

A QUARTERLY MONEY SUPPLY SERIES CONSTRUCTED FOR NEW ZEALAND FOR THE PERIOD 1934-59

This article presents, and briefly discusses, historical quarterly money supply (M1) data that have been constructed as a by-product of research that is being undertaken within the Economic Department of the Bank. The data covers the period from the inception of the Reserve Bank in August 1934 to the end of 1959, after which official data consistent with the current M1 definition of the money supply are available.

In constructing the M1 data, not all source data were consistent in make-up with the corresponding components of the current definition of M1.¹ This inconsistency introduced a degree of estimation error, the nature of which is discussed later. As a consequence of this small and unavoidable error, the exact magnitude of the data and growth rates calculated over short periods of time (and especially quarterly growth rates), should be accepted with some caution. The data are more useful and reliable for indicating trends in monetary conditions over a period of time.

INTRODUCTION

The Reserve Bank publishes data on various monetary and credit aggregates on a monthly basis in the *Bulletin*. These include the M1, M2 and M3 definitions of the money supply, and domestic and private sector credit aggregates. The M1 definition of the money supply which is the subject of this paper is a narrowly defined aggregate. It includes notes and coin held by the public plus trading banks' demand deposits (with the latter having both government deposits and deposits of other 'selected financial institutions'² deducted) plus savings banks' cheque accounts.³ These are the assets commonly used to settle transactions. This remains the case despite recent developments in banking technology and increased sophistication and competition in financial markets which has seen an expansion in the range of techniques by which transactions are effected (e.g. credit card transactions and automatic cash dispensing machines). These developments have provided scope for economising on M1 balances, but have not changed in any fundamental sense the role that they play.

Data for the monetary aggregates were first published on the basis of the current definitions in the 1967 October issue of the *Bulletin*, and were published on a quarterly basis for the period 1960-76 in the Reserve Bank publication *Long-Term Statistical Series*, January 1978. Data subsequent to 1976 are available from the *Bulletin*, while work is currently underway to publish an updated version of the *Long-Term Statistical Series*.

The monetary and credit aggregates are important for several reasons. They are indicators of conditions in the

financial sector (which in turn gives insight into conditions and prospects in other sectors of the economy), they are used as intermediate targets of Government policy, and as indicators of the impact of policy.

A number of factors influence the level of money balances held. On the supply side the major factors are the Government's budget deficit, the private sector's external transactions and the Reserve Bank's dealings with the private sector (in particular, its advances to marketing organisations). These contribute to changes in the monetary base which, given a fractional reserve system, 'cause' the money supply to increase by some multiple of the change in the monetary base. This process, often referred to as the money multiplier,⁴ is, however, not of a mechanistic nature. A number of other factors influence the level of money balances and M1 balances in particular.

First, there is the level of demand for M1 balances to finance transactions. Also the demand for M1 is sensitive to changes in rates of interest (or yield) on other assets, since the constituent parts of M1 are only a few of the many forms of assets in which the private sector can hold wealth. The demand for M1 should therefore be considered in the context of the way the private sector distributes its wealth among the full range of available assets.

The determination of M1 is further complicated by the fact that the factors contributing on the one hand to the supply of money, and on the other to the demand for money, are not independent of one another. Nor are they independent of the rest of the economy. This interdependence is probably best illustrated with an example. If the Government attempts to stimulate economic activity by increasing the Budget deficit, and hence the money supply, an initial increase in aggregate demand, and consequently in the demand for transactions balances would be expected. However, the increased level of expenditures will also generate an increase in the level of imports and in the external current account deficit,⁵ and thus provide at least a partial offset to the initial monetary injection from the increased Government deficit.

There are other effects arising from government action on public debt policy, including direct nominal and real interest rate effects, and indirect effects on the level of expenditures and the external accounts, both current account and capital account.⁶ How people's expectations of economic developments are affected by the policy action can also be important, as can the subsequent reaction of the Government to any changes caused by its initial actions.

Further influences on the money supply include the role played by monetary policy other than that which is

1 A full description of the method of construction of these data is presented in the Reserve Bank Data Memorandum D84/1 Revised Version, *A Quarterly M1 Series Construction for the Period 1934-1959* by R. R. Dick.

2 Made up of the institutions included in the M3 definition of the money supply, excluding trading banks.

3 See the *Bulletin* tables Money Supply and Selected Liquid Assets of the Public, and Claims of Monetary Institutions by Sector or the Reserve Bank book *Monetary Policy and the New Zealand Financial System* (2nd edition) edited by R. S. Deane, P. W. E. Nicholl and R. G. Smith, 1983, Chapter 11, for the definitions of the other aggregates.

4 The concept of a monetary base (or high powered money) and the money multiplier process is discussed in chapters 9 and 10 respectively, of the Reserve Bank book *Monetary Policy and the New Zealand Financial System* (2nd edition).

5 As throughout this article, this assumes a less than fully floating exchange rate.

6 In the past it was considered that New Zealand's net private capital flows were unresponsive to economic factors such as international interest rate differentials. Recent research carried out in the Reserve Bank provides some preliminary evidence that this is not now the case. See Reserve Bank Discussion Paper G84/6, *Overseas Private Capital Flows: An Equation for New Zealand* by I. Kek.

implicit in the government's budgetary and debt policies. In New Zealand these have included government security ratio requirements, the use of interest rate controls and credit growth guidelines.

DATA UTILISED IN THE STUDY

The quarterly M1 data constructed from the 1934 September quarter (1934(3)) to the 1959 December quarter (1959(4)) are presented in table 1 along with the officially published M1 data for the period 1960(1) — 1983(4). Annual growth rates of the quarterly data are plotted in figure 1 for the whole period 1934(3) — 1983(4).

The M1 data were constructed by obtaining the data

TABLE 1
QUARTERLY M1 DATA FOR NEW ZEALAND
1934(3)–1983(4)

(\$ million)

As at end of Quarter	March	June	Sept.	Dec.
1934	60.8	61.1
1935	65.6	62.8	61.3	67.2
1936	76.5	74.8	71.9	77.3
1937	92.3	80.0	83.6	89.4
1938	91.8	87.8	86.3	93.5
1939	98.0	96.6	101.6	113.0
1940	122.0	126.7	128.4	133.5
1941	140.9	140.2	135.0	147.8
1942	162.5	162.6	176.1	194.9
1943	205.5	211.4	215.0	234.1
1944	231.0	244.1	244.7	252.0
1945	253.3	260.9	275.1	292.6
1946	292.4	306.8	316.6	326.7
1947	329.4	340.3	332.8	340.2
1948	363.2	353.3	344.8	373.5
1949	372.1	387.5	378.4	416.2
1950	410.6	412.7	403.4	469.4
1951	475.6	513.7	483.2	482.9
1952	470.0	469.7	455.7	480.5
1953	496.4	537.4	521.3	560.1
1954	571.7	588.1	556.9	610.3
1955	559.1	587.7	566.7	608.1
1956	596.5	592.1	571.2	619.0
1957	598.8	623.1	593.1	625.6
1958	619.5	611.2	580.3	575.7
1959	590.9	618.0	607.5	646.0
1960	664.8	677.0	664.0	733.0
1961	689.4	685.4	642.5	712.7
1962	649.7	677.5	646.9	712.8
1963	677.1	704.5	677.9	737.4
1964	728.9	743.6	722.4	778.0
1965	745.2	758.0	702.6	765.7
1966	703.2	732.0	704.2	776.3
1967	705.8	694.9	668.0	762.4
1968	685.4	701.5	689.7	756.4
1969	712.6	731.2	723.1	777.0
1970	764.1	788.1	764.8	837.7
1971	802.2	833.1	820.8	919.6
1972	907.5	958.7	977.8	1,165.2
1973	1,134.8	1,243.5	1,269.7	1,421.8
1974	1,297.8	1,350.9	1,285.0	1,436.0
1975	1,331.9	1,424.1	1,406.5	1,580.2
1976	1,596.0	1,655.0	1,547.6	1,791.8
1977	1,689.3	1,689.4	1,585.7	1,819.9
1978	1,720.4	1,842.5	1,834.0	2,188.8
1979	2,035.4	2,072.0	2,004.9	2,370.6
1980	2,146.6	2,294.3	2,184.1	2,482.3
1981	2,451.5	2,649.8	2,566.1	2,860.8
1982	2,878.2	2,906.0	2,643.4	3,030.1
1983	3,002.0	2,939.6	2,955.3	3,479.8

Source: Data for the period 1934(3)–1959(4) obtained from the Reserve Bank Data Memorandum D84/1: Revised Version, data for the subsequent period was obtained from the Reserve Bank publication *Long Term Statistical Series* and the *Bulletin*.

1 . . indicates data not available.

for the constituent components of the current definition of M1. Data for notes and coin held by the public were obtained from earlier issues of the *Bulletin* (and prior to 1950, from its predecessor, the *Statistical Summary*), as were data for trading banks' demand deposits.

The figures for trading banks' demand deposits used in the currently used definition of M1 have both government deposits and the deposits of other 'selected financial institutions' deducted, unlike the earlier data which included these deposits. Also excluded from M1 are the chequeable demand deposits held at the Reserve Bank. Thus, broadly speaking, the current definition of M1 covers the amounts of notes and coin and trading bank demand deposits held by the general public. It should be noted, however, that in a recent review of financial statistics, undertaken by the Department of Statistics and the Reserve Bank, it was decided that financial institution's demand deposits with trading banks and chequeable demand deposits held at the Reserve Bank (other than the Public Account balance) should be reinstated to the M1 aggregate. The basis of this decision was that M1 should comprehensively measure the means of settlement used by the private sector economy in settling all transactions, (and not exclude, for example, transactions among financial institutions). A revised M1 series incorporating these decisions is currently being compiled and will be published in due course.

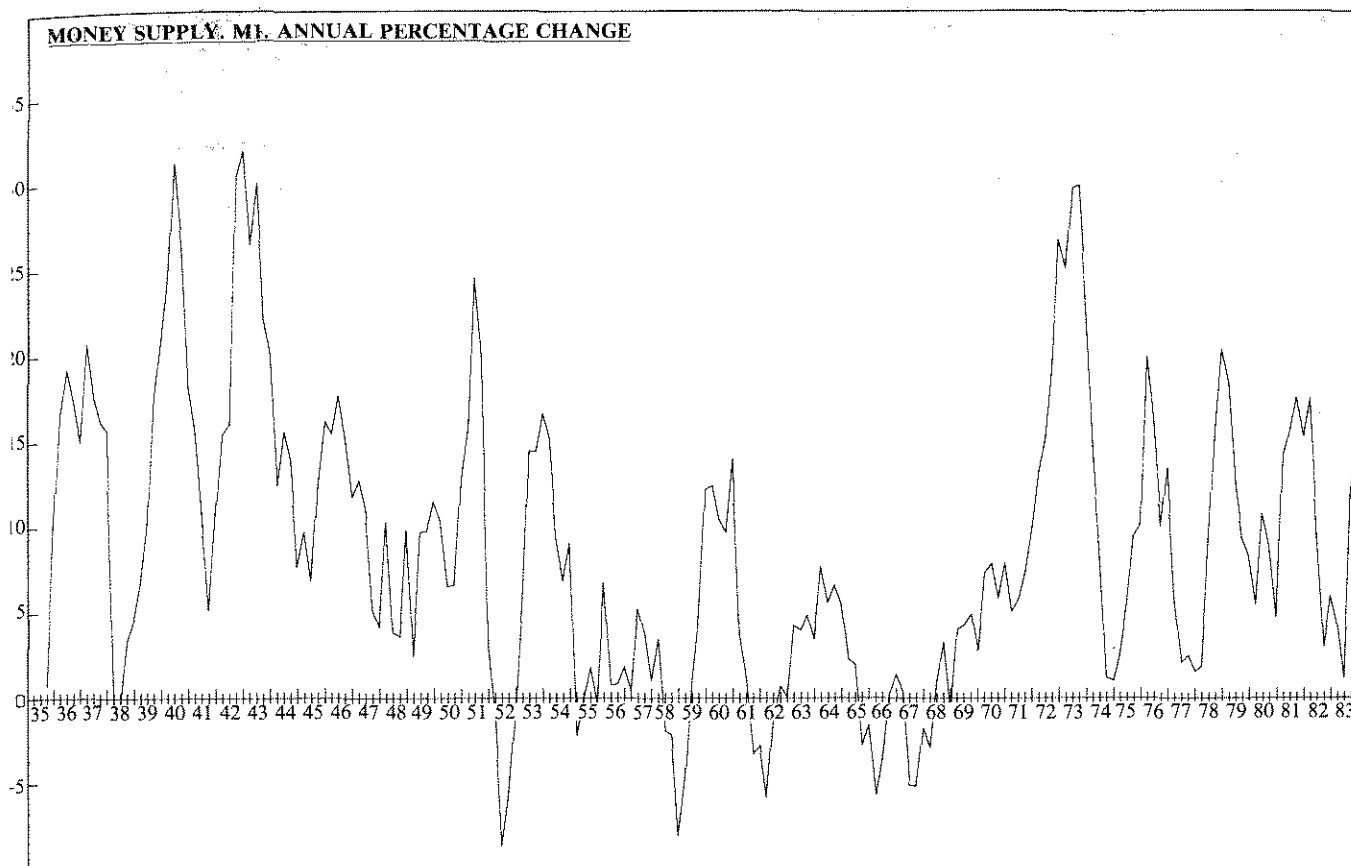
Returning to the adjustments required to produce the long term M1 series published with this article, data for Government deposits at the trading banks prior to 1960 were obtained from the *Monthly Abstract of Statistics*. No source of data for deposits of other 'selected financial institutions' at the trading banks existed for the pre 1960 period so this series had to be estimated.⁷ However, the magnitude of these deposits relative to the M1 series as a whole is quite small, estimated on average at only 1.7 per cent of total M1 in the period 1960(1) — 1965(4) making estimation a quite acceptable approach in the circumstances. Still, the potential for error that this estimation introduces into the constructed M1 series means that the data should be used with care. In particular, the exact magnitude of the data, and growth rates calculated over short periods of time (and especially quarterly growth rates), should be accepted with some reservation. The data are useful and more reliable as one indicator of trends in monetary conditions over a longer period of time.

MONETARY GROWTH TRENDS

Displaying the pattern of monetary growth in graph form gives a stylised impression of some of the major influences on the economy. The strong monetary growth during 1935–37 reflects the behaviour of the first Labour Government elected during the post-depression recovery in 1935. The volatility of growth rates from 1939–45 may reflect the large disturbance caused by the Second World War, while the growth-cycle in 1946 and comparative stability until 1950 accompanied the post-war recovery. The strong growth in 1950/51 was a consequence of the Korean War which engendered a world-wide inflation. After the Korean War disturbance monetary growth entered a relatively stable period until the early 1970s, with only two moderate growth cycles, both largely associated with external factors. In the world at large this was a period of moderate but sustained economic growth and comparative tranquility. Domestic monetary growth rates were on

7 Refer to the Reserve Bank Data Memorandum D84/1: Revised Version for a description of how this series was estimated.

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average lower, as well as less volatile, than in the 1930s and 1940s when the economy was subject to large shocks predominantly of external origin.

This tranquility was disrupted in the early 1970s and monetary growth rates have continued to show considerable volatility in the ensuing period. The strong growth during 1972 and 1973 was largely the result of an export price boom in that period, while the downturn in growth rates in 1974 reflects the increased price of import goods and the falling export prices which followed the downturn in the international economy. Unlike the growth displayed in most of the earlier periods covered by the graph, the major sources of monetary growth from 1974 onwards have had a domestic origin. The fiscal deficit has been a significant factor determining growth cycles in the money supply over the last decade.

The comparative growth rates, and their volatility, in these periods are summarised in table 2. Here the average growth rates have been calculated for three periods. The first period includes the 1930s, 1940s and the early 1950s. This period is characterised by large external shocks. The second period covers the relatively stable 1950s and 1960s, and the third period includes the 1970s and early 1980s with the associated return to relatively volatile monetary growth rates. The standard deviation of the growth rates are also presented for these periods.⁸ As discussed above, not only was the variance of growth in M1 smaller in the 1950s (excluding the Korean war period) and 1960s, but the average growth rates were also lower, while both the average and standard deviation of the growth rates were similarly higher in the less tranquil periods of the extended 1940s and 1970s.

⁸ The standard deviation is a measure of deviation of the growth rates about the average growth rate for the period.

TABLE 2
AVERAGE AND STANDARD DEVIATION OF MONEY SUPPLY GROWTH RATES, 1930s-1980s

<i>Period</i>	<i>Average¹ Growth Rate (%)</i>	<i>Standard Deviation²</i>
1935(3)-1953(4)	12.2	8.6
1954(1)-1969(4)	2.2	4.9
1970(1)-1983(4)	11.01	7.21

Source: data derived from Table 1.

1. Average of the annual growth rates of M1 in each quarter of the specified period.
2. Standard deviation of the annual growth rates.

CONCLUDING COMMENTS

The M1 series presented here provides a useful base for the examination of the inter-relation between monetary growth and external/domestic economic shocks to the economy over a much longer period than was previously possible. However, the lack of a long-term series for deposits with trading banks by the other 'selected financial institution' has made it necessary to estimate some of the adjustments needed to make the earlier years of the series consistent with more recent periods. These estimated adjustments constitute a cause for exercising care in using the series for examining short-term trends or actual aggregates for specific years in the earlier periods. However, the series as a whole still provides a useful base for examining longer-term trends and developments in monetary aggregates over a 50 year period of New Zealand's history. As such, it should provide a useful addition to the history of the nation's economy.