ON SOME RECENT DEVELOPMENTS IN MONETARY ECONOMICS

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ABSTRACT

This survey is motivated by the major changes that have been occurring both within the financial sector and in the relationships between financial and other markets. These changes have complicated both monetary analysis and the practice of monetary policy.

Monetary models based on simple aggregative relationships are not well equipped to analyse issues of structural change.

Monetary policy has been forced to rely more on "judgement" and less on the application of these models and their suggested policy rules. One obvious example of this is the demise, or at least downgrading, of monetary targets in major western economies.

This survey examines some of the main strands in the development of monetary economics in the past two decades. It argues that much of the policy prescription of monetary economics - especially reliance on monetary targeting - depends on simple "stylised facts" about the behaviour of regulated economies. These prescriptions cannot therefore be applied directly to economies where the regulatory structure is changing. Policy approaches such as Australia's current use of a "check list" of indicators are discretionary to the extent that they involve judgements about the relative importance of different indicators. But it is argued that this discretionary approach develops, rather than overthrows, the previous approach.

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1. Overview

Most economists would accept a common general description of the economic system. In this view there are many markets - for various classes of labour, types of commodities, and financial instruments - which are in a series of temporary equilibria. The movement of these temporary equilibria depends on the behaviour of stocks of real and financial instruments, since it is these stocks which allow the shifting of consumption and production between one time period and another. Money, as one of these stocks, is one instrument which links present and future decisions; indeed, its role as a transactions asset may allow agents to achieve these linkages with economy of information.

Much debate in economics concerns the role of various frictions and imperfections in these myriad markets. Generally speaking, financial markets are seen as suffering fewer imperfections - at least in "normal" cases in which the risk of default by the relevant parties is small. Innovation and deregulation in recent years have reduced frictions in these markets still further. (Although the possibility of default qualifies this conclusion, it is worth noting that innovation and deregulation have enabled development of markets in which a wide range of financial risks can be traded.)

To some extent, the presence of risks in financial markets has given money a special role in the spectrum of financial instruments; it is risk arising from price uncertainty that underlies the concept of liquidity preference. However, this special role has not been fully explained and, in much of monetary economics, it is treated as axiomatic. It is therefore not clear to what extent the process of deregulation and innovation will change the role of money; this remains a crucial issue on the agenda of economic research.

In monetary economics, debate has centred on the roles in the adjustment process of financial prices, direct "money supply" effects (for example, because of the role of money as a buffer stock) and various forms of credit rationing. The exact relationships will depend on the set of regulations and imperfections in financial and other markets. The reduction of frictions in financial markets as a result of innovation and deregulation means that the "transmission mechanism" is likely to rely more on movements in relative prices and less on credit rationing. Real balance effects may also be changed (for example, by the tendency to pay interest on all bank deposits).

Monetary economics has also been concerned with relationships within the financial sector. Particular importance has been placed on defining appropriate classes of financial assets. One traditional dichotomy is between "money" and "bonds", with the latter but not the former bearing a competitive rate of interest. Financial innovation and deregulation has blurred the distinction between "money" and "bonds" and between various other sub-classes of financial assets and liabilities. This too has necessitated a rethinking of conventional wisdom.

This survey is motivated by the major changes that have been occurring both within the financial sector and in the relationships between financial and other markets. These changes have greatly complicated monetary analysis. In practical terms, various rules of thumb derived from earlier experience have been cast into doubt. As a result, the making of monetary policy has been forced to rely more on informed judgement and less on the rules suggested by the models of a decade ago. One obvious example of this is the demise, or at least downgrading, of monetary "targets" in many western economies. However, as shall be argued, the differences in approach are more apparent than real. The main change is increased uncertainty about economic inter-relationships.

Whether or not this situation will settle down quickly is unknown. History suggests that economic theory does not rapidly catch up with economic reality: models which satisfactorily account for the present structure may be some time in coming. Moreover, the structure will continue to change as rapid financial evolution is likely to remain important for some time to come.

This paper, like most of the relevant literature, covers macroeconomic issues, and therefore tends to ignore microeconomic issues.[1] Increasing interest is being taken (in official circles especially) in the implications of rapid financial change for the behaviour of individual savers, investors and intermediaries. On a practical level, one response has been to focus more attention on prudential supervision of financial institutions.[2]

There is also the question of the interaction between changes to regulations in different areas of the economy. If the moves to a freer financial system are seen, on balance, to be beneficial, then there may be increased pressure - both intelluctual and from market forces - for greater freedom in other markets. If, however, the move to freer financial markets is associated with difficult problems, the relevant currents will undoubtedly run in the opposite direction.

2. The Neoclassical Inheritance

Neoclassical economics provides a vision of the world in which resource allocation depends on endowments and preferences of consumers across the spectrum of commodities. Markets always clear, so that economic equilibrium can be described by relative prices alone.

Many of the classic questions of monetary economics concern the linkages between financial markets and markets for labour and commodities. With the possibility of significant imperfections in all markets, particularly for capital commodities and most forms of labour, description and analysis become complicated.

When markets clear, as in the well-developed Arrow-Debreu model, prices convey all information necessary for the optimal functioning of the economy. Models of non-clearing markets are less well-developed. However, it is known that when markets fail to clear, not only prices but also traded quantities contain useful information about the state of the market. This information can affect not only behaviour in a single market, but also behaviour in all markets in which affected parties are engaged. Disequilibria can therefore be spread between markets.

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1. The traditional ("fixed structure") monetary economics debates of the post-war period are already extensively documented; there is no need to cover this ground in detail. Argy (1985) and (1986), Gordon (1974), and Laidler (1985) cover the field well. An Australian survey is provided by Davis and Lewis (1978).

2. Discussion of the supervision issue can be found in official publications such as Bank for International Settlements (1985).

In the neoclassical market-clearing model, money is a "veil" which has no role in the real economic process (except possibly during phases of adjustment).[3] In providing a unit of account, its only function is to determine the absolute level of accounting prices in the economy. Monetary theory consists therefore of a demand or quantity equation for money which, given the stock of money and the level of real transactions, yields the aggregate price level.

The writing of Patinkin elaborated the process of absolute price determination through the real balance effect, described by Patinkin as the "sine qua non" of monetary theory.[4] Still, however, the demand for money remains the central issue: for a determinate price level in Patinkin's model, the money demand equation must be homogeneous in prices and income together.[5]

Monetary economics in the 1960s and 1970s was largely centred on the study of the demand function for money.[6] While empirical studies of the demand for money proliferated (almost invariably running simple regressions of a money measure on a succession of interest rate and income or wealth measures), analytical studies explored the effects of the properties of particular money demand functions on the behaviour of the relevant models (usually simple macroeconomic models of the Hicksian tradition).

The models of the 1960s and 1970s were not always clear (or even explicit) about the way in which changes in the supply of money (or more generally in "monetary policy") influenced the economy. With controlled financial markets, changes in monetary policy were sometimes difficult to define. Models handled this in a variety of ad hoc ways. Most models also adopted an approach in which both real incomes and prices were assumed sticky in the short run.

If interest rates were free to move, the monetary "transmission mechanism" was often defined in terms of an initial impact on interest rates, which introduced changes in economic activity and then (with a long lag) in prices.

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3. Johnson (1978) and Niehans (1978) give a comprehensive account at the neoclassical theory and some extensions.

4. Patinkin (1956). That the real balance effect was a process was first emphasised not by Patinkin, but by Archibald & Lipsey (1958). Implications for macroeconomic models of adjustment are discussed in Jonson (1976).

5. Gale (1982) provides a useful discussion.

6. The money demand literature is surveyed in Laidler (1985); Davis and Lewis (1978) and Veale et. al. (1985) cover the Australian literature.

There were various problems with this approach. Interest rates and/or lending controls were sometimes relevant, which introduced so-called "credit rationing" effects. Even when interest rates varied, effects on real activity were difficult to pin down. Links from varying activity to inflation were not always well specified, although in the 1970s the so-called "expectations augmented Phillips curve" was a useful development. This raised the question of possible direct "money supply" effects on inflation or inflationary expectations.[7]

Throughout this period, the stability of the demand function for money was virtually an article of faith (despite evidence of other economic functions being variable and/or hard to measure). This was true even of models in which "monetary disequilibrium" was an integral part of the transmission mechanism.[8] In these models, stocks of money balances are held passively in the very short run but agents respond to the gap between the actual and the longer-term desired levels of money stocks. The stability of the longer-term demand function remains central, even though observed money need not correspond to this desired level.

3. The Stability of Money Demand

The centrality of the stability question to monetary economics warrants that the issue be considered at some length. There is, however, no readily available theoretical framework in which to analyse the issue. Standard demand theory does not generate money demand as naturally as the demand for bread; artificial devices, such as the adding of money balances to consumers' utility functions, are unsatisfactory. Modern theories which attempt to explain from microfoundations the motives to hold money are theories of general disequilibrium; here, stability questions remain largely unanswered.

Although the question of stability has been studied empirically by a wide range of researchers using an even wider range of techniques, the most ambitious (and possibly the most carefully executed) have been the studies by Friedman and Schwartz.

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7. In the Australian literature two relevant studies were by Jonson and Mahoney (1973), and Valentine (1977).

8. See Laidler (1984) for a survey of this field.

Critics of their work have been numerous, but one particular stream of criticism deserves closer inspection. This is the argument - advanced for example in Hall (1982) - that the more or less stable relationship between money and money income is a by-product of the system of financial regulations in force over the period examined.

How could this come about? If there are direct controls on interest rates (either fully determining rates or setting permitted ranges for them), the scope for interest rates to adjust will be limited. Observed interest rates will not be market clearing values, so there is likely to be excess demand or supply in money markets. Quantity rationing in contractionary periods, and the unwinding of rationing in expansionary periods, will establish a positive relationship between the money stock and money income. At the same time, the relative stickiness of the interest rate during this process provides no (or at best a poor) correlation between measured rates of interest and other key economic variables.

The apparent relationships between the money stock and nominal income may have masked (or proxied) a true relationship between the effective (but unmeasured) rate of interest and nominal income. Observed rates of interest did not reflect the effective rate: movements in the effective rate (which includes the cost imposed by rationing) may have been correlated (inversely) with movements in the money stock itself.[9]

Regulations which apply directly to quantities will work in a similar way, by changing the money stock rather than its price. In fact, where the regulatory system contains reserve requirements on financial institutions, these may be the most important of all. Changes in reserve ratios will have a direct impact on institutional balance sheets, and hence on the money stock; they may, therefore, speed the process of adjustment by acting directly on supply as well as on demand (through the effects on interest rates).

Of course, this raises the possibility that changes in regulations may be used as policy instruments in such a system. But it is the continuity of the overall framework that will contribute to the stability of the money stock - money income relationship.

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9. This was a theme in Davis & Lewis (1977) with respect to the role of monetary disequilibrium in the RBII model of the Australian economy.

These relationships can perhaps be better understood with reference to a quite simple view of the transmission mechanism. Changes in the supply of cash to the financial system will lead to changes in cash rates and exchange rates, and to banks' demands for and supplies of funds. These will lead to changes in supply of money. At the same time, the interest rate and exchange rate changes will impact on the economy directly.

The "transmission mechanism" from monetary policy to the economy is, on this view, one in which the behaviour of money and the behaviour of income are simultaneously determined. The simple money stock - money income relationship is therefore not open to a causal interpretation. Rather it is merely a statistical correlation of two variables determined by the behaviour of financial markets. Any change in the structure of the financial markets will act potentially to alter the relative outcomes and hence the correlation as well.

Stability, in the sense of a function which fitted over some historical period, was in some ways a historical accident. Definitions were found (often with some difficulty and disagreement, as in the case of the money stock itself) which were consistent with the simple money-income relationship.

But this backward-looking stability underplayed the sometimes large errors in the predictive power of the money demand equation for short periods. These errors, themselves a reflection of the lack of short-run dynamics in the money demand function view of the transmission mechanism, were subsumed into the variability of the "long and variable lags" of the monetarists. Deregulation and innovation have increased the frequency of these periods of errors - and therefore the need for some greater insight into the dynamic process of adjustment.[10]

Although currently somewhat speculative, a strand of the literature has begun to look also at the longer run by asking what would happen in the complete absence of regulations. The literature in this area is as yet relatively undeveloped; some of the main models are critically surveyed in McCallum (1985). These models typically assume that the transactions technology is refined to allow the transaction costs to be effectively ignored, so that all money becomes inside money, bearing full competitive rates of interest. There is therefore no longer any role for a specific transactions asset. In such

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10. The apparent breakdown of the money demand function is discussed at length in these terms in Laidler (1986).

models, there ceases to be a money stock; "monetary policy" has a role only in influencing the prices of assets (that is, the spectrum of interest rates) in the economy. A sufficient condition for the reappearance of a money stock in these models is a minimal level of regulation and/or an irreducible demand for a particular asset part of whose rate of return would therefore be non-pecuniary - this asset would thus have a below market rate of interest and in that sense be a monetary asset.[11]

The above discussion suggests that the simple aggregate relationship between the money stock and money income, which is central to the received monetary macroeconomics of the 1960s and 1970s, may be merely a correlation produced by a specific set of regulations on the financial system.

This does not mean that "money" (or monetary policy) does not matter for macroeconomics. It does mean that the indicators of money's effects will be different in different regulatory systems.

4. Expectations

The work of Friedman and Phelps in the 1960s,[12] and Lucas in the 1970s,[13] has emphasised that the response of the economy to particular policy actions will depend on the states of individuals' expectations which will in turn depend on perceptions about the policy actions themselves. A corollary is that policy cannot rely on exploiting aggregate relationships which depend on past policies; the attempt to do so may cause the aggregate relationship to break down.

The breakdown of a macroeconomic relationship in this way will require, in practice, a significant change in policy. Individuals will face costs in responding, which may imply that small policy changes will leave responses largely unaffected as they impose costs on individuals which are small relative to the costs of changing behaviour patterns. Over time, of course, a succession of small policy changes could produce a significant cumulative incentive to private individuals to change their behaviour; the costs of changing behaviour may also be reduced by innovation.

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11. Fama (1980), Harper (1984).

12. M. Friedman (1968) and (1974); Phelps (1968).

13. Lucas (1976).

The traditional distinction between "rules" and "discretion" in the conduct of policy becomes important here. When changes in policy instruments are dictated by a long-established fixed rule (with feedback from the rest of the economy) - an example is the Gold Standard - they are unlikely to induce major shifts in private responses. When the policy rule changes, or when policy is discretionary (and therefore there is no fixed rule), it is more likely that private responses will change also.

This dependence may also work in reverse. Changes in private behaviour, "innovation" of various kinds, may lead to changes in official response, including the structure of regulations. For example, the increased internationalisation of financial transactions in recent years can be seen both as a cause and effect of reduced exchange controls and flexible exchange rates.

This line of argument suggests that even if simple aggregative relationships such as the money stock-money income equation may be adequate descriptions of particular historical periods, they cannot be exploited for analytical (or policy) purposes. Attempts to exploit simple "reduced form" relationships will be likely to fail.[14]

The effect of significant (and observable) policy changes is shown in recent work by Andersen (1985). His work, which studies the behaviour of different monetary aggregates accross a range of developed economies, showed that the relationship between money and the economy more generally (represented by the demand functions for the different monetary aggregates) depended on the monetary policy in place. In each country, the monetary aggregate which was the focus of policy targeting exhibited a different relationship than other aggregates, suggesting that private individuals responded differently to targeted monetary aggregates than to untargeted aggregates.

5. Policy Rules

The notion of a stable money demand function lead obviously and directly to the idea that monetary policy should be implemented with the aid of a target for growth of (some measure of) the supply of money.

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14. As in "Goodhart's Law"; cf Chapter III of Goodhart (1984).

The high inflation of the 1970s gave impetus to the introduction of monetary "targets". It was argued that steady reductions in growth of money supply would eventually lead to the elimination of inflation. Announcement of this plan in advance would, it was hoped, reduce the disruption to real activity that would otherwise be expected to accompany an anti-inflationary tightening of monetary policy. Some also saw monetary targets as a way of imposing discipline on the monetary authorities. This approach was reinforced, in some minds at least, by research into so-called "rational expectations". In some versions of this literature the (very strong) argument was made that an announced (and credible) reduction of monetary growth would produce a parallel reduction of inflation with virtually no disruption to real activity.

The strong version of the argument was tested with the sharp tightening of U.S. monetary in the early 1980s. Although there are those who question whether the test was sufficiently "clean", most economists accept that the episode showed that anti-inflationary monetary policy will involve real costs in the short-term. Of course, the main message of the experience is that sufficiently determined monetary policy can get rid of inflation. This was achieved notwithstanding a very large fiscal deficit. Although there was a major initial check to economic activity, subsequent developments included a major economic recovery with inflation still declining.

The strong form of the rational expectations argument is now believed to be a special case; it is now commonplace to find rational expectations models with essentially Keynesian features.[15] However, the debate on the proposition did focus attention on an important issue: the interrelationships between economic policy and private responses to policy changes.

All of the rational expectations macromodels (like their predecessors) are based on aggregate relationships, which are as subject to problems as Friedman's money-income equation. These relationships therefore cannot be a solid basis for the actual conduct of policy using rigid rules when economic relationships are changing, because of changes in the regulatory framework, innovation by the private sector, or for whatever reason.

It might be noted that this point also applies to those models which attempt to model policy decisions in a choice-theoretic manner, or as the outcomes of strategic games between policymakers and private agents.[16] While the

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15. Begg (1982) and Gale (1983) survey this area.

16. Van der Ploeg (1984) is an example of the first type of model; Barro and Gordon (1983) and Canzoneri (1983) of the latter.

macroeconomic relationships which represent the economy remain based on the relatively simple, aggregated "stylised facts" of present day macroeconomics, such models will remain of limited value. Judgements have to be made about the practical relevance of changes in economic relationships.

6. Innovation and deregulation

Changes in regulations may be sufficient to produce shifts in simple money stock - money income relationships; they are not the only cause, however. Regulations by their nature impose costs on either buyers or sellers (or often both) in the regulated market. There is therefore always an incentive to circumvent regulations, typically through innovation. When the cost of innovation falls below the cost of compliance, innovation can be expected. Examples from the financial markets are numerous. The growth of so-called "non-bank financial institutions" helped to satisfy the demands that regulated banks did not; banks themselves created new instruments, both on and off balance sheets; and so on. The pace of innovation was slow in the 1960s but increased in the 1970s. Rising inflation was raising the costs of compliance; at the same time, the advance of computing technology was lowering the costs of innovation.

As a result, innovation began to erode the existing regulatory framework. Old relationships began to break down. This reflected in the increased concern over the definition of money, as substitutability between the traditional money and other assets increased. Most importantly, the erosion of the policy framework led gradually to an increase in pressure for deregulation (or, at least, new regulations).

It is, of course, very difficult to generalise about this experience, which has varied widely across countries. Figure 1 summarises the cases of Australia and the U.S. Both countries experienced substantial inflation during the 1970s and have seen both extensive financial innovation and deregulation. One message of figure 1 is that the changes in Australia's financial markets have been concentrated in a much shorter period than for the United States.

Britain's experience has been analysed extensively by Goodhart (1984). One particularly important feature was that the removal of lending controls on the banks (the "corset") in the late 1970s led to major problems in determining the stance of monetary policy. Certainly the major indicators gave differing signals at this time.

In Japan financial deregulation and innovation have proceeded relatively slowly; Suzuki and Yomo (1986) provide an interesting set of papers on the subject. Germany and Switzerland have seen fewer changes in financial regulations in recent years. It is our impression that innovation has proceeded more slowly, and that conventional money demand functions have been less unstable, in these countries over the past decade or so.

These conjectures and impressions require careful testing. Relevant tests will need measures both of innovation and changes to regulations, as well as appropriate tests of the stability of money demand functions.

However, it seems to us that major episodes of innovation and deregulation must be interpreted as significant changes in the policy framework. In the wake of major financial deregulation, therefore, it would be expected that the old relationships between money and income could break down: the simple relationships which held in the regulated framework will not also hold in the new. They will be useful only until individuals adjust their expectations and behaviour to the deregulated framework.

This point has not been well recognised. For example, there is an extensive literature on the effects of moving from a pegged to a floating exchange rate. This literature suggests that under the floating exchange rate monetary policy will be more powerful than before (relative to fiscal policy). However, the models which make up this literature typically are based on simple aggregate relationships, assumed to be invariant to the switch of exchange rate regime. Such models may therefore be misleading as guides to the longer term.

These problems are compounded by the possibility that such a change in policy regime takes place simultaneously with changes in other regulations (exchange controls, for example). The various changes in financial regulations in recent years have produced a blurring of distinctions between types of financial intermediary and between types of financial asset. This has brought about a rise in asset substitutability, and has made the meaning of money in a practical sense much less clear.[17] Within the concept of money, the

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17. See Bank for International Settlements (1985), pp 57-59, and Reserve Bank of Australia (1984/1985).

time-honoured distinctions between transaction and saving balances and, in a more subtle way, between domestic and foreign currencies, are also becoming clouded. Market-related rates of interest are now paid on deposits which recently attracted no interest at all; and advances in transaction technology have increased the liquidity of traditional savings deposits.

Increased substitutability has led to a closer relationship between rates of interest on different financial instruments. It has not necessarily led, however, to an increased sensitivity of aggregate financial flows to the overall level of interest rates. Indeed, with innovations such as floating-rate loans diffused widely, this sensitivity may have lessened.

The rise in asset substitutability has also increased across currencies, giving exchange rates (or net currency flows if exchange rates are managed) a greater role in the transmission mechanism of monetary policy. The theoretical importance of the degree of mobility of capital has, of course, long been recognised in even the simplest models of open economies.

The process of change is continuing, and will do so for some time yet. This has increased substantially the difficulties of system-wide models and the evaluation of macroeconomic policies using such models. Indeed, some would argue that such exercises are futile and may never be possible. On this view (which we think is extreme), the monetary macroeconomics of the 1960s may turn out to be a unique product of its age. We would agree, however, that future models will have to account for a wider spectrum of substitutable assets with flexible prices, and have financial innovation (and "defensive" changes in regulations) as a feature.

One possible foundation exists in the portfolio approach to monetary theory developed by Tobin in the 1960s. Of course, there is a long way to go, not least in linking the portfolio model to the real economy and in endogenising innovation and policy response.

Here, however, we have a range of models on which to draw. Some are predicated on equilibrium, with large numbers of markets for contingent commodities. These models were of limited use in practical economics because such markets were lacking in the actual economy; however, deregulation and innovation have begun to expand the range of futures and risk markets available. These equilibrium models may yet have much to teach us.

At the same time, advances in disequilibrium theory may offer insight into the effects on the economy of missing or imperfectly operating markets, and perhaps also into the processes of adjustment to changes in markets.

7. Policy in a Changing Economy

With innovation and financial deregulation changing the money stock - money income relationship, it is not surprising that there has been substantial modification or even suspension of the 1970s practice of monetary targeting. Australia suspended its M3 target in January 1985. Canada has done likewise. In the U.S. and the U.K., the monetary authorities have de-emphasised their money stock targets and resorted to a wider range of indicators.

This has forced a return to explicit recognition of the role of discretion in policy-making. Even in the U.K., where monetary policy rules are still stated, the role of discretion is explicit. The Governor of the Bank of England has noted: "the significance of a departure from monetary targets is that it establishes an important presumption of the need for policy action. This presumption is, more often than not, likely to be confirmed by careful examination of all the other available evidence ... But it is only a presumption, and, where there is justification to override, it would be perverse and damaging to the economy not to do so."[18] Chairman Volcker of the U.S. Fed has explained the current U.S. approach in similar terms.[19] In Australia the authorities now consider a "check list" of relevant indicators, including: a range of monetary aggregates; interest rates; the exchange rate; the external accounts; the current performance and outlook for the economy, including movements in asset prices; inflation, the outlook for inflation and market expectations about inflation. The signals from these indicators are balanced before a judgement is made whether policy should be tightened or loosened and by how much.[20]

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18. Leigh-Pemberton (1985), p 534.

19. Volcker (1985).

20. This approach was explained by the Governor of the Reserve Bank in Johnston (1985).

These approaches formalise operationally the need for monetary policymakers to take into account the whole range of economic information. The use of a rigid monetary growth rule assumes that only the targeted monetary aggregate convey information which is useful as an indicator of policy. It has been argued that this is not the case, even when the money stock - money income relationship remains stable. One proponent of this view is B. Friedman (1977), who shows that a rigid monetary target can be informationally inefficient, even in a small aggregated model of a stable economic structure.[21]

When the relationship between the money stock and the ultimate targets of policy is changing, due to deregulation or whatever reason, the case for utilising additional information is strengthened. But this does not mean that there is no useful information in the monetary aggregates. Judgments about whether or not the monetary aggregates are growing too quickly will be harder than in a more stable regulatory framework but the information content of the aggregates will not be zero. They will have lost, if only temporarily, the special role that targeting implied.

There is, of course, plenty of room for debate about such issues as: the current and prospective state of each indicator; what the state of each indicator implies about the setting of monetary policy; how to weigh the influence of each indicator; and even more intangible matters such as the interaction amonmg policy instruments and the state of the economy.

The use of a broad range of information in the setting of monetary policy brings clearly into focus this interrelationship of the macroeconomic policy instruments to a much greater degree than did targeting. For example, a rate of inflation that is currently "too high" will point to the need for a firmer rather than an easier monetary policy.[22] But monetary policy is not the only influence on inflation. Consideration of prospects for inflation may indicate that a firmer monetary policy would be desirable; it may also suggest the need for action in other areas of policy, for example wages policy.

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21. Similar arguments may be found in Burns (1980) and Waud (1972).

22. Defining what is "too high" will present the usual difficulties. Some define this as anything above zero; others may make reference to what is deemed to be attainable in the period ahead or to the benchmark provided by inflation in major overseas countries.

This point applies with special force with respect to the external
indicators. What is the implication for the setting of monetary policy of a
large, indeed unsustainably large, current account deficit? Tighter monetary
policy may have the effect - at least over some horizon - of putting upward
pressure on the current account deficit by producing a higher exchange rate.
In this case, changes to other policies - for example fiscal policy - may more
clearly be indicated. But a further question can arise, as in the United
States in the early 1980s. What should be the desirable course for monetary
policy if fiscal policy is not sufficiently firm? This raises questions of
the policy mix, and generally speaking these are not questions which have
received much attention in the profession.[23]

The approach to the making of monetary policy based on the systematic
monitoring of a number of indicators, in addition to the monetary aggregates,
does not represent a radical departure from that of the "targeting" regimes
practised in the past. Central banks have always paid close attention to a
wide range of economic indicators. Even those central banks which have paid
closest attention to the achievement of pre-specified monetary targets have
deviated from this approach when the non-monetary signals gave a sufficiently
contrary reading.

Nor would the essential task of determining monetary policy vary much if the
formulation of policy were based on other proximate indicators. There are
proponents of a range of alternative possible "targets" for monetary policy -
including the exchange rate (real or nominal), interest rates, even the growth
of nominal GDP. Any single indicator can suffer from the same sorts of
technical weaknesses as the practice of targeting a particular monetary
aggregate.[24] Whatever the proximate targets of monetary policy, however, it
is necessary to interpret performance in relation to this in the light of all
the available evidence. At the end of the day, a whole "check list" of
indicators will be consulted.

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23. One Australian example is the work of Perkins (1982), which has advocated
    the explicit analysis of the policy mix on both a theoretical and a
    practical level.

24. For example, "targeting" exchange rates or interest rates has, in the
    past, helped to produce cumulative inflations or deflations. Targeting
    nominal GDP suffers from the problem that its "controllability" is less
    certain than that of monetary aggregates or other financial variables,
    and it is observable only with a long lag.

Recent developments have heightened debates about the formulation of monetary policy. They have also impacted upon, without clearly changing, many of the practical problems of monetary analysis. In particular there remains much uncertainty about the choice of indicators, about lags in response to changes in policy of credit demands and interest-sensitive items of spending, and so on. During the current transitional period, it may be difficult to isolate the effect of structural change from the effect of policy settings when looking at individual indicators. Figuring on the exact location of economic constraints remains rough - no one can quantify precisely and in advance the size of a sustainable external deficit or a sustainable rate of non-inflationary growth.

A possible objection to use of a "check list" approach is that it fails to provide a sufficient amount of discipline on the monetary authorities.[25] Those who believe this generally recognise the technical difficulties with strict "targeting" in a rapidly changing financial system. However, advocates of continued targeting usually conclude that the correct response is to have frequent changes of target, accompanied by (if necessary extensive) technical justification for the latest change. This is, in effect, the approach which has been used in the U.S.A. by the Federal Reserve Board. Some proponents of "rational expectations" would take issue with even this approach. They would argue that a fixed monetary rule should be maintained in the face of all shocks - private agents will determine the nature of the shocks and adjust their behaviour accordingly. It is important to remember that these conclusions are derived from models which depend crucially on a number of restrictive assumptions, not least of which are the absence of imperfections in labour and product markets and the absence of inside money. In models where information and markets are not perfect, monetary targets will <u>not</u> be optimal in the face of shocks from all sources.[26] A major increase in the demand for money, for example as a result of financial deregulation, should be accommodated.

This may be an area in which large macroeconometric models have a role to play, since they can be used to "fingerprint" shocks from different sources. The cost of building and maintaining models is high, and the approach is open to the objections noted above that the underlying structure may change too quickly for the model-builders to keep up.

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25. This is, for example, the conclusion in Laidler (1986). Poole (1986) also provides an interesting discussion.

26. The standard analysis is that of Poole (1970); for an Australian example, using an empirical model, see Jonson and Trevor (1981).
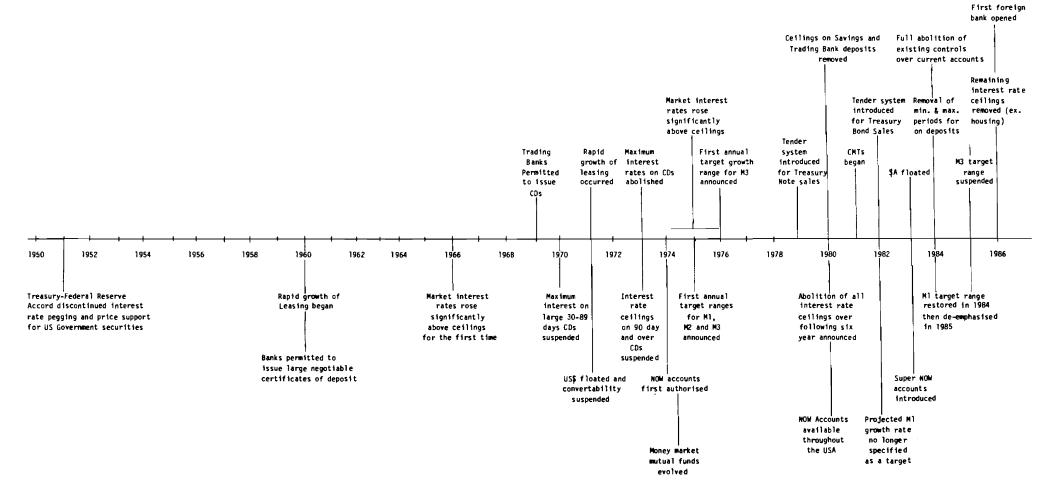
Model specification issues aside, there is still the difficulty of reading the fingerprints - e.g. distinguishing financial shocks from real shocks. The authorities, however, are in a position to tackle such a task and it may be that it can be done at a reasonable cost.[27] Therefore, the discretion of the policymaker to alter the approach to policy, even only by changing targets, may be an efficient way for the economy as a whole to adjust to shifts in the sources of shocks; that is, to structural change in a general sense.

Whether or not to use monetary targets (however frequently changed) is, in our view, difficult to resolve in any definitive way. What _is_ widely accepted is that monetary policy should be clearly explained as part of a stable and well understood general approach to economic policy. At least from the perspective of academic economics, this can be seen as the enduring residue of the rational expectations revolution.

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27. This argument has been made by Fischer (1980) and Tobin (1985). In the Australian case, the debate following the abolition of the "conditional projection" for M3 in January 1985 would seem relevant.

FIGURE 1: INNOVATION AND DEREGULATION TIME LINE

AUSTRALIA

First foreign bank opened

Ceilings on Savings and Trading Bank deposits removed

Full abolition of existing controls over current accounts

Remaining interest rate ceilings removed (ex. housing)

Market interest rates rose significantly above ceilings

Tender system introduced for Treasury Bond Sales

Removal of min. & max. periods for on deposits

Trading Banks Permitted to issue CDs

Rapid growth of leasing occurred

Maximum interest rates on CDs abolished

First annual target growth range for M3 announced

Tender system introduced for Treasury Note sales

CMTs began

$A floated

M3 target range suspended

1950 1952 1954 1956 1958 1960 1962 1964 1966 1968 1970 1972 1974 1976 1978 1980 1982 1984 1986

Treasury-Federal Reserve Accord discontinued interest rate pegging and price support for US Government securities

Rapid growth of Leasing began

Market interest rates rose significantly above ceilings for the first time

Maximum interest on large 30-89 days CDs suspended

Interest rate ceilings on 90 day and over CDs suspended

First annual target ranges for M1, M2 and M3 announced

Abolition of all interest rate ceilings over following six year announced

M1 target range restored in 1984 then de-emphasised in 1985

Banks permitted to issue large negotiable certificates of deposit

US$ floated and convertability suspended

NOW accounts first authorised

Super NOW accounts introduced

NOW Accounts available throughout the USA

Projected M1 growth rate no longer specified as a target

Money market mutual funds evolved

UNITED STATES

4640R

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