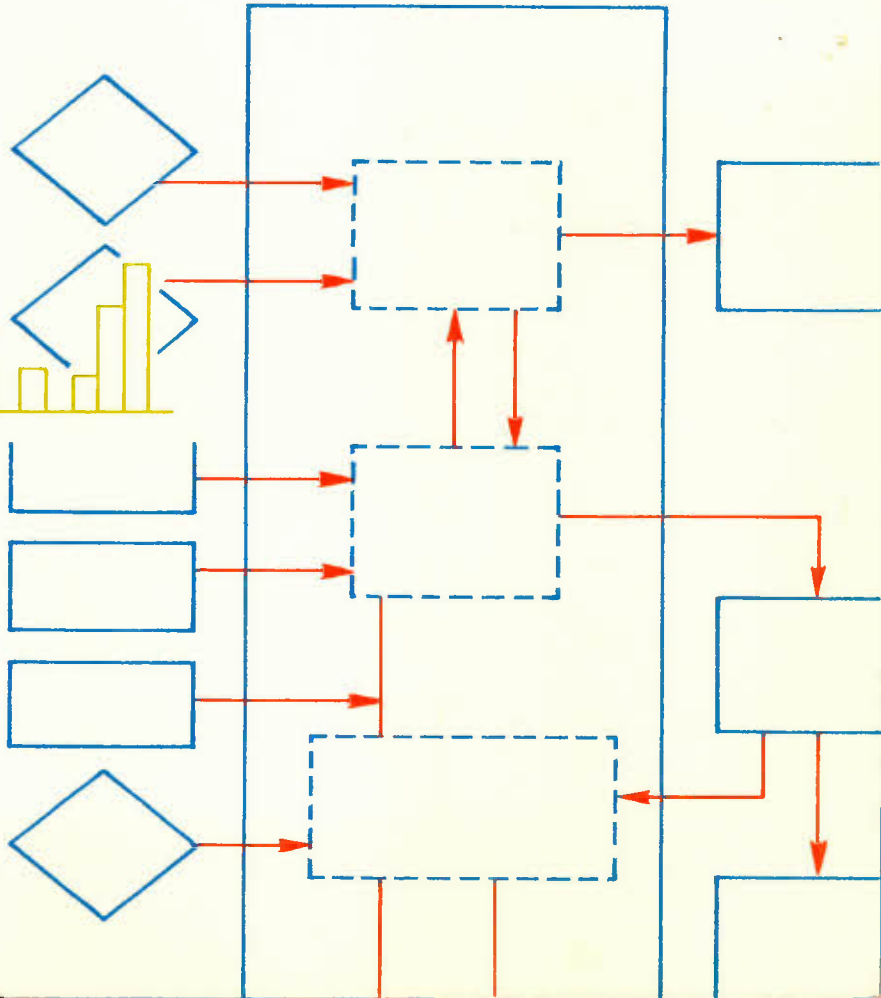
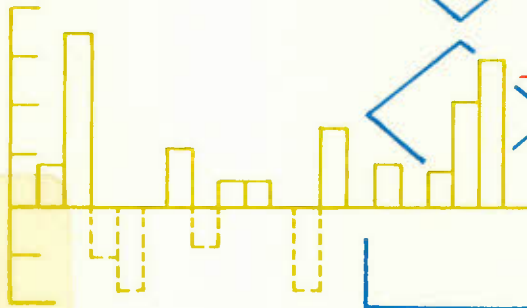
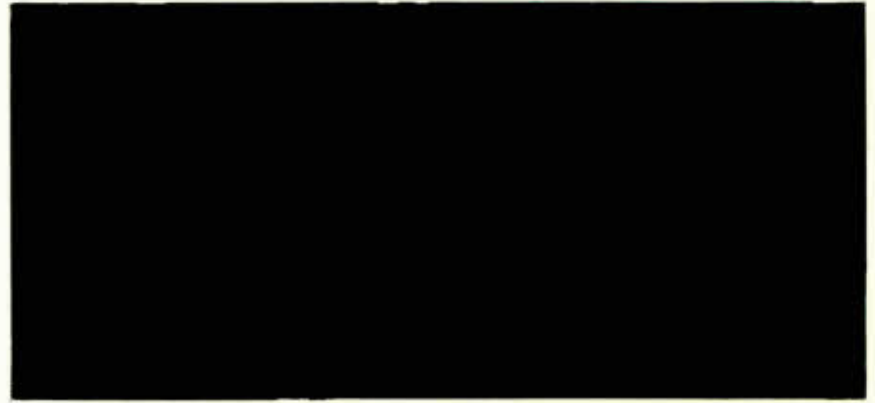




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DISCUSSION PAPER NO. 66

Reserve Requirements and  
Monetary Control

by Harry G. Johnson



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October 1976



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## ABSTRACT

It is widely assumed that high reserve requirements on deposit-taking are necessary to effective monetary control. On the contrary, they are unnecessary: defining monetary control as aggregate economic management through control of the quantity of money (not "credit conditions" or "interest rates"), open market operations allied with understanding of the reserve management policies of private financial institutions are sufficient. The argument for them is basically an argument for creating a protected market for governmental debt. This objective is often inconsistent with aggregate economic stabilization; and the protected market is to be achieved by levying an implicit tax on the operations of deposit-taking institutions. High reserve requirements may give the appearance of more precise and effective control, but this result may well be bought by confining the deposit-taking institutions to particular predictable sections of the overall credit market and transferring the difficult problems of control to other sections, with the result that the monetary authority will have to concern itself with cushioning the effects of policy changes on peripheral credit markets. Also, the implicit taxation of the domestic deposit-taking institutions might result in a loss of Canadian comparative advantage in innovative competition with foreign, especially American, banks.

The purpose of this paper is to examine the role of reserve requirements imposed on deposit-taking institutions in the exercise of monetary control, with particular reference to the case for high reserve requirements on the argument that these are needed for effective monetary control.<sup>1</sup> The paper argues, in brief, that, first, such high reserve requirements are completely unnecessary to the purposes of monetary control. Second, the argument for their imposition is motivated indirectly by a different central banking objective than the proper one of economic stabilization, namely the objective of establishing and maintaining a protected market for government debt ("preserving orderly conditions in the government bond market") -- an objective which frequently conflicts with the stabilization objective. Third, such gains as might result (in principle but not necessarily in practice) are purchased at the expense of reductions in the efficiency of the payments system and may also create costs of their own. Specifically, they oblige the central bank to use its powers of monetary control partly to avoid monetary disturbances created by the interaction of policy changes with the existence of the requirements.

#### Historical Background

As a preliminary to analysis of the question, it is important to recall that the use of reserve requirements (and more significantly of changes in requirements, and of "special" requirements of various kinds) is a very recent phenomenon in

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1 For earlier and in some respects more detailed discussion of the general approach that motivates this paper, see: Harry G. Johnson, Alternative Guiding Principles for the Use of Monetary Policy (Princeton: Essays in International Finance, No. 44), November 1963; and Harry G. Johnson, "Problems of Efficiency in Monetary Management," Journal of Political Economy 76 (September-October 1968), 971-89.

the British tradition of central banking control from which the Canadian tradition is predominantly derived, a phenomenon dating from either the particular methods of World War II finance or the post-World-War-II reconstruction period. In that tradition, Bank of England control operated on the basis of the cash reserves the Bank chose voluntarily (and individually) to carry. (Since the Bank was in any case a private institution, the use of imposed reserve ratios would anyway probably have been "unthinkable".) This practice was partly due to the early nineteenth century establishment of the British system, by which the discount houses became the repositories of most liquid assets next to currency and Bank of England deposits (money at call and short notice) of the London Clearing Banks and the buffer between the Bank and the joint stock banks on which Bank of England "Bank Rate" (rediscount rate) policy operated. Partly it was due to the existence of many private banks before the corporate, joint-stock banks emerged and grew by amalgamation and absorption in the last third of the nineteenth century and after. And partly it was due to the British tradition of commercial secrecy that protected banks among other commercial institutions from legal disclosure requirements. The reserve ratios of the commercial banks were maintained and displayed mostly to maintain depositor confidence in the banks' liquidity; they were often heavily "window-dressed" by building up cash for the day on which the balance-sheet was made up; they varied significantly among the banks, according to the nature of their business; and they were gradually reduced, as public confidence in the banks grew, and as the availability of cash for lending was reduced by the relatively tight money policy of the 1920s.

The Second World War introduced government financing involving a low fixed Bank Rate and the assignment to the banks of Treasury Deposit Receipts, which were convertible without loss into deposits at the Bank of England, so that the reserve ratio became meaningless (and invariably heavily window-dressed). In the process of postwar unwinding of this method of public finance, and of nationalization of the Bank of England, the Bank "agreed" with the Clearing Banks on the maintenance of a "true" cash ratio of 8 per cent (as compared with the previous "window-dressed" 10.5 per cent or so). This ratio was not a legal minimum, but a "target" figure, individual banks and the Clearing Banks as a whole occasionally showing slightly less in times of stringency; and, owing to the flexibility and efficiency of the London money market, the published monthly figures seldom showed more than a few tenths of a per cent above the 8.

Subsequent experiments with required liquid assets ratios and special deposits, as also with various kinds of directives concerning preferred and discouraged types of bank lending, reflected two influences. One was the apparent belief that the pattern of economic activity can be controlled through control of the allocation of bank credit; the other (and more important) influence was that of the prior commitment of the Bank of England to holding down the cost of, and preserving orderly market conditions for, the Treasury's very onerous "borrowing requirement" for new and replacement issues of government debt, in a national and world environment of rising money interest rates. The brief phase of the early 1970s, of experiment with "competition and

credit control", was accompanied by the imposition of extensive reserve requirements of various kinds on all major competing branches of the financial intermediary system; but the rationale for this was neither spelled out nor debated at the time, and there is good reason to think that it was motivated by the superficial view that "fair competition" requires that all competitors be equally handicapped.

Turning to the other banking tradition on which Canadian thinking and practice with respect to regulation of banking organization has drawn -- that of the United States -- the use of required reserves has a much longer history in the United States than in Britain. This fact is, however, a reflection of a basic confusion in American thinking on regulation, centring on the general notion that good behaviour can be ensured by the legislation of conformity to certain outwardly observable and objective standards or rules of management. This assumption found expression originally in the legislation on a state basis of minimum cash reserve ratios and other operating ratio rules, reinforced by the establishment of bank examination authorities. The approach was (understandably) carried over into the Federal Reserve System, which was organized as a bank owned by and providing service to its member banks. It was only gradually (and is still only imperfectly) understood that a legal minimum reserve requirement ties up reserves and prevents them from being used as reserves in emergencies. For emergencies, the bank must rely either on holding additional reserves above the minimum, or on holding liquid assets convertible with little



loss into cash reserves, or on having access to a market for reserves.

The results of this fact, in its institutional context of a central bank owned by its members, and a large number of "unit" commercial banks, have included such things as recurrent controversy over "discount window policy" and the rights of members to borrow reserves from "their" central bank; the development of the Federal Funds Market, as a market for private lending and borrowing of surplus reserves; and the frequent use of "free reserves" (the excess of total reserves provided plus borrowed, over required reserves -- which may be negative) as an indicator of the direction of monetary policy. Furthermore, since reserves held to meet requirements do not bear interest, the effect of imposing them is to levy an implicit tax on the business of member banks; and the severity of this tax accounts in part for the survival of the large number of non-member banks in the American system, and also, in the post-World-War II period, for the growth of non-bank financial intermediation. If one looks only at the effect of the implicit required-reserves tax on commercial banks on the relative competitive positions of banks and near-bank deposit-accepting institutions, it is natural (especially for the commercial bankers concerned) to assume that the problems would be removed, and "fairness of competition" assured, by the extension of the required reserve ratio requirements to non-bank deposit-accepting institutions. But to assume this is to ignore the fact that the tax in question is a special tax on deposit-taking business, additional to normal business and income taxes, and that by discouraging the use of depositing facilities it distorts the

structure of financial organization and practice away from those most conducive to efficiency, flexibility and growth.

Canadian history with respect to reserve requirements reflects influences from both United Kingdom and United States experience, as well as the concentration of Canadian financial organization on the New York money market as a source of liquid assets, associated with the absence of a central bank until 1934. The traditional role for the chartered banks was a 5 per cent minimum cash ratio, well below the average level to which the banks worked, calculated on a daily basis. This altered by the 1954 revision of the Bank Act to a minimum of 8 per cent, calculated on a monthly average of weekly figures, which the Bank of Canada was empowered to vary up to 12 per cent (a power not in fact used). The Bank therefore became involved, like the Federal Reserve System, in the problem of managing cash supplies to the commercial banks in relation to an effective minimum requirement. In 1956, the Bank "agreed" with the chartered banks on a 7 per cent secondary reserve ratio ( of excess cash, Treasury bills, and day-to-day loans in relation to total Canadian-dollar liabilities) -- a parallel to recently instituted British practice, though the idea had been extensively discussed in the U.S. in the late 1940s. The 1967 Bank Act imposed a dual reserve requirement: 12 per cent on the demand deposit component, and 4 per cent on the saving deposit component, of Canadian dollar liabilities, the rates being fixed. Moreover, secondary reserve requirement was incorporated in the legislation, with the Bank having the right to vary this requirement from 0 to

12 per cent. Neither the dual reserve ratio nor the variable secondary reserve requirement make any theoretical sense. The differentiation of rates according to type of liability assumes that the purpose of required reserves is to protect depositors or bankers from improper management (which in fact legal minimum reserve requirements will not do, since these reserves are not available for use in emergencies), rather than to provide a presumably stronger lever with which open-market operations can control the money supply. The secondary reserve requirement, as is well known, primarily serves to provide a protected market for the assets (mainly Treasury bills) included in it.<sup>2</sup>

#### Analysis

The prime responsibility of monetary policy is taken for the purposes of the present paper to consist in managing the quantity of money and governing changes in its rate of growth so as to promote the stable operation of the economy. Other writers, and especially the official pronouncements of central bank governors and officials, generally stress interest rates, credit conditions, or some other financial concept rather than the quantity of money as the object of central bank control. There has been a voluminous and intense controversy over this question of the targets and indicators of monetary policy. For present purposes, the main justification for choosing the quantity of money is that the alternatives select variables that are the

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2 On this and other Canadian monetary policy issues, see Thomas J. Courchene, Money, Inflation, and The Bank of Canada (Montreal: C. D. Howe Research Institute, 1976).

outcome of interaction between official supply and market demand and supply, and are hence extremely difficult to interpret: witness the frequent confusion in the past twenty-five years or so between "high" or "rising" interest rates or yields on government debt and "tight" money policy, or the confusion generated more recently by the combination of historically high money interest rates with negative real rates of return (even pre-tax) on most widely held financial assets in the major industrial countries associated with recent inflation.

To control the quantity of money, which is an aggregate of central-bank-issued currency and private deposits issued against a base of central bank currency and deposits (or, for non-bank deposit-taking institutions, central bank currency and deposits (or, for non-bank deposit-taking institutions, central bank currency plus commercial bank deposits), the central bank relies on open market purchases or sales of government securities to adjust, directly, the "cash base" of the monetary system and, indirectly, the volume of "money" (as commonly understood) pyramided on that base. In the two central banking traditions previously mentioned, there was until recently an apparent sharp contrast of technique, the Bank of England initiating policy changes by a change in "Bank rate" and then using open market operations to make "Bank rate" effective, and the Federal Reserve System initiating policy changes through appropriate open market operations and then adjusting its rediscount rate to a small penalty level above

money market rates. But this contrast was only apparent -- a price-fixer can operate directly on price and indirectly on quantity, or vice versa, and similarly for a quantity-fixer -- and in any case the Bank of England (like the Bank of Canada) has gradually shifted towards the Federal Reserve practice of relying primarily on open market operations and adjusting the rediscount rate to the market rate as necessary to preserve its penalty-borrowing-rate character. What is more relevant to the present discussion is that the availability of borrowing at a penalty rate has two effects relevant to monetary control. First, it enables the market, or some of the institutions in it, temporarily to nullify central bank control by offsetting the effects of central bank open market operations on reserves through borrowing back reserves lost or repaying debts with reserve gains. Second, in a system with required reserve ratios, it permits banking institutions subject to such ratios to "work closer to" the minimum ratio set, since unexpected cash needs can be met by borrowing rather than by drawing on excess reserves.

In analysing the role of reserve requirements in the operation of stabilizing monetary control, it is convenient and also most realistic to assume that reserves held at the central bank as deposits, or at the place of business as currency, bear no interest to the holder. While various writers have suggested that deposits at the central bank should bear interest, or that excess reserves should bear interest, and even that interest could be paid on currency on an "estimated average balance" basis,

and should do so to eliminate the implicit tax on reserves and the distortions caused thereby, pursuit of this issue can be left to the interested reader.<sup>3</sup> It is necessary, however, at this stage to note that if some deposit-taking institutions are able to count as reserves deposits in other institutions than the central bank, and these deposits unlike central bank deposits bear explicit interest (or implicit interest in the form of depositor services of various kinds), the imposition of equal required-reserve ratios will entail different costs of reserve-ratio compliance for different classes of deposit-taking institutions. For equality, reserve requirements would have to be imposed on all deposit-taking institutions in the form of currency and deposits at the central bank. Even this requirement would be inequitable if differently-circumstanced institutions found it convenient to hold different ratios of deposits with other private banking institutions, and/or if different categories received different levels of service from the central bank.

In this connection, one major source of differentiation between commercial banks proper, and other deposit-taking institutions, lies in the existence of, and restriction of access to, the nationwide cheque-clearing system. In fact, students of both the British and the Canadian recent experiments with competition in banking have argued that the establishment of competition in banking is

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3 See: Milton Friedman, A Program for Monetary Stability (New York: Fordham University Press, 1960), especially pp. 71ff., 100; James Tobin, "Towards Improving the Efficiency of the Monetary Mechanism," Review of Economic Statistics 42 (August 1960), 976-79; Harry G. Johnson, "Problems of Efficiency in Monetary Management," loc. cit."

illusory, in the absence of free access for all deposit-taking institutions to the cheque-clearing system on equal terms.

If banks and other deposit-taking institutions are subject to no legal or conventional reserve requirements, they will nevertheless develop in their own self-interest standards of "normal" reserve holding levels and of reserve-decumulation and reserve-accumulation behaviour in response to changing circumstances. Such changing circumstances comprise both the secular evolution of their deposit and other business under the impact of general economic growth and associated changes in demands for banking (depositing and lending) services, and the cyclical swings of the economy and of monetary policy itself. Such patterns, being rational, should be knowable and predictable to the central bank and its officials, and should be taken into account in the formulation and execution of open market policy. That is, after all, the point of employing an extensive and presumably highly trained staff at the central bank: to understand how the financial system works and use that knowledge in the design of central bank stabilization policy. It is, however, only too understandable, though superficially at least paradoxical, that central bank officials should seek to lighten the burden on their understanding, and reduce their responsibility for error, by pressing for restrictions on the freedom of private institutional profit-maximizing choice in order to increase the

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4 The main reference on this point is a study of competition in Canadian banking by B. Griffiths of The London School of Economics, presented at the August 1975 Conference at Queen's University, Kingston, Canada, "Competition and Regulation in Oligopoly Banking: The Canadian Experience with the 1967 Banking Act," forthcoming in Journal of Monetary Economics, 1976.

predictability of the effect of open market operations on the money supply by crude rule-of-thumb arithmetic. The occasional failure of such restrictions can then be attributed to the wilfulness of the private financial sector's behaviour even when controlled and supervised by the most competent and watchfully paternalistic of central banks.

To repeat, a banking system without any kind of reserve requirements against deposits should behave predictably (both qualitatively, and with enough investment in the relevant research on institutional behaviour quantitatively as well), and hence be, within a reasonable margin of statistical or prediction error, adequately controllable by the central bank. The taxation of base-money reserve-holding implicit in the nonpayment of interest on reserves would, it should be recognized, involve inefficiency in the sense of holding of reserves at too low a level. This in turn can be achieved by using too many resources in the attainment of economies in the holding of reserves, through careful cash management, investment in the right "spread" of asset maturities, and timing of payments and receipts on interest-bearing assets. It is important to point out that this inefficiency could not be eliminated by the imposition of reserve requirements at an above-market-optimum level, since the required reserves would not be available for use as reserves, but only increase the implicit tax burden on the deposit-taking institutions, while the holding of excess reserves for actual emergency use would still be penalized by the tax implicit in the non-receipt of interest on them. Only the elimination of the tax itself would eliminate



the fundamental reason for the holding of suboptimal levels of reserves, and suboptimal use of those reserves.

The question of the application of reserve requirements to deposit-taking institutions as a means of strengthening the powers of monetary control is therefore not one of predictability versus nonpredictability of money supply changes from central bank open market operations. It is instead a question of predictability by the use of crude methods, made possible or assumed to be made possible by the imposition of heavy reserve requirements and secured at the expense of imposing an implicit tax on deposit institutions, as against predictability by methods requiring explicit quantitative analysis of the profit-maximizing behaviour of institutions unrestricted by the imposition of required reserve ratios.

The argument for the imposition of required reserve ratios on deposit-taking institutions, and specifically for relatively "high" and uniform requirements, seems to be compounded of several strands of thought. One is the obvious interest of the government in maximizing the revenue from a tax that the public is used to paying -- if it is even aware that it is paying a tax at all. This interest is shared by the central bank and its officials, since the tax is first collected in the form of a revenue for the central bank, this revenue being obtained from lending to the government through holding interest-bearing government debt (which would otherwise have to be placed with the public), with finance provided through private holding of non-interest-bearing currency and commercial banking institution holdings of

currency and central bank deposits. The revenue is then transferred to the government after deducting central bank operating and staffing costs. Clearly, the prestige, status, and salary and pension entitlements of central bank employees are likely to be higher, the larger the scale of the bond, discount, and other market operations the Bank has to conduct, and the larger the gross revenue against which it can charge the salaries and emoluments of its managerial and research staff employees. One need not assume that central bank governors and their officials are overtly venal, only that they share the normal belief that pay and perquisites should be proportioned to portentousness of performance. (The universality of the principle is attested by the contrast between the opulence of central bank establishments in new ex-colonial nations and the spartan accommodation of currency boards in the few remaining colonies lacking central banks.)

A second factor, already referred to, may be described as the preference for easy rule-of-thumb methods of prediction, and is attributable to the well-known tendency of important people to be too busy to spend time understanding their jobs -- what has come to be popularly known as "The Peter Principle". The imposition of high reserve requirements has the great attraction of making deposits more predictable from reserves, for purely statistical reasons. For example, assume that the commercial banks attempt to observe the required reserve ratio exactly by adjusting their earning assets in response to changes in reserves, but that their achievement of the desired level of earning

assets is subject to a 5 per cent margin of error. (If the error brings reserves below the required maximum, assume that they borrow the shortfall from the central bank.) If required reserves are 5 per cent of deposits, the resulting divergence of actual from tangential deposits will be + 4.75 per cent; but if required reserves are 25 per cent of deposits, the error in targeted deposits will be only 3.75 per cent ( $75 \times .05$ ).

The higher reserve requirement also makes the effects of monetary policy more predictable, in two more substantial senses. First, since the reserve requirement portion of any change in the total money supply is earmarked indirectly for deposit institution sale or purchase of government debt, that part of the effect of monetary policy change on the government debt market is fixed and predictable. Second -- though this is not certain theoretically without supporting assumptions and arguments -- the deposit-taking institutions are likely, as a result of both the implicit tax and the restriction on holdings of other assets entailed in a high reserve requirement, to confine their holdings and market dealings to a narrower range of assets than they otherwise would, and particularly to broadly traded financial assets, so that the effects of purchases or sales of assets by them in response to open market operations by the central bank are likely to be more predictable and calculable.<sup>5</sup> It must be emphasized, however, that these consequences do not

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5 The presumption here is that a restriction of total bank earning assets will lead to concentration of investments on the least risky of such assets available. A caveat is necessary because some writers and policy-makers concerned with bank regulation assume that banks have a propensity to make high-yield but high-risk loans that must be checked by regulation. If true, this might imply that the smaller is banks' capacity to lend, the more risky would be the loans and investments they would make.

necessarily constitute a net gain to the efficiency and predictability of open market operations. What they do is to focus attention by the central bank and others on the more stable and predictable sections of the market (sections made still more stable and predictable by the effects of the high reserve requirements themselves); and to conceal and to divert attention from other sections of the market that may be more unstable, and rendered still more unstable by the effects of the imposition of the high reserve requirements. Reference here can be made to the long-run effects of British monetary policy since the Second World War, in concentrating holdings of British government securities in the hands of a small range of "captive" financial institutions, and in concentrating bank lending on the nationalized industries and a relatively few large and well-established industrial and commercial companies.

A third factor is the assumption that, if deposit-taking institutions are obliged to hold substantially larger reserves than they want or need, they will be less likely than otherwise to hold excess reserves above requirements. In other words, the relations between reserve base and money aggregate will become more rigid, and prediction of the aggregate from the base via "the money multiplier" (the inverse of the reserve ratio) more accurate. This is probably true, so far as it goes, but it stops far short of comprehending all the relevant effects.

First, the higher reserve requirement, by imposing a larger tax on deposit institutions, penalizes those institutions and promotes instead the use of money substitutes, or of money-

economizing methods of payment and discharge of debt. Variations of the degree of resort to these alternatives may have a destabilizing effect on financial markets greater than the apparent increase in stability implied by the greater predictability of the deposit aggregate from the reserve base. The most notable illustration of this problem in recent experience in both the U.S. and the U.K. has been the effect of commercial bank competition for deposits in leading banks to compete fiercely for funds with home mortgage -- finance institutions, creating severe difficulties in the home-mortgage market. Admittedly restrictions in and rigidities of interest rates at both types of institutions have played an important part in creating the difficulties; but the central point is that smoother monetary control may be accomplished at the price of more disturbance and instability in the home-financing and home-building sector.

Second, the greater rigidity of the observed reserves-to-deposits ratio will necessarily be achieved by more effort, and possibly at the cost of greater instability in other money markets, than the gain in apparent predictability is worth.

Some historical perspective on the dangers of optical illusion in the argument for high reserve requirements may be gained by considering the defects of a "liberal" proposal for banking reform, once quite popular, advocated by Henry Simons and the "Chicago School" of his time, the so-called "100% Reserve Banking Proposal". The proposal was founded on the belief that monetary instability was closely associated with the ability of

the public to shift at will from currency with a full base-reserve backing to deposits with a fractional reserve backing. It found the solution in the requirement of a full reserve backing against deposits, entailing, in another popular phrase, "cloakroom banking", the depositor paying an explicit charge instead of implicit forgone interest for the banking services he received. "100% Reserve Banking" would be the logical extreme of a high reserve requirement adopted for the purpose of increasing the predictability of the results of monetary control, since the central bank would have complete control over "the quantity of money", in complete independence of the profit-maximizing choices of deposit-taking institutions. (Incidentally, Simons, logical as usual, recommended that open market operations be confined to exchanges of cash for consols, which would prevent the central bank from trying to influence the structure of interest rates.) The convincing objection to the proposal is that, with such a rate of tax on money, financial innovation would soon produce, and if necessary keep on producing new forms of monetary instruments. Thus, while the central bank would continue to have complete control over the money supply as the central bank or the law defined it, this happy state of affairs would be spoiled by the complexity of the relationship that would inevitably develop between what the central bank and monetary experts called money, and whatever aggregate played the role of money as the public understood and used it in their everyday business dealings.

The analysis thus far has concentrated on the argument for introducing high reserve requirements for deposit-taking institutions, on two implicit assumptions. The first is that the

implications of sweeping other deposit-taking institutions into the same net as traditional commercial banks can be ignored. The second is that the economy can be treated as closed. Both assumptions require further examination.

The proposal to apply uniform reserve requirements to all types of deposit-taking institutions is subject to the initial objection that such institutions do widely different types or assortments of financial business, and are differently circumstanced with respect to the usefulness to them of the services provided by the central bank and their access to those services. In particular, assuming as it has been here that required reserves are to be kept in currency or deposits at the central bank, the usefulness of holding reserves in this form is closely related to the main function of central bank deposits as a medium of the settlement of net balances left after the clearing of cheques between members of the cheque-clearing system. Maintenance of required reserves at a uniform ratio among deposit-taking institutions will only be nondiscriminatory as between institutions if it carries with it free access on equal terms to the clearing system. Without such free access, in any case, the objective of competition in banking services (deposit institution services) cannot be achieved, since the members of the clearing house will have discriminatory advantage over their non member competitors. It is also very likely that economies of cost and scale in the internal clearing of cheques within a single bank, as compared with

the cost of clearing through the clearing-house via membership, and the extra cost of clearing through a member by a non-member (both cost differentials being maintained by monopolistic elements in the pricing of clearing services) are responsible to a significant extent for the observed trend towards concentration in banking. These factors are also probably responsible for the failure of competition in banking, as introduced in Canada in the 1960s and Britain in the early 1970s, to check or reverse the trend towards concentration.

A more serious reservation about the imposition of a uniform (and high) reserve ratio is the likelihood that the uniformity of the ratio will promote the use of the aggregate deposit liabilities, or these plus some other classes of short-term liabilities, of the deposit-taking institutions included in the application of the requirement as the significant monetary aggregate, i.e., the target and the indicator of monetary policy. There is obviously no conclusive reason for assuming that because a heterogeneous group of financial institutions all take deposits and are therefore subjected to the same reserve ratio requirements, their aggregate liabilities constitute a monetary aggregate that can be treated as a useful macro-economic aggregate variable for monetary policy formulation and analysis -- any more than a group of men conscripted for military service and obliged to wear identical uniforms can be assumed to constitute an effective fighting force. The problems that may arise are illustrated by the disagreement and confusion that now arises from disputes over the relative merits of  $M_1$ ,  $M_2$  and  $M_3$  in monetary analysis; even though  $M_1$



tends to be used in preference to a broader aggregate, monetary analysts still tend to attach relevance to the broader aggregate and refer to it in integrating the behaviour of the narrower aggregate  $M_1$ . The imposition of uniform reserve requirements would appear to resolve the matter, but definition of the commanding monetary aggregate by the liabilities of the institutions subject to a common reserve requirement might lead to choice of an analytically inferior aggregate, one that had to be interpreted in an unnecessarily complex way to make economic sense.

Finally in this connection, imposition of high required reserve ratios demanding adroit cash management, on institutions previously accustomed to maintaining low cash ratios, and for that reason not obliged to devote appreciable resources to the task of cash management, could impose severe costs on those institutions, more than could be justified by the resulting improvement of the predictability of the aggregate.

The other significant assumption of the general analysis previously presented is that of a closed (or approximately closed) economy. This assumption implies that substitution of other monetary instruments for the liabilities subject to the high and uniform reserve requirements will within fairly narrow limits be observable and reparable by further extension of the liability to observe the reserve requirement. The implication is that the main substitution, and the "excess burden" of the taxation implicit in the reserve requirement, will be associated with the substitution of payments planning and direct barter exchange

for money-intensive systems of payment. These alternatives, in turn, suggest a low degree of substitutability and a relatively small efficiency cost of the high uniform reserve requirement. In an open economy, however, more direct substitutes for domestic money, substitutes which cannot easily be subjected to equalizing taxes by the national government, are available in the form of deposits and payments services provided by foreign banking systems. The outstanding contemporary international example is of course Euro-money and the Euro-currency market. But for Canada, for a much longer time and on a much more pervasive scale, the American banking and financial system has been available to provide alternative payments and banking services; and the prices at which these alternatives are available could become attractive if domestic Canadian banking services became relatively too expensive in consequence of implicit taxation through high reserve requirements. The significant point about the availability of American-provided deposit and banking services is not, of course, that they might gradually drive the Canadian product off the market. It is the lesser, but more insidious, prospect that Canadian deposit-taking institutions will continue to provide deposit and banking services to the smaller-scale individual wealth-owners and commercial firms, locked in by nationality and ignorance of alternatives to low yields from depositing and high costs of borrowing from deposit institutions, while the larger-scale business of better-informed investors and borrowers passes to and through American financial intermediaries, and the profitable innovations are pioneered by foreign financial firms.

Concluding Remarks

The proposal to impose uniform and high reserve requirements on all deposit-taking institutions has the superficial attractions of giving fair and equal treatment to competitors in the same type of business (uniform reserve requirements) and making the effects of monetary policy action on the quantity of money more predictable (high reserve requirements). But there is no need for reserve requirements of any kind as an adjunct to efficient monetary control, provided that the central bank recognizes that part of its responsibility is to understand the monetary and financial system on which its policy measures operate, and does not attempt to save itself trouble by imposing restrictions on the financial sector designed to make the consequences of policy operations predictable by simple rules of thumb. Reserve requirements, especially the requirement of reserves substantially higher than those that financial institutions would choose to observe in their own commercial interests, amount to a tax on deposit-taking institutions, proximately for the benefit of the central bank and ultimately for the benefit of the government. Such specific taxation of particular easily taxable activities, superimposed on the taxation applicable to economic activity in general, involves distortions in the working of a competitive system producing allocative inefficiency and discouraging growth and innovation in the activities discriminated against by the taxation. The apparent increase in the predictability of the effects of monetary policy actions may well prove illusory, in the sense that errors and disturbances are concealed by being shifted to less obvious sections of the financial system. Uniformity of

required-reserve-ratio-taxation may also give erroneous support to the assumption that the aggregate deposit liabilities of the financial institutions subject to the requirement constitute a uniquely accurate and useful statistical measure of the supply of "money" that is theoretically relevant to monetary policy formulation and analysis. Finally, in an open economy such as Canada, with good substitutes for domestic deposit liabilities and depositing and borrowing services available from the American and European financial systems, the imposition of a heavy implicit tax on domestic deposit institutions might lead to a gradual relative decline of, and stagnation of innovative activity in, domestic financial activity of a deposit-taking nature.

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Johnson, Harry G 1923-1977

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