THE CHANGING MONETARY TRANSMISSION MECHANISM IN NEW ZEALAND SINCE 1960

In this article Keith Lloyd assesses the relationship between changes in monetary regimes in New Zealand and the effectiveness of alternative monetary transmission channels.

Executive Summary

Two principal forms of monetary control have been used in New Zealand over the last three decades. The first concentrated on controlling credit availability through various reserve asset ratios, lending guidelines, etc., while the second, focusing on 'price', rather than quantity, has operated through interest and exchange rate changes.

The effectiveness of alternative monetary transmission channels has varied with shifts in monetary policy regime; the interest rate channel, in particular, was constrained by other government policy considerations in the pre-1984 period. The ratio system operated throughout much of this period promoted disintermediation and provided little effective monetary control as the supply of reserve assets was, in practice, unrestricted. The low interest rate and accommodative exchange rate policy pursued over most of the 1960s, 1970s and early 1980s effectively imparted an inflationary bias to the New Zealand economy.

The shift in policy regime in the mid-1980s towards 'price' as the principal allocative mechanism opened up the interest rate channel and provided the monetary authorities with an effective means of monetary control. The economy appears to have become more interest rate sensitive in the second half of the 1980s and the expected relationships between interest rates and various activity and price indicators appear to have strengthened.

I. Introduction

The relative importance of the alternative monetary transmission channels has varied over time in New Zealand with shifts in the form of monetary control and, to a lesser extent, with phases in the economic cycle and developments in the international economy. In general, two different forms of monetary control have been employed in

1 An earlier draft of this paper was first presented to the 1990 Sesquicentennial Conference of the New Zealand Association of Economists at the University of Auckland in August 1990.

Reserve Bank Bulletin, Vol 54, No. 4 1991
New Zealand over the last three decades. The first, originating in the 1930s, relied upon regulatory control of the availability of credit, while the second focusing on the ‘price’ rather than the quantity of credit, has operated principally through interest rates and the exchange rate. The effectiveness of both approaches pre-1984 was severely restricted by other government policy considerations, and in particular by a desire to shield the economy from the consequences of high interest rates. This placed a ‘social’ or exogenous constraint on monetary policy and severed the important interest rate transmission channel running from monetary policy to nominal expenditure. As a result, the burden of monetary control was placed, in large part, on mechanisms designed to restrict the supply of credit. The experience of the 1970s and early 1980s suggests this form of control had only limited success in combatting inflation.

To be most effective, monetary policy should operate through the channels that are both most sensitive to policy changes and impact most fully on the desired policy objective. Towards this end, the monetary authorities’ assessment of the transmission mechanism influences its assessment of the efficiency of alternative policy options and of the appropriateness of the stance of monetary policy.

This article examines how the monetary transmission channels have changed over time in New Zealand in the context of changing monetary policy control methods. The next section briefly examines the transmission mechanism by which monetary policy influences prices. Section III examines how monetary policy has changed in New Zealand since the 1960s, and Section IV contains a brief discussion of the impact of policy on cash flow, wealth, the housing market, consumption, savings and investment. This section also considers the exchange rate transmission mechanism. A brief conclusion follows.

II. The Monetary Transmission Mechanism

There exists a broad consensus in economic theory about the main channels of influence of monetary policy on nominal expenditure and prices. These may be categorised into interest rate, exchange rate, wealth and credit rationing effects. An additional channel may work through the impact of monetary policy credibility on inflationary expectations.

Under a quantity based system of monetary control, an increase in the demand for reserves or a monetary policy-induced reduction in the supply of reserves, results in an excess demand for reserves. Briefly, financial institutions require reserve money to settle transactions with the Government, the central bank and, in practice, other financial institutions. Aggressive bidding among settlement institutions for funds in a situation of excess demand places upward pressure on short-term interest rates.

A rise in interest rates raises the opportunity cost of borrowing funds to finance expenditure and changes the implicit cost of present expenditure in terms of future expenditure. This increases the attractiveness of saving and prompts a reduction in current expenditure on consumption and investment goods, lowering domestic demand.

---


3 Reserves in the New Zealand context mean Primary Liquidity (PL), which comprises settlement cash and Reserve Bank Bills with 28 days or less to maturity.

Reserve Bank Bulletin, Vol 54, No. 4 1991 313
The rise in the cost of current expenditure (or the opportunity cost of funds) impacts directly on the housing market, on demand for durable consumption goods and, together with the resulting reduction in nominal activity, on investment. The reduction in nominal activity and resulting excess capacity puts downward pressure on prices and, through a temporary rise in unemployment, money wages.

The response of net income to a change in interest rates depends on the balance between interest-bearing assets and liabilities of individuals in the economy. If interest liabilities are greater than interest-earning assets then income is reduced, reinforcing the substitution effect outlined above. The responsiveness of income and thus the net impact on expenditure will also depend on the sensitivity of the relevant interest rates to market conditions, i.e. whether asset and liability contracts are specified in terms of fixed or variable interest rates. Distributional and demographic effects may also be important in the transmission of interest rates, particularly in the household sector. For example, if borrowers are more cash constrained than holders of net financial wealth, then a rise in interest rates may reduce overall demand even though net wealth of the private sector is unchanged. The impact on net expenditure will then be affected by the percentage of the population in the net debtor stage of the life cycle.

Changes in interest rates also affect asset prices, particularly house and other property prices, equities and interest-bearing financial assets such as government bonds. A rise in interest rates lowers the value of existing portfolio wealth and through the traditional ‘wealth effect’ may lower expenditure. While the change in portfolio wealth is generally not realised, the use of portfolio wealth as collateral against borrowings may still prompt significant expenditure responses. The wealth effects of the sharemarket and property price boom in New Zealand in the mid-1980s, for example, held up consumption expenditure despite the operation of a firm disinflationary monetary policy by the monetary authorities.

The third important transmission mechanism is the exchange rate. In an open economy with free capital flows and a floating exchange rate the nominal exchange rate is influenced by changes in domestic, relative to world interest rates, or under a fixed exchange rate regime, by an administratively-determined policy decision to alter the value of the currency. Exchange rate changes may be achieved under an open capital account through monetary policy-induced changes in interest rates or by unsterilised foreign exchange market intervention. Under a closed capital account, the latter is likely to be more effective. An increase in real interest rates relative to world rates with a free capital account should, other things being equal, lead to an appreciation of the exchange rate. There are two channels by which this appreciation influences prices and reinforces the direct interest rate effects discussed above.

The first is the direct impact of the exchange rate change on domestic prices of exports and imports. An appreciation lowers the domestic currency price of both exports sold at ‘world’ prices and imported goods. The lower cost of both imported goods and domestically consumed exportables puts downward pressure on local prices, provided importers, businesses supplying exportables to the domestic market and businesses using imports in the production process do not absorb all the gain in profit margins.
The second exchange rate channel operates through the temporary loss in competitiveness experienced by exporters in foreign markets and the rise in competition facing local import-substituting industries. The increase in import penetration and contraction in exports leads to a deterioration in the trade balance and sets off multiplier effects on nominal activity in the domestic economy. This places downward pressure on prices to the extent that the reduction in demand and rise in competition places pressure on costs, margins and money wages, and promotes productivity improvements. Conversely, in both instances, a depreciation raises the domestic price of exports and imports and eases some competitive price pressure facing domestic producers.

The fourth main mechanism through which monetary policy may influence nominal activity and prices is through its direct impact on the availability of credit. Indeed, direct credit rationing through various cash ratios, reserve asset ratio requirements and lending guidelines, in conjunction with interest rate controls was, to various degrees, the principal method of monetary control in New Zealand up until 1984. In principle, the level of expenditure in the economy, and thus prices, may be controlled directly by controlling the availability of credit. Apart from direct lending restrictions, however, ratios will only influence credit growth if the resulting interest and exchange rate responses are unconstrained. At best, ratios may have a short-run influence on credit growth before disintermediation away from the controlled institutions leaves the demand for funds unchecked. To some extent, financial institutions have always used the traditional non-price rationing devices such as security, customer links, ‘soundness’ and deposit performance. These mechanisms are still used under a system using price where risk assessments determine the cost of funds. However, price is the principal allocative device under a demand-driven system with flexible interest rates.

Finally, monetary policy may influence nominal activity and prices through its impact on inflationary expectations. If inflationary expectations rise, consumers have a greater incentive to spend now, before price rises reduce the real value of their money, or to switch their holdings of money into a real or financial asset that offers a better hedge against inflation. This extra demand places upward pressure on prices. To the extent that the overall stance of monetary policy influences individual agents’ inflationary expectations, this additional channel may be drawn on by monetary policy. The introduction of the Reserve Bank of New Zealand Act (1989) - giving the Reserve Bank the mandate and the responsibility to achieve price stability - has led to a greater consistency of monetary policy. This is likely to have contributed to the lowering of inflationary expectations and inflation over the 1989-91 period in New Zealand.

III. The Changing Monetary Control Mechanism in New Zealand

Changes in the form of monetary control in New Zealand have resulted in shifts in the relative importance of the alternative monetary transmission channels over the last three decades. Indeed, major policy adjustments have been prompted, in part, by changing assessments of the relative effectiveness of the alternative monetary transmission channels.

 Reserve Bank Bulletin, Vol 54, No. 4  1991  315
The differing approaches to monetary policy in New Zealand may be characterised by reference to the regulated and less-regulated/deregulated periods since 1960. Regulatory approaches were employed predominantly throughout the 1960s, the first half of the 1970s and between 1982 and 1984, and operated through direct and indirect supply-side credit constraint; while less emphasis on regulatory control characterised the approach between 1976 and 1981 and from 1984 to the present, with greater reliance being placed on the interest rate transmission mechanism to exert control over nominal expenditure and prices.

While the detailed objectives of monetary policy have varied over the three decades, a general concern of the monetary authorities throughout the period was to exert sufficient control over nominal expenditure in order to promote full employment and stable prices.\textsuperscript{4} The focus throughout most of the 1960s and 1970s was on the availability of credit and the use of variations in the availability of credit in stabilisation policy. Accordingly, monetary policy operated through instruments designed to regulate the supply of credit to the non-bank private sector and strict controls existed on lending interest rates. Inflation was relatively low in the early 1960s, averaging 2.9 per cent between 1958 and 1967. In part, this was a function of the large number of goods under pricing control of the Price Tribunal, established in 1947, and other regulatory bodies. Furthermore, the exchange rate had been fixed over this period, foreign inflation was low, nominal wage settlements constrained, and the capital account was largely closed by foreign exchange controls which had been in place since the 1930s.

Monetary policy operated through direct regulation of trading bank lending over most of the 1960s, by way of a cash reserve ratio system which, although in existence since the 1930s, appears to have only taken on an effective policy role from 1952 onwards. This system involved setting an advances ceiling for the banking system and the mechanical adjustment of banks' cash reserve requirements in response to banks staying within or exceeding the ceilings. Monetary policy could be tightened by an increase in the cash reserve requirement above current holdings, thereby forcing banks to borrow from the Reserve Bank at penal interest rates.

Towards the end of the 1960s, however, there was a growing realisation that the concentration of monetary policy on cash ratios, interest rate controls, credit ceilings and significant moral suasion on the trading banks was becoming increasingly ineffective as a means of controlling expenditure. In particular, trading banks were gradually losing their position of dominance in the New Zealand financial market as non-bank financial institutions flourished at the expense of the regulated bank sector. To counter this development, government policy began to place increasing emphasis on controlling a broader range of financial institutions and imposed variable minimum public sector security holding requirements on trustee savings banks, private savings banks, building societies, private superannuation funds, life insurance companies and finance companies. Official short-term money market dealers were also subject to regulations and various deregulatory measures were taken to try to improve the competitive position of the trading banks.

\textsuperscript{4} See Deane (1975), p.10. Post-1984, the primary objective of monetary policy has been to stabilise prices.

Reserve Bank Bulletin, Vol 54, No. 4 1991
Inflation rose sharply following the November 1967 19.45 per cent devaluation of the New Zealand currency, and increased pressure from wage demands following widespread dissatisfaction with the nil general wage order fixed by the Arbitration Court in 1968. Import prices rose at an average annual rate of 8.3 per cent in the period 1968-71. The rise in annual inflation to over 10 per cent by the end of 1970 and private sector credit growth averaging 14.6 per cent over the 1969-71 period, raised concerns over the effectiveness of monetary policy.

The Government responded with an anti-inflation mini-budget in October 1970 and introduced a two month price freeze in November 1970. This freeze was later replaced in February 1971 by a price justification scheme on 110 goods. The Government returned to a complete wage and price freeze in February 1972 and introduced Prices and Remuneration Stabilisation Regulations in March 1972, controlling prices directly or indirectly on all but a small range of goods and services. As part of this stabilisation package, Interest on Deposit (IOD) Regulations were also introduced, widening the net of regulation on the maximum deposit interest rates that financial institutions were able to offer. While minor adjustments were made to these interest rate controls over 1974/75 they remained in force up until March 1976.

The Interest on Deposit Regulations severely distorted institutional market shares and promoted an increasing array of alternative financing arrangements. Restrictions on competition between the main financial institutions encouraged the growth of uncontrolled types of financial markets. For example, the commercial bill market and solicitors’ mortgage market (which had been in existence for some time) grew rapidly. Likewise investment syndication in all types of physical property, such as land and property, livestock, etc. emerged. The surge in property prices over this period was driven, in part, by people’s desire to hedge against inflation. Controls on interest rates prevented the monetary authorities from using higher interest rates to dampen expenditure.

Moves were made to improve the efficiency of monetary policy during this period and the cash ratio system was replaced by a reserve asset ratio (RAR) system in February 1973. Briefly, trading banks were required to hold a minimum level of reserve assets (government securities, deposits with the Reserve Bank and cash) which was set as a percentage of their demand and time liabilities of the preceding month. In practice the RAR system was targeted at free reserves. A tight policy was designed to discourage banks from increasing their holdings of non-reserve assets - i.e. their lending to the non-bank private sector.

Generally such a control mechanism would be supported by a rise in interest rates generated by an increase in the competition for funds among the banks when the banking system became constrained. However, the severe restrictions on interest rates in place between 1972 and 1976 prevented this mechanism from working. More fundamentally, however, the RAR system tended to accommodate any increase in lending behaviour by the banks, as they could ‘create’ additional reserve assets through purchases of government stock off the non-bank sector. The availability of such unconstrained intermediation channels rendered the RAR supply side mechanism ineffective and highlighted the need for a demand-driven interest rate or ‘price’ system of monetary control.
Sustained double digit inflation following the commodity price boom and oil price shock of the early 1970s, financial market distortions and strong credit growth brought the ineffectiveness of the monetary control mechanism used in the early 1970s clearly into focus. In the words of one commentator of the time:

“there was a remarkable degree of unanimity in official, banking and academic circles as to the distortions, dangers and ineffectiveness of New Zealand monetary policies and hence there was widespread support for far-reaching policy changes”.

The recognition that monetary policy could not sustainably control both quantities and prices led to the removal of the Interest on Deposit Regulations in March 1976. Interest rate controls on the borrowing and lending rates of most deposit-taking institutions were revoked, opening up the interest rate transmission channel effectively for the first time. While in principle this change allowed monetary policy to work through both the supply side, using the RAR system and public security holding requirements, and the demand side, through interest rates, the continued ability of banks to create reserves through stock purchases off the non-bank sector meant that the demand side provided the only effective lever of policy. Similarly, the continuation of a fixed exchange rate regime, despite a series of devaluations, in theory provided an external anchor for the domestic price level.

The Government, however, continued to operate easy fiscal and monetary policies in response to the two major terms of trade declines in the 1970s. Government attempted to finance the fiscal deficit through offshore debt and a more active public debt policy over this period. The fiscal injection, however, was not fully offset by domestic non-bank public debt sales and the balance was raised through sales of government stock to the banking sector, who, under the ratio system in place, could also use the stock as a reserve asset. The creation of new reserve assets through this mechanism facilitated an expansion in private sector credit as exchange controls prevented capital flows from adjusting New Zealand’s interest rates relative to world rates, and thus stifled the demand side mechanism from dampening private expenditure.

The resulting policy mix exerted little practical control over the reserves of the financial system. As a result, private sector credit (PSC) grew by an annual average of over 19 per cent between 1976 and 1981. In part, the growth in the early part of the period was fuelled by reintermediation away from the fringe financial sector that had blossomed during the heavily regulated 1972-76 period.

A shift in policy emphasis - away from concern about rationing credit and towards market-based control over the monetary aggregates - took place over the second half of the 1970s. This shift in focus was in line with an international movement in the operation of monetary policy towards the implementation of monetarist quantity targeting rules. Indeed, the New Zealand authorities advised financial institutions of acceptable aggregate credit growth rates in both the 1978/79 and 1979/80 fiscal years. These PSC guidelines lapsed in 1980 and in the early 1980s policy became increasingly concerned with holding or decreasing interest rates, despite the strong growth in the money and credit aggregates.

Under the policy framework at the time, monetary control could only be achieved by limiting the growth in financial institutions’ balance sheets through interest rates on the

---

5 Bayliss (1977), p.4.
demand side, or by locking in any increases in reserves through a tightening in ratio policy. As the Government became increasingly concerned about upward pressure on interest rates, neither policy was actively pursued and the objectives of money and credit growth became subordinated to concerns about the interest rate structure. The RAR policy was essentially operated in an accommodative manner during this period except for a significant lowering in the free reserves margin from $100 million to zero in 1979 in an effort to slow bank lending.

Inflation picked up from a comparative low of 10 per cent at the end of 1978 in response to the second oil price shock and was fuelled by a 5 per cent devaluation in June 1979 with the shift to a crawling peg exchange rate regime. While in theory it had initially been intended to adjust the rate of 'crawl' in the peg in response to real factors, in practice relative inflexibility in the real exchange rate meant the currency crawled downwards in response to the inflation differential with the rest of the world. This practice simply validated domestic inflationary pressures and provided no external discipline on the domestic price level.

In response to the surge in inflation and associated rise in nominal interest rates the Government returned to interest rate controls in the early 1980s. After initial adjustments to the Financial Services Regulations in November 1981, Interest on Deposit Regulations were reintroduced in June 1982 as part of a general prices and incomes freeze. Direct regulation of wages, prices, dividends, rents and interest rates, together with the reintroduction of a maze of credit/lending/deposit regulations and guidelines on the financial system was seen as a means of combating inflation which had averaged 15 per cent over the seven years to March 1982. Among the more notable measures were restrictions on interest rates for mortgage lending and the introduction of 1 per cent a month credit growth guideline on major financial institutional groups.

Despite an early easing in credit growth from a peak in early 1982 of around 29 per cent to a low of 6 per cent in June 1983, financial innovation and increased demand for credit quickly saw lending accelerate as the fringe financial institutions outside the regulatory net once again flourished. Monthly credit lending guidelines were imposed on trading banks in April 1983 and were later extended to cover finance companies, building societies, savings banks and other financial institutions. Inflation was temporarily reduced to a low of around 3.5 per cent at the end of 1983-early 1984, and a number of moves were made towards deregulation of the financial sector and full-funding of the fiscal deficit through retail debt sales.

As part of a wider programme of economic reform, New Zealand undertook a major financial sector reform package over 1984/85 designed to provide an environment in which effective control could be exerted over the liquid reserves of the financial system. Following a 20 per cent devaluation of the currency in July 1984, interest rate controls over all institutional deposits and lending were removed, along with a raft of other regulations inhibiting the market determination of interest rates. The reopening of the interest rate transmission mechanism was driven by a desire to implement an effective monetary policy. A commitment to non-inflationary financing of the fiscal deficit at

---

6 In particular, moves were taken to free-up the foreign exchange market with the Reserve Bank withdrawing from quoting a SUS exchange rate on a daily basis in August 1983.
market interest rates was supported by the closing of the discount window for government securities of greater than six months maturity. The other source of uncontrolled money base movements - the foreign exchange window - was also closed through the abolition of foreign exchange controls and through the floating of the exchange rate in March 1985. These changes provided the authorities with a framework for effective control over the monetary base.

The reserve asset ratio system was removed in January 1985 along with the array of public sector security holding requirements on non-bank financial institutions. While non-bank ratios effectively represented a form of compulsory saving at low interest rates (which were no longer required with higher market interest rates), bank RARs were removed in response to their apparent ineffectiveness - as operated in New Zealand - and more fundamentally, their distortionary impact on the intermediation process. Ratio systems rely heavily on barriers to the intermediation process, and in so doing, significantly increase the costs of matching the demand for and supply of funds; thus reducing the efficiency of the financial sector.

The new monetary policy framework operated through quantity control of the reserves of the system, called Primary Liquidity (PL). The approach was underpinned by the theoretical linkages between the control of PL, the broader money and credit aggregates, interest rates, exchange rates, nominal expenditures and prices (as traced through in Section II). While it was initially intended to use a fixed quantity base of PL as the operating target of the system, it quickly became apparent that seasonal and structural shifts in system reserves necessitated a more discretionary approach to control PL. A more discretionary approach to the management of PL was adopted from around the middle of 1985 onwards using a checklist of monetary indicators as reference points. In particular, the overall stance of monetary policy was assessed with respect to the yield curve, the nominal exchange rate, the money and credit aggregates, real sector activity and inflationary expectations.

Monetary policy thus concentrated on the monetary transmission mechanisms outlined in Section II above and which had been opened up by the post-1984 deregulation of the financial system. This form of monetary control has been pursued up to the end of 1991, with a few technical modifications such as the introduction of Reserve Bank Bills towards the end of 1988, increased focus on formal inflation targets and shifts in the relative weights in the checklist of indicators as the importance of alternative transmission mechanisms has varied.

IV. Changes in the Monetary Transmission Channels

Differing approaches to monetary policy over the last three decades have both reflected, and been reflected in, changes in the relative importance of alternative monetary transmission channels; in particular, in shifts between direct credit control channels and the interest rate transmission mechanism. The impact of changes in the monetary control mechanism on the principal transmission channels are explored in the remainder of this article. However, given the shifts in monetary regime over the period, only limited evidence is available on the key linkages in the transmission mechanism. In particular, while the effect of the various interest rate transmission channels operating through cash flows, expenditure on the housing market, consumption, savings and business investment are examined briefly, only partial conclusions may be drawn as the interest rate
channel has only been fully effective from 1985 onwards. A further period of policy stability beyond that associated with the post-1985 deregulation of the New Zealand economy may be required before the interest rate responsiveness of the economy can be properly assessed. The section concludes with a discussion of the exchange rate channel in the monetary transmission process.

Cash Flow and Wealth Effects

As discussed in Section II, changes in interest rates affect the nominal cash flow position of economic agents and individuals' net wealth through asset price changes. Higher nominal interest rates may therefore reduce current expenditure and thus nominal demand if: - interest payments exceed interest receipts, thus reducing cash flow; and a fall in wealth reduces individuals' consumption. Each effect is considered below.

In the absence of a complete national balance sheet, little information is available on the asset and liability position of the three main sectors in the New Zealand economy - households, business and government. The Household Income and Outlay Accounts do, however, provide an insight into the magnitude of flows in the New Zealand household sector's balance sheet.

Total interest payments on both consumer debt and housing finance as a proportion of disposable income exceeded or equalled actual interest receipts of the household sector

---

**Figure 1**

*Ratio of Interest Payments and Receipts to Disposable Income*

---

Source: *Department of Statistics Household Income and Outlay Account adjusted for estimate of undeclared interest income pre 1990*

---

*Reserve Bank Bulletin, Vol 54, No. 4 1991*
from the early 1960s through to 1970 (refer Figure 1). The percentage of income spent on house mortgage payments declined marginally over the 1972-74 period as the Interest on Deposit Regulations restricted mortgage interest rates at a time when inflation and wage settlements accelerated and as lending by the traditional suppliers of home finance was partially constrained by various ratio and lending directives. The slack in the mortgage market was taken up by non-institutional sources of mortgage finance on the one hand and government agencies, at below market interest rates, on the other. These factors appear to account for the reduction in expenditure on housing interest payments as a percentage of disposable income experienced during this period. The static nature of interest rates and the relatively low proportion of expenditure directed to interest repayments during this period suggests that expenditure was relatively insensitive to the interest rate changes that did occur.

The rise in interest rates following the removal of interest rate controls in March 1976 resulted in interest payments and receipts becoming an increasingly larger proportion of disposable income. Actual interest receipts have exceeded payments from 1971 to 1991, despite a slight reduction in receipts as a percentage of disposable income during the 1982-84 wage, price and interest rate freeze and the sharp decline from late 1989 onwards as retail interest rates have fallen substantially. The removal of mortgage interest rate controls in 1984 and subsequent rise in rates resulted in a sharp increase in housing interest payments over the 1985-87 period to just under 8 per cent of disposable income, after remaining below 4 per cent over the entire 1966-78 period. The rising proportion of disposable income allocated to interest payments suggests that some households may have become more sensitive to changes in mortgage interest rates over the second half of the 1980s as monetary policy operated principally through the demand side.

When imputed interest income from superannuation and life insurance funds are added to actual interest receipts of the household sector, the net income effect could be expected to be strongly positive as total receipts have significantly exceeded total payments throughout the whole period. If households instead view imputed interest payments as ‘external’ savings outside of households’ accessible balance sheets, then the sensitivity of households to changes in cash flow will be similar to that implied by the actual cash flow position. This would be a function of the type of interest rate contracts (fixed versus variable rate), the stage in the life cycle, demographics, etc. The current practice of changing the length of maturity of loans in response to interest rate changes by a number of financial institutions suggests that the sensitivity of cash flows, and expenditure, to changes in interest rates may be lower than that experienced earlier in the 1980s.

Interest rate changes also have a direct impact on wealth through asset price changes affecting the value of equity, housing, other property and interest-bearing financial asset holdings. As noted earlier, the absence of balance sheet information on the asset holdings of the household and business sectors makes it difficult to draw any firm conclusions on the impact of interest rate changes on wealth and expenditure in New Zealand. Little quantitative work has been undertaken in New Zealand on the links between interest rates, asset prices and expenditure. Increasing sophistication and international interdependence of the New Zealand financial market would, however, seem likely to have strengthened the hypothesised inverse relationship between interest rates and domestic equity prices. Indeed, examination of Figure 2 suggests that this relationship has emerged towards the end of the 1980s as more flexible asset management and fewer
portfolio restrictions following financial deregulation has resulted in more responsiveness to relative returns between alternative assets. The value of interest-bearing financial wealth, such as government bonds, on the other hand, is a simple mechanical inverse of the level of interest rates.

However, it is difficult to attribute the property price booms of the early 1970s and 1981/82, and the property and equity price boom of the mid-1980s - and the associated positive impact of these events on consumption over those periods - to the level of interest rates. Rather, the first two price surges appear to have been driven by the strong generalised wage and price pressures of the time associated with the impact of positive developments in the terms of trade and oil price shocks. In contrast, the mid-1980s boom appears to have been driven, in part, by financial deregulation and an increase in the accessibility of funds and, in part, by similar trends overseas. The mid-1980s boom does, however, appear to have held up nominal demand via the positive wealth effect of high property and equity prices.

House prices, and thus household wealth, do however appear to have been influenced by the supply of funds over most of the review period. An examination of the housing market in New Zealand suggests that it has been driven more by credit availability factors over the last three decades than by interest rate effects. The dominance of availability considerations is consistent with the predominantly excess-demand-generating impact of the regulatory monetary control measures in place to varying degrees throughout the greater part of this period. The regulated control of interest rates at below market levels created a situation of excess demand for funds and forced financial institutions to use an array of non-price credit rationing techniques.
While government agencies attempted to satisfy the excess demand for funds, unsaturated demand for housing finance spilled over into non-traditional markets. The solicitors mortgage market in particular benefited significantly during the heavily regulated periods of 1972-76 and 1982-84 at the expense of the traditional mortgage lenders. The share of new mortgage registrations provided by the main institutions (trading and savings banks, building societies and life insurance companies) for example, fell to a record low of 18 per cent in 1975/76. The removal of the Interest on Deposit Regulations in 1976, however, saw this group recover market share and, in the year ended December 1979, they accounted for 26 per cent of all new mortgage business.

Major data limitations on house lending by financial institutions however prevent a complete examination of the period. The limited information that is available (from 1974 onwards) reveals a relatively close relationship between housing loan approvals and house prices (refer Figure 3). Housing loan approvals appear to lead house price inflation from 1982 onwards, although show little relationship over the 1970s. The earlier period probably highlights the impact of the regulatory-institutional environment and the significance of the non-traditional sources of finance. Towards the end of the 1980s lending for housing purposes again grew strongly in response to increased demand - reflecting households' perceived low real mortgage interest rates and an increased

---

7 Source: Nicholls (1980).

8 Housing loan approval data for trading banks, savings banks, trustee savings banks, building societies, finance companies and life insurance companies, is used in the pre-1987 period, while data from all M3 institutions, life insurance offices and the Housing Corporation is used in the post-1987 period.

9 Real household mortgage rates (defined as the average mortgage interest rate deflated by one-year-ahead surveyed household inflation expectations) fell from around 8.5 per cent towards the end of 1988-early 1989 to less than 6.5 per cent over the first three quarters of 1990.

---

Reserve Bank Bulletin, Vol 54, No. 4 1991
ability to use mortgage security for other personal lending - and banks’ desire to increase supply. These factors, together with the general buoyancy in expenditure over 1989/90, underpinned the slight rise in house prices over the 1989/90 period.

On balance, both changes in household wealth and cash flow appear to have become increasingly sensitive to interest rate changes over the second half of the 1970s and during the 1980s; interest rate rises reduce non-financial wealth but improve the cash flow position of the aggregate household sector. As both factors have opposite influences on expenditure, the net impact remains ambiguous.

Real Activity - Interest Rate Linkage
Changes in interest rates may impact on nominal demand, and ultimately inflation, via capacity changes in both the goods and labour market as a result of changes in the cost of consumption and investment expenditure. As discussed in Section II, a rise in interest rates increases the implicit cost of consumption today compared with future consumption and, assuming the substitution effect outweighs any positive income effect, reduces expenditure. This would have the effect of increasing savings. In theory, demand for durable goods should be more sensitive than other types of consumption to changes in interest rates. The operation of ‘easy’ monetary policies throughout most of the period to 1984, combined with sustained periods of regulated interest rates, suggests that consumption expenditure was driven largely by non-interest factors throughout most of the review period. Indeed, the re-estimation of the Reserve Bank econometric model\(^1\) failed to find any causal relationship between real interest rates and real consumption demand in New Zealand over the 1965-1989 period. In part, this may reflect the relative stability of the trading bank lending rate up until the mid 1970s and, as discussed earlier, the relatively low proportion of disposable income allocated to interest payments throughout most of the 1960s and 1970s.

Similarly, the relationship between interest rates and savings is unclear. While Clements (1984) found a weak positive relationship between household savings and real after-tax interest rates over the 1962 to 1983 period, this relationship appears to have broken down over the remainder of the 1980s as households have had to cope with structural change, falling disposable incomes and increased unemployment.

In theory, changes in interest rates also affect the cost of capital and thus investment spending. Changes in investment demand affect aggregate nominal demand and through this channel, prices. The sensitivity of investment to interest rates will, however, change over phases of the business cycle. Business investment activity and interest rates may also be related through the indirect effect of interest-rate induced reductions in nominal expenditure on consumption and housing demand throughout the economy. Interest rates, and for that matter other monetary policy instruments working through other transmission channels, may affect activity and alter capacity utilisation levels. Competitive pressure through the exchange rate will also influence nominal activity and ultimately business investment.

---

10 New capital adequacy requirements allow residential mortgage lending to be supported by only half as much capital as business lending.

International evidence on the interest rate/cost of investment capital relationship, is mixed, with no clear consensus on the extent of the linkage in the empirical literature. The recent re-estimation of the Reserve Bank of New Zealand econometric model, however, has indicated a significant negative relationship in New Zealand between short-term real interest rates and real investment after taking account of the effects of a number of other factors on investment. Examination of Figure 4 suggests that this relationship may have been strongest over the 1976-81 period when interest rates were first deregulated. The relationship appears to break down during both the 1972-76 regulation and 1982-84 interest rate freeze periods. While the timing becomes less clear over the 1984-91 period, the cycles in both variables appear broadly correlated.

The effects of interest rate changes on investment in new housing stock, however, appears to have become more important following deregulation of interest rates in the mid-1980s. Before the mid-1980s, there was limited variability in average trading bank mortgage interest rates. This stability, together with governments’ concerns to limit the overall cost of mortgage finance, meant that housing market activity in New Zealand demonstrated little sensitivity to changes in interest rates, instead showing much greater sensitivity to the supply of funds. In particular, in the two major periods of implicit and explicit regulation (1972-76 and 1982-84) credit rationing appeared to become a binding constraint on the ability of the financial sector to meet housing market demand for mortgage finance.

Figure 4
Real Investment (excluding residential and government) and the Real 90 Day Bill Rate
Investment Bill Rate

Reserve Bank Bulletin, Vol 54, No. 4 1991
The interest rate transmission mechanism through to the housing market has become more important since the liberalisation of financial markets in 1984/85. While both demand and supply factors have been driving the market over the 1988-91 period, the level of nominal mortgage interest rates does not appear to have excessively constrained activity in the market. This apparent interest rate insensitivity, as noted earlier, may be explained in part by changes in the term of loans limiting the impact of interest rate rises and falls on the cash flow position of households. Furthermore, the persistence of high household inflationary expectations lowered the perceived real cost of mortgage finance and probably stimulated demand for mortgage finance over 1989/90 before household inflation expectations fell sharply in 1991.

The Exchange Rate
The exchange rate is an important vehicle through which changes in external prices are transmitted through into the domestic price level. In particular, the exchange rate may have direct price effects and also indirect price effects through its impact on competitiveness and nominal activity. Changes in the nominal exchange rate have had important effects on New Zealand’s domestic price level since the 1960s. While operating a closed capital account and fixed exchange rate regime over the 1960s and 1970s, successive devaluations in November 1967 (19.45 per cent), September 1974 (6.2 per cent), August 1975 (15 per cent) and June 1979 (5 per cent) placed continuous upward pressure on the domestic price level. In part, the earlier devaluations were prompted by the underlying balance of payments problem caused by the persistent pursuit of easy monetary policies over the period.

The impact of the 1967 devaluation was discussed earlier in Section III. The 1974 and 1975 devaluations were used to adjust to the sharp fall in the terms of trade caused by the first oil price shock. Maintenance of the 1975 peg over the four year period to 1979 coincided with increased monetary policy emphasis on the interest rate channel and growing concern on the part of the authorities over the growth of the monetary aggregates. The June 1979 devaluation and switch to a crawling peg regime, however, proved to be inflationary, with monetary policy again accommodating the second oil price shock. The exchange rate devalued by 17 per cent over the three year period to June 1982, while annual inflation averaged more than 16 per cent over the same period. A breakdown of the change in the consumers price index into domestic and foreign influences along the lines of Spencer (1990) using the RBNZ price equation system suggests that 12.5 percentage points of the 18.4 percentage point increase in the CPI in the year to March 1980 was directly attributable to foreign factors. Foreign influences accounted for just over 50 per cent of the 15.2 and 15.8 per cent CPI increases over the following two years. Indeed New Zealand's experience of devaluation during this period was that wage and price pressures quickly eroded any real competitiveness gains arising from the short-run impact of nominal devaluations on the real exchange rate.

The downward trend in the nominal exchange rate over this period accommodated internal inflationary pressures and prevented the exchange rate from serving as an external nominal anchor for the economy; or as a means of effectively enforcing real
domestic economic adjustment to economic changes or an appropriate permanent shift in the real exchange rate. The closed capital account and governments' willingness to fund current account deficits through offshore borrowing prevented any offsetting monetary adjustment (i.e. reduction in domestic money supply) from occurring. The pressures on competitiveness arising from higher domestic inflation than the rest of the world, and the associated reduction in demand for domestically produced goods, was thereby postponed. Local producers were protected further from the discipline of competitiveness by extensive import protection, export subsidies and incentives. Deflationary pressure through the exchange rate channel via a resulting under-utilisation of capacity and a rise in unemployment was thus avoided in the period to the mid-1980s.

The move to a floating exchange rate in March 1985, the freeing-up of interest rates and the removal of foreign exchange controls opened up the economy and allowed the exchange rate transmission mechanism in New Zealand to operate in a deflationary as well as an inflationary direction. Interest rates have a significant impact on the level of the currency within the standard open capital market framework. The opening-up of the deflationary channel in the floating exchange rate environment has placed the tradeable goods sector of the economy under relatively greater monetary policy pressure than that experienced by other sectors over this recent period, and that experienced by the tradeables sector over most of the previous two decades. Clearly this development has been one of the more significant changes in the policy transmission mechanism of recent years, (see Spencer (1990) for a more extensive discussion of this issue).

Conclusion

The effectiveness of alternative monetary transmission channels has changed as the approach to the operation of monetary policy has changed over the last three decades. Furthermore, the effectiveness of policy has changed with the shape of the economy and cycles in various markets. In particular, interest rate changes have been more potent in recession for example, than in the asset market booms pre-1987.

A few tentative conclusions may be drawn from the above analysis:

- The lack of effective monetary control throughout much of the 1960s, 1970s and to a lesser extent the early 1980s, stemming in part from the low interest rate policies and accommodating exchange rate policies followed over the period, effectively imparted a persistent inflationary bias to the New Zealand economy.

- Despite the concentration of monetary policy on limiting the availability of credit throughout the 1960-1984 period, housing and consumption expenditure appears to have been only marginally affected by the supply of funds. Overall credit growth throughout the period is likely to have been encouraged by easy fiscal and monetary policies, with some impact, for short-term periods at least, on nominal activity. The ratio system as implemented during much of the period promoted disintermediation and provided little effective monetary control as the supply of reserve assets, in practice, was unrestricted to the bank sector.
- Nominal demand appears to have become more sensitive to interest and exchange rate movements after deregulation of the financial system in 1984. The unrestricted use of price, rather than quantity, as the means of monetary control has been effective since 1984. While all transmission mechanisms have been clouded at various stages by other factors, such as the equity and property price boom of the mid to late 1980s, the expected relationships between interest rates and the various activity and price indicators appear to be emerging in the New Zealand economy following financial market deregulation.

- The economy appears to have become more interest rate sensitive over the 1980s. Household cash flows are likely to have become more susceptible to interest rate changes as both receipts and payments have become a larger proportion of disposable income. The housing market-interest rate relationship, however, is difficult to interpret, with house price, wealth and demand effects all interrelated. Increasing financial innovation and increased flexibility in financial contracts may, however, influence the sensitivity of demand to interest rates over time.

- The direct and indirect transmission effects of the exchange rate have provided an important channel by which monetary policy has influenced the rate of inflation over the past six years.

REFERENCES


