

ACCOUNTING FOR THE RESERVE BANK'S DOMESTIC BOND PORTFOLIO*

A discussion of some aspects of central bank accounting, which highlights some of the unique features of the Reserve Bank.

Introduction

From the 1992/93 financial year, the Reserve Bank has changed its accounting policy for valuing its domestic government bond portfolio. Because the Reserve Bank was reverting to an accounting treatment dropped as recently as 1988, and because the revised approach differs from that often used by commercial banks, the latest change deserves explanation. This is the purpose of the current article.

The accounting policy decision followed from a review of the structure of the Reserve Bank's portfolio of domestic bonds. This review concluded that, as a matter of ongoing policy, the Bank should hold government bonds, and that the portfolio should be evenly spread between the main bond issues. The arguments that lead to these conclusions are outlined in this article. Important to these conclusions is the fact that the Bank's portfolio of government securities does not represent a 'resource' to be managed actively for profit, because every gain to the Bank is a loss to the Crown, and vice versa.

At the same time, it was recognised that the Bank's mark-to-market accounting policy in the securities portfolio area could lead to significant swings in reported profits. Moreover, mark-to-market accounting was not being applied consistently. Especially with consistent application of mark-to-market accounting, the Bank could record a loss even though the Bank was successful in reaching its policy targets. This is not to say that yield-to-maturity accounting necessarily produces financial results consistent with success or failure on the policy front - only that mark-to-market accounting would be more prone to produce results which are potentially misleading or confusing. The potential for tension between reported financial results and policy results (the latter being of paramount importance) led to a re-examination of the logic of the Bank's accounting policies.

The re-examination led to a decision to adopt a yield-to-maturity accounting approach for the government bond portfolio.¹ Choice of this new accounting policy was based on a judgement that the accounting approach should be as consistent as possible with the main economic objective of the Bank. For most private sector financial institutions, the main economic objective relates to the net worth of the organisation, which is revealed most clearly by a mark-to-market accounting policy. For the Reserve Bank, on the other hand, the main economic objective is price stability. Potential future revenue, and therefore (economic) net worth, may well be inversely related to success.

* This article draws heavily on work by Ian Harrison

¹ Both the assets and liabilities of the Reserve Bank's foreign reserves portfolio will continue to be marked to market, as this is the correct methodology for measuring the economic performance of this external portion of the Bank's balance sheet.

Yield-to-maturity has the benefit of producing results that are easier to understand and less prone to misinterpretation.

The Origin of the Reserve Bank's Bond Portfolio

As a central bank with responsibility for issuing currency notes, the Reserve Bank has a large currency note liability. Assets of some form are required as the counterpart to, or backing for, that liability. The essential choices are claims on (i.e. loans to) government, claims on the private sector, or real assets such as land and buildings. Government bonds - a form of claim on government - are held for the following reasons:

1. Government bonds provide a source of income for the Bank, thereby reducing the need to rely on ad hoc government decisions on funding the Bank's expenditures. Such an 'arms length' source of income was thought to buttress to some extent the Bank's operational independence, which is in turn important for monetary policy credibility reasons.
2. The alternatives of holding private securities or real assets would change the risk characteristics of the Government's overall balance sheet, since the Government is the beneficial owner of the Bank. Managing risks on behalf of the Crown does not represent a 'core' business for the Bank.
3. Government bonds carry a lower default risk than most of the alternatives. Essentially, the currency note liability of the Reserve Bank becomes backed by the Government's power to tax, both directly through the Government's ownership of the Bank, and indirectly through the Bank's holdings of government securities.
4. In the past, open market operations in government bonds have been used by the Bank in its monetary policy operations. Continuing to hold a portfolio of government bonds provides a reserve intervention capacity that might be useful for some types of monetary policy operations in future, or in circumstances of considerable stress in the bond market specifically or financial markets more generally.

Given the existence of a bond portfolio, decisions have to be made on the rules for the structure of the portfolio, and on the method of valuing or accounting for the portfolio.

Optimal portfolio structure should, in principle, follow from the reasons for holding a portfolio in the first place. Having determined that the structure should include government rather than private instruments, a number of considerations follow. First, the duration² of the portfolio is largely irrelevant, because the Bank is owned by the Government. (This point is explained in detail in a later section.) Second, concerns to have a reserve intervention capacity in the event of securities market instability suggests a structure involving a spread of the main securities issues. And third, the use of the portfolio to generate an income stream might suggest a relatively long average maturity which would lock in a target income stream.

² Duration measures the sensitivity of the value of a bond when it is subjected to a small change in interest rates. Duration is approximately equal to the weighted average of the future cashflows, where the weights are the time at which future cashflows are received.

Holding a portfolio of the main bond issues in fact provides a relatively long average maturity. With conventional securities, this implies a long duration, and thereby a high degree of sensitivity of the value of the portfolio to changes in interest rates. Different methods of accounting for the value of the portfolio therefore could make a considerable difference to the *reported* financial outcome of the Bank (though not, of course, to the underlying economic outcome). In this light, the two main alternative accounting approaches were evaluated, as discussed below.

Mark-to-Market and Yield-to-Maturity Valuation Methods

With a mark-to-market accounting approach, a bond is revalued at the balance date, and any change in the value of the security is recorded in the profit and loss account. A change in value can usually readily be determined, since most bonds are traded and the current market price is known within reasonable bounds. The total income from the bond recorded in the profit and loss statement is the combination of the interest received during the accounting period, plus the change in capital value.

With a yield-to-maturity approach, the income of the bond that is entered into the accounts is determined by the purchase yield of the bond, and remains constant throughout the life of the bond. A bond that pays a certain amount of interest each year (the 'coupon' payment) may have a different yield to the purchaser than shown by the coupon interest rate (the coupon payment related to the face value of the bond), because the purchaser may have bought the bond at a higher or lower price than the face value. The income entered into the accounts can thus differ from the interest received during the accounting period, by an amount that represents the amortised value of the difference between the purchase price and the face (or maturity) value of the bond.

In the commercial world, there is an argument that mark-to-market is generally preferable to yield-to-maturity as a basis for accounting for assets that can vary in value during their life.³ The main reason is, of course, that the accounts thereby allow for losses or gains in value that are otherwise hidden by the constant income treatment of the yield-to-maturity approach. Knowledge of capital losses or gains - or lack of it - does not, by itself, change the fact of those losses or gains.

Where bonds are bought to be held to maturity, and will not be sold in the interim, the cash income is determined at purchase time. For this reason, some argue that a yield-to-maturity accounting approach is suited to assets that are typically held to maturity. But this ignores the fact that risk as well as return (income) is a concern of most commercial organisations. Changes in the value of assets, unless offset by changes in value in the opposite direction elsewhere in the organisation's balance sheet, lead directly to changes in the (economic) net worth of the firm. Such changes are of direct relevance to the issues of solvency, bankruptcy, and the amount that could be realised from selling the organisation.

³ This is true in particular for financial institutions, given that the structure of their balance sheets typically implies that assets and liabilities can vary in value in quite a different manner in the face of changes in interest rates. In practice many financial institutions, as well as non-financial firms, still use yield-to-maturity for at least a part of their bond values (that part which they can argue is held for "investment" purposes, and is not likely to be traded before maturity).

Put simply, it can be argued that the success or otherwise of the managers of a commercial organisation is better judged from developments in (economic) net worth than from developments in current reported income. Owners of commercial enterprises are none too happy if current reported income is positive, but the underlying net worth of the enterprise is shrinking. Thus, on this view mark-to-market is the appropriate accounting policy for commercial enterprises.

Valuing the Reserve Bank's Securities Portfolio

Why a Commercial 'Model' is Inappropriate

- As noted, choice of valuation approach depends importantly on the underlying interests of the organisation. The interests of most commercial organisations relate in some way to developments in the net worth of the organisation. In this context, accounting practices should therefore provide information on the impact of portfolio decisions on net worth.

For several reasons, the performance of the Reserve Bank in relation to its main objectives is not captured by developments in the Bank's net worth. Indeed, a potentially misleading view of the Bank's ultimate success or failure can be provided by an accounting policy focussed on net worth.

The Price Stability Objective

The Reserve Bank of New Zealand Act 1989, sets down price stability as the Bank's primary objective. Adopting this objective in fact implies the destruction of much of the Bank's potential net worth, and as such would run directly counter to the organisation's 'commercial' interests in many circumstances.

To see why adopting a price stability target reduces the Bank's net worth, it is useful to follow through the logic of a comprehensive mark-to-market accounting for the Bank's main 'business' - the currency note business.

Marking the asset counterpart of the currency note business to market has already been discussed. But what of the note liability itself? It might seem strange to record notes at anything other than face value, but the economic value of the note liability is not the same as its face value. Although notes are a demand liability, there is a high degree of stability in the total level of notes outstanding, and a reasonable degree of certainty that something like the current level of issue (at least) will be outstanding for some time into the future. Given this stability, the note issue can be valued like a perpetual security.⁴ Calculated in this way, the value of the note liability reflects the capitalised value of the future cost of maintaining the note issue at around its current size, which is considerably less than the face value of the liability.

Another relevant aspect of the note liability is the combination of the monopoly nature of the power to print banknotes, and the Bank's ability to generate inflation. As just

⁴ Valuing a stable note issue in a similar fashion to a perpetual could involve marking-to-market. The 'coupon' would be the cost of issuing notes (currently around 1.5 per cent of the value of notes on issue) and the discount rate would be the interest rate appropriate to the 'note issue business'. The difference between the face value of the notes and the economic value would be the capitalised value of the seigniorage from the current level of the note issue, and would be added to reserves.

discussed, at any one time there is a difference between the face value and the economic value of the note liability. But the Reserve Bank also has the capability to generate an increase in the volume of notes on issue, through inflation. Because of the gap between the face value and economic value of notes potentially issued in the future, inflation would lead to increments in the economic value of the assets backing the new note issue that would exceed increments to the economic value of the note liabilities.⁵ In principle, the future profits ('inflation tax') generated by exploitation of this power would, in the commercial context, be valued as a part of the monopoly or franchise accorded the Reserve Bank by Parliament.

Hence, the Bank's price stability objective can be seen as undermining its potential future revenue and economic net worth. By achieving a permanent reduction in inflation, the Bank would also be bringing about a reduction in the level of nominal interest rates, reversing the effect discussed in the previous paragraph. By marking-to-market, reported profits would fall as the capital loss on the value of the note issue (from the fall in the 'inflation tax') outweighs the capital gain on the bond portfolio. This is because the note issue - as a near perpetual - has a much higher duration than the bond portfolio. In other words, the value placed on the monopoly note issue franchise drops as a result of the limitation placed by Parliament on the ability of the Bank to exercise the franchise by regenerating inflation.

Overall then, marking-to-market - an accounting approach designed to illuminate movements in net worth - would tend to generate annual profit figures which would be relatively unstable, and would be a poorer indicator of the 'success' or 'failure' of the Bank than the alternative accounting method. Over the past few years, the Bank has been successful in reducing inflation and hence interest rates, but a comprehensive economic measure of income, involving market-to-market, would have shown large losses. It might have been possible to explain the perverse relationship between reported profits and the Bank's 'success', but there is still scope for confusion and misinterpretation. It is simply easier not to use such accounting policies.

Implications of the Government as Beneficial Owner of the Bank

Setting aside the issues already discussed, it could be argued that it is still useful to know the changes in the value of the Reserve Bank's bond portfolio arising from changes in interest rates. That information, it could be argued, would aid the monitoring of the success or failure of decisions taken on the structure of the bond portfolio.

However, it is not helpful and, indeed, potentially misleading, to view the portfolio structure question as a matter of generating a smaller or larger net worth. We have already seen that net worth is an inappropriate objective. In addition, providing that the securities portfolio is invested in government stock, the structure of the portfolio becomes essentially irrelevant. As the Crown is the beneficial owner of the Bank, any government securities held by the Bank are both the Crown's asset and the Crown's liability. Any 'loss' or 'gain' on the Bank's asset portfolio will be offset by a precisely equal gain or loss on the Crown's debt portfolio. Thus there are no real resource consequences for the Crown from changes in the value of the Bank's portfolio.

⁵ Put simply, the Bank could if it wished increase its claims on real resources (its net worth) by easing monetary policy and generating inflation. Looking at it from a different perspective, the gain arises because the currency issue, and the volume of assets backing it, would rise more or less in line with inflation, but the nominal rate of return on the assets would also rise to reflect the higher inflation, while the nominal interest payment on the note issue would remain at zero (no interest is paid on the note issue). The net revenue to the Bank would effectively be doubly compensated for inflation.

There would, however, be real resource consequences for the Crown if the Bank had discretion to consume the income generated by the Bank's bond portfolio. Up to a point, the Bank funds its current expenditure out of income generated by these assets. But the Bank does not have unlimited discretion to use any amount of income for this purpose. The Bank operates under a funding agreement with the Government, and it is this funding agreement that sets the constraint on the Bank's expenditure. Surplus income over and above an amount required to fund a predetermined level of expenditure is paid either into the reserves of the Bank, or to the Crown (the choice being at the direction of the Minister, after consultation with the Bank). This means that, in practice, the Crown directly bears the impact of any variations in the value of the portfolio, through changes in the Bank's dividend or the value of its capital. As explained above this offsets an equal and opposite movement in the value of the Crown's debt portfolio.

Undesirability of Active Bond Trading

Apart from the fact that net worth is not the Bank's objective, there is another reason why it would be inappropriate for the Bank to actively trade its portfolio in an attempt to enhance its returns. Active bond trading would intrude into the Bank's monetary policy role. If the market knew that the Bank was actively trading to maximize its profit, and thought that inside knowledge of monetary policy developments was being used, then the Bank's bond trading would quickly come to be seen as a monetary policy signalling device. The market would interpret bond trades as reflecting information about future monetary policy changes. It might be possible to insulate the bond trading function from any contact, or suspicion of contact with the monetary policy formulation and implementation process, but this would probably result in the Bank having the least informed dealers in the market and the ones least likely to make money.

Adopting a Yield to Maturity Policy

Given the problems with both the partial and full application of economic accounting methods involving marking-to-market, it was decided that the Bank would move to a yield to maturity accounting policy for the bond portfolio from the 1992-93 financial year. This will have the effect of stabilising the reported profit figure, as capital gains and losses generated by movements in market yields will no longer impact on reported profits, reducing the possibility of overall results likely to lead to the Bank's financial statements being misinterpreted.

The new policy will also mean that the Reserve Bank's bond holding will receive a treatment consistent with that in the Crown's accounts. In the new Crown Financial statements, borrowing costs are calculated on a yield to maturity basis and there is a logic in the Bank moving to a yield to maturity rule to remove the possibility of distortions caused by different accounting treatments of the same instrument.

Summary

Because the Reserve Bank has a balance sheet and profit and loss statement that in many respects looks a lot like those of other financial organisations, there is a natural tendency to think in 'commercial' terms when addressing the problem of how to structure and account for the Reserve Bank's domestic bond portfolio. However, because of the

unique nature of the Reserve Bank's business and its public policy objectives, it is not necessarily sensible to apply commercial financial objectives and accounting rules to the Reserve Bank's bond portfolio.

Rather, the Bank has attempted to develop an accounting policy for its bond portfolio which best reflects the objectives of the organisation. The accounting practice used in the last few years could generate profit results that in economic terms were misleading, and that could divert attention from the proper indicators of Reserve Bank 'success', such as the extent to which policy targets are met, and the efficiency with which resources are used in the process of meeting those targets. In this context, a yield-to-maturity accounting policy was adopted because it was less likely to result in the Bank's financial results being misinterpreted.