Executive Summary

In order to understand the process whereby the Reserve Bank implements monetary policy to achieve price stability, one must understand, firstly, what constitutes monetary policy and, secondly, what a central bank's role is in implementing this policy. Monetary policy consists fundamentally of the control of the central bank's monetary liabilities. These liabilities include currency and bank settlement account balances at the Reserve Bank. In New Zealand, discountable Reserve Bank bills, which can be sold to the Reserve Bank on demand, may also be included as a monetary liability.

The central bank's monetary liabilities are used by the public primarily as a default-free medium of exchange. They have the special property of being a legal tender for any purchase. Prices in an economy are also generally denominated in terms of the central bank's currency. These characteristics distinguish a central bank's supply of currency from other forms of financial assets. Because of the special demand for the central bank's monetary liabilities, control over their supply - and especially over the supply of bank settlement balances - will affect nominal expenditures, and hence prices, in the economy.

The need for a special Government institution, a central bank, to supply currency derives, in part, from the role of a central bank in averting financial crises. Historically, a system of solely private banks often did not deal adequately with a situation where all banks simultaneously demanded extra liquid reserves. In this situation, each bank was competing with the others and so did not willingly give up reserves to help another bank which had liquidity problems when there was the prospect that it may need the reserves itself. On occasions, the result of this process was the onset of financial crisis and recession. A Government-owned non-commercial central bank, on the other hand, is able to provide extra reserves to the banking system if required in order to avoid a crisis. It can do so because it does not face the same conflict of objectives in this situation as does a commercial bank. Thus a non-commercial central bank is able to help stabilise the financial system through its lender of last resort role at the same time as implementing a non-inflationary monetary policy.
Introduction

In New Zealand, the central bank (the Reserve Bank of New Zealand) formulates and implements monetary policy with the primary objective of achieving and maintaining stability in the general level of prices. In order to understand this process, one must understand, firstly, what constitutes monetary policy and, secondly, what constitutes a central bank and why such an institution is required. These questions provide the subject matter for this article.

In examining what constitutes monetary policy, the next two sections of the article describe, firstly, the nature of monetary liabilities (e.g. currency) issued by the Government through the central bank and, secondly, the importance of controlling the quantity of these liabilities. The existence of the central bank is taken for granted in these sections. The fourth section of the article examines the specific role of a central bank. A brief summary concludes the article.

The Central Bank’s Monetary Liabilities

Monetary policy consists fundamentally of the control of the monetary liabilities of the central bank. One of the principal liabilities of any central bank is its supply of currency (i.e. coins and banknotes). In New Zealand, as in most countries, the central bank has a legal monopoly over the right to issue currency.

Currency is used by the public principally as a medium of exchange: that is, it is used principally to facilitate the purchase of goods and services. It also has a role as a store of value which enables people to save wealth over time, but this is not a distinctive role of currency; other assets also provide a convenient store of value and are superior in this role to currency owing to the interest payable on those assets. However, currency does have the advantage over many assets in that it is free of default risk, at least in terms of its nominal value. In real terms, inflation can reduce the value of currency held by an individual and this can be considered a form of market risk.

Nevertheless, except for cases of hyperinflation, one can be assured that the real capital value of currency will remain almost intact over relatively short periods of time. Other forms of holding wealth (such as bank deposits) do not offer such safeguards against default risk or, in cases where they are default free (such as Government bonds) they are less liquid in that they cannot be used immediately as a medium of exchange. Thus currency is the only medium of exchange that can be considered default free.

Another important aspect of currency is that it is a legal tender for any purchase and in fulfilment of any contract. When a purchaser uses currency both she and the seller are assured that final payment for the sale has legally taken place. This situation contrasts with a purchase effected, for instance, through payment by cheque where two intervening steps must take place before finality of payment can be recognised. Firstly, it must be established that the purchaser has sufficient funds in her bank account (or has an authorised overdraft facility) in order that her bank will honour the cheque. Secondly, the bank itself must have sufficient funds to enable it to honour

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1 As specified in the Reserve Bank of New Zealand Act 1989, section 8.
2 The Reserve Bank of New Zealand’s currency liabilities as at 31 March 1990 were estimated to total approximately $1.2 billion out of its total liabilities of approximately $7.6 billion.
3 Reserve Bank of New Zealand Act 1989, section 27.

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the cheque. In the (very rare) case of an insolvent or illiquid bank, the first criterion may be satisfied but the second will not be.

When a bank is illiquid, it will have insufficient funds in its settlement account with the Reserve Bank to meet all its obligations on a particular day. Deposits in these settlement accounts are another form of monetary liability of the central bank; in effect, they are equivalent to currency (although they may earn interest - as they do currently in New Zealand). The means of settlement of transactions - that is, the assets used in final payment of any obligation - are confined to currency and to banks' settlement account balances at the Reserve Bank. No other medium of exchange provides a legal guarantee that final payment of an obligation has taken place.

In New Zealand, one other liability of the Reserve Bank, that is almost equivalent in its 'moneyness' to the Bank's other monetary liabilities, is the stock of discountable Reserve Bank bills. The Reserve Bank issues Reserve Bank bills on a regular (twice-weekly) basis. They are 91 day instruments and are similar to Treasury bills or bank bills in that they return a positive yield to their holders. The key distinguishing feature of Reserve Bank bills is that once a Reserve Bank bill has 28 days or less to maturity, it can be discounted with (i.e. sold to) the Reserve Bank as required by the holders, so providing immediate access to settlement balances with the Reserve Bank or to currency, albeit at a cost. Like other Reserve Bank obligations, Reserve Bank bills have no default risk, but, unlike other monetary obligations, their nominal value is not capital certain; their value will vary as interest rates vary and as the Reserve Bank's discount rate varies.

The sum of the Reserve Bank's currency and settlement account liabilities is often termed the monetary base (or, equivalently, outside money or high-powered money). In the New Zealand context, the special character of discountable Reserve Bank bills means that they may also be included in the definition of the monetary base. The total of discountable Reserve Bank bills and settlement account balances is known as primary liquidity in New Zealand.

Because of the special characteristics of the central bank's monetary liabilities they generally act as the unit of account (or numeraire) in any economy. For instance, in New Zealand, contracts are generally denominated in New Zealand dollars and cents - rather than in U.S. dollars or numbers of sheep - even though there is no legal obligation to denominate contracts in New Zealand dollars. The use of a common unit of account reduces transactions costs in the economy since it facilitates a comparison of value across different potential transactions. Further, at least for small trades, the use of (default-free) currency also reduces transactions costs as a seller does not need to check the credentials of a purchaser (or of the purchaser's bank) prior to finalising a trade. Thus the provision by the central bank of currency (and its other monetary liabilities) contributes to national welfare both by reducing the cost of performing transactions and by giving greater certainty regarding the legal completion of a transaction.

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4 These deposits currently average approximately $30 million.  
6 For larger trades, currency is often not favoured owing to the security risk associated with having to carry large quantities of currency to execute transactions.
Monetary Policy and the Control of Outside Money

Monetary policy consists fundamentally of the control of the central bank’s monetary liabilities. Traditionally, many Governments have borrowed from the central bank in order to finance a portion of their deficit. This form of financing increases the central bank’s assets and liabilities. In effect, it means that the Government ‘prints money’ to pay for a portion of its expenditure instead of raising extra taxes or borrowing from the private sector. As discussed below, this process tends to be inflationary. In some circumstances, the Government can also use this process to have a short term effect on real economic variables in the economy. The reason why monetary policy is important is that control of the central bank’s liabilities can limit the Government’s scope to embark on such inflationary policies.

In order for this control to exert an influence on economic variables such as the price level, it is crucial that there is no other asset in the economy which acts as a perfect substitute for the central bank’s monetary liabilities. If there was such an asset, then the economic effects arising from the alteration of the central bank’s supply of base money would be offset exactly by a countervailing change in the supply of the other asset. However, as discussed in the previous section and as discussed further in the next section, there are some key distinguishing features of the central bank’s monetary liabilities which mean that there is no perfect substitute available for them. Given this imperfect substitutability, it is important that a central bank controls the quantity of its monetary liabilities since the level and rate of growth of outside money will affect other economic variables; in particular, nominal activity and the general level of prices.

The transmission mechanism of monetary policy to prices and to other variables has been discussed more fully in a previous issue of the Reserve Bank Bulletin. However, it is useful at this point to discuss briefly how the central bank in practice controls its liabilities and so influences nominal expenditure. Currency is supplied by the Reserve Bank on demand generally to the commercial banks which then meet their customers’ currency demands. Hence monetary policy is not exercised directly through limiting the supply of currency. Instead, monetary policy is exercised primarily through the control of the level of the banks’ settlement account balances at the Reserve Bank (and through their holdings of Reserve Bank bills). If banks desire to hold smaller settlement balances than are supplied by the Reserve Bank, the result will be to reduce banks’ demand for cash in the commercial money markets and so to reduce interest rates.

In turn, the lower interest rates will lead to an expansion in the public’s nominal expenditure (which, in turn, will raise their demand for currency) and also will have the effect of lowering the exchange rate, so raising the prices of tradeable goods. Non-traded goods prices will rise in response to rises in input prices, including wages. The overall effect of such a policy ultimately will be to increase prices in the economy.

There is also the possibility of a temporary expansion in real production and expenditure if prices do not rise immediately to their new equilibrium level. However, changes to the liquidity of the banking system, through changes to

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settlement balances (and/or Reserve Bank bills) should have no impact on the long term productivity and resources of the economy and so should not affect the economy’s long term production and expenditure patterns. Hence, in the longer run, monetary policy is expected only to have an effect on prices and on other nominal variables rather than on real economic variables.

Reflecting this framework, the Reserve Bank of New Zealand Act 1989 makes stability in the general level of prices the sole target for monetary policy. However, this approach does not mean that there is necessarily a stable link between a particular level of currency and/or settlement account balances (and/or Reserve Bank bills) and the price level. Since monetary policy impacts on prices through changing the supply of settlement balances relative to their demand, any event that impacts on either the supply or demand of settlement balances will feed through to prices. Thus if real demand for settlement balances was to remain constant any change in the Reserve Bank’s supply of settlement balances would impact on prices; one would then expect a close link between the level of settlement balances and the price level. Further, if real currency demand was constant, nominal currency demand would vary in proportion to the price level and one would find a close relationship between prices and the supply of outside money.

In reality, however, neither the banks’ demand for settlement balances nor the public’s demand for currency is constant in real terms. Instability in these demands has been particularly noticeable over the last decade as a result of the process of financial market deregulation coupled with innovations in payments mechanisms (such as the introduction of credit cards and electronic banking), which have been facilitated by technological developments. For instance, increased use of credit cards has reduced the public’s demand for currency needed to carry out transactions. A continuation of this development will mean that the supply of currency will tend to fall relative to the price level over time.

Another instance of instability is a change to the structure of the inter-bank cash market. Each bank’s demand for settlement balances will depend, in part, on its ability to borrow, if necessary, from other banks at short notice through the inter-bank market. In particular if, at the end of the day, a bank requires cash balances to settle its obligations with other banks it can only obtain the required cash by borrowing on the inter-bank market or by discounting Reserve Bank bills with the Reserve Bank. Since the latter is a costly exercise, a bank will prefer to borrow on the inter-bank market provided the cost of doing so is less than that of obtaining cash from the Reserve Bank. The more competitive the inter-bank market becomes the cheaper it will become to obtain cash through that market. Given that the holding of settlement cash is costly for banks (since it earns a below-market rate of interest) the result of an increase in the competitiveness of the inter-bank market will be that each bank will have an incentive to hold lower settlement balances. In this instance, if the supply of settlement balances was held constant in the face of the reduced demand, the effect would be the same as in the case of an increased supply given a constant real demand; that is, prices would tend to rise. The appropriate monetary policy response under these circumstances, in order to maintain stable prices, is to reduce the supply of settlement balances in line with the reduced demand.

Because of the presence of innovations and changes to institutional structures such as those discussed, one cannot expect to observe a simple, stable relationship
between the quantity of outside money and the price level. Under these circumstances, there is no simple rule based on the monetary aggregates that can be adopted to guide monetary policy in the pursuit of price stability. The authorities must instead inevitably make judgments, based on movements in various indicators, as to whether monetary conditions are consistent with the desired price objectives. However, the need for the use of such a discretionary approach does not invalidate the use of monetary policy to control the price level. Despite the lack of a simple rule on which to operate monetary policy, the monetary levers - especially the control over the quantity of bank settlement account balances with the Reserve Bank - can be, and are, used with discretion to achieve price level objectives.

The Monetary Role of a Central Bank
The previous analysis has assumed that there exists a central bank that has a legal monopoly over the supply of legal tender. In practice, this is the situation that exists now in almost every country in the world, including New Zealand. But it is useful to examine why countries have chosen to establish such an institution with these monopoly powers.

Historically in many countries, prior to the establishment of central banks this century or late last century, a number of private banks each issued their own banknotes which circulated as currency. These notes were generally partially backed by banks’ holdings of gold which, in turn, generally constituted legal tender. Government’s role in this period was to specify what constituted legal tender; a role related to its other roles in specifying laws relating to contracts. Except in emergencies, private banknotes were not made legal tender since to do so would have been to give private banks the power to increase their assets simply by printing more banknotes which people would accept given its legal tender status.

In many countries during this period of competitive private note issue, one bank tended to become dominant (often because of political patronage) and became a banker’s bank. Smaller banks, each of whom otherwise had to hold gold reserves against their banknote liabilities, increasingly deposited their reserves with the largest bank so enabling them to gain liquid, and often interest-earning, assets in place of their non-interest bearing gold. Effectively, the large bank in some respects became a private central bank.

However, this private ‘central bank’ had no specific objective to ensure that expansion in banks’ balance sheets was consistent with real growth in the economy. There was a tendency at this time for bank credit, in aggregate, to expand in good times as each bank attempted to maintain and/or increase market share by increasing their advances to clients. When the smaller banks demanded extra liquidity they would borrow from the large bank, but if liquidity demands were economy-wide (for instance, as a result of a political or economic crisis) this was just the time when the large bank would not wish to lend in order to protect its own reserves, and hence its long-term profitability. If it did not lend to the smaller banks, their survival was placed in jeopardy as they ran out of reserves, so leading to the calling in of loans.

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and ultimately leading to the bankruptcies of clients. This process was instrumental in the onset of a number of nineteenth century financial crises which tended to follow periods of unwarranted expansion. Tensions therefore existed for a private central bank between its role as a profit-making competitive bank and its de facto role as supplier of system liquidity in situations where the stability of the financial system was at risk.

Further, there was a problem that even if the large bank was prepared to lend to one of the smaller banks conditional on that bank being solvent, it was difficult for the large bank to acquire information regarding the solvency of the potential borrower. This difficulty arose out of the competitive nature of the two institutions with a resulting reluctance on the part of the smaller bank to yield information that may be of benefit to its largest competitor.

These problems have been overcome by the establishment of a non-profit-seeking (and generally Government owned) central bank which acts as the banker’s bank. By being explicitly a non-profit body, the central bank ceases to be in a competitive relationship with other banks and so has no conflict of interest in deciding whether to supply liquidity to the banking system when required. Hence it is able to fulfil a ‘lender of last resort’ role in order to help stabilise the financial system, while at the same time implementing a non-inflationary monetary policy.

Once a Government-owned central bank becomes the dominant supplier of liquidity it is natural for its currency liabilities to become legal tender. The use of banknotes as legal tender and as a principal transactions medium has the advantage over the use of gold (or some other commodity) in that resource costs are reduced since paper money is much cheaper to produce than gold.

While there are advantages in the adoption of central bank money as legal tender, there are also disadvantages in this system, especially if the supply of central bank currency does not have to be related to the central bank’s holdings of some commodity, such as gold. In this situation, which is currently the norm for central banks, there is no physical constraint on the quantity of currency that can be issued. This is what creates the potential for inflationary financing of Government deficits. In order to prevent inflation from arising in this system, the monetary authorities must ensure that their supply of base money does not exceed the demand for it at the existing price level.

The central bank’s currency is likely to become the dominant currency used in an economy even in the absence of a legal tender provision and of a legal monopoly of supply. But to ensure the efficacy of monetary policy, there is normally at least one legal restriction in place that differentiates the central bank’s monetary liabilities from all other assets. It is its position as being the sole asset with legal tender status that particularly distinguishes the central bank’s currency from other currencies and hence decreases the substitutability between the central bank’s currency liabilities and any other asset. For instance, its legal tender status is a major reason why banks choose to settle amongst themselves using settlement balances at the central bank. From the discussion in the previous section, this imperfect substitutability means that the central bank can control the supply of its liabilities in order to influence prices in the economy.
This would likely be the case even if the central bank did not have a monopoly over currency supply, provided it continued to be the sole form of legal tender. However the additional legal restriction that only the central bank can supply currency is another factor that decreases the substitutability between the central bank’s monetary liabilities and other assets. Hence it is also a factor in increasing the central bank’s potential influence over expenditure and prices in the economy.

Conclusion

The efficiency and stability of the financial system is increased by the presence of a non-commercial central bank, with its attendant provision of currency liabilities in the form of banknotes and private bank settlement account balances. A central bank’s monetary liabilities have several unique characteristics. These include being legal tender and being the asset in which banks, in general, settle finally amongst themselves; the latter aspect being linked to the legal tender provision and to the central bank’s lender of last resort role in providing reserves to the banking system so as to avoid a financial crisis. These characteristics mean that a central bank’s monetary liabilities will generally be preferred to those of other suppliers, even if no legal monopoly over currency supply exists.

This demand for base money means that control of these liabilities - and especially of those held as reserves by the banking system - will affect the liquidity and the expenditure patterns of the economy. While control of the central bank’s liabilities is likely to have some influence on real economic variables over the short term, it will have little or no long term effect on either the resources or the long-term productivity of the economy. Hence, the central bank’s monetary policy has the potential principally to influence nominal variables in the economy and so to determine the trend in the general level of prices.