7. Monetary Control

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MONETARY CONTROL CONSULTATIONS

MONEY STUDY GROUP

Note by the Secretaries

The attached paper by Dr Hugh Wills will be given at the meeting of the Money Study Group on 16 May (the other paper for that meeting was circulated as MCC(80)13). Dr Wills wrote his paper before the Green Paper was published, but he is not revising his paper before MSG. Moreover, he told me (MLW) that his conclusions were sufficiently close to the Green Paper's to mean that later versions of his paper would simply need cross references to the Green Paper rather than fundamental rewritting.

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THE ECONOMICS OF BANK REGULATION

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THE ECONOMICS OF BANK REGULATION*

1. Introduction

This paper discusses the effects of central bank regulation of the banking system carried out to control the level of bank lending and deposits. Regulation with the object of reducing the frequency of bank failures is not considered. The main point of the paper is that bank regulation, in so far as it is effective and goes beyond the general effects of government intervention in credit markets, can be seen as a tax on transactions intermediated through banks. The variations in the incidence and the beneficiaries of the tax provides a convenient framework for the different regulatory schemes.

The main ideas of this approach are due to Tobin (1963) and Johnson (1969, 1971). They have been further developed in recent work by Spencer and Mowl (1978), and Artis and Miller (1978). However, the application to the analysis of the effects of different types of regulation is I believe new.

The second section of the paper presents a simple model of the banking system. The third considers the impact of government intervention through open market operations, the British reserve requirement regulations, the American cash based system, and the British Supplementary Special Deposit Scheme. The fourth looks at the evasion of regulations resulting from induced disintermediation and the fifth discusses recent British regulatory experience in detail. The final section considers the arguments for discriminatory

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* I am grateful for comments on an earlier draft from members of the Bank of England. They have, of course, no responsibility for the final result.

regulation and some reforms of the British system suggested by the preceding analysis.

Though reference is made to arrangements in the United States, this paper is concerned primarily with British institutions. Finally, without actually assuming a closed economy, I will not discuss some of the problems that can be generated by international capital flows. In particular, I will assume that the government is able to influence domestic interest rates.

2. A Model of the Banking System

The institutions that make up the British banking system are fairly heterogeneous. While the model presented below is that of a clearing bank, I believe that other more specialised institutions can be included by changing the precise emphases. A clearing bank can be thought of as a two input, two output firm. The two inputs are retail and wholesale deposits, the two outputs, loans and wholesale lending. Retail deposits are distinguished by being collected through the banks retail systems. They are not limited to current and seven day deposit accounts but include large deposits that obtain a rate related to that in the wholesale markets. Such deposits are usually of short maturity and are not marketable. Loans are again made through the retail system. They are usually explicitly or implicitly of long maturity and are again not marketable. Wholesale deposits and

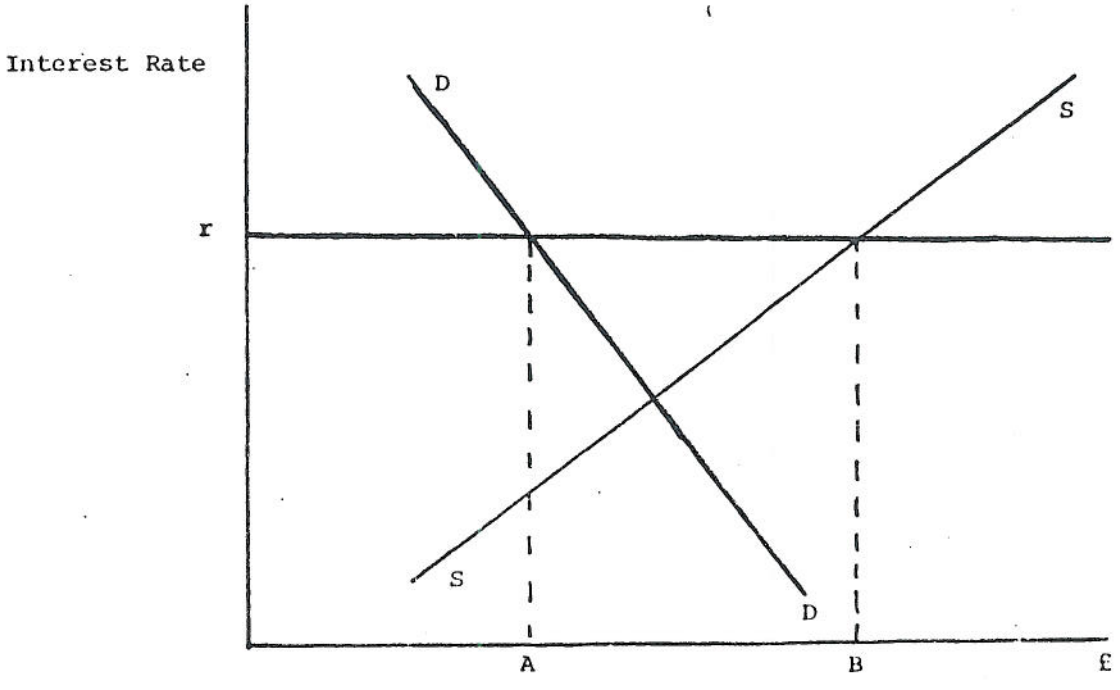
and loans are of course broadly the same security. Banks are market makers in the wholesale money markets and as a result hold both loans and deposits simultaneously. Different kinds of bank tend to hold different net positions in the wholesale market. Thus clearing banks with their extensive branch networks are able to act as collectors for the financial system, channelling excess funds into the wholesale market and hence being net lenders. Specialised lending institutions, such as finance houses can then use the wholesale market as a source of deposits, being net borrowers. Wholesale deposits are usually of three month maturity and a substantial proportion are marketable. The market is segmented by final borrower; the Certificate of Deposit and interbank market where the final borrower is a bank, the local authority market where the final borrower is a local government authority, the commercial bill market where the final borrower is a commercial company and finally the Treasury Bill market where the government is the final borrower. Obviously a substantial proportion of lending to the wholesale market is carried out directly by individuals or institutions outside the banking sector. Thus though the banking system is an important element in the wholesale market it is not the only one.

In Britain, despite the small number of clearing banks, the banking system appears to be competitive. Broadly the wholesale market can be regarded as the source of or the repository for marginal funds. As a result each individual bank sets both loan and deposit rates with reference to the wholesale rate. It then accepts deposits and makes loans, meeting any surplus or deficit of funds through the wholesale market. The ebb and flow of funds to the wholesale market of course introduces fluctuations in

in the wholesale rate which are in turn reflected in bank retail borrowing and lending rates. As most lending is done at variable rates, the banks face no portfolio risk in the usual sense. The financial risks associated with fluctuating interest rates are simply transferred to the final borrower. The banking system is the major source of floating rate finance.

If administrative and default charges are ignored the simple model of a bank can be illustrated by the diagram below:

Figure 1. The Determination of the Level of Retail Deposits, Retail Loans and Net Wholesale Position for a Bank.



SS the supply of retail deposits

DD the demand for retail loans

Interest rates are set equal to the wholesale rate r and in this case the surplus AB is lent to the wholesale market. The main implication of the model is that the short money market is the equilibrating market not only for the wholesale funds but also for retail loans and deposits.

III. Four kinds of government control

The government has available two basic types of control over the banking system. The first is its ability to influence financial markets as a result of its activities as a borrower. Such control affects the whole economy rather than just banks. The second is specific controls on bank operations which have a direct effect on banks and on bank customers and which discriminate against financial transactions that are intermediated through a bank rather than being carried out directly. Bank regulation is of the second type.

Open Market Operations and Financial Policy

Financial policy determines the composition of the total portfolio of government debt and involves substitution amongst the different kinds of government debt. Thus a policy of increasing the sales of gilts without changing the issue of other kinds of debt is one of substituting long term government securities for part of the monetary base, banker's balances at the Bank of England and notes and coin held by the public and the banks, in the portfolio of government debt. In contrast, altering the rate of expansion or contraction of the total quantity of government debt requires a change in expenditure or tax policy.

The simple model outlined above suggested that the short wholesale

money market was the key market for the banking industry. I shall assume that the government has the ability to remove funds from that market either directly by increasing the issue of Treasury Bills or indirectly by attracting either retail or wholesale deposits into other forms of government debt such as gilts or National Savings Certificates. The implication of this assumption is that government action is not completely offset by international capital flows. In the first case, we are considering the effect of substituting Treasury Bills for elements in the monetary base. Clearly, such a policy would cause a shortage in the wholesale money markets causing short rates to rise. This rise would be transmitted to bank retail rates which would be expected to reduce the demand for loans. The effect on deposits is more complex. If the supply of deposits is upward sloping as in figure 1, then an increase in interest rates increases the supply of retail deposits, which, with the fall in retail lending, increases the supply of funds to the wholesale market satisfying the shortage. However, not all retail deposits are interest bearing. As a result an increase in interest rates could induce disintermediation making the supply of deposits downward sloping. Provided that the slope of the supply of deposits curve is greater than that of the demand for loans, an increase in interest rates still causes an increase in the funds supplied by banks to the short market. If the slope of the supply of deposits curve is less than that of the demand for loans, then the reverse is true and the pressure on the short market is relieved by the switch of depositors' funds from the banks to the short market.

Thus, assuming unregulated banks, an increase in the supply of Treasury Bills reduces direct bank lending and increases interest rates. However, its effect on retail deposits and on total bank liabilities is

unclear and depends on the degree to which the new government borrowing is intermediated through the banking system. Even so, such a policy would, in conventional terms, be described as deflationary.

Other less direct types of financial policy ultimately have similar effects. Thus the sale of a new offering of National Savings Certificates would be expected to shift the supply of deposits curve in figure 1 to the left. This will cause banks to lend less to or borrow more from the wholesale market, transmitting the shortage to that market and increasing interest rates with the effects discussed above.

To digress briefly, during the Sixties it was frequently suggested that the demand for wholesale money is very inelastic, particularly in the short run. It was suggested that any attempt to remove funds from the market, say by an increase in the Treasury Bill issue, would simply cause the banks to regain the funds through the discount window at the Bank of England nullifying the original move. This is incorrect from two perspectives. First, as was pointed out at the time, resort to the discount window implies increasing interest rates and in the long run one would expect this to increase the supply of funds to and reduce the demand for funds from the wholesale money market, meeting the shortage and permitting the banks to dispense with Bank of England support. Second and more fundamentally, the short run inelasticity in demand is due to the willingness of the Bank of England to act as lender of last resort. If these facilities did not exist or their use was more expensive, the banks would hold larger reserves of cash, which in turn would increase the short run elasticity of demand.

Bank rate. In Britain the reserve ratio is currently

UK Reserve Asset Control

One of the discriminatory controls used in the UK is reserve asset regulation. This requires that a bank should hold some fraction of 'eligible liabilities' in specified reserve assets. Eligible liabilities are broadly all non-capital liabilities minus interbank lending. The specification of reserve assets is more complex and they are quite heterogeneous. The problems caused by this heterogeneity are discussed in Section V. In this Section, I will ignore it and assume that reserve assets are ninety day Treasury Bills.

The model of a bank above suggests that the key coordinating market is the short wholesale money market. If one assumes that marginal funds are borrowed and lent in the interbank market, it is clear that reserve asset control does not affect the revenue obtained from retail deposits lent to that market. As a result, ignoring portfolio and administrative charges, the marginal revenue from an increase in deposits is simply the interbank rate. In contrast an increase in lending, other than to the interbank market, requires an increase in the holdings of reserve assets. An increase in advances can be thought of as requiring both an increase in borrowing to finance the new loans directly and a further increase in borrowing required to finance the purchase of the reserve assets required to support the new lending. If the rate paid by reserve assets is r_r and the reserve ratio is s then the marginal cost of an increase in advances is:

$$MC = r + \frac{s}{(1-s)}(r - r_r) \qquad (1)$$

where r is the interbank rate. In Britain the reserve ratio is currently

12½% and the banks usually maintain a ration of 13½%. The marginal cost of advances is then:

$$MC = r + .156\ (r - r_r) \qquad (2)$$

The theory of reserve asset control suggests that the government can restrict bank lending by restricting the supply of reserve assets. Such a policy would imply permitting a differential to appear between the interbank rate and the rate on reserve assets. This differential would then generate an artificial differential between bank borrowing and lending rates. However, to introduce a differential of 1% would require a differential between the interbank and reserve asset rates of about 6½%. Hence, if the authorities wish to introduce a substantial differential between bank borrowing and lending rates, they must be prepared to contemplate very large differentials between interbank and reserve asset rates and the possibility that Treasury Bills will be sold at a premium.

Such a scheme implies that the effect of increasing the Treasury Bill issue will vary depending on whether, prior to the increase, excess reserves are available. If this is so and the differential between reserve assets and the interbank rate is small, an increase in the Bill issue is deflationary and can be expected to increase interest rates as in the unregulated case discussed above. On the other hand if the banks are initially constrained by the supply of reserve assets, reserve assets are substantially more expensive than interbank borrowing and the margin between bank borrowing and lending is high, then the effect of an increase in the supply of reserve assets could be inflationary. Such an increase would reduce the cost of reserve assets and as a result the differential between bank borrowing and lending rates causing banks to increase both their deposits and

their loans. Such a change would certainly increase the money supply; it is however unclear that it would increase the supply of credit as one would expect much of the increase to be reintermediation and to be reflected in a contraction of deposits and loans by other parts of the financial system.

The Special Deposits Scheme in the UK can be regarded as part of the reserve ratio control system. It is the mechanism by which the British authorities impose small changes in the required reserve asset ratio. A call for special deposits has two effects: it constitutes a withdrawal from the short money market in a similar way to the conventional effect of increasing the Treasury Bill issue; it also has a discriminatory effect raising the marginal cost of lending,

$$\frac{\partial MC}{\partial s} = \frac{(r - r_r)}{(1 - s)^2} \qquad (3)$$

Thus a discriminatory effect exists only if there is a shortage of reserve assets. If the differential between the interbank and Treasury Bill rate is, for example, 5% and s is .135, the effect of a one per cent call for special deposits is to increase the marginal cost of lending by .067 per cent. Thus the discriminatory effect of such a call is small and the main effect of the call is the conventional open market one.

American Reserve Asset Control

The reserve asset regulations of the US Federal Reserve System are complex with different institutions and types of liability being subject to different reserve requirements. The account given below has been simplified

almost to the point of caricature. However, I believe that it describes the main mechanism.

Banks within the Federal Reserve System and hence under Reserve Bank regulation are required to maintain a substantial proportion of liabilities as cash or as a deposit with a Federal Reserve bank on which no interest is paid. Hence if r is the wholesale deposit rate and s the required reserve asset ratio, the marginal cost of bank lending is

$$MC = r + \frac{s}{(1-s)} \cdot r = \frac{r}{(1-s)} \qquad (4)$$

The differential between bank borrowing and lending increases proportionately with the interest rate and as it increases so does the burden of taxation. For example, if both r and s are 8%, the marginal cost of lending is 8.68%.

Regulation imposes a substantial permanent tax on the banking system. However, a change in interest rates does not increase the tax disproportionately and as a result the margin between bank borrowing and lending rates is relatively insensitive to central bank intervention.

The Federal Reserve Board has available two techniques to control the banking system: changes in reserve asset requirements and open-market operations. In practice, the former is used infrequently as it is administratively cumbersome. It is also clear that a very substantial change would be required to have a major impact on the differential between bank borrowing and lending. Thus an increase in reserve requirements from eight per cent to nine per cent with an interbank rate at eight per cent

increases the differential between bank borrowing and lending by .10 per cent from .70 per cent to . 80 per cent. However, such an increase would also have a considerable conventional impact as a massive withdrawal from the short money market unless compensating changes were made in the Treasury Bill issue. Such a shortage if desired can of course be engineered using open market operations. The effect of open market operations is similar to the effect in the unregulated system. The only difference being that an increase in interest rates automatically increases the tax on transactions intermediated through banks.

As was remarked above, the system places a substantial permanent tax on bank operations. This of course generates a distortion within the economy. Transactions that might usefully have been intermediated through the banks as centres of expertise are instead carried out directly. It also generates an incentive for evasion. In the case of the United States the reaction to this incentive has been spectacular with a large part of the banking system moving offshore.

The UK Supplementary Special Deposit Scheme

Following the failures of the early period after the introduction of Competition and Credit Control, the Bank of England introduced the Supplementary Special Deposit (SSD) scheme. This imposes punitive penalties on banks that exceed individual quantitative ceilings on assets (more precisely net liabilities minus sight deposits) established by the Bank of England.

One would expect that the effect of this legally enforced cartel would be to increase bank lending rates and reduce their borrowing rates

relative to the prevailing short rate, as banks struggle to stay below their ceilings. The short market would divide with interbank rates falling with deposit rates below local authority and commercial bill rates. Again the effect of regulation is to open up a differential between bank borrowing and lending rates. Where, under the regulatory regimes discussed above, the profits from the increased differential went to the government and constituted a tax on transactions intermediated through banks, in this case the profits accrue to the banks themselves as cartel profits.

IV. Disintermediation, Regulation and the Money Supply

The discussion above suggests that the government can in theory exert independent influence on the banking system through regulation, though, in practice, present reserve ratio schemes are so poorly designed that even their direct impact on the banking system is limited. However, the aim of government policy is not simply to control the banking system. Such control is simply one method of controlling the volume of credit and as a result the change in the volume of outstanding financial assets. Thus it is important to consider the degree to which regulation actually reduces credit as against simply diverting it through uncontrolled channels.

In Britain, there appear to be substantial possibilities for disintermediation within the domestic system and with the recent abolition of exchange controls, these possibilities have been greatly extended.

Considering domestic possibilities, it was noted above that the wholesale money market is segmented by final borrower into the interbank and certificate of deposit market, the local authority market, commercial

bill and Treasury bill markets. When excess reserves are available, banks obtain funds from both the wholesale market and from large retail deposits while simultaneously buying local authority deposits, commercial bills and Treasury bills in excess of reserve requirements. If the quantity of reserve assets is reduced, inducing a differential between bank borrowing and lending rates, the interbank rate can be expected to drop below the local authority and commercial bill rates as banks attempt to sell these now unprofitable assets. This in turn will encourage depositors to reduce their lending to banks and instead to purchase the alternative wholesale paper directly. Thus it is possible that regulation could reduce bank's assets substantially while having almost no impact on the quantity or configuration of final lending. Credit would simply be rechannelled through the parallel money market to avoid the banking system. The mechanism above is limited by the banks initial holdings of wholesale money market assets. This can be extended if large companies can be persuaded to borrow through the commercial bill market rather than the banks.

The possibilities for disintermediation associated with offshore banking seem to be even greater than for the domestic parallel money markets. If domestic banks are constrained by a shortage of reserve assets, offshore banks can bid for funds in the wholesale market which can then be used to make loans to British residents. While such banks would have only limited access to the retail market, loans could be considerably more diverse than the wholesale paper on which they were based. An even more far reaching possibility is that the retail networks of British Clearing Banks would act as agents for their offshore subsidiaries. If this were permitted, while it is unlikely that personal banking would transfer offshore, regulation would be expected to cause the whole of wholesale lending to banks and most large scale retail deposits

to be transferred offshore. One of the main consequences of such a change would be to discriminate against small depositors and lenders forced to use the domestic system, while large firms would be able to exploit the offshore system. The effects discussed above are not just theoretical possibilities. They are precisely what has happened to the American banking system.

It is self-evident from the discussion above that holdings of the narrowly defined money supply, M1 will be relatively insensitive to bank regulation. On the other hand, holdings of M3, the broad definition will be extremely sensitive, as disintermediation, induced by regulation, will cause assets outside the definition to be substituted for assets that are included.

In conclusion, for a banking system that is not restricted by exchange controls, discriminatory regulation can probably be evaded. As a result, such regulation is unlikely to affect the overall supply of credit, though it may well reduce the conventionally defined measures of the money supply. On the other hand it will probably cause a substantial proportion of the domestic systems liabilities and assets to be transferred offshore.

V. Current Techniques of Bank Regulation in the UK

In the previous two sections, the theoretical possibilities of the various techniques of bank regulation were discussed. In practice, because regulatory schemes are often internally inconsistent, the authorities administer regulation in unexpected ways. This section considers recent British experience.

During the period that followed the introduction of the 'Competition and Credit Control' reforms in 1971, there is evidence that the Bank of England

attempted to control bank lending by restricting the supply of reserve assets. As was remarked above, reserve assets for the British banking system are quite heterogeneous and include most government securities with less than five years to maturity. As reserve assets are purchased with funds acquired at short rates, banks concentrate on the short maturity reserve assets, such as Treasury Bills, to avoid exposing themselves to the illiquidity and capital risk associated with the longer term securities. As the Bank of England reduced the supply of Treasury Bills so the price rose, the rate of return on Treasury Bills falling relative to the interbank rate. As this happened one would expect banks to use government securities of increasing maturity as reserve assets. As a result in the limit one would expect to see rates of interest on all government securities with maturity less than five years falling in the midst of a restrictive monetary policy. In fact the policy was never carried very far due to another effect. The Competition and Credit Control reforms linked the Bank of England discount rate, Minimum Lending Rate, to the Treasury Bill rate. The Clearing Banks' borrowing and lending rates were conventionally linked to Minimum Lending Rate. When the Bank of England restricted the supply of Treasury Bills, the Treasury Bill rate fell relative to the interbank rate, bringing down Minimum Lending Rate and bank borrowing and lending rates with it. As bank lending rates fell below interbank rates, companies increased overdraft borrowing massively to relend to the banking system through the interbank market. The enormous expansion in bank lending induced renewed demand for reserve assets reducing Treasury Bill, minimum lending and bank lending rates further. After two years of this experience the Bank of England in late 1973 signalled its decision to abandon reserve asset control by relaxing the reserve asset requirements for the discount market. By the Spring of 1974, the huge and rapidly fluctuating interest rate differentials that had characterized the money

market during the earlier period had subsided and they have not reappeared.

Since the change of policy at the end of 1973, there is no evidence that the bank has attempted to induce a shortage of reserve assets. Between May 1974 and January 1979, the differential between the interbank and Treasury Bill rate has been below two per cent, the average being only six basis points. The average differential between interbank rate and the marginal cost of lending has been only three quarters of a basis point. Instead the main response to excessive growth in the monetary aggregates or in bank lending has been to increase interest rates both directly through the rates set by the Bank of England and indirectly by attracting funds from the short end of the market into long term government stock. At times of severe disturbance or on occasions when the Bank has found it difficult to assess the strength of the growth in demand for bank lending, the Bank has associated an increase in interest rates with the announcement of ceilings under the supplementary special deposits scheme. However, the scheme does not seem to have been used as a substitute for interest rate policy but rather as a backstop for it. Thus, it could be argued that interest rates were so high during the second control period between November 1976 and August 1977 that the quantitative ceilings did not constrain bank behaviour. This seems very sensible as there is little doubt that if the scheme were placed under real strain, the induced disintermediation would probably distort rather than reduce bank lending.

A feature of regulation, that has recently become more prominent and which at first sight appears counter to the argument above, that the authorities have abandoned reserve asset control, is the increasing use

of special deposit calls by the Bank of England. The period since 1974 has been marked by the sale of huge quantities of government debt at irregular intervals. The Bank of England has varied the size of the calls for Special Deposits rather than the Treasury Bill issue to offset the shocks to the short money market imposed by irregular funding. This seems to be due to uncertainty about the effect of a large change in the supply of Treasury Bills on the banking system. Thus Special Deposits have been used as an alternative form of government short term debt rather than as an element within a reserve ratio control scheme.

VI. Some Possible Reforms

This paper has considered three regulatory schemes for the banking system. All three can be regarded as schemes to impose a tax on transactions intermediated through banks. Before discovering whether the schemes are effective, it is necessary to consider what they are designed to achieve and in particular why the authorities feel that monetary control through interest rates is inadequate. The obvious reason is that the authorities believe that the demand for bank lending is insensitive to interest rates. Bank advances constitute long term loans at floating rates. It can be argued that borrowers will not be discouraged by a rise in interest rates if they believe that it is only temporary and as a result that an autonomous increase in demand for bank loans will tend to be satisfied regardless of interest rate policy generating an increase in aggregate demand. This is not entirely convincing as it does not take account of interest rate effects which may reduce borrowing elsewhere. On the other hand, the authorities have experienced difficulty in controlling the level of bank credit, and there is little evidence that an increase in bank credit reduces lending by other institutions.

It was argued above that the three schemes currently in use were ineffective or undesirable for two quite separate reasons. First it was argued that all three were poorly designed. Thus the reserve ratio scheme used in Britain has such unpleasant and destabilizing side effects that the authorities have abandoned it. The US also uses a reserve ratio scheme, but with cash as the reserve asset. As changing reserve ratios is cumbersome, day to day control is exerted through open market operations. It is not at all clear that the reserve ratio scheme facilitates control. It can be argued that by making the banking system a larger participant in the market for cash, this means that the authorities' control over that market impinges more directly on the banking system. However, it is hard to believe that such an effect is very substantial. Finally, the British Supplementary Special Deposits Scheme involves the specification of quantitative ceilings for individual banks removing competition from the banking system and generating cartel profits the distribution of which is in large part consequent on Bank of England administrative decisions.

It was also argued that they were ineffective for a more fundamental reason. While regulation can be used to reduce bank lending, it will probably be evaded by disintermediation through the parallel money markets and with the abolition of exchange controls, through the use of unregulated offshore banks. As a result though regulation may reduce bank lending it may have little effect on the supply of credit.

The analysis above suggests a scheme that would control bank lending. However, it would not avoid the problems of disintermediation. Indeed, because it would be effective it might well worsen them. Broadly, the aim

would be to combine the better points of the Supplementary Special Deposits Scheme and of Reserve Asset control. The main reform would be to introduce a new asset, the Certified Treasury Bill and to specify it as the only reserve asset. It could be sold at a weekly auction in quantities that would vary little week to week. Secondary trading would of course be permitted. Conventional Treasury Bills would continue to be used as the residual government funding instrument but without reserve asset status. The differential between Certified and conventional Treasury Bills would give a measure of the constraint on the banking system. In periods when there was a shortage of reserve assets, the authorities would expect Certified Bills to become expensive and on occasion to sell at a premium.

A scheme of the type suggested above is unambigiously superior to the current SSD scheme. Competition within the banking system is maintained and the excess profits generated by control accrue to the government. The differential between reserve and non-reserve Treasury Bills gives a clear measure of the impact of regulation in contrast to the confusion generated by the corset scheme. Finally, it would remove the link between conventional short term government debt and the control of bank lending, a link that seems to have made the smooth funding of government debt more difficult.

Even though the scheme above is superior to current arrangements it is not clear that it is desirable. If it were used substantially and frequently, the differential between certified and conventional Treasury Bills would be permanent and considerable. It would constitute a burden on the banking system and generate an incentive for evasion. On the other hand, if the use of the scheme was only marginal, it is questionable if it is worthwhile. My own view is that for a system which is not subject to exchange controls,

and for which the evasion of regulation is easy and cheap, regulatory schemes are futile. For a system subject to exchange controls where the possibilities for disintermediation are restricted to domestic parallel money markets, such a scheme might be worthwhile.

It has recently been suggested that Britain should adopt a cash based reserve asset system similar to the United States. The analysis above suggests that if the reserve ratio is relatively high such a system is a tax on the banking system and makes control more difficult as a result of disintermediation. Some proponents of the cash based system have suggested that the reserve ratio be set at 'commercial' levels. Presumably this means a level dictated by the requirements of prudent banking. If so, it should be recognized that this proposal is in practice equivalent to deregulation. As such of course it is the one scheme or non-scheme that will avoid the problems of disintermediation. However, it should also be recognized that the level of cash reserves dictated by prudent banking is itself determined by government policy. In particular, if the government makes the use of its discount facilities more expensive or forces the banks to make greater use of them, the desired level of cash reserves will rise.

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