finance their indebtedness largely through the banks. Thus, the amount of intermediation increases faster than usual in a recession. (This story has been told from the viewpoint of corporations but could equally well have been told from the viewpoint of households.)

*See B.J. Moore and A.R. Threadgold (1980).

In the US context, this reasoning (together with the conjecture, explained above, that pure liquidity creation through loans matched by deposits was not important until the late 1960s) might be used to explain Friedman's (1959) finding that the amplitude of cyclical fluctuations in money in the United States during the period 1870-1954 was smaller than that of cyclical fluctuations in income. It may indeed be a more appealing explanation than Friedman's own suggestion that the demand for money depends on permanent rather than current income.

It is much more difficult to say anything about the effect of cyclical developments on the demand for pure liquidity creation. One reason is that pure liquidity is relatively cheap to the client in relation to the possible benefits of having a precautionary store of spending power (e.g. the ability to take advantage of unexpected business opportunities). The amount of pure liquidity is therefore more likely to be constrained by supply than by demand. On the supply side, banks may become nervous about the survival prospects of some of their clients during recessions and may therefore wish to curtail their unconditional commitments to lend to them.*

If this were so, the amount of pure liquidity creation might vary procyclically, with the variations having a larger amplitude than that of the variations in business activity.

Some evidence is available on the extent of intermediation and pure liquidity creation by the UK banking system. The Datastream service makes available in computer-readable form the annual published balance sheets of 1,058 industrial and commercial companies in the United Kingdom from 1973. It is possible to obtain from this source some information about the owned deposits and borrowed deposits of these companies. The figures do not discriminate between deposits with banks and other liquid assets, nor do they distinguish between loans from banks and other loans. So "bank money" has to be interpreted as "'money' created by banks and the short-term capital market". More important, they do not distinguish assets and liabilities denominated in sterling from those denominated in foreign

*This may seem to contradict the general proposition that individual banks cannot distinguish intermediation from liquidity creation. But the exigencies of recession may lead banks to take a closer-than-usual look at the affairs of their loan clients, and the banks are more likely to lend in order to prevent default than in order to provide their clients with spare liquidity.

currencies. No information on unused credit facilities is available. Furthermore, different companies publish their balance sheets on different dates in the year, so the figures are obtained by adding together figures for individual companies which relate to different dates.

The statistics are shown in table 1. The third column shows the (stock) amount of pure liquidity creation through borrowed deposits, which is calculated as the sum over companies of whichever is the smaller of liquid assets and short-term loans. The second column shows total intermediation, which is the sum over companies of the differences, in absolute terms, between assets and liabilities (as in equation (1) above). The first column shows total bank money created by the operations of the banks and the short-term capital markets vis-à-vis these companies, and it is calculated, as indicated by equation (5) above, by adding one-half of total intermediation to total liquidity creation through borrowed deposits.

The following points can be made about the statistics in table 1.

1. The operations of the banks vis-à-vis the companies in the sample accounted for bank money totalling some £8.4 billion in 1979. This was only some 17 per cent. of total UK private-sector deposits with UK banks. Therefore the statistics do not give much idea of the shares of intermediation and pure liquidity creation through borrowed deposits in the banking system as a whole.
2. Of the amount of bank money that is covered by the statistics on average slightly less than half was created by pure liquidity creation through borrowed deposits, and slightly more than half through intermediation.
3. The statistics do not provide support for the suggestion made above that the demand for intermediation rises faster than usual during a slump and more slowly than usual during a recession. However, the coverage of the data is so restricted (in particular the personal sector is completely excluded) that this fact cannot be regarded as a refutation of the suggestion.

The figures in table 1 convey no information about liquidity creation through overdraft facilities, which has traditionally been

regarded as one of the distinguishing features of the British banking system. However, the London Clearing Banks have disclosed in their evidence to the Wilson Committee (p. 99) that on 18th May 1977 their total overdraft commitments to customers amounted to £18,675 million, but that actual borrowing under these facilities was only 48 per cent. of the amount available. In other words, unused overdrafts at the London Clearing Banks amounted to about £9.7 billion, or about 30 per cent. of total UK private-sector sterling deposits on that date.

B. International bank lending

It is possible to use the BIS international banking statistics to estimate separately the amounts of intermediation and pure liquidity creation by the international banking system vis-à-vis certain countries. The particular statistics that can be used in this way are those of the sort shown in table 2. Countries shown in that table are of interest for the sort of analysis described above only if decisions about transactions by their residents with the international banking system are largely centralised. If this were not so, a large creditor position on the part of one corporation and a large debtor position on the part of another corporation in the same country would appear in the statistics as a large matched loan and deposit. Consequently, the following countries are excluded from the statistics described in what follows: all Group of Ten countries and Austria, Bahamas, Bahrain (whose figures are included in the statistics added to those of the other high-absorbing Middle Eastern OPEC countries Iran, Iraq, Libya and Oman, which consequently have to be excluded as well), Bermuda, Cayman Islands, Hong Kong, Lebanon, Liechtenstein, the Netherlands Antilles, Panama, Seychelles, Singapore and Switzerland. The excluded countries fall into two overlapping groups: those in which access to the international capital market is substantially open for private non-bank firms, and those which are international banking centres (interbank positions are included in the statistics).

Pure liquidity may be created by means of credit facilities as well as by borrowed deposits, and the BIS maturity transformation statistics provide information on unused credit facilities by country as well.

Before going any further, some limitations of the statistics should be mentioned.

1. Some countries may borrow in the international banking system and re-lend the proceeds in national markets (e.g. by borrowing Euro-dollars and investing in US Treasury bills). From an economic viewpoint, this is pure liquidity creation, but since the re-lending would not show up in the statistics it would appear as intermediation.

2. Similarly, some countries may borrow in national markets and deposit the proceeds in the Euro-markets.

3. The statistics do not distinguish between different currencies. However, it is obvious that, for example, the matching of a dollar loan with a dollar deposit is motivated by quite different considerations to those which might motivate the matching of a dollar loan with a Deutsche Mark deposit.

4. There are three breaks in the series, at end-1975, end-1977 and end-1978. For the latter two dates, figures are readily available on both old and new bases. However, this is not the case for end-1975: the end-September 1975 statistics relate only to banks in the Group of Ten countries and Switzerland, while those for end-December relate as well to the foreign branches of US banks in the Caribbean area and the Far East.

5. The dollar amounts outstanding at each date are calculated at current exchange rates. Consequently, the changes in the amounts outstanding between different dates reflect not only the flows between those dates but also valuation effects arising from exchange rate changes.

Table 3 sets out the available statistics, which run from the end of 1974 to the end of June 1980, with breaks in the series. The salient points are as follows:

1. The very rapid growth of all the dollar figures.
2. The increase in the relative importance of intermediation in total "bank money" during 1975 (at least until the end of September), the gradual fall until the end of 1978 and the very rapid rise in the first half of 1980.
3. The changes in the relative importance of liquidity creation through borrowed deposits in total "bank money", which were, as a matter of arithmetic, the obverse of the changes in the relative importance of intermediation.

4. The gradual rise in the relative importance of total liquidity creation - i.e. including unused credit facilities - in total "bank money" from the end of 1976 to the middle of 1979, and the subsequent fall.
5. The rise in the relative share of unused credit facilities in total liquidity creation from the end of 1976 to the middle of 1979, and the sharp fall in the second half of 1979.

It may be possible to explain some of these developments by reference to outside events. As regards the development of intermediation, table 4 shows how annual increases in total intermediation have compared with the absolute sizes of current payments imbalances of the countries covered in table 2. It should be noted that current payments balances are not a very good measure of balances requiring financing, because direct investment and concessional loans are excluded, and that the figures relating to increases in total intermediation incorporate valuation effects arising from exchange rate changes as well as flows. Nevertheless, some sort of pattern is detectable, although the relatively small increase in intermediation for 1976 remains puzzling. The correlation coefficient between the two series is 0.750. Correcting for valuation effects would probably make the increases in intermediation look smaller in 1976, 1977 and 1978, when the dollar fell quite sharply, and larger in 1975, when the dollar appreciated.

As regards the stock of liquidity creation, table 5 shows its relationship at the end of each year to total imports during the preceding year. The percentage of imports represented by borrowed deposits increased steadily from 1974 to 1979, but imports increased very sharply in 1974 as a result of the rise in the price of oil, and part of the increase in this percentage is likely to have reflected the restoration of earlier relationships between liquidity and imports. This could not, however, explain the whole of the increase since the end-1974 total of borrowed deposits was only 26.2 per cent. of 1973 imports, and the end-1973 total presumably represented a smaller percentage than that. The increase to 32.8 per cent. at end-1979 must have reflected other factors as well. If unused credit facilities are included, the rise in the ratio of liquidity

creation to imports from end-1976 to end-1979 looks even more dramatic. As can be seen from table 2, events at the end of 1979 following the Iranian crisis, which led to a sharp increase in bankers' caution about foreign lending, suggest that from the banks' point of view unused credit facilities are a more easily reversible method of creating liquidity than are borrowed deposits. Unused credit facilities fell in the second half of 1979, presumably because of cancellations by the banks in December after the crisis had developed, while borrowed deposits increased and were not reduced until the first quarter of 1980.

The heightened caution on the part of the banks engendered by the developments in Iran and by the prospect of a long-lasting OPEC payments surplus meant that to a larger extent than before payments deficits early in 1980 were met by running down borrowed deposits (and perhaps by using hitherto unused credit facilities) rather than by raising new loans. This was reflected in the sharp rise in the relative importance of intermediation in total "bank money" in the first half of 1980.

What has been said so far enables some comment to be made on the rapid growth of international banking, at least during the 1975-79 period. The figures in the left-hand column of table 2 indicate the total amount of "bank money" created by the banks' operations vis-à-vis the countries which have not been excluded from consideration. (To a large extent they are already included in national money-supply statistics: they do not represent "stateless money".) These are calculated by means of equation (5); in other words, they are equal to the average at the indicated dates of the assets and liabilities of the banks vis-à-vis the countries in question. They may therefore be regarded in a sense as the contribution of operations vis-à-vis these countries to the combined balance sheet of the banking system.

This amount grew by 48.7 per cent. in 1975, 27.4 per cent. in 1976, 20.5 per cent. in 1977, 26.7 per cent. in 1978 and 25.0 per cent. in 1979. In the year July 1979-June 1980, the rate of growth was as high as 29.0 per cent. What were the sources of this growth? During the year 1975 (and almost certainly 1974 as well, although there are no statistics to prove it) the main source of growth in "bank money" created by the international banking system was intermediation to finance large global

payments imbalances. It should be noted that the principal surplus countries were the low-absorbing OPEC members, which had few loans, if any, to repay. They had to increase their assets. Hence their surpluses added to the demand for new intermediation. In the course of time these payments imbalances - and the demand for new intermediation - diminished, and pure liquidity creation became the main source of growth in "bank money" in 1977 and 1978. The fact that this occurred at a time of falling spreads on international bank lending suggests that the impetus to liquidity creation came from the banks rather than their customers.¹ So strong was the banks' anxiety to lend that even in 1979, when payments imbalances and the demand for intermediation increased sharply with the resurgence of the OPEC surplus, liquidity creation was still the main source of growth in "bank money". However, the banks were not able to attract enough liquidity creation business to sustain the earlier rate of growth of total "bank money". The picture changed sharply at the end of 1979 and early in 1980 when prudential concerns became more acute, and the total of "bank money" actually fell, albeit temporarily, in the first quarter of 1980.

Issues related to economic policy

This paper has made the case that changes in the two components of "bank money" arise for largely separate reasons, and that developments in the money stock as a whole may usefully be analysed by looking at the movements of the components individually. It may also be appropriate for policy-makers to react differently to changes in bank money according to their source.² Banking policy encompasses two areas of concern to policy-makers: inflation and economic activity, and the stability of the banking system from the prudential viewpoint.

As regards the first, one important question is whether an increase in owned deposits carries more or less inflationary or anti-deflationary potential than an increase in borrowed deposits. Owned deposits represent net wealth and for that reason are more likely to be

1 See K. Inoue (1980).

2 In general, because of the absence of statistics, a precise breakdown of the sources of the change in "bank money" is unavailable. But anecdotal evidence, albeit inexact, usually is available.

spent than borrowed deposits, which do not. It could be argued that, on the other hand, borrowed deposits are presumably borrowed because the borrower foresees at least the possibility of spending, while owned deposits may be accumulated more or less accidentally by people who have no intention of spending them. But borrowed deposits may be borrowed simply as a precaution against possible need, and spent only in an emergency. Indeed, there is no reason to think them more inflationary than unused credit facilities, which are not usually included in measures of the money stock.

This paper makes the case that the quantity of deposits created by intermediation is likely to grow rather unpredictably in a way which depends on the pattern of surpluses and deficits, and is not necessarily responsive to changes in interest rates. This has certain implications for monetary targetry, especially with respect to broad monetary targets. In particular, it means that when deposits are being created by intermediation of surpluses and deficits which cannot readily be adjusted within the time horizon of the target period (generally a year), then it may be very difficult to hit the target, unless for some extraneous reason borrowed deposits fall by enough to offset the excess over the target of the increase in owned deposits. The difficulty may be less acute if there is an active capital market outside the banking system which can provide an alternative channel for intermediation between surplus and deficit entities - but even then it is not certain that new issue activity in the capital markets will enable the monetary target to be met. As has already been mentioned, deficits are likely to be particularly difficult to adjust during recessions. This may mean that targets for broad monetary aggregates, which appear reasonable when assessed against likely changes in real incomes and prices, may prove particularly difficult to hit during recessions.

In the international field, the institutional framework is different. There are no monetary targets, although some Euro-currency deposits are included in the targeted monetary aggregates of some countries. Nevertheless, concerns have been expressed that the very rapid growth of the Euro-currency markets may have contributed to past inflation and may contribute to inflation in the future. The present paper does not examine this issue exhaustively, but the above analysis does suggest one

rather obvious remark. Much of the growth in international banking activity since 1974 has been in intermediation, and this growth in intermediation has involved the recycling of a large proportion of the current-account surpluses which have accrued to the OPEC countries. These surpluses have been particularly heavy since early 1979, when there was a very large increase in oil prices, and it is not obvious how they could be recycled other than through the banks. This being so, it would seem inappropriate at this particular juncture to express concern about the possible inflationary consequences of the rapid growth of international banking activity; rather that growth may be seen as a means of avoiding powerful deflationary forces.

As regards the stability of the banking system, at first sight it seems obvious that it is the net debts of borrowers, rather than their gross debts, which are relevant to any assessment of the prudential risks facing the banking system. But the banks have an obligation to permit withdrawals of all deposits, including borrowed ones, and this obligation can be avoided only by the bank taking the drastic step of declaring a default on its loans. Consequently, it seems that the exposure of the banks vis-à-vis individual clients is best calculated on a potential basis - i.e. the maximum indebtedness to the bank that the client can achieve without impediment. This is equal to the total amount of the bank's loans to the client, irrespective of deposits, plus unused credit facilities.* Thus the distinction between money arising through intermediation and through pure liquidity creation is of only secondary importance in the assessment of the stability of banks (its secondary importance is that the client's creditworthiness is obviously better if a given total of loans is matched in some degree by interest-bearing deposits than if it is not).

Concluding remarks

This paper presents a method of identifying, at least conceptually and with more or less severe limitations practically, two additive components of "bank money", viz. the amount of intermediation and the amount of pure liquidity creation. Some of its implications are different

*Unused credit facilities can be cancelled by the bank and are therefore safer from its point of view than are borrowed deposits.

from those of other models of the demand for money. In particular, it provides no reason to believe in a stable relationship between the demand for bank money and income, and only rather weak reasons for believing that the demand for bank money is reduced when interest rates rise. Thus the foundation for the common observation that "monetary authorities can control either the quantity of money or the level of interest rates, but not both" is shown to be defective. Further, it is suggested that owned deposits - i.e. deposits arising from intermediation - have greater inflationary or anti-deflationary potential than borrowed deposits arising from pure liquidity creation.

Table 1

Owned and borrowed liquidity of 1,058 industrial and commercial companies in the United Kingdom, 1973-79.
(in billions of pounds sterling)

Year	Total "bank money" ¹	Intermediation ²	Pure liquidity creation through loans matched by deposits ³
1973	3.88	4.12 (106.2)	1.82 (46.9)
1974	4.32 (11.3)	4.43 (102.5)	2.11 (48.8)
1975	4.81 (11.3)	5.01 (104.2)	2.31 (48.0)
1976	6.11 (27.0)	6.58 (107.7)	2.82 (46.2)
1977	6.81 (11.5)	7.38 (108.4)	3.12 (45.8)
1978	7.92 (16.3)	8.49 (107.2)	3.68 (46.5)
1979	8.38 (5.8)	8.32 (99.3)	4.22 (50.4)

1 Equals half of intermediation, plus liquidity creation through loans matched by deposits. See equation (5). The figures in brackets are annual percentage growth rates.

2 The figures in brackets show the amount of intermediation as a percentage of total "bank money". Since the amount of intermediation is divided by two in computing total "bank money", this percentage could exceed 100.

3 The figures in brackets show the amount of liquidity creation through loans matched by deposits as a percentage of total "bank money".

Table 2

External positions in domestic and foreign currency of banks in the reporting area
and of certain offshore branches of US banks¹
Amounts in millions of US dollars
end-June 1980, old series (revised)

Liabilities/assets vis-à-vis	Liabilities	Assets	Liabilities/assets vis-à-vis	Liabilities	Assets	Liabilities/assets vis-à-vis	Liabilities	Assets
Reporting countries			Latin America			Other Africa (contd.)		
Austria	HJU	12,472 ^r	Argentina	JU	6,988 ^r	Reunion	5	-
Belgium-Luxembourg	HJU	66,757 ^r	Belize		21	Rwanda	162	11
Denmark	HJU	4,600 ^r	Bolivia	JU	178 ^r	São Tomé and Príncipe	18	384
France	HJU	66,297 ^r	Brazil	JU	4,672 ^r	Senegal	133	9
Germany, Fed. Rep.	HJU	34,118 ^r	Chile	JU	3,011 ^r	Seychelles	53	36
Ireland	HJ	1,849 ^r	Colombia	JU	2,927 ^r	Sierra Leone	125	6
Italy	HJU	24,056 ^r	Costa Rica	JU	178	Somalia	67 ^r	753
Netherlands	HJU	45,306 ^r	Ecuador	JU	900	Sudan	507 ^r	47
Sweden	HJU	5,090 ^r	El Salvador	JU	122	Swaziland	90	184
Switzerland ²	JU	137,068 ^r	Guatemala	U	675 ^r	Tanzania	188	342
United Kingdom	HJU	166,644 ^r	Guyana	JU	50	Togo	121	1,113
Canada	HJU	20,835 ^r	Honduras	JU	125	Tunisia	746	23
Japan	HU	19,262 ^r	Mexico	JU	8,494 ^r	Uganda	117 ^r	21
United States	HJ	144,005 ^r	Nicaragua	JU	94	Upper Volta	17	1,179
Total		748,361 ^r	Paraguay	JU	136	Zaire	815	488
Other countries in western Europe			Peru	JU	1,716 ^r	Zambia	J	193
Andorra		441	Residual	JU	271	Zimbabwe ⁸	JU	2,006
Cyprus	JU	602	Surinam	U	915	Residual ⁸	JU	22,024 ^r
Finland	JU	2,493	Uruguay	JU	14,717 ^r	Total		33,523 ^r
Gibraltar	JU	179	Venezuela	HJU	4,994 ^r			
Greece	JU	5,155	Residual	HJU	51,144 ^r			
Iceland		109	Middle East			Other Asia		
Liechtenstein		806	Oil-exporting countries ⁶			Afghanistan		
Malta		995	a) Low absorbers:			Bangladesh		
Monaco	JU	356 ^r	Kuwait, Qatar,			Brunei		
Norway	U	4,776 ^r	Saudi Arabia and			Burma		
Portugal	U	2,029	United Arab Emirates			China		
Spain	U	16,665 ^r	b) High absorbers:			Fiji		
Turkey	JU	1,031 ^r	Bahrain, Iran, Iraq,			French Polynesia		
Vatican	JU	212 ^r	Libya and Oman			Hong Kong		
Yugoslavia	JU	1,820 ^r	Other countries:			India		
Residual	HJU	5,156	Egypt			Indonesia		
Total		42,823 ^r	Israel			Kampuchea		
Other developed countries			Jordan			Korea N.		
Australia	JU	1,140 ^r	Lebanon			Korea S.		
New Zealand	J	356	Syria			Laos		
South Africa	JU	1,752	Yemen			Macao		
Residual	H	474	Yemen P.D. Republic			Malaysia		
Total		3,722 ^r	Residual ⁷			Nepal		
Eastern Europe ³			Total			New Hebrides		
Albania	U	56	Other Africa			Pakistan		
Bulgaria	U	802 ^r	Algeria			Papua New Guinea		
Czechoslovakia	U	1,111	Angola			Philippines		
Germany, Dem. Rep.	U	2,132	Benin			Singapore		
Hungary	U	794	Botswana/Lesotho			Sri Lanka		
Poland	JU	700	Burundi			Taiwan		
Romania	JU	270	Cameroon			Thailand		
Soviet Union	JU	6,168 ^r	Canary Islands			US Trust Territory of the Pacific Islands		
Residual	HJ	606 ^r	Cape Verde Islands			Vietnam		
Total		12,639 ^r	Central African Rep.			Residual		
Caribbean area			Chad			Total		
Bahamas	JU	43,917 ^r	Comoro Islands			International institutions		
Barbados		133	Congo			Unallocated		
Bermuda	JU	7,250	Djibouti			Grand total		
Cayman Islands ⁵	U	33,290 ^r	Ethiopia			Memorandum item:		
Cuba	JU	155	Gabon			Oil-exporting countries		
Dominican Rep.	JU	221	Gambia			HJU		
Grenada	JU	18	Ghana			145,651 ^r		
Haiti	U	50	Guinea			63,180 ^r		
Jamaica	U	163	Guinea-Bissau					
Neth. Antilles	U	5,049 ^r	Ivory Coast					
Panama	JU	13,987 ^r	Kenya					
Trinidad and Tobago	U	1,301	Liberia					
West Indies (F)	U	90	Madagascar					
West Indies (UK)	U	568	Malawi					
Residual	HJ	2,030 ^r	Mali					
Total		108,222 ^r	Mauritania					
			Mauritius					
			Morocco					
			Mozambique					
			Niger					
			Nigeria					

Note: A full country breakdown of the reporting banks' liabilities and assets is available only for banks in Austria, Belgium-Luxembourg, Denmark, France, the Federal Republic of Germany, Italy, the Netherlands, Sweden, the United Kingdom and Canada and for the offshore branches of US banks; for Irish banks only foreign currency figures are available. For banks in the other reporting countries - Switzerland, Japan and the United States - the country breakdown is less than complete and its extent is indicated by the use of the letters H (Switzerland), J (Japan) and U (United States). The figures for banks in the United States exclude all custody items except negotiable US bank certificates of deposit held on behalf of non-residents.

- Offshore branches of US banks in the Bahamas, Cayman Islands, Panama, Lebanon, Hong Kong and Singapore.
- Positions vis-à-vis the BIS are included under Switzerland.
- Excluding positions of banks located in the Federal Republic of Germany vis-à-vis the German Democratic Republic.
- In any comparison of the banks' positions vis-à-vis Hungary with those vis-à-vis other eastern European countries account needs to be taken of the fact that Hungary finances virtually the whole of its foreign trade with funds raised in the international banking market, while other countries of this group do substantial foreign trade financing through other channels.
- Figures for the US banks' liabilities and assets vis-à-vis the Cayman Islands are estimates based on other statistical reports.
- Includes positions of Japanese banks vis-à-vis Bahrain, Kuwait, Saudi Arabia, United Arab Emirates, Iran, Iraq and Libya only.
- Includes the positions of US banks vis-à-vis Middle Eastern countries other than Egypt, Israel, Lebanon, Syria and Libya (which is included under the residual for "Other Africa").

Table 3

Estimated intermediation and liquidity creation by the
international banking system vis-à-vis certain countries.

(in billions of US dollars)

Date	Total "bank money" ¹	Intermediation ²	Liquidity creation		
			Through loans matched by deposits ³	Unused credit facilities ⁴	Total ⁵
End of December 1974	69.4	57.5 (82.8)	40.7 (58.6)		
March 1975	74.7	67.5	41.0		
June 1975	78.3	71.3	42.7		
September 1975	82.1	76.6 (93.3)	43.8 (53.3)		
December 1975	103.2 (48.7)	98.6 (95.5)	53.9 (52.2)		
March 1976	106.2	105.0	53.7		
June 1976	112.2	110.8	56.8		
September 1976	119.3	117.9	60.4		
December 1976	131.5 (27.4)	121.7 (92.5)	70.7 (53.7)	37.1 (34.4)	107.8 (82.0)
March 1977	133.2	129.9	68.3		
June 1977	139.7	135.4	72.0		
September 1977	147.4	137.7	78.6		
December 1977	{ 158.4 (20.5) 167.9	{ 142.0 (89.6) 158.2 (94.2)	{ 87.4 (55.2) 88.8 (52.9)	57.3 (39.2)	146.1 (87.0)
March 1978	175.8	162.8	94.4		
June 1978	185.6	173.3 (93.4)	99.0 (53.3)	68.3 (40.8)	167.3 (90.1)
September 1978	197.6	177.8	108.7		
December 1978	{ 212.7 (26.7) 210.8	{ 184.0 (86.5) 183.4 (87.0)	{ 120.7 (56.7) 119.1 (56.5)	81.3 (40.6)	200.4 (95.1)
March 1979	214.6	189.6	119.8		
June 1979	226.8	200.8 (88.5)	126.4 (55.7)	98.3 (43.7)	224.7 (99.1)
September 1979	246.6	215.6	138.8		
December 1979	263.6 (25.0)	226.6 (86.0)	150.3 (57.0)	87.8 (36.9)	238.2 (90.4)
March 1980	259.4 (20.9)	232.8 (89.7)	143.0 (55.1)		
June 1980	292.6 (29.0)	283.6 (96.9)	150.8 (51.5)	98.9 (39.6)	249.7 (85.3)

N.B.: There are breaks in the series between September and December 1975, in December 1977 and in December 1978.

- 1 Equals half of intermediation, plus liquidity creation through loans matched by deposits. See equation (5). The figures in brackets are annual percentage growth rates.
- 2 The figures in brackets show the amount of intermediation as a percentage of total "bank money". Since the amount of intermediation is divided by two in computing total "bank money", this percentage could exceed 100.
- 3 The figures in brackets show the amount of liquidity creation through loans matched by deposits as a percentage of total "bank money".
- 4 The figures in brackets show unused credit facilities as a percentage of total liquidity creation.
- 5 The figures in brackets show total liquidity creation as a percentage of total "bank money". Because unused credit facilities are included in liquidity creation but not in "bank money", this percentage could exceed 100.

Table 4

Estimated intermediation and current payments imbalances.

(in billions of US dollars)

Year	Total of absolute sizes of current payments imbalances in the countries covered by the figures in table 2	Increase in total of intermediation
1975	68	41.1*
1976	70	23.1
1977	51	20.3
1978	55	25.8
1979	113	43.2

*Including effects of a break in the series.

Table 5

Total liquidity creation and imports.

Year	Total imports in year (\$ billion)	Liquidity creation at end-year as a percentage of total imports in year		
		Through loans matched by deposits	Unused credit facilities	Total
1973	155			
1974	249	16.3		
1975	280	19.3		
1976	302	23.4	12.3	35.7
1977	335	26.5	17.1	43.6
1978	386	30.9	21.1	51.9
1979	458	32.8	19.2	52.0

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