RESERVE ASSET RATIO SYSTEM

1. INTRODUCTION
This article is the second of a pair of Bulletin articles (the first was published in the October 1981 issue of the Bulletin) dealing with the Reserve Asset Ratio (RAR) system. The first article outlined the background to and reasons for the introduction of the RAR system in 1973, and described the evolution of the system in operation. The role of the 'free reserves margin' in the current RAR system was described, demonstrating that the peculiar role of that aspect of the system is an important determinant of the way the system impinges on trading bank lending. This article surveys a range of criticisms that have been made of the RAR system. Many of these criticisms appear to relate to misunderstandings about the way the RAR system operates. However there is also a number of criticisms that raise more fundamental questions, and as such deserve airing. The range of criticisms that have emanated from within the Reserve Bank, Government Departments, trading banks, academics, financial journalists and other interested parties, can be broadly divided into two types. First there are criticisms which relate to the operational details of the RAR system. Secondly there are criticisms which are of a more general nature, particularly those concerning questions of whether the RAR system represents a sensible monetary control technique. Although these areas overlap this dichotomy will be used for the sake of clarity.

2. OPERATIONAL CRITICISMS
(a) It has been suggested that use of the free reserves margin mechanism in the monthly ratio setting exercise simply validates previous trading bank lending behaviour. This arises from the fact that if each month the Reserve Bank provides for a constant margin of free reserves, then reserve asset losses induced by bank lending will not lead to a reserve asset shortfall. However it can be readily seen from the first article of this pair that this argument does not take full account of the nature of the free reserves margin. In essence the procedure of making policy changes to the free reserves margin in response to the path of bank lending has been ignored.

(b) Given that the degree of constraint imposed on the banks is determined by a policy decision to alter the free reserves margin, and that the system therefore does not have an automatic linkage between banking lendings and the degree of constraint, some argue that the RAR system is deficient as a control system. It is argued that the lack of an automatic linkage introduces:

(i) extra lags between changes in bank behaviour and changes in the degree of constraint on banks (those lags relating to the time needed to recognise a change in bank lending, the time needed to determine the appropriate policy response, and the time needed to implement that response); and

(ii) an excessive reliance on the discretionary willingness of the authorities to implement the necessary policy response.

However automatic mechanisms can both remove the capability for discretionary action on the part of the authorities and require that the design of the policy system is suited to all situations. Economic policy making commonly requires trade-offs to be made between competing objectives. The priorities assigned to the list of policy objectives (which include full employment, price stability, external sector balance, financial sector stability etc.) may change as circumstances change, a factor which is not allowed for by automatic policy mechanisms. Nevertheless the capability for discretionary action by the authorities would be preserved if alternative policy tools were available, such as open market operations in public and private sector debt instruments. Thus this criticism would be more significant if open market operations were a fully operational part of the New Zealand scene.

(c) The RAR system requires the Reserve Bank to make forecasts of reserve asset movements which are inherently uncertain. This part of the system has led some critics to assert that first, the Bank has been obliged to intervene in the market to prevent costs to the banks when the forecasts have been inaccurate, and in doing so has removed the penalty cost element of the system, and secondly that by doing so the Reserve Bank have been taking over from the trading banks part of the normal commercial elements of undertaking risk and regular assessment of the market place. This criticism is based on the fact that on several occasions when reserve assets have fallen below the forecast levels to the extent that the banks or some banks have been faced with potential profit losses in order to meet their requirements, the Reserve Bank has instituted special procedures to prevent excessive profit losses materialising.

While on the face of it this criticism may appear to have validity, in fact it involves a misunderstanding of certain elements of the system. Two factors are relevant. Uncertainty surrounding reserve asset flows (hence risk of profit losses by the banks) plays an inherent role in the system, via the free reserves margin (see the first article of this pair in which this uncertainty element was described). An actual out-turn which differs from the forecast on which a reserve asset requirement is based does not of itself oblige the Reserve Bank to undertake ‘rescue’ operations. Secondly, the assistance operations that have been undertaken have been induced not by the difference between out-turns and forecasts but rather by the belief that the setting of the penal borrowing cost at the time involved excessive costs to the banks of making up reserve asset shortfalls. Modifications to the penal borrowing arrangements and costs in August 1980 (described in the Bank’s Bulletin of October 1980) should help alleviate the spillover effects into market interest rates of the penal borrowing costs, and thus moderate the pressure to engage in ‘rescue’ operations. In addition this should reinforce the uncertainty related role of the free reserves margin.

(d) The RAR system sets a reserve asset ratio requirement against the average level of the previous month’s deposits of the banking system. Although such lagged accounting procedures are used widely overseas, they have attracted criticism both here and abroad. The argument is best portrayed in the text-book reserve ratio case. If a ratio is set against the previous month’s deposits, banks will face a given (not variable) reserve requirement which bears no relation to the current month’s deposits or lending. Lending (and deposits) may expand subject only to the constraint that induced reserve losses reduce reserve
3. GENERAL THEORETICAL CRITICISMS

(a) Direct controls of any sort over specific institutions involve the problem of disintermediation (i.e. the re-routing of financial intermediation through less controlled channels). Disintermediation is recognised as a problem as by definition it results in a financial system which is less subject to official control. Furthermore as direct controls are normally placed on the major financial institutions (which are, in terms of size, important intermediators of funds by virtue of the fact that they tend to be the relatively efficient, cheap, and safe), disintermediation tends to result in a financial system which is on average less efficient, more costly, and less stable.

Disintermediation arises as a result of the enforcement on the particular institution of a balance sheet structure other than that desired by the institution itself. Of course this is precisely what the RAR system attempts to do. On the assumption that banks are profit maximisers, a balance sheet structure other than that desired by the banks is sub-optimal, i.e. profitability is impaired. Consequently, even if banks have the freedom to set their interest rates on both deposits and lending, over the longer term banks could become relatively less important in the financial sector since the returns on banking business would tend to decline compared with other financial institutions, depending of course on the nature of official controls over the balance sheet structures of other financial institutions.

However, it should be noted that this problem is less significant the greater the flexibility the banks have to determine their own interest rate structure. This freedom was given the banks in March 1976. Nevertheless, for various reasons banks may not be using this interest rate flexibility in order to adjust the growth rates of their lending. Lending adjustments may quite likely be made via credit rationing between seekers of bank finance according to both Government determined and bank determined priorities. Credit rationing implies an unsatisfied demand for bank credit at existing interest rates, allowing other financial institutions the opportunity to take advantage of higher earnings on lending business to attract deposits away from trading banks. In this way the higher the degree of credit rationing by the banks, the faster disintermediation works as direct controls are implemented.

Furthermore the extent of disintermediation generated by a ratio system will also depend on the yield on reserve assets that the banks are required to hold. To illustrate the point, if yields on reserve assets were sufficiently attractive to make banks voluntary holders of Government securities (rather than forced holders), the portfolio structure of the banks would be identical with or without the ratio control. In the light of what was said earlier about the cause of disintermediation (i.e. that it arises from the enforcement on a particular institution of a balance sheet structure other than that desired by the institution itself), it can be seen that market related yields on reserve assets would virtually remove the disintermediation problem.

The disintermediation criticism is largely valid although its significance does depend on the factors discussed above. In general most theoreticians and central banks around the world, including the Reserve Bank of New Zealand, recognise disintermediation as an important limitation on direct control methods such as ratio policy, especially given below market yields on reserve assets. The generally accepted alternatives to direct non-market controls are generalised market related...
instruments such as public debt policy and open-market operations in public debt. Those alternatives will be discussed later in section 4 (c). New Zealand has in fact been moving towards the development of an effective public debt policy for some years now, although the pace of this development has recently slowed markedly.

(b) The first article of this pair showed that the RAR system is intended to achieve its effect on bank lending in two ways. First, a behaviour modification effect can be derived from a policy adjustment on the risk of profit loss (via the free reserves margin). In general the possibility of adjusting the risk of profit loss provides the motivation for the use of moral suasion as a policy tool. Indeed moral suasion is usually the first step in a change in policy stance — banks are given an indication that the authorities consider that their lending behaviour is moving outside the range appropriate in the prevailing circumstances, and that accordingly a policy adjustment to the free reserves margin is being contemplated. This, in itself, can induce behavioural changes. Secondly, an interest rate effect arises from the reaction of banks to the variation, or threat of variation, of this risk of profit loss.

However, the history of the RAR system throws doubt on the strength of these effects. Examination of the growth rates of bank lending since the introduction of the RAR system in 1973 (presented graphically in Figure I) shows that bank lending has been highly volatile. Furthermore, relating adjustments of the free reserves margin to the growth rate of bank lending, it can be seen that there has been historically little correlation between the ‘tightness’ of the RAR policy and the rate of growth of bank lending. Indeed, taking into account the time lags one would normally expect between a tightening of policy and a slowdown in bank lending, it would seem that policy changes, when they have occurred in response to change in the growth rate of bank lending, have come too late.

The apparent failure of the RAR system to achieve its intended effect has motivated some people to argue that, since the behavioural modification aspect clearly has not worked (or has not been applied with sufficient vigour to ensure an adequate response), doubt must be thrown on the ability of interest rate effects to achieve the desired results. This doubt is amplified by the failure to find significant interest rate effects in empirical research on the determinants of the demand for money (defined broadly). As control over bank lending is thought to be important because of the relationship between bank lending and the money supply (the Reserve Bank, like most other central banks, regards control over the money supply as a necessary condition for price stability), the failure to find significant interest rate arguments in broad money demand functions is important.

However the fact that such relationships have not been found to be significant in empirical research does not mean to say that they are not significant. There is a number of reasons why this may be the case. One is that since interest rates have only been free to be determined by market forces since 1976, insufficient data are available to test such relationships. Compounding this, it can be argued that even since 1976 the data are not appropriate for testing the effectiveness of policy induced interest-rate effects: the RAR system has never really been used to impose binding constraints on the system (partly for the reasons given in Section 2(c), hence in many periods interest rates have not been influenced strongly by monetary policy. The fact that there

1. See, for example, G H. Spencer, Monetary Targets: A Comparison of Some Alternative Aggregates, Reserve Bank of New Zealand Research paper No 30.
probably have been inadequacies in the implementation of the RAR system must be taken into account when questioning the usefulness of the system as a whole.

On the other hand, in fairness to the system, it must be acknowledged that there has been some unwillingness to use it rigorously even when credit has been expanding rapidly, and in this sense the system perhaps remains untested and the problem may be a lack of willingness to use ratios. Indeed, and now in fairness to the authorities, the experiences of the 1950's and 1960's with similar direct controls (admittedly accompanied by some interest rate controls) were not encouraging in terms of their effectiveness. The widespread disintermediation which arose lead to some disillusionment with ratio controls, confirming the precept of conventional economic theory, and lead to the desire on the part of both the Bank and the Treasury to place more emphasis on public debt and open-market operations. In the event, the interest rate consequences of this approach have yielded some problems.

(c) As just intimated, it is generally accepted that in theory public debt policy (and open-market operations) is a superior policy tool than ratio controls, although experience elsewhere (especially the U.S.A.) indicates that this policy tool also has its problems (these problems are explored further in Section 4(c)). Public debt policy has been undergoing development in New Zealand, a trend which will hopefully accelerate in the future. Assuming that full scale public debt policy operations will be run simultaneously with ratio policy for a time at least, it becomes significant to question the compatibility of the two policy systems.

In the first instance the two policy systems are compatible in the sense that both have the same aims, i.e., both systems are intended to reduce the growth rates of monetary and credit aggregates and thus curtail the potential for financing excessive expansion in aggregate demand, and to induce the general public to switch non-credit consumption expenditure away from consumption and in favour of saving. However, questioning the compatibility of the two policy systems has raised some criticisms about the practicability of RAR policy during periods of attempted public debt sales. 'Tight' settings of both policy instruments involves on the one hand high volumes of sales of public debt to the non-bank private sector, and on the other hand reserve asset ratios which are intended to cause relatively frequent potential shortfalls in the reserve asset holdings of trading banks below reserve asset requirements (although it should be noted that to the extent that public debt is sold to the non-bank private sector, the need for tightness in ratio setting is reduced). As we have seen, potential reserve asset shortfalls can induce trading banks to seek reserves on the market, effectively by buying public debt from the non-bank private sector, thus to an extent frustrating authorities’ attempts to market public debt.

The net result of this interaction between the two policy systems will be for market interest rates to rise (which, in theory at least, is a movement in the right direction). Banks will raise the interest rates offered on their liabilities so they become more attractive relative to public debt issues. If the authorities wish to keep the level of non-bank holdings of public debt up, they will have to become more aggressive in their marketing of government securities, inducing a further rise in interest rates. As, in certain circumstances the two interest rate effects may be reinforcing, the interaction between the two policy systems may at times result in excessive fluctuations in short-term interest rates.

This potential problem may, some people argue, be able to be solved in several ways, one may be to forgo the RAR policy in favour of alternative systems (one alternative ratio system is the cash ratio system, discussed below in section 4(a); another alternative is public debt policy alone). A second possibility which may go some way towards providing a solution is a modification of public debt policy such that more attention is given to the term structure of public debt. Selling longer term government securities to the non-bank private sector than at present makes public debt policy more effective whatever the reserve ratio system in force. In addition the availability to the banks of long-dated paper with little time left to maturity may become limited in times of increasing interest rates if the consideration of capital losses is a factor in the minds of non-bank private sector holders of these securities. The significance of this would be also depend on the way in which people value securities in their books.

A third possibility worth considering, one which may reinforce the second possibility mentioned is changing the valuation of Government securities held by the banks for reserve asset purposes. At present securities held for reserves asset purposes are valued at par. This allows the possibility that some reserve assets may be purchased by the banks at a lesser cost than their value as reserve assets, given the long-term rise in public debt interest rates seen in New Zealand. Valuation at market value could increase the average cost to the banks of reserve asset purchases from the non-bank private sector. However this would make the level of reserve assets variable with interest rates, a fact which may create more problems than it solves.

A fourth possibility is amending the RAR system to allow deficiencies of reserve assets to be carried over into the subsequent month for offsetting against any subsequent reserve asset excess. A scheme of this type has been suggested by William Poole in connection with the American reserve ratio system. Given some limitation on the extent of any carryover, such a scheme could ease the short-term interest rate pressures resulting from occasional or random deficiencies of reserve assets while maintaining the profit cost element in the event of consecutive or near consecutive deficiencies. While not reducing the extent of interest rate movements in the latter case, overall the random interest rate fluctuation problem could be at least partially alleviated.

4. ALTERNATIVE POLICY SYSTEMS

Many of the general theoretical criticisms discussed have been raised in the context of the promotion of alternative policy systems. Indeed many of those criticisms make more sense in such a context. While not pretending to cover all alternative policy systems used internationally, discussed in the literature, or suggested for the New Zealand setting, the following presents a brief outline of some of the major ones.

(a) One of the most frequently suggested alternatives to the RAR system is the Cash Ratio (CR) system, or some variant of it. The CR system, like the RAR system, requires trading banks to hold a policy determined ratio of eligible reserves to eligible bank liabilities, the major difference being that eligible reserves are restricted to cash (holdings of notes and perhaps coin, and trading

---

2. William A. Poole Statement Before the Sub-Committee on Domestic Monetary Policy of the Committee on Banking, Finance, and Urban Affairs, U.S. House of Representatives.
November, 1981

bank deposits with the Reserve Bank), whereas the RAR system includes bank holdings of Government securities in the list of eligible assets.

Proponents of the CR system argue that bank cash is considerably more within the control of the authorities than Government securities, pointing to the ability of the banks (as outlined earlier) to buy in Government securities from the non-bank private sector. As has been seen already purchases of public debt from the non-bank private sector involves additional costs to the banks and as such this source of reserve assets is akin to borrowing from the Reserve Bank. Profits are affected in the appropriate direction, as are market interest rates. Nevertheless the discussion in Section 3(c) indicated that it can be argued that in conjunction with public debt policy the induced interest rate effects may be excessively magnified.

This argument holds that the enhanced control over cash reserve assets as compared with Government security reserve assets is derived from the fact that a CR system can be structured in such a way that in order to acquire additional cash banks might have to discount with the Reserve Bank Government securities purchased from the non-bank private sector. Under an alternative form of the CR system where special Reserve Bank securities rather than cash are the main eligible reserve asset, after discounting securities for cash banks would have to purchase these special securities. According to CR proponents, whichever system is operational, the authorities have the ability to control the ultimate cost of converting Government securities into qualifying reserve assets. Appropriate manipulation of this conversion cost could forestall banks' attempts to acquire additional reserve assets by buying Government securities from the non-bank private sector, thus moderating the interest rate effects of policy induced reserve asset deficiencies.

It should be borne in mind, however, that the particular interest rate pressures focussed on in the arguments outlined are only one aspect of the interaction of monetary policy and interest rates. As noted in the first article and earlier in this article, interest rates are one of the channels through which the effects of monetary policy are transmitted to the expenditure and saving/borrowing decisions of the private sector. In the context of the evidence referred to in Section 3(b) which suggests that in some cases interest rate movements may need to be quite large in order to cause the private sector to alter its expenditure and saving/borrowing decisions, concern with the particular possible effects on interest rates of interaction between RAR policy and public debt policy in certain circumstances may be somewhat misleading. Furthermore, both CR policy and RAR policy can be expected to have interest rate effects, initially due to interbank competition for reserve assets (via deposit competition). Nevertheless it can be argued that these points in themselves do not invalidate the conclusion reached by some critics of the RAR system that it has elements of its structure which may, in certain circumstances, tend to frustrate the marketing of public debt through additional interest rate pressures.

A second advantage of CRs over RARs in the eyes of CR proponents is that CRs would avoid the problems associated with the need to make accurate short-term forecasts of reserve asset movements. These problems are, in particular, those discussed in Section 2(a), (b) and (c). The way in which these problems would be avoided under a CR regime revolves around the use of a lower and stable ratio of cash reserve assets to bank deposits. In other words required reserve asset holdings would be only a relatively small proportion of total bank reserves, while the ratio of required reserves to current month deposits would be stable over periods of longer than one month. In this way increases in bank lending through its effect on bank deposits would impact on cash reserve asset requirements while seasonal influences on total bank reserves could be partly absorbed within the non-required portion of total reserves.

Obviously for this mechanism to provide a constraint to bank lending growth acquisition of additional required reserve assets would need to involve a profit loss for the banks, or all required reserve asset holdings would need to earn less than market rates of interest. In the former case, however, banks would be penalised for deposit gains arising out of Government deficit expenditure, overseas exchange transactions surpluses, and successful competition for deposits with other financial institutions, even if their lending behaviour was appropriate, unless the cost of acquiring these additional required reserve assets was adjusted as bank lending behaviour changed. If costs were varied in this fashion, though, there would be nothing to prevent banks from acquiring excess reserves while they were cheap (or in other words while the additions to reserve assets of the required type were attracting market yields). The solution would be set ratios at levels which would swallow up most bank reserves as required reserves, a system which would operate in the same way as the RAR system except that the definition of eligible reserve assets has changed. (This procedure would in fact be necessary, in some circumstances, for other reasons — see footnote 3.) However the problems of short-term reserve asset forecasting would return.

In the latter case, where all cash reserve assets yield less than market rates of return, banks would not wish to hold excess reserves beyond a certain frictional level. Nevertheless this would also effectively impose a penalty on banks for exogenous gains in deposits (for example through an increase in Government deficit expenditure). Furthermore this would tend to discourage competition for deposits, with the resulting problem of disintermediation. Of course the lower the ratio the less the disintermediation problem since a low ratio means that only a small proportion of bank's total assets would be earning less than market interest rates.

However a low ratio implies a high multiplier between additions to reserves and bank lending; that is, additional deposits and reserves through a fiscal injection will conceptually allow a greater expansion of bank lending with a stable low ratio requirement than with a stable high ratio. In order to moderate bank lending therefore it would be necessary to increase the ratio in line with exogenous injections into the system, an exercise which in itself would require a high degree of forecasting accuracy.

It appears then that a CR system of itself would not particularly alleviate the problems which emanate from the variable and uncertain growth patterns of the reserve base. Control over the reserve base itself should allow for which role public debt policy is the most effective monetary policy weapon. (As shall be seen later monetary policy used by itself to control the reserve base creates problems — sensible fiscal policy is also required). Given that, as with the RAR system, the

3. In the New Zealand circumstances the CR system structure that would be necessary to achieve this enhanced control would involve ratios at much the same level as ratios under the existing RAR system, since Government flows through the banking system are relatively large. This structure would, however, not be necessary for the CR variant mentioned next.
question of the compatibility of the CR system and public debt policy arises. It is immediately apparent that since a CR system can, by appropriate manipulation of the cost to banks of converting public debt bought from the non-bank private sector into required cash reserve assets, effectively prevent banks using public debt as an 'emergency' source of reserve assets, the CR system may not involve the potential frustration of public debt marketing to the same extent as the RAR system. Furthermore if the monetisation of public debt by the banks can be controlled under the CR system, the CR system would largely remove the need for distinction between sales of public debt to the banks and to non-bank sector.

To summarise, it is unlikely that the CR system could avoid the need to have accurate short-term forecasting of reserve asset movements. However the CR system may be more compatible with active public debt policy than the RAR system (in terms of the effect on marketing public debt) although the significance of this point in practice is not clear. The major problem with CRs appear to be the disinflationary effects of offering less than market interest rates on cash reserve assets, which is one of the possible mechanisms whereby a profit related constraint could be imposed on banks. In addition, given that the yields on such reserves are set purely administratively (i.e. with no built-in connection with market interest rates), the potential danger arises of variation of this yield for inappropriate reasons. Moreover, the tighter and more arbitrary is any ratio or direct control system, the greater is the incentive for non-controlled avenues to expand.

(b) It was seen in the discussion about the CR system that, like the RAR system, certain problems are generated by the extent and uncertainty of variations in the reserve base, that is the outstanding stock of reserve assets (as defined for each system). Nevertheless, assuming that reserve assets under the CR system yielded market returns (except of course where the marginal returns on reserve assets are adjusted to prevent banks buying public debt from the non-bank private sector in order to circumvent ratio constraints), it was apparent that CRs may, to an uncertain extent, offer advantages relative to RARs in that the outstanding stock of reserve assets under CRs are more within the control of the authorities. This factor has significance in a monetary policy environment in which active public debt policy is a feature.

But the overall balance of advantage between RARs and CRs in a technical sense is not clear cut, and it would not be unreasonable to argue that the willingness and skill with which either system were used may in practice be the over-riding consideration in determining effectiveness rather than particular technical characteristics.

One proposal which features a suggested system for close regulation of the reserve base is that put forward originally by Duck and Sheppard in a 1978 paper in The Economic Journal, later updated and adapted for New Zealand circumstances by Sheppard and Whitwell. They proposed that eligible reserve assets be confined purely to specially set up deposits at the Reserve Bank, the aggregate level of which is effectively determined by Reserve Bank decree. Individual financial institutions subject to Reserve Deposit (RD) requirements (such

requirements being set as a ratio of specified bank liabilities less bank cash holdings and their deposits at the Reserve Bank), would vary the level of their RD holdings through transactions with other holders of RDs.

Confining the discussion to the banking system in the meantime, as the overall level of RDs is fixed by the monetary authorities (hence the reserve base of the banking system is unaffected by Government and overseas exchange transactions unless the authorities decide otherwise and change the level of outstanding RDs), in situations of potential reserve asset shortfalls individual banks could obtain surplus RDs from other holders and/or reduce lending in order to reduce deposit growth. For the banking system as a whole, however, the first option would not be open as there would be no outside holders of RDs. In other words for the system as a whole an increase in deposits through, for example, competition for new deposits arising from Government injections could lead to an increase in RD requirements without an increase in RD holdings, unless the new deposits were backed entirely by cash reserves (i.e. not outstandings). This would clearly discourage lending in the absence of additional RD creation by the monetary authorities. However, if cash reserves attracted no interest, the RD requirement would act to discourage deposit competition a fact of which could give rise to disintermediation. If interest were paid on trading bank deposits at the Reserve Bank the extent of potential disintermediation would depend on the relative earnings margins on lending business compared with holding assets in cash form.

Sheppard and Whitwell's proposal also allows for graduated penalties on the banks for both deficiencies in RD holdings and excess holdings. Depending on the severity of these penalties, it is clear that the proposal allows for potentially very close control over the size of bank deposit liabilities and lending. However, as we have seen it is also clear that if this close control is exercised a trade-off between the stability of a bank's business and disintermediation may arise. The monetary authorities could, by creating new RDs in line with monetary injections through Government expenditure and overseas exchange transactions etc., entirely prevent such disintermediation, but at the cost of weakening any constraints on bank lending and deposit growth.

Determination of an appropriate tradeoff would involve the monetary authorities in similar sorts of analysis and forecasting exercises as under the RAR and CR systems. The main differences are that greater accuracy on the part of the monetary authorities would be required as, unlike the RAR and CR systems which would both allow some degree of free reserve holdings, there would be little or no allowance for uncertainty, although some of the uncertainty surrounding the size of the reserve base may be eased.

One possibility for alleviating part of this potential disintermediation problem would be the extension of similar ratio requirements over a wide range of financial institutions, thus allowing some wider scope for inter-institutional transactions in RDs. However it is simply not possible administratively to control all institutions which act as financial intermediaries, and so the disintermediation problem returns with the additional disadvantage that the uncontrolled institutions would in this case tend to be the least efficient and safe of the total range of financial intermediaries. Furthermore diversion of financial flows through such uncontrolled fringe channels would, by definition, weaken the effectiveness of monetary policy over time. This is what happened in New Zealand in the 1950's and 1960's when banks were
subject to cash ratios and interest rate controls simultaneously. Against this, of course, the possibility of obtaining closer control over the monetary base must be seen as an advantage of the Sheppard and Whitwell system. In addition the potential disintermediation problem inherent in the system is fundamentally the result of uncertainty generated by wide swings in overseas exchange and government transactions, a problem which besets all monetary control systems. This system, however, may be more sensitive to these fluctuations than others, depending on the relative cost of holding cash as reserve assets.

(c) As mentioned earlier public debt policy is generally accepted to be a superior alternative to ratio policies alone, for two major reasons: first, whereas ratio policy attempts to dampen the multiplier effects of increases in the monetary base by attempting to prevent the additional reserves gained by financial institutions being used to support additional lending, public debt policy removes the additional reserves (and deposits) from the system. In other words public debt policy can affect the reserve base of the banking system, especially, as we have seen, in the context of CR policy.

Secondly ratio policy suffers from the major disadvantage that it is discriminatory in the sense that it may be applied in a few of the major financial institutions. Whilst in a freely competitive market place with market-related yields on qualifying reserve assets the disintermediation resulting from the concentration of controls on the major institutions is reduced significantly, over the longer term the enforcement of a portfolio structure other than that desired by the controlled institutions may result in a loss of relative competitiveness of those institutions, particularly if the controls induce non-price credit rationing. Although the process is slower in a freely competitive market place, the use of non-market controls to influence the path of chosen monetary and credit aggregates will inevitably lead to those chosen aggregates losing importance.

Public debt policy eases these problems by using market mechanisms (the relative yield-competitiveness of a particular type of financial asset, Government debt) which have a pervasive effect. Increased public debt sales to the non-bank private sector cause all financial institutions to lose liabilities (and reserves), the extent of the loss being determined by the individual competitiveness of each intermediary. Thus control over the lending behaviour of financial intermediaries is improved while the attractiveness of investment in financial assets as compared to spending on goods and services is enhanced. In addition sufficiently attractive yields on Government securities may induce financial institutions to become voluntary holders of public debt, possibly to the extent of substituting such assets for lending to the private sector.

However public debt policy is not free of problems. The authorities still have the difficulty of assessing both the extent and timing of required public debt sales to achieve the desired monetary conditions. This problem is similar to those faced under the RAR and CR systems. Furthermore the authorities must be fully prepared to set interest rates on public debt (hence market interest rates as they are adjusted to maintain relative competitiveness) to levels required to achieve the target sales of public debt. In addition once public debt has been sold, these holdings must be maintained. Combined with further debt sales requirements resulting from continued fiscal injections, these factors give rise to the ‘ratcheting’ effect of interest rates whereby while public debt policy (and other monetary policy instruments) is called on to moderate continued monetary expansion, interest rates must be adjusted upwards. As we have seen with the RAR policy, problems with the willingness to accept high interest rates as a part of the policy has lead to the RAR policy being operated in a less than fully effective fashion. There is no guarantee that the same problems would not occur with public debt policy.

There may be some justification for unwillingness to operate monetary policy in such a way that interest rates are ratcheted upwards. This is that high interest rates can lead in some circumstances to the curtailment of some private sector investment expenditure, a process known as ‘crowding out’. However, as we have seen, unwillingness to accept high interest rates militates severely against the effectiveness of monetary policy, and it is well known that the failure to moderate excessive monetary and credit expansion results in pervasive harmful effects on the economy, notably through generation of inflation. The conclusion to be drawn from this apparent dilemma is that the sources of monetary expansion, particularly continuing high fiscal deficits, are the fundamental problem.

**SUMMARY**

The above analysis suggests that many of the criticisms of the RAR arrangements involve a misunderstanding of the operation of the system. This applies particularly to the operational criticisms discussed in Section 2. In particular the discussion in that section argued that through policy manipulation of the free reserves margin, conceptually the RAR system can influence bank lending behaviour first by adjusting the risk to the banks of a profit loss, and secondly by influencing the private sector’s demand for credit via the interest rate effects of attempts by banks to minimise potential profit losses. In practice it was seen that the RAR system has at times not been used effectively, partly due to the realisation that the penalty element embodied in the penal borrowing rate was sufficiently high to give rise potentially to excessive short-term fluctuations in market interest rates, but also due to a learned reluctance on the part of the authorities to use direct controls with any degree of severity in view of the disintermediation which historically has resulted.

Later, in Section 3 (c), it was seen that it is a possibility that this potential for interest rate disbursement is a result of the basic design of the RAR system: the RAR system, when used to constrain the banking system’s lending behaviour, may tend to frustrate public debt marketing. In short, the RAR system can influence trading bank lending if the authorities are prepared to accept the consequences in terms of possible short-term market interest rate disturbances. The problem is that these disturbances may be magnified somewhat by the interaction of RAR and public debt policy.

Perhaps this problem with the RAR system could be partially alleviated by amendments to the system or to public debt policy. Some suggestions for further investigation were presented in Section 3 (c). Alternatively, a replacement system may provide an answer. One such system, the Cash Ratio system, may possibly be superior to the RAR system in terms of its compatibility with public debt policy. Nevertheless without an active public debt policy CR policy would probably have to function in the same fashion as RAR policy with the additional problem that as the eligible reserve asset under CRs would be peculiar to the banking system, the potential for disintermediation consequent on payment of less than market interest rates on these
reserve assets would be greater than under an RAR regime. It is not clear where the balance of advantage lies as between RAR and CR policy. Perhaps the fairest conclusion is that arguments in favour of CRs do not seem to be persuasive enough to make a change in view of the fact that public debt policy is not currently being actively utilised as a major policy instrument.

Potential disintermediation problems also beset another policy system, the Reserve Deposit system promoted by Sheppard and Whitwell. However the problem could be greater under this system than the others discussed due to the tightness of the controls imposed on banks' overall balance sheets. In this respect the need for accurate analysis and forecasting on the part of the authorities of what are essentially uncertain financial flows would be crucial to the effectiveness of the system. One of the major lessons to be learned from the history of the RAR system is that our state of knowledge is not sufficient to guarantee such accuracy.

Finally public debt policy was examined and found to be markedly superior to the other policy systems discussed in two respects: first, it is equitable in its effect and thus does not create the sort of market distortions which lead to disintermediation. Secondly, it allows some control over the size of the reserve base of the banking system (it should be noted that the Sheppard and Whitwell system, unlike the other ratio systems, exactly controls the size of the reserve base). The latter point, however, is perhaps more valid under a CR system than under an RAR system. Public debt policy was nevertheless subject to some problems, the most important being that, like all other monetary policy systems, it may have potentially harmful effects in the face of continuing high fiscal deficits.

**CONCLUSION**

All in all, the end result of the analysis is by no means clear cut, except in three respects. The first is that whatever the theoretical considerations, the history of the RAR system has demonstrated that the over-riding determinant of the success or otherwise of a policy system is the willingness of the authorities to implement the system as designed. The second is that monetary stability ultimately and always depends on sensible fiscal policy. Finally, as the third point, market related systems of monetary control, such as public debt and open market operations, are to be preferred over direct ratio controls, regardless of the form of the latter.

---

**CORRECTION**

The first article of this pair (published in the October 1981 Bulletin) contained an error of fact. On page 446 it was stated that ‘Banks may borrow from the Reserve Bank at any time during the current month . . . In addition, if banks are faced with a need to borrow on the last day of the month . . . they may spread these borrowings out through the subsequent month . . . ’ In fact, from May 1980 the penal borrowing provisions allow for borrowing for reserve asset purposes only through the subsequent month (in such a way that the daily average of the borrowings equals the daily average deficiency). (Full details are presented in an article in the October 1980 Bulletin.) In this light, option (e) of the five ‘emergency’ sources of reserve assets listed on page 446 is not available to help avoid a reserve asset deficiency. However, allowing a reserve asset deficiency to occur and consequent borrowing from the Reserve Bank remains one of the alternative courses of action open to trading banks. As such the fundamental thrust of the argument is unaltered.