Part 1

Implications of Liquidity Management Down-Under: The Central Bank as a Pawnbroker

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Abstract

Unlike a Post Keynesian style of central bank, where liquidity is dispensed through a lending window and open market operations, Australia's central bank brokers liquidity – analagous to a pawnbroker. The interbank settlement system, known as the Real Time Gross Settlement System (RTGS), dispenses settlement funds (liquidity) on demand, but where securities are sacrificed (permanently or temporarily) to the Reserve Bank of Australia (RBA). This brokering approach has important implications to the money supply process and monetary policy.

Endogeneity of the money supply is not unique to the Australian scene, but the Australian style of endogeneity may well be. Following a prolonged period of financial deregulation, monetary policy in Australia no longer relies on exogenous control of the money supply, however measured. Rather, a change in stance is initiated by the RBA changing the price of one of the money market products, that is, the interest rate it pays on funds in exchange settlement accounts (ESAs) that banks hold at the RBA. This event triggers a series of interest rate changes in other money market products that are close substitutes. If need be, the RBA can manipulate the RTGS system to affect its target rate of interest by altering the terms on which it brokers liquidity with banks in the system.

Moreover, brokering liquidity allows the RBA to separate solvency support from liquidity suport, which minmises any potential for moral hazard.

1 Introduction

The uniqueness of Australia's liquidity system revolves around the Real Time Gross Settlement System (RTGS), where the supply of liquidity is perfectly elastic and the stock of settlement funds available to banks is essentially driven by their demand for liquidity. The essence of Australia's liquidity system is that the Reserve Bank of Australia (RBA) does not directly impact on the size of bank balance sheets in the conduct of monetary policy or, indeed, general liquidity support.

The implementation of monetary policy, in the first instance, is a change in the interest rate on funds in exchange settlement accounts (ESAs) that are held by banks at the RBA. The RBA achieves its target rate by brokering liquidity. The RBA acts as a pawnbroker of sorts in that it provides liquidity to banks in need of liquidity by demanding interest-earning securities in return. The conduct of monetary policy highlights some features of the liquidity management system that differ from the traditional Post Keynesian approach to dispensing liquidity.

After a short preamble which gives a brief historical backdrop to Australia's changed monetary system, the RTGS is outlined in some detail followed by a fuller understanding of monetary policy and a comment regarding the nature of endogeneity in Australia, and the potential for ameliorating moral hazard.

2 Preamble

Traditionally, monetary policy is implemented by a change in the supply of money (M3), although recent textbooks (Gans et al; Bernanke et al; Blanchard and Sheen) describe it as a change in base money (Mb). However, in the first half of 1989 in Australia, during a severe contractionary stance by the RBA, the money supply (M3) had increased by 25% by midyear (Reserve Bank Bulletin, 1989). In this instance, M3 (and Mb) should have been contracting. In fact, the money supply was increasing in 1989, because the economy was still expanding and money supply processes had become endogenous to economic activity.

During that year Ian Macfarlane, later to become the Governor of the RBA, (1989, p.5), was unequivocal in stating how the monetary system and monetary policy operated:

> *For all intents and purposes, the quantity of money 'defined' as M1, M3 or some other 'M', will be determined endogenously: there is no thought of the central bank actually directing and controlling the supply of this 'M', as is assumed in the conventional textbook treatment, which describes the first stage of a change in monetary policy as 'ΔM'.*

We suspect most of us in the profession have surrendered the idea of an M3 change following financial deregulation, but have clung to some notion of a change in base money as the means by which central banks implement monetary policy. In Australia, in official circles at least, we have surrendered the notion of a base money transmission. Dr S. A. Grenville, Assistant Governor of the RBA (RBA Bulletin, September 1995, p. 29) states:

> *Monetary policy doesn't work by restricting or rationing the reserve funds available to banks and so limiting the supply of credit via balance sheet constraints: it works by changing the price of borrowing, shifting borrowers along their borrowing demand curve…Nor does the notion that monetary policy operates by expanding the money supply (or base money) and this excess supply bids up demand for goods and services (and their prices) as people attempt to get rid of their excessive money balance.*

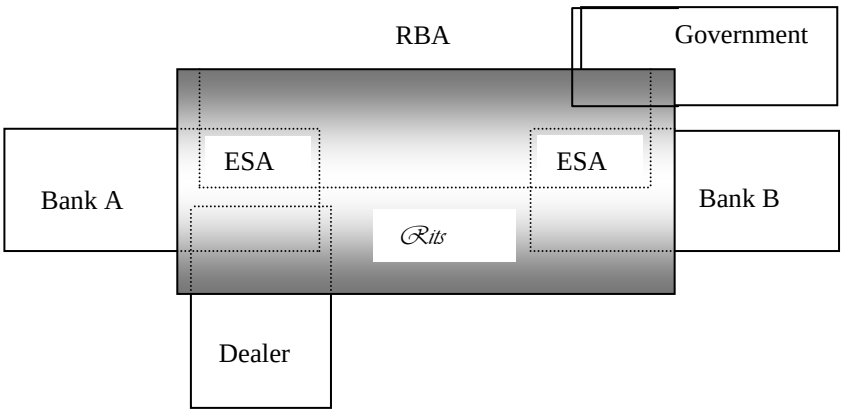
Against this background existing textbook monetary paradigms based on exogenous money are no longer appropriate in an Australian context, at least. We may as well get used to it: since financial deregulation, the money supply in Australia, and possibly a deregulated financial system near you, is fundamentally endogenous in that money is created by the banking system in response to economic activity.

An examination of the mechanics of the Australian system allows us to reflect more deeply on the validity of this notion. We first turn to an exploration of Australia's RTGS.

3 Real Time Gross Settlement System

The RTGS is payments management system whereby participating financial institutions, banks, the RBA, the government and dealers, may settle transactions in real time using an electronic transfer system called the Reserve Bank Information and Transfer System, exotically known as the RITS. The system is pictured in Figure 1 (Coombes and Reimers, 1998, p. 343). The medium of exchange is ESA funds held by members at the RBA. The voluntary balances attract an interest rate from the RBA, known as the ES rate.

Figure 1: Real Time Gross Settlement System



There are rules to the game. ESAs cannot be overdrawn. If a payment instruction instigated by one of the members, say Bank A, is not covered by funds in its ESA, the payment instruction is queued in the RITS until such time as funds are available. In this instance a member may access the intra-day market by borrowing from other members who may be holding excess ESA balances, or recall deposits held in overnight accounts with their dealer. Payments between members, including clearinghouse settlements, proceed through the RITS. Note that the aggregate level of ESA funds does not rise or fall. ESA funds for Bank A fall and rise for Bank B.

Money market dealers do not hold ESA accounts with the RBA. The dealers, however, accept overnight deposits from banks for which they offer an interest rate called the overnight rate. ESA balances and overnight deposits are close substitute products for banks. The general public can also place overnight deposits with dealers. In turn, overnight deposits and short-term commercial paper (the short end of the financial security market) are close substitutes for money market investors.

Despite the existence of a buffer level of ESA funds in the system, from time to time the system may experience bottlenecks. To this end some safety valves are available, such that members having trouble balancing their liquidity can supplement their ESA funds to complete their settlements.

A port of call in this instance is the *intra-day window* – a facility provided by the RBA. The RBA provides ESA funds on demand to any member, but ultimately at a price. The price is a small penalty interest rate brokered on a parcel of securities offered by the bank experiencing a bottleneck in liquidity through its ESA account during the day. Importantly, the bank is able to access liquidity, but by sacrificing an interest-earning asset in exchange. The transaction will be reversed during the day according to a *repurchase agreement* (repo), when a normal flow of funds resumes in the bank's ESA account. Repos are also available at the end of the day, called end-of-day repos. The bank temporarily sacrifices an interest-earning asset, but at penalty. The marginal penalty encourages

banks experiencing cash flow glitches to trawl the intra-day market first in search of settlement funds. The penalty will be increased by the RBA if the bank is a serial offender.

Another safety value provided by the RBA is the *rediscount window* – a facility by which funds are made available on demand to a bank that is unable to square off its ESA account by the end of the day, even after using end-of-day repos. It is not a lending window. This facility involves a substantial financial penalty and the bank will not be able to regain any securities surrendered. The bank permanently sacrifices an interest-earning asset in exchange for liquidity (ESA funds). Clearly, the aim of the game is to avoid having recourse to this facility at all. Nonetheless, liquidity (ESA funds) is available on demand through the safety valves.

The price of accessing the safety valves is the surrender by the bank in question of interest-earning assets, either temporarily through the intra-day window, or permanently through the rediscount window. The brokering process for liquidity in the RTGS is akin to surrendering an asset to a pawnbroker for cash; in this case the asset is an income earner.

Liquidity in the RTGS system is affected by government transactions. The Australian Government, operating a deposit account, is a customer of the RBA. Government expenditure will inject liquidity into the system as the RBA transfers funds from the Government account directly to the banks for distribution to pension recipients and so on. Government cheques have the same effect as they pass through the Clearing House. The system can be described as being up, in that the ESA funds for both Bank A and B rise. Government receipts draw liquidity from the system as taxpayers transfer funds directly or indirectly to the Government's account. ESA funds for both banks fall and the system is said to be down.

These exogenous impacts on the system are smoothed out by the RBA using repurchase agreements to, say, purchase Government Treasury Notes (T-notes) in the money market when the system is up and selling them back when the system is expected to be down. This smoothing process accommodates the demands for cash in the RTGS, as well as the normal buffer stock.

Throughout the process of dispensing liquidity, banks are required to forgo interest-earning assets, either permanently or temporarily. In dispensing liquidity the RBA does not alter the size of bank balance sheets that would otherwise occur in the case of a Post Keynesian central bank, which dispenses liquidity by loan. We are now in a position to understand the nature of monetary policy in Australia.

4. Monetary Policy and the Money Market

4. 1 Implementing a Policy Stance

The RBA implements a change in monetary policy by, first, announcing its target cash interest rate through the RITS and, secondly, making the appropriate change to the ES rate. The resultant change in the ES rate triggers a flow on effect through substitute products in the money market. Dealers adjust their overnight rates and this, in turn affects the demand for financial securities in the wider money market. A simple teaching model of the market for financial securities, pictured in Figure 2, explains the scenarios. The money market is constructed generally as a demand and supply of the instrument, financial securities (Ds and Ss). The resultant general security price is converted to an interest rate (R).

An expansionary stance is depicted in Figure 2A. The RBA announces its target cash rate and lowers the ES rate. Dealers are able to lower the interest rate paid on overnight deposits without experiencing a loss of funds. Short-term securities are now a more attractive product relative to overnight deposits. The demand for short-term securities increases and raises their price. As the price of short term securities rise, the demand for substitute securities follows suit, bringing about a general rise in security prices, including those issued by banks. Money market interest rates consequently fall. A contractionary stance is shown in Figure 2B. After announcing its target cash rate, the RBA raises the ES rate. Dealers raise the overnight rate in order to head off a loss of funds to the ESAs. Securities become less attractive compared to overnight deposits with dealers. The decrease in demand for securities lowers the general price of securities, raising money market interest rates in the process.

Figure 2A: Expansionary Stance

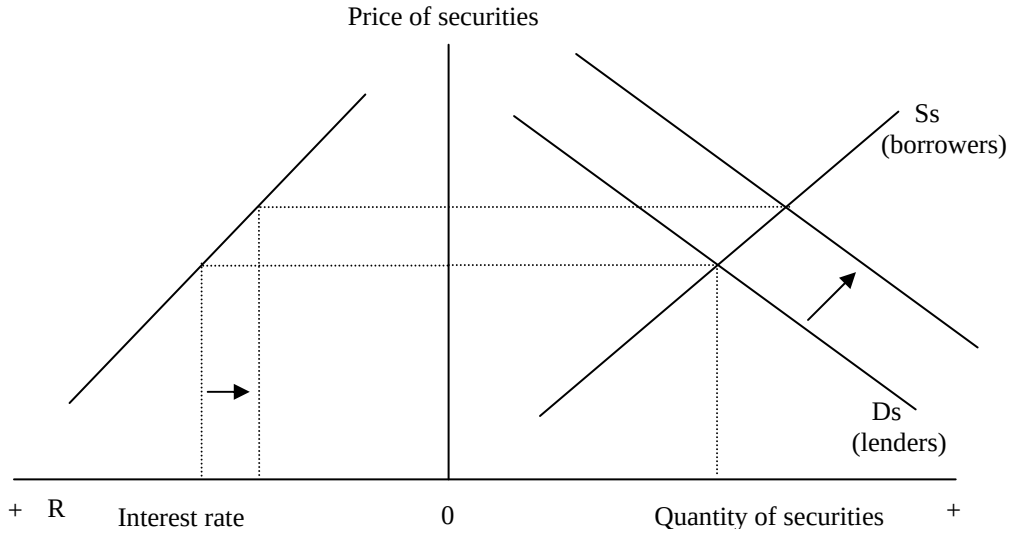
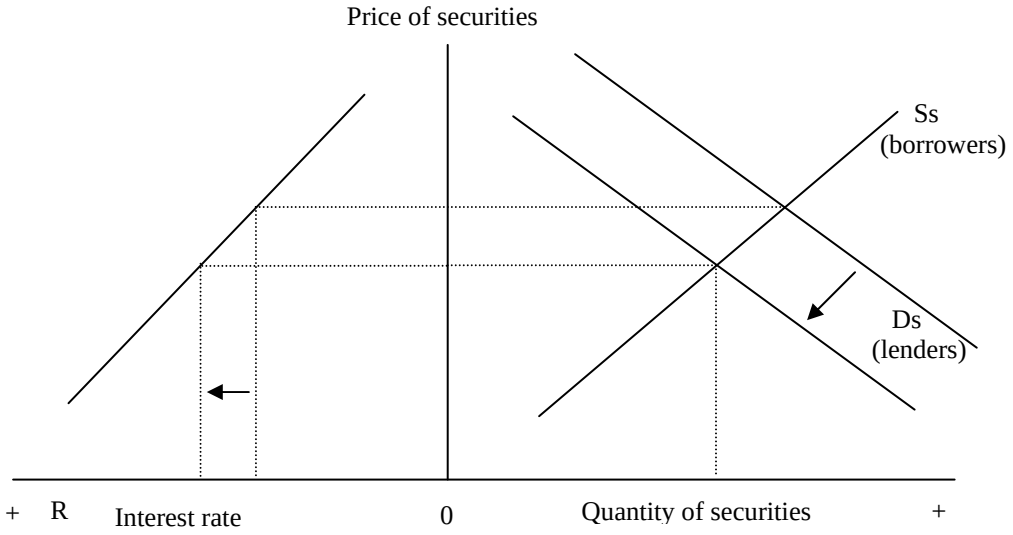


Figure 2B: Contractionary Stance



In both stances the RBA is implementing monetary policy by influencing the price of one of the substitute products in the money market, ESA balances, triggering a shift in demand for securities and hence money market interest rates. At this stage, there is no thought of a quantity-based paradigm. The RBA does not deal with the public when conducting monetary policy, so that traditional open market operations have fallen into disuse. And the level of base money has not been affected, because the level of ESA funds in the RTGS has not been altered by the activities of the RBA.

4. 2. Supplementary Levers

But what if money market cash rates are not moving in line with RBA expectations? The RITS is an information vehicle as well as a funds transfer system. Members of the RTGS are alerted to the RBA's intentions preceding a change in stance. Accordingly, members appreciate that the RBA can tweak the level of ESA funds if it so desires. The RBA can do this simply by delaying or adjusting its smoothing operations.

If cash rates are not rising to target levels during a contractionary stance, or not rising quickly enough, the RBA can elect to reduce the buffer stock of ESA funds by delaying its smoothing operations when

the ESA system is affected by government receipts. This ultimately leaves the system tight and the incidence of recourse to the intra day window is likely to increase. To avoid the use of the relatively more costly intra day window, banks will withdraw funds placed as overnight deposits with money market dealers. Dealers, in turn, will find it necessary to raise their overnight interest rates in order to lock in their funding levels. If cash rates are not falling according to the RBA's expectations during an expansionary stance, the RBA can elect to loosen the system by delaying smoothing during a period of government payments, for example. In both cases, once the target cash rates are achieved, the RBA will resume the smoothing process, restoring the normal level of buffer funds in the system. And banks always have recourse to the safety valves at a price, so that the RBA does not affect the price of money in the traditional sense. Monetary policy is not quantity-based.

The processes are transparent. Money market players appreciate that the RBA can always tinker with the system in order to achieve its target cash rates. More often than not, cash rates adjust immediately. If some manipulation of the buffer stock of ESA funds is required, the process is reversed once the job is done. The level of ESA funds in the system is essentially demand driven. The central bank is merely manipulating the cash rates by leading the way, and by brokering liquidity if the way is not heeded.

5 Brokering Liquidity, Money Processes and Moral Hazard

The RBA parts company from a Post Keynesian central bank, in that the Post Keynesian central bank dispenses liquidity via loan support, while the RBA brokers liquidity. The difference is not unremarkable.

Suppose that the non-bank public does not want to hold any more money (deposits) as part of its wealth portfolio and that a bank is able to increase its loans, so that the quantity of money is more than the quantity demand. In other words, the bank has over lent. Banks that over lend accumulate adverse balances at the clearinghouse, which have to be honoured by sacrificing interest-earning assets, so that in this instance it is not profitable to over lend (Glasner, 1989). The quantity of money in the economy is determined, and limited, by the demand for money, because unwanted money is extinguished via the clearinghouse. The importance of the clearinghouse in this regard has been lost to contemporary economics. If banks have recourse to centralised loan support they can circumvent adverse clearing and the role of the clearinghouse in extinguishing money. This is the case with the Post Keynesian central bank, but not the RBA. In Australia, therefore, money is endogenous to money demand, not the demand for credit.

Because the Post Keynesian central bank dispenses liquidity via loan support it also faces a continual conflict, in that the provision of (loans-based) liquidity may also subsidise poorly managed banks, thereby feeding moral hazard. This is the case because the Post Keynesian central bank cannot separate liquidity support from solvency support. In contrast, brokering liquidity allows the RBA to separate solvency support from liquidity support.

6 Conclusion

Whether the Australian system is indicative of most contemporary deregulated financial systems is a matter for someone else to reflect on. But one thing is certain, the RBA brokers liquidity, such that the money supply process is endogenous, in that it is created by banking activity. But rather than money being endogenous to the demand for credit, which reflects received wisdom, it is endogenous to the demand to hold money. Consequently, monetary policy in Australia is not quantity based. Base money in the form of settlement funds is essentially demand driven. The RBA influences the cost of ES funds by simply changing the price of one of the money market products – the ES rate. General liquidity support is available, but it is separated from solvency support, which minimises any moral hazard risk.

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