A LAYMAN'S GUIDE TO MONETARY POLICY IN THE NEW ZEALAND CONTEXT

Monetary policy in New Zealand is aimed at reducing inflation. Why and how monetary policy might influence inflation is explained in relatively non-technical terms.

Though monetary policy has had a high public profile in recent years, some confusion remains regarding the way policy works in practice. This relates in particular to how the Reserve Bank’s policy operations affect people’s behaviour elsewhere in the economy.

This article attempts to shed some light on this issue. It discusses the main instruments which are used by the Bank to operate monetary policy, the channels by which the Bank’s operations impact on those variables which policymakers ultimately are attempting to influence; namely, economic activity and inflation; and the broad considerations which are taken into account in making policy-related decisions. The article begins with a brief discussion of what monetary policy is aiming to achieve.

Objective of Monetary Policy

The overriding objective of monetary policy is to lower the rate of inflation in the economy. Policymakers generally do not have a specific target in mind for the inflation rate, at least not in the short-term, but it is widely agreed that the prospects for delivering real economic growth and improved standards of living are far greater in an environment of low rather than high inflation.

The main reason for this is that high inflation introduces a major element of uncertainty into the economy. Many aspects of economic activity involve contractual obligations, which means that the parties involved need to form a view on the likely path of inflation, often for some time into the future (particularly in the case of long-term investment decisions). This poses significant difficulties in times of high inflation, when prices are relatively unstable. Indexation arrangements may be used in certain cases to reduce the resulting uncertainty (i.e. by tying the prices on such contracts to some measure of inflation), but such arrangements are costly to set up and maintain, and they cannot remove uncertainty entirely.

Relative price signals also tend to be more difficult to distinguish in an environment where all prices are increasing rapidly, so that resources are unlikely to be allocated efficiently in times of high inflation. These problems are severely compounded by the interaction of inflation with a nominal income based taxation system, such as that applying in New Zealand. Relative after-tax rates of return on savings and various forms of investment are significantly altered relative to pre-tax rates in the presence of inflation, and this can have major effects on resource allocation.

Inflation causes further difficulties for those groups which are producing for export, or in competition with imports from overseas, since their prices will be determined largely on world markets but their costs tend to increase in line with domestic inflation. Thus, when New Zealand’s inflation rate is above that of our main trading partners, the international competitiveness of domestic producers will tend to decline. The exchange rate would be expected to adjust over time to broadly compensate for this, but such adjustments typically do not occur in a smooth or even fashion, or in a way which meets the various needs of a diverse range of producer groups. For these reasons, an initial objective of government policy has been to reduce inflation to a level comparable with our major trading partners.

The Policy Process

The term ‘inflation’ refers to a generalised upward movement in prices throughout the economy. This is the end-product of decisions taken by a wide range of individuals and groups, but the most visible actors in the process tend to be distributors, unions and producer groups who are directly involved in wage bargaining and in setting the prices for goods and services. The behaviour of these groups is in turn shaped by influences which appear over time to be closely related to monetary phenomena; namely, the availability of money and credit in the economy, the return on savings and the price at which credit is made available (i.e. interest rates). Thus, monetary policy impacts on inflation indirectly, by operating on the particular factors which influence people’s behaviour in setting prices.

The direct effect of monetary policy is on the demand and supply of a fairly narrow range of assets. These comprise the financial instruments which are bought and sold by the Reserve Bank as part of its monetary policy operations; namely, the wholesale debt instruments which the

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1 This arises because an initial move to tighten monetary policy is often accompanied by a temporary upward movement in the exchange rate (see the *Bulletin*, February 1986, pp17-24, for a discussion of exchange rate overshooting).
Government issues to borrow from the private sector (Treasury bills and wholesale government stock), together with short-term loans which are normally secured over such instruments. Thus, the immediate result of monetary policy operations is to change the composition of such instruments in the asset portfolios of those groups with whom the Reserve Bank deals in its day-to-day activities; primarily financial institutions. How, then, do such operations, which directly affect only a relatively small part of the community, influence the behaviour of the diverse groups who are involved in making decisions regarding wage and price movements elsewhere in the economy?

To understand this, it is useful to think initially in the abstract. Hypothesise that the institutions which make up the financial system require a certain type of asset to run their businesses. If the monetary authority (i.e., the Reserve Bank acting on behalf of the Government) has the ability to control the availability or supply of that asset, it would then have a powerful weapon with which to influence the extent to which financial institutions are able to expand their businesses. This is essentially the situation in New Zealand: for reasons to be discussed below, financial institutions have a demand for those assets which are referred to as Primary Liquidity (PL), while the Reserve Bank has the ability to control the supply of PL. A difference between the amount of PL needed by financial institutions and the amount supplied by the Reserve Bank sets up forces which serve to influence financial institutions' ability to grow and, ultimately, affects the rate of inflation through influencing the behaviour of others. These forces are known as 'transmission channels'. The next section discusses the factors which influence the demand and supply of PL and this is followed by a discussion of the transmission channels.

Factors Influencing the Demand and Supply of PL

As the definition provided in footnote 2 indicates, PL comprises bankers' cash balances held at the Reserve Bank and those instruments which financial institutions are readily able to turn into Reserve Bank cash; namely short-dated government securities (including Treasury bills) which the Reserve Bank stands ready to exchange for cash on demand. The reasons why financial institutions require Reserve Bank cash, and therefore have a demand for PL, are as follows:

1. The Bank will only accept cash as settlement for its own transactions with the private sector and for those of the Government (which banks with the Reserve Bank). These institutional arrangements, combined with the legal power of the Government to enforce the payment of moneys it is owed, and the fact that the public tends to use Reserve Bank notes for settling small day-to-day transactions, mean that financial institutions have no choice but to hold PL assets in order to be in a position to settle with the Bank on behalf of their customers.

2. In addition to its role in facilitating settlements with the government sector, Reserve Bank cash also tends to be used by banks in settling transactions amongst themselves (on behalf of customers). This is largely based on the economic benefits of using an asset which has a certain value and no default or credit risk.

3. Similar considerations also lead financial institutions to hold at least part of their 'precautionary' balances in PL assets — i.e. claims on government which are default free and can readily be turned into cash — rather than claims on other financial institutions which carry some default risk.

The actual level of PL which is demanded by financial institutions will depend primarily on the size and volatility of daily flows between both government and the private sector, and between private sector financial institutions themselves, along with the difficulty in predicting such flows in advance. The major factor determining the size and volatility of such flows over time is the size of financial institutions' balance sheets, i.e. their loans and deposits outstanding. In other words, as lending and deposits expand, so will the size and volatility of inter-institutional flows, including flows between the Reserve Bank and the private sector. As a consequence, growing financial institutions will wish to hold a higher level of PL assets.

As the above discussion suggests, the trend in the demand for PL over time is largely determined by the behaviour of financial institutions, in terms of their lending and deposit-taking activities. Other factors may also influence this demand from time-to-time, including changes in the Government's banking arrangements, in the extent to which the Reserve Bank is able to reduce the volatility of daily flows through its own transactions in the market, or in Reserve Bank policy with respect to the return it offers on the cash component of PL or the price it charges for obtaining cash, i.e. the discount rate. In general, however, such changes tend to occur infrequently, so that balance sheet developments will over a longer term tend to be the main influence determining how much PL financial institutions wish to hold.

Turning now to the supply of PL, this is essentially under the control of the Reserve Bank. Because PL com-

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2 PL comprises cash balances held by financial institutions at the Reserve Bank plus government securities with less than one month to maturity, which the Reserve Bank is willing to purchase for cash (i.e. discount) at any time. PL does not include notes and coin held by the public.

3 'Cash' here refers to the debiting of financial institutions' settlement account balances at the Reserve Bank, rather than the physical transfer of notes and coin.

4 The public's demand for Reserve Bank notes arises by virtue of the fact that such notes are backed by the Government and designated 'legal tender', which means that they must be accepted as final payment for transactions.

5 Only government liabilities (or the liabilities of an institution such as the Reserve Bank which is backed by government) are completely free of default risk. This arises by virtue of the Government's legal power to raise revenue through taxation.

6 Holdings of cash or 'near-cash' assets which can readily be liquidated to meet unexpected needs.
prises solely liabilities of the Reserve Bank (i.e. settlement cash) or of the Government (i.e. short-dated government securities), it can only be created by way of transactions between the government sector (including the Reserve Bank) and the private sector, and not through transactions between private sector participants themselves. The only qualification to this statement relates to existing government debt instruments which become PL assets without involving a particular transaction, as they come within one month of maturity (by virtue of the fact that the Reserve Bank is willing to discount on demand securities with less than one month to maturity). Again, however, the amount of such securities available at any one time is effectively under the control of the authorities, since the Government has a monopoly over their issuance.

The main sources of PL in the current environment are net government spending (i.e. government expenditures in excess of revenues), government debt transactions, including debt coming close to maturity (i.e. within one month) as discussed above, and Reserve Bank transactions with the market. Prior to the move to a floating exchange rate, when the Reserve Bank stood ready to buy or sell foreign exchange on demand, external transactions also affected the level of PL, but that is now no longer the case.

The combined effect of the fiscal deficit and government debt approaching maturity tends to result in a net injection of, or increase in, PL over time. However, the authorities can offset the effect of these injections, and therefore control the level of PL, by selling government debt instruments which have longer than one month to maturity. Such sales reduce PL as the purchaser, or the bank at which the purchaser is a customer, must pay for the debt instruments using Reserve Bank cash. The main mechanism for such sales is the tendering of new issue government stock. Tenders are usually held about ten times a year, though this is also supplemented by weekly Treasury bill tenders and Reserve Bank open market operations.

Thus, the government stock tender programme becomes a major aspect of monetary policy, in terms of influencing trend growth in the supply of PL. The term 'full-funding' has been adopted to date as a shorthand way of summarising the present policy stance, whereby the Government is targeting zero growth in PL over time. Clearly, however, the present heavy overlap between the method of financing the fiscal deficit and the stance of monetary policy need not be a permanent arrangement. There may at some point in the future be a greater distinction made between the Government's funding arrangements (though fully funding the fiscal deficit through medium-term debt sales may still be an appropriate discipline for the Government to maintain) and the operation of monetary policy, which could be conducted more through Reserve Bank open market operations.

To summarise the above discussion, the interaction of the demand for PL (which is primarily related to balance sheet growth) with the supply of PL (controlled by the authorities) sets in motion certain forces which ultimately influence pricing decisions throughout the economy. These forces, called the transmission channels, are discussed below.

It should be noted at this point, however, that the current policy of allowing zero growth in PL over time need not imply zero growth in financial institutions' balance sheets. The transmission channels for monetary policy are by no means mechanical so there remains the potential for significant short-term variation in the relative growth rates of balance sheet sizes and PL. Even in the longer term, there may be room for some variation, given the presence of technological innovations etc. Nevertheless, a policy of holding the nominal level of PL constant over time would be expected to imply a gradual tightening in the policy stance as real economic growth occurs and as nominal variables increase (including financial institutions' balance sheets). Thus, in order not to impede such real economic growth over the longer term, it is likely to be appropriate to allow some slow trend growth rate in PL.

The Transmission Channels
A simplified pictorial representation of the main transmission channels between monetary policy actions, economic activity (i.e. the response in terms of peoples' behaviour) and inflation is presented as figure 1.

As noted earlier in this article, the impact of monetary policy on the behaviour of the key actors involved in setting prices throughout the economy is indirect. Most of the direct effects of monetary policy actions impact on financial institutions, and hence their behaviour. The key to the transmission channels is therefore the mechanisms by which financial institutions alter their own behaviour and that of their customers.

Throughout the discussion, examples will be given which refer to a situation of additional constraint or tightening being exerted by monetary policy, either through a balance sheet growth induced increase in demand for PL relative to a fixed supply, or through a reduction in the supply of PL relative to demand. The effects of an easing in policy constraint are in general transmitted through the same channels in the opposite way to that described for a tightening, although there may be some asymmetries.

The dominant mechanism involved in the transmission process is usually an increase in interest rates. Several factors motivate a rise in interest rates when policy pressure is exerted:

1. Given financial institutions' need to maintain adequate liquidity levels, as discussed earlier, a move by the Government or the Reserve Bank to reduce the supply of liquidity (i.e. PL) will force institutions to be more aggressive in bidding for the available liquidity on 'wholesale' or professional money markets. Consequently, interest rates in these markets will rise. Provided the institutions perceive

7 Purchases or sales of existing government stock in the secondary market.
The Transmission Channels of Monetary Policy to Inflation

Supply Factors
- Fiscal deficit (+ve)
- Maturing government securities (+ve)
- Stock tender programme (-ve)
- Treasury bill tenders (-ve)

Demand Factors
- Total credit and deposits outstanding (+ve)
- Volatility of daily flows and forecasting errors (+ve)
- Interest rate paid on cash (+ve)
- Degree of active smoothing through Reserve Bank operations (-ve)
- Penal discount margin (-ve)

the liquidity shortfall to be temporary, they will tend to bid most aggressively for short-term funds, so that the upward pressure will initially be concentrated on short-term interest rates (e.g. rates for 90 days or less).

2 If the pressure is sustained, however, financial institutions will find themselves constantly exposed to liquidity shortages relative to their needs. This liquidity pressure will motivate them to offer better rates to all depositors, in order to attempt to attract funds from other institutions; and also to charge higher interest rates to borrowers, in order to restore the previous margins between funding costs and lending rates.

3 In addition, if the Government, or the Reserve Bank, is seeking to reduce liquidity by selling more illiquid government debt, it must offer investors an attractive proposition in order to encourage people to buy those debt instruments. This involves an increase in the yield on such instruments at the 'auctions', or tenders, in which they are sold. Because government securities compete directly for investors' funds with other financial instruments, and to some extent with real assets, competitive pressures will force a corresponding rise in the yields attached to other assets. Such interest rate increases influence economic behaviour throughout the economy in several ways, the relative importance of which is not fully understood and may well vary from time to time. Some of the effects which most economists agree are likely to be important are listed below.

(i) Depending on the degree of international capital mobility, a rise in domestic interest rates will to some extent be translated into upward pressure on the exchange rate, due to an increased foreign demand for New Zealand dollar securities. This will reinforce other interest rate effects on inflation both directly, by reducing the domestic price of imports and exportables, and indirectly, through the dampening impact of a rise in the exchange rate on
activity in the internationally traded goods sector.

(ii) A major long-term effect is likely to be on domestic spending. Other things being equal, a rise in domestic interest rate levels will tend to depress domestic spending by raising the cost both of existing loans, where the interest rate is adjustable (such as is now the case on most mortgage agreements), and of new borrowing. The strength and speed of this effect will vary considerably, depending amongst other things on the perceived permanence of the interest rate rise, the willingness and ability of borrowers to withdraw from economic activities now made less profitable by the interest rate rise, and the sensitivity of profitability to interest rate rises, etc.

(iii) Some borrowers may be able to partially avoid the effect of higher domestic interest rates by borrowing offshore. However, overall borrowing costs are still likely to be higher than previously, allowing for exchange rate risk and higher transactions costs, including the cost of any hedging arrangements (otherwise, overseas borrowing would presumably have been a more attractive option in the first place). Moreover, the effect of New Zealanders borrowing offshore will be to reinforce the exchange rate effect outlined in (i).

(iv) Higher domestic interest rates will also make saving relatively more attractive, thereby reducing the incentives to spend out of current income.

(v) Finally, higher interest rates directly reduce the value of outstanding financial assets, such as tradeable government securities, and therefore the wealth of people holding such assets (a negative relationship also tends to be observed over time in many countries between interest rate levels and the sharemarket). Thus, higher interest rates may also dampen domestic spending through this wealth effect.

Overall, the combined influence of these various effects is likely to be a restriction of expenditures throughout the economy. Such a reduction in expenditures impacts on the demand conditions facing producers and retailers. This in turn will tend to restrict their willingness to increase prices and will also have a dampening effect on the wage negotiations between employers and unions. The ultimate effect of this process should be lower inflation.

It is sometimes argued, however, that the power of interest rate effects on expenditure is limited, and that higher interest rates will turn out to be inflationary rather than deflationary, i.e. interest rate-induced rises in the costs facing consumers and producers will produce price hikes in a cost-plus fashion. An example often cited in support of this view is the housing component of the consumer price index, where rises in interest costs initially add directly to the index. Similarly, the observation that interest rates and inflation tend to go up and down together may be suggestive of demonstrable relationship.

In the short term, this characterisation of the linkage between interest rates and inflation is valid, at least as far as rising interest rates are concerned (because inflation refers to price movements, rather than the level of prices, high but stable interest rates do not add to inflation). However, this view ignores the various behavioural effects referred to above, which may not occur immediately but which will ultimately outweigh the initial direct effect of higher interest rates on costs. Indeed, there is a wealth of evidence from international experience to suggest that tight monetary policies initially generate interest rate increases, but ultimately will result in a decline in inflation.

This discussion does raise an important distinction: that between nominal interest rates and 'real' interest rates. 'Real' in this context means interest rates adjusted for the expected future rate of inflation. Though it was not explicitly stated, the earlier discussion about the role of interest rates in the transmission process related to real rather than nominal interest rates. Apart from tax and cash-flow considerations (which may not be trivial for some forms of economic activity), an increase in nominal interest rates which fully reflects an increase in inflation expectations (i.e. no change in 'real' rates), should have few implications for decisions to save or spend. In other words, people will tend to be more willing to borrow at high interest rates if they expect that prices will rise in the future so that the interest cost will be more than offset by the gains from buying now rather than later.

In addition to the interest rate channel, monetary policy may also influence spending levels by affecting the availability of credit i.e. financial institutions' willingness to lend. Indeed, during earlier periods of interest rate controls, credit rationing tended to be the major channel by which monetary policy impacted on spending levels, since the interest rate mechanism was often not available. Credit rationing tends to be most effective in the short term as, over longer periods, the existence of a large pool of unsatisfied potential borrowers at current interest rates will tend to result in funds being diverted away from the institutions involved, in search of the higher yields available elsewhere.

Nevertheless, in the short term, quantity-based adjustments to the availability of credit may form an important part of the response by financial institutions to a tightening in available liquidity. If a slowing in credit growth is desired, then a stronger and faster effect may be possible through quantity rationing than by raising interest rates. Moreover, marketing considerations may make it appropriate to continue to lend on favourable terms to certain customers, while limiting credit growth overall. A slowing in the granting of credit may also initially take the form of tougher attitudes being taken on creditworthiness considerations — a process which is inherently quantity rather than price based.
Finally, overlaying all these transmission mechanisms is the role of expectations. The perceptions of those involved in pricing decisions, and in the wage bargaining process, regarding the stance of monetary policy and its likely effectiveness in reducing inflation will have a direct bearing on actual wage and price outcomes and therefore on inflation itself. Thus, it has often been argued that if the government is successful in establishing the credibility of its monetary policy, then it may be able to reduce the costs associated with disinflation, in terms of relying less on the interest rate and exchange rate channels which operate primarily by temporarily depressing real economic activity. Put simply, if tomorrow everyone in the economy began acting as if inflation was running at 1 percent per annum, then the actual inflation rate would quickly drop to a similar level, with very little impact on employment or real economic activity.

The relative importance of the above channels may vary from time-to-time. For example, domestic demand may at times appear relatively insensitive to interest rate levels, at least in the short run, in which case the impact of monetary policy on inflation may occur more through its effect on the exchange rate. Increased international capital mobility may further increase the relative importance of exchange rate effects compared with interest rate effects. Finally, inflationary expectations, have a major role to play in the policy process, not just in terms of any direct effect on wage and pricing decisions, but also in terms of its effect on how sensitive aggregate spending is to nominal interest rate levels.

Policy Timeframe — A Medium-Term Approach
It should be clear from the above discussion that the relationship between the main instrument of monetary policy — i.e. sales of medium-term government debt aimed at controlling the supply of PL relative to the demand by financial institutions — and the ultimate policy objective — namely inflation — is an extremely complex one. A lengthy period may be involved between an initial move to tighten monetary policy and its ultimate effect on inflation. Moreover, this 'time-lag' may vary considerably depending on a number of other influences; such as the extent to which high inflation and therefore high inflationary expectations are entrenched in the economy; developments in inflation overseas; real shocks to the economy such as an oil price shock or a decline in the terms of trade; and government policies in other areas (for example, a removal of subsidies on government services or a shift from direct to indirect taxation).

It is primarily for these reasons that the Government has emphasised a medium-term approach to monetary policy. This approach means establishing a policy setting which is believed to imply the desired disinflationary path and, as far as possible, maintaining a consistent policy stance over time, rather than actively varying the stance for short-term economic stabilisation or inflation objectives. Policymakers simply do not have sufficient knowledge about the relationship between particular policy settings (such as the level of PL or, alternatively, the level of short-term interest rates) and inflation to 'fine-tune' the policy stance with some inflation or real economy objective in mind. Past experience overseas and in New Zealand contains many examples of the pitfalls of an activist approach, which is more than likely to end up destabilising the economy; the opposite outcome to that desired.

Before concluding, however, it is worth noting that the rejection of an activist approach to operating monetary policy does not imply that the day-to-day operation policy can somehow be put on 'auto-pilot'. First, there may be a need to adjust the PL target from time-to-time to maintain a consistent policy stance in the face of shifts in the demand for PL resulting, for example, from financial innovations. This is particularly the case in the early stages under the new policy environment, when an historical pattern of the demand for PL has not been established. Secondly, the extreme variability of financial flows between government and the private sector means that there is need for the Bank to operate in the financial markets virtually on a daily basis in order to smooth the fluctuations in liquidity conditions which would otherwise result (this is referred to as liquidity management policy). The nature of the Bank’s operations in this area can also influence the monetary policy stance. Finally, as already alluded to, there are a number of potential policy levers available to the Bank, in addition to altering the supply of PL. These include varying the maturity structure of the securities which fall within (or outside) PL and, most importantly, the settlement cash component of PL; varying the discount rate, or the rate at which the Bank will buy short-dated government securities; and varying the interest rate which the Bank pays on the settlement balances held by financial institutions.

These elements have not been discussed in any detail here and will be the subject of an article in a subsequent Bulletin. Their existence does imply, however, that there is a need for the authorities to make ongoing judgments regarding whether the existing policy settings are appropriate for the desired consistent medium-term stance. This is no simple task, and involves continuously monitoring a wide range of indicators of financial developments; most notably interest rates, the exchange rate and the money and credit aggregates.

Concluding Remarks
To summarise, high rates of inflation can impose major costs on an economy and, as a result, low inflation or overall price stability tends to be an objective of policymakers everywhere. While any number of factors can influence the inflation rate in the short term, over the longer run inflation tends to be closely associated with monetary conditions. Accord-
ingly, maintaining control over inflation is usually cited as the major objective (or, in some cases, the sole objective) of monetary policy.

The monetary authorities generally do not have at their disposal any method of controlling price movements or inflation directly. Administrative wage and price controls can, and have in the past, been used for this purpose, but at a substantial cost in terms of the rigidities such controls introduce into the economy. Rather, the monetary authorities attempt to influence inflation indirectly, by affecting the behaviour of people involved in wage and price setting throughout the economy. The main channels by which this influence is transmitted are through changes in interest rates, the exchange rate, the availability of credit and in people's expectations regarding inflation.

In the current New Zealand context, the Government, or the Reserve Bank acting on the Government's behalf, does not attempt to control any one or group of these variables directly. Instead, the authorities control the supply of a narrow range of financial assets (called Primary Liquidity) which are used by financial institutions to settle transactions amongst themselves and with government. By controlling the supply of primary liquidity, the Government is able to control the growth in financial institutions' balance sheets over time and, ultimately, inflation. The lags with which this process takes effect are likely to be long and variable, however, given the complex nature of the linkages involved. Accordingly, monetary policy is best aimed at a medium-term inflation objective and is not well suited to being actively varied with short-term inflation or real economy objectives in mind.