The Australian Money Market *

It is useful to look first at the early history of the Australian money market, since much of what exists today derives from that experience.[1] Prior to the 1950s, the means of investing money for short periods in Australia were rather limited. The traditional outlet was the 'fixed deposit' accepted by the trading banks for terms of 3 to 24 months. However, during the 1950s, the rates paid on such deposits had ceased to be competitive with alternative outlets, such as the issue of short-term debenture stock and unsecured notes by finance companies. This latter facility began to be offered (soon by other enterprises as well) about 1950, but trustees and public authorities were unable to employ this technique because of legislative restrictions. Hence, a means had to be devised to meet the needs of investors who wanted the security of Government paper, but whose funds were unlikely to be available long enough to justify an outright

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For relatively recent treatments of this subject, see EDNA CAREW, *Fast Money - The Money Market in Australia* (1983) and *Fast Money 2* (1985). See also GERRY FORSTER, "Reserve Bank Money Market Operations", *The Australian Banker*, August 1986; I.J. MACFARLANE, "Open Market Operations Since The Float", being paper presented to Victorian Branch of Economic Society in Melbourne, November 26, 1986 and reprinted in *Reserve Bank of Australia Bulletin*, December 1986; MICHAEL DOTSEY, "Open Market Operations in Australia: "A U.S. Perspective", RESERVE BANK OF AUSTRALIA *Research Discussion Paper* 8702, May 1987; R. BATTELLINO and I.J. MACFARLANE, "Research Report: Open Market Operations - Some International Comparisons", *Reserve Bank of Australia Bulletin*, December 1987; D.J. JUTTNER, "Money Markets and Monetary Policy Implementation", *Economic Papers*, Volume 1, No. 4, December 1988; and M.J. PHILLIPS, "A Central Banking Triptych", *Reserve Bank of Australia Bulletin*, October 1989.

[1] See also J.S.G. WILSON, "The Australian Money Market" in this *Review*, March 1973, pp. 46ff.

purchase. Also Government securities with only a few months to maturity were not normally available in large amounts. This need was met by the 'buy-back' facilities that certain stock and share brokers in Sydney and Melbourne were prepared to offer their customers. Moreover, by selling securities subject to an agreement to repurchase, as well as the more normal borrowing of funds at short-term, these brokers were able to build up quite sizeable portfolios. The big disadvantage of this system was the absence of a true lender of last resort, which could assure ultimate liquidity in the event of need. At that stage, stockbrokers for the most part could only fall back on their facilities with the trading banks,[2] but it was unreasonable to regard these as always and necessarily available.

It was not until February 1959, by which time there already existed a market of quite appreciable size, that the central bank – still then the Commonwealth Bank of Australia, but from January 1960 the Reserve Bank of Australia – began to provide formal lender of last resort facilities to 'authorised dealers' in the short-term money market. At all times, dealer companies had to be ready and able to engage in the buying and selling of money market securities. The other point to note is that with the emergence of 'authorised dealers' an 'official' money market was established and operations which fell outside official dealings became the basis of an 'unofficial' market.

Treasury Notes

For some time, there remained something of a shortage of securities with a sufficient range of maturity dates to accommodate seasonal variations in liquidity. The range of available securities was widened to some extent with the issue in November 1959 of 3 month Seasonal Treasury Notes, which were rediscountable at the central bank. These were originally issued fortnightly but latterly on a daily basis during the flush period of the year from about September to March. They had to be redeemed by the end of each financial year (June 30) and no new issue could therefore be made after March 31

[2] There was also a limited amount of dealing between buy-back brokers and the old Commonwealth Bank of Australia (which at that time also acted as the central bank).

until the following September. Then, as from July 16 1962, the Federal Government began to issue in minimum amounts of A$ 10,000 also at a rate of discount and on a continuous basis 3 month Treasury Notes, which were likewise rediscountable at the Reserve Bank. These replaced Seasonal Treasury Notes. The attraction of the Treasury Note was further enhanced by the introduction of a 26 week maturity in July 1967. Its issue price was varied from time to time and became the barometer of short-term money market rates. As a result of these changes, the Treasury bill disappeared from trading bank balance sheets (about July 1962) and they now came to be held entirely by the Reserve Bank itself. After 1959, too, the dealers were able to supplement their supplies of securities by purchases from the Reserve Bank, which became a significant source. Since there were no brokerage or similar charges on these transactions, rate competition had full play.

Official money market dealers

Of the 8 dealers operating in January 1990,[3] 4 have their head offices or principal office in Melbourne (one of these is registered in Canberra),[4] 4 in Sydney, which is however the dominant centre. One should note, too, with respect to the Melbourne houses, that senior personnel in Sydney deal direct with the Reserve Bank's Melbourne Office.

Originally, there were two main types of houses:

1) those who were money dealers – these traded in money and with the money that they borrowed they purchased securities and "sat on them"; and

2) traders in securities, who regarded everything in their portfolio as being available for sale and who were in the market to buy anything on offer – in both cases at a price.

[3] These are All-States Discount Limited, Victoria; Colonial Mutual Discount Company Limited, N.S.W; FBA (Discount) Ltd., N.S.W.; F.R. Australian Discount Limited, Victoria; NDC Securities Ltd., N.S.W.; PP Discount Limited, Victoria; Short Term Acceptances Limited, Victoria; and (from October 1989) BNY Discount Limited, N.S.W. (formerly Trans City Discount Limited).

[4] This was a common device for minimising stamp duty.

Some houses tried to establish a balance between the two types of business.

Current arrangements, in principle, have not changed very greatly over the years since 1969 (see below), though latterly there was less of a tendency on the part of some houses to sit on their securities and to depend for their profits on the interest earned on such securities; the emphasis nowadays is for most of the official dealers in effect to act as brokers of repurchase agreements (Repos), or of transactions in Commonwealth Government securities, and for the most part they operate between the Reserve Bank of Australia and the private sector, hoping to make a spread. Official dealers are not large traders in Commonwealth Government securities. And only one official dealer is an active participant in professional bill dealing. Authorised dealers – the official market – are still restricted in the securities that they can hold and the ratios that they have to maintain between capital and total holdings and between their several types of assets. Thus, they can only hold assets the weighted value[5] of which does not exceed 33 times total shareholders' funds, though they may not wish to hold as much as that. This is the multiplier or 'gearing maximum', which imposes a limit to the permissible figure for the total book. At this ratio, a house could have (say) a 3 per cent fall in the value of its assets and this would be covered by shareholders' funds.

Also, from February 1990 they may not hold more than 50 per cent of the maximum gearing limit in non-Commonwealth securities (previously, it was 30 per cent). There is also a limit on Repos; the size of an official dealer's book sometimes precludes transactions. Within the 50 per cent referred to, the most important items would be bank bills (bank accepted or endorsed) and Negotiable Certificates of Deposit (NCDs), which are regarded as an asset that in terms of liquidity is virtually interchangeable with bank bills. Also, up to 2 1/2 per cent within the 50 per cent could be held in almost anything else – *e.g.* non-bank bills of firms of good standing. Before July 1982, authorised dealers' holdings of non-government securities had been more strictly regulated.

[5] For example, assets with maturity categories of 0-3 months were weighted at 0.6; 3-6 months 0.8; 6-12 months 1.0; 1-2 years 1.5; 2-5 years 2.5; 5-10 years 4.0; and more than 10 years to maturity 4.5.

For some time, no specific minimum capital was required, though the Reserve Bank monitored closely the current capital provisions of all the official houses. Latterly, a minimum capital (shareholders' funds) has been required and, since May 1989, this has been set at A$ 10 million. The minimum size of transaction on the official market is now A$ 50,000 for loans and purchases or sales of Notes, and A$ 100,000 for bonds.

An important privilege accorded to the authorised dealers was lender of last resort facilities at the central bank. This has now been replaced by repurchase agreements, or Repos. There was no limit to the length of stock that could be used for the line of credit, but any such loans had to be secured by Commonwealth Government paper and were at a rate determined by the Reserve Bank. Only licensed trading banks and authorised dealers have accounts at the Reserve Bank and can therefore provide payments in exchange settlement funds or same day money (bank cheque funds are only available the next day). All loans from the banks to the official dealers must be in exchange settlement funds.[6] These loans are always secured and, if secured by appropriate Commonwealth securities, will constitute a 'prime asset' and qualify for inclusion in the trading and savings banks' Prime Assets Ratio. Although loans from banks to dealers must be in exchange settlement funds, bank cheque funds may be borrowed from other players (*e.g.* non-financial corporations). Also, purchases or sales of assets – even when transactions are between banks and official dealers – are settled with bank cheque funds. Indeed, repurchase agreements allow a dealer actively to participate in the daily bank cheque market and banks can supplement their cash requirements by borrowing on Repo from the authorised dealers in a formal market. Prior to 1985, when the Reserve Bank deregulated the market, such activities were not possible (at least in large volume).

The Reserve Bank requires dealers to give security cover to lenders. To facilitate this, it operates a money market system for dealers' Commonwealth Government securities and issues acknowledgment forms at branches to dealers against securities held in nominated accounts at Sydney and Melbourne branches. The forms

[6] Banks are not permitted to lend to or call funds from dealers by using bank cheques. And banks may not borrow from the authorised dealers. Even though technically the banks cannot lend bank cheque funds to the official dealers, they can and do lend to the dealers' finance or property companies, which in turn lend bank cheque funds to the official or authorised dealers.

acknowledge, for the benefit of dealers' clients, that the Bank is holding stated securities on account of the dealer.

Some of the official dealers in the money market are also included in the 20 market-makers in government bonds; these are listed as 'reporting' bond dealers and are committed to active trading in the secondary market. All of them (including the several stock-broking firms in the list) trade directly with the Reserve Bank; of this group the authorised dealers were permitted to deal directly with the Reserve Bank in government bonds of less than one year to maturity; except for the banks, other reporting dealers have direct access to the central bank (by rediscounting) only in the context of bonds of more than one year to maturity. Since the late 1960s, banks also have been permitted to deal directly with the Reserve Bank in bonds with maturities of one month and, since December 1975, in bonds of 3 month maturities. Such transactions are often much cheaper for the banks than rediscounting Treasury Notes. Other categories of financial institutions have to deal through an intermediary when trading with the Reserve Bank.

Daylight overdrafts

With continuous trading in funds and securities, it often happens that a dealer will have arranged to repay funds before receiving the moneys from new borrowings. Funds to replace those that have been repaid may be due, but not until later in the day. In the meantime, the first loan has to be repaid. To overcome this difficulty (which also exists in other money markets – *e.g.* the USA and Canada), the Reserve Bank permits the authorised dealers to run a 'daylight overdraft' in funds and securities (subject to agreed limits) against the lodgment of security as required by the Bank; this assists the market to operate smoothly. But the dealers' accounts with the Reserve Bank must be in credit by the close of the day's trading. The Reserve Bank will also issue a dealer with acknowledgment forms in excess of holdings throughout the trading day to facilitate settlements, provided the deficit is covered on an Australian-wide basis by the end of the day. The daylight overdraft facility is used by the dealers less frequently than in the past because most large transactions between the banks and dealers are now settled directly on Reserve Bank premises.

Borrowing arrangements

It is appropriate to turn now to the borrowing arrangements within the money market, where all of the official dealers also have an 'unofficial' arm, which thereby forms part of the unofficial money market, where the so-called 'money market corporations', or merchant banks, are prominent, though by no means all would undertake unofficial money market operations. Latterly, the number has gone down considerably to about 100 after related companies are netted out of the figure. The decline has in part derived from the deregulation process. The unofficial market would also comprehend certain of the finance houses. When the official market was first set up, there was a tendency for the market houses to borrow moneys from a limited range of clients, where relationships were often on a somewhat personal basis; the rates paid did not always fluctuate to the same extent as the market and were less flexible. On the other hand, houses that from the first were primarily dependent on bank money were more impersonal in their relationships and paid more competitive rates. Over the years, operations have become increasingly competitive and sophisticated. In the official market, the houses depend to a very large extent on overnight money (borrowed one day and repaid before 11.00 a.m. the next day – average estimates, if we include corporates, vary up to well over 90 per cent of total borrowed funds). These loans are all secured (and margin is often required) and, if secured by Commonwealth securities, they will qualify as part of the liquid base of the trading and savings banks (PAR). The small remainder would be almost entirely 7-day fixed money and the rest at 24-hour call (the latter is lent for 7 days, subject at the end of the period to 24-hour call).[7] If it were to run on, the rate would be adjusted. There may be a little 'fixed term' money secured by semi-governments and bank bills. Whatever their predilections, it is said that the official dealers cannot compete with the banks and the unofficial market for term money, most of which would be obtained against an NCD. The bulk of the official market's money would come

[7] Official dealers tend to borrow overnight. Banks may wish to lend for 7 days but dealers may not oblige, because of uncertain market conditions and volatility of rates. But official dealers also borrow from other parties (corporates and even individuals) and it may not suit such parties to lend overnight.

from the banks. The banks bulk up bank cheque funds, which become exchange settlement funds the following day. As a result, the banks lend to dealers in large amounts, this being their most convenient option, though 'other' (mostly non-financial corporations) can also be quite significant. (See Reserve Bank *Bulletins*, Table G3.) 'Other' would be lent in bank cheque (*i.e.* next day) funds.[8] In fact, the banks only hold small balances in their exchange settlement accounts in order to minimise opportunity costs (exchange settlement balances do not earn interest). Inter-dealer loans are also made. Nor must one overlook the facilities available at the Reserve Bank – rediscount of Treasury Notes, and Reserve Bank repurchase agreements or Repos; these will be discussed in greater detail below.

Unofficial money market

As already indicated, all authorised dealers also have an unofficial arm, with transactions in the two markets often being effected by the same dealer from the same desk, though of course with separate books. The advantage to the authorised dealer of having a foot in the unofficial market is that he gets a 'feel' of the availability of funds.[9] The unofficial houses borrow money from the same sources – though in bank cheque funds (next day money) – from the trading banks, the merchant banks, the corporates (both large and small), and (in a slightly different way) from the building societies. Most unofficial money is unsecured (whether bank or non-bank); if secured, a margin would be required.[10] Because the unofficial houses can invest in a wider range of money market instruments (carrying higher yields on Commonwealth paper), and without limit, they can afford to pay higher rates on moneys borrowed; these rates also cover the higher

[8] One might note, too, that the level of authorised dealer involvement in the unofficial market can greatly affect the unofficial cash rates. In periods of tight liquidity, it is not unusual for the authorised dealers to be heavy borrowers of bank cheque funds (since exchange settlement balances are relatively low), thereby exerting upward pressure on both cash markets.

[9] The unofficial arm is invariably small and only occasionally is used for funding purposes, normally to transfer unofficial funds from a bank. Official dealers can borrow unofficial funds from any lender, except a bank, and the unofficial arm has no role to play in this matter. In fact, most official dealers try to play one market off against the other in order to lower their cost of funds.

[10] Some lenders always require security and may insist on Commonwealth paper, or bank accepted bills.

degree of risk. Compared with the official market, and allowing for the fact that loans are in bank cheque (*i.e.* next day) funds, there is less emphasis on the use of overnight money, though some houses may borrow specifically at 24-hour call, and more emphasis on 7-day money (subject thereafter to 24-hour call) and to a lesser extent on term money – effectively out to 6 months and with no restrictions as to size. They also raise money by way of 'buy-backs' (the sale of securities for a short period, subject to an agreement to repurchase); this happens to suit some customers, such as the building societies, which often prefer buy-backs even overnight, likewise for 7 days or longer, a favourite basis being bank accepted bills. In the official market, they could deposit money overnight on a secured basis with an authorised dealer. Corporates also sometimes prefer to lend money to unofficial money market houses by way of buy-backs instead of lending moneys in the normal way.

Alternatively, these houses may borrow some of their money offshore;[11] where this is in foreign currency (*e.g.* Eurodollars), they may take a view on exchange rates and take a position for a certain period, letting it run. Or they may prefer to swap out of (say) US dollars into Australian dollars, buying forward cover, in which case there would be no exchange rate exposure. But they may run an interest rate exposure, borrowing (say) at 6 months and lending money on at 3 months (*e.g.* if they expect rates to rise).

As we have seen, requirements with regard to the asset structure of the official dealers are somewhat restrictive – up to 50 per cent of the gearing limit being permitted in non-Commonwealth government securities; the remainder in Commonwealth government securities. Because of the high degree of freedom that the unofficial houses enjoy and which permits of a more flexible investment policy, one finds a completely different mix of assets in the unofficial market and this is reflected in higher yields. Thus, if the unofficial houses so desire, they can carry a larger portfolio than that imposed on official houses and there is no obligation to hold Commonwealth paper. Hence, one finds the unofficial houses very interested in holding bank bills (bank accepted or bank endorsed) as an interest-bearing asset. Moreover, the yield on bank endorsed bills will usually be 5 to 10 cents higher than that for bank accepted bills. Non-bank bills (of well regarded industrial or commercial companies) would carry an even

[11] If they do, they have to take into account withholding tax (where it applies).

higher yield. The unofficial houses can also be quite interested in P-notes (Promissory notes – the Australian form of one-name commercial paper). Where P-notes are issued by a leading corporate with an A1 rating, the houses holding them will enjoy both a good return and liquidity.[12]

Use of brokers

On the whole, transactions in the form of money market loans are done direct and not through a money broker. Enquiries reveal that "almost all" of such transactions effected by the official dealers and the trading banks are done direct. Indeed, both for cash and in the short-dated securities markets, professional screen dealing is very important. Where brokers are used in a money transaction, it is said to be "not to any extent", or "very rarely" – *e.g.* where there is a specific requirement to be met. Sometimes money comes in – more particularly in the unofficial market – through money brokers from small corporates (from whom it may be cheaper).[13] Although professional participants actively discourage it, one or two of the large corporates also may from time to time – when it suits them – resort to money brokers, of which there may be some half-dozen. Where brokers do have a role is in the bill market (and especially in the bank bill forward market), in the placement of NCDs (which may also be done as a broking function by the merchant banks), in placing P-notes, and in FOREX, where about 33 per cent of FOREX business goes through seven brokers. However, in the placing of money market instruments, it would be more usual for market houses and banks to be approached by a broker than the other way round. On the other hand, a corporate may approach a broker from time to time to contact a number of small people, who on the whole may not get such a good deal from the merchant banks, though from the corporate's point of view it is cheap money, some of which sticks. Of the broking firms that cover the whole range of business, four would be large and with international connections.

[12] However, there is not much depth in the secondary market for P-notes, but there is an active, deep, and developed secondary market in bank bills in Australia – hence the preference.

[13] They would tend to get a market-related deposit rate.

Inter-bank market

As well as lending to the official and unofficial markets, the banks also lend between themselves in the inter-bank. Inter-bank transactions may be in exchange settlement funds, or in bank cheque (*i.e.* next day funds). Most loans in inter-bank exchange settlement funds are overnight and the bulk of transactions is completed by 10.00 a.m.[14] Again, transactions would usually be effected direct between the parties and are largely unsecured. This business would usually be done early in order to assist in squaring exchange settlement positions. But not all transactions are 11.00 a.m. call money; some (usually in bank cheque funds) are 7 day money and, indeed, they may be for up to 30 days, certainly less than 6 months.[15] Also some transactions may be done later in the afternoon (for the next day), if funds were suddenly in surplus, or alternatively very tight.

Then there was the influx of 15 foreign banks in 1985,[16] (5 new domestic banks were also established). Despite the efforts of some of them to build up a retail base, they lacked the same access to deposits that the established Australian trading banks enjoyed and there was some further development of the inter-bank market in Australia as a result of the need of such banks to fund themselves – sometimes to a significant extent – in the wholesale market. Merchant banks would also use the inter-bank market, but in terms of bank cheque (next day) funds only.

[14] Times referred to are Eastern Standard Time, the bulk of the business being done in Sydney and Melbourne. Perth in Western Australia is two hours behind the Eastern States, but – with daylight saving time – the difference can be three hours. The period of most activity in Perth (local time) is 7.00 a.m. to 12 Noon (in winter) and 6.00 a.m. to 12 Noon (in summer). The money markets in Australia in fact operate nationwide; in effect, it is a telephone market.

[15] Both balance sheet and statutory reserve deposit considerations deterred the development of a term cash market – *i.e.* major banks were not prepared to raise funds which attracted statutory reserve deposits to on-lend them to another bank, which transactions were SRD exempt. They would have preferred to trade in and out of cash positions. SRDs were replaced in 1988 by Non-Callable Deposit Accounts, on which a relatively low rate of interest was paid.

[16] The Australian Government announced in February 1985 that 16 new banks, with varying degrees of foreign ownership, had been invited to establish operations in Australia. Of the 16 invited, 15 established domestic banking operations.

The role of the corporates

So far as corporates are concerned, they used to accommodate each other to a considerable extent through the agency of the inter-company market,[17] but this is less common now, since the fully-drawn advance has tended to take over from the more flexible overdraft, when corporates could borrow from their bankers and lend it out to other corporates – so-called 'interest arbitrage'. Also, the large corporates – *e.g.* BHP, CRA, CSR and Coles-Myer – nowadays themselves run a sophisticated money market operation, often through a financial subsidiary; they generally lend to, and borrow from, the unofficial market,[18] but they also lend to the trading banks on an 11.00 a.m. call basis, or as 7 day money (subject thereafter to 24 hour call). These moneys may be secured or unsecured – it depends on the creditworthiness of the borrower, for whom they will also have internal (or undisclosed) limits up to which they will lend to particular borrowers. If they have moneys over, they may also lend to the official market. When borrowing themselves, they may do a Repo.[19] The purchase of bank bills is another way of absorbing funds. Certain of these corporates that sell heavily overseas also have FOREX to manage and may put funds out in overseas centres like New York and London, centres in which they also borrow. Because of their size, they are too large for exclusive borrowings from the Australian banks,[20] but receive a number of approaches from bankers abroad, which offer both facilities and services. In their own time zone, they can use Singapore, Hong Kong, or Tokyo. Funds are brought back as necessary, or sold off if there is an opportunity to sell currency at a favourable exchange rate. Certain corporates (like CSR) still have a seasonal movement in their overseas funds (in the case of CSR because of seasonal sugar exports to the Northern Hemisphere). Should it be required, it is also possible to fund in offshore centres and to swap into Australian dollars, with forward cover. But firms with a seasonal need (like CSR) may likewise borrow on the domestic

[17] See WILSON, *loc. cit.*, pp. 62-5 and CAREW, pp. 32-3.

[18] Corporates that are primarily borrowers may – if they have a cash surplus – merely pay off debt (a zero cash policy).

[19] In this case, selling securities under an agreement to repurchase.

[20] In any event, there are Reserve Bank restrictions on exposure by banks to any one customer.

market – overnight or for 7 days – or issue P-notes on an unsecured basis. And, when flush with funds, they may lend (either secured or unsecured) overnight, at 7 days, or for a term. Alternatively, they may buy bills or NCDs, to which internal limits may apply, also to P-notes (or PNs). In addition, transactions are effected with other corporates and, when dealing with small corporates, they may well use the services of a broker.

Money market instruments

It is appropriate next to look in more detail at the various assets in which the official and unofficial markets invest their resources. Reference has already been made to Treasury bills and Treasury Notes. Although technically external Treasury bills could still be re-introduced, they disappeared from the statistics in 1983.[21] In Australia, they were never important from a money market point of view. So far as *Treasury Notes* were concerned – as we have seen – these were established by the early 1960s. They are short-term securities issued through its agent – the Reserve Bank of Australia – by the Federal Government. Treasury Notes were first made regularly available in 1962, initially only in a maturity of 13 weeks. A 26-week maturity was introduced in 1967. The composition of Treasury Note holders varies throughout the year.[22] They are held primarily by the trading banks (over 53 per cent in November 1989 of Treasury Notes in issue), the savings banks (about 28 per cent), and the authorised dealers (about 3 per cent).[23] Reserve Bank holdings at that time were 6.4 per cent of the total. For the most part, and apart from some offshore investors (since they are free of withholding tax), Notes are

[21] However, internal Treasury bills are issued from time to time to facilitate public sector financing objectives (see "Government securities on issue at 30 June 1989", *Budget Related Paper* No. 1, p. 5).

[22] See Table 14 in *Reserve Bank of Australia Bulletin.*

[23] Trading banks hold Treasury Notes primarily to meet PAR, but partly to assist liquidity management (through the medium of rediscounting or by taking up Treasury Notes). Authorised dealers hold them, in order to satisfy their obligation to trade short-term Commonwealth government securities.

not regarded very favourably by other investors – even by certain of the building societies – since the return is not thought to be attractive.

Originally, Treasury Notes were made available on a daily basis through the 'tap' by the Reserve Bank at a rate set by the Bank; this was varied from time to time and it became the barometer for movements in short-term money market rates. Clearly, in the interests of developing a more flexible structure of money market rates, there was a case for moving to a *Treasury Note Auction* or *Tender*. Indeed, the present author pressed for this privately for a number of years both within the Reserve Bank and the Commonwealth Treasury and publicly advocated it as early as March 1973 as a means of achieving even greater rate flexibility.[24] However, from December 1979, Treasury Notes have been issued by means of a regular (usually weekly) tender. It is only possible to tender if a party is 'registered' for the purpose. The tender is competitive with rates being determined in the market. Bids are on the basis of yield (to two decimal places), not price, but the Notes sell at a discount from face value. The Reserve Bank conducts the Treasury Note tender as part of its role as agent for the Commonwealth Treasury. Whether a tender is to be held on the following Wednesday is announced on the previous Friday afternoon at 4.00 p.m., also the amount to be offered and the relevant maturities. Only 13 and 26 week Notes (3 and 6 months) are issued. Bids must be lodged in the tender box at any Australian branch of the Reserve Bank usually by Noon (Eastern Standard Time) on the Wednesday and the results are announced that afternoon at 4.00 p.m., with details of the average yield at which the Notes were sold and the range of accepted bids. The Federal Treasurer reserves the right to accept bids for the full amount of the tender or any part thereof and to reject any bid or part thereof. If the Reserve Bank wishes itself to acquire Treasury Notes, it will announce in advance what it will take up (this is in addition to the amount offered for public tender); these Notes are then taken up at the weighted average issue yield(s) announced for the relevant tender. When the Reserve Bank takes up Treasury Notes, this is done in order to secure a supply of Notes to sell at a future date as a means of regulating liquidity. Each bid must be for a minimum parcel of A$ 100,000 face value and in multiplies of A$ 5,000 face value thereafter. Notes may be paid for on any day of the following week (as also in London), *i.e.*, in the case of Australia from the Thursday after the tender to the close of business the following Wednesday and the Reserve Bank provides daily information as to how many Notes remain to be paid for from a tender. This privilege of spreading purchases over the following week enables the market to obtain a range of maturities. When the Notes are paid for, they are transferred to the stock account of the purchaser at the Reserve Bank.

[24] See WILSON, *loc. cit.*, p. 68. It was understood at the time that the opposition came from within the Federal Treasury; it is known that there were also critical voices within the Reserve Bank, but it is almost certain that the Treasury was the major stumbling block.

In the early days, there was a kind of 'talk around' amongst the dealers, but there is very little of this now. Within a house, of course, there will be a discussion between senior management and their dealers in order to judge what to bid.

It is expected that the authorised dealers will always tender – it is regarded as part of their function. Indeed, there is an understanding that they will always cover the tender. What they would be required to take up – if necessary – depends on their own capital and reserves in relation to the total capitalisation for all houses (which is advised to them). Actually, the Reserve Bank reserves the right not to allocate the whole of the tender (*e.g.* if the prices bid were very much out of line), but this would happen only rarely. Usually the dealers will tender at a range of rates. The authorised dealers do not now carry large stocks of Treasury Notes to trade. They only carry stocks to speculate on Reserve Bank purchasing requirements. For the most part, banks also bid keenly at Treasury Note auctions – they need the Notes to meet their PAR requirements and, as already noted, the banks are the largest holders of Treasury Notes.

Treasury Note tenders over the last several years have varied from A$ 200 million to A$ 700 million (13 week Notes) and from A$ 100 million to A$ 500 million (for 26 week Notes). For classification by holder,[25] it will be seen that the trading banks are the most important holders, though one must not forget that for the smaller holdings of the authorised dealers turnover would be high. One might note, too, that the banks may have real difficulty in buying Treasury Notes, if the Reserve Bank has not been selling them for some time. Sometimes, this leads to PAR stock shortages.[26]

[25] *See Reserve Bank of Australia Bulletin.*

[26] For details of PAR, see J.S.G. WILSON, *Banking Policy and Structure: A Comparative Analysis*, pp. 430-1.

In addition to a liquid asset like Treasury Notes, money market houses will also hold short-dated – even somewhat longer dated – *Commonwealth Government Bonds*, the actual maturity composition of the portfolio being largely determined by interest rate expectations and cash flow requirements. This is true also of the trading banks, savings and merchant banks, building societies, and the larger corporations. Following the successful introduction of a tender system for Treasury Notes in December 1979, a similar system was set up for Commonwealth bonds in August 1982, where yields in the tenders tended to reflect prevailing conditions in the secondary markets. Anybody who registered with the Reserve Bank could tender for bonds. Unlike the Treasury Note tenders, those for Commonwealth bonds were less frequent and not at regular dates. In this context, however, there has latterly been a shrinkage in the supply of Commonwealth Government securities, due to the Federal Government's large budget surplus, as a result of which there has been no need for borrowing. Indeed, at the end of 1989, there was a reverse bond tender to retire Federal Government domestic debt.[27]

As with Treasury Notes, the Reserve Bank bought stock in the bond tenders from time to time, taking them up at the average yields that resulted from the competitive bidding. It did this in order to maintain its portfolio of Commonwealth securities, which it employed from time to time in the course of managing the liquidity of the economy.

Formerly, the bond market in Australia consisted mostly of the captive primary market, where bonds were issued to those who had to buy bonds for ratio purposes, *i.e.*, banks, life offices, superannuation funds, and authorised money market dealers. The secondary market, where bonds are traded, was rather thin. Latterly, this changed and the secondary market acquired far greater depth, partly because of the tender system, which allowed interest rates to be determined by the market and partly because institutions trading bonds developed a

[27] Originally the authorised money market dealers and several stockbroking firms were regarded as specialist bond traders, partly because of their ability to trade directly with the Reserve Bank. Then a list of 21 reporting bond dealers was announced in December 1984, the system coming into effect on January 1, 1985. There are now 20 – two authorised dealers, certain of the trading banks, some merchant banks, certain stockbrokers, two of the largest life assurance societies, and a number of other houses. However, for the reasons stated above, the future of this system now seems to be in some doubt.

more active and sophisticated approach to the managing of a bond portfolio. In addition, there were very significant offshore holdings of Commonwealth bonds, partly as a result of deregulation and the need of overseas portfolio managers to diversify their portfolios. Another factor was the resort to bond futures contracts, which allowed operators to hedge positions.

The Treasury Note market also expanded, due to high interest rates and the absence of withholding tax, which likewise stimulated overseas interest.

Semi-government and local authority securities are also held by a variety of financial institutions, as they give a better yield than Commonwealth securities. State banks regard themselves as subject to an unwritten convention to take up such securities when issued by authorities in their own State. Funds are borrowed by such parties largely to finance capital works, such as roads, bridges, etc., or to provide electricity, gas, and water supplies. Until the 1970s, semi-government authorities raised the money they required directly from institutions like savings banks and life offices. During the 1970s, the increasing demand for funds meant larger loans and the issuers began to tap the household as well as the institutional market. The first of the new public loans was the fully underwritten A$ 200 million Telecom issue in 1976. Thereafter, until the early 1980s, such loans were underwritten and marketed by syndicates of brokers, merchant banks, and banks. More recently, in order to streamline such borrowings, central borrowing authorities have been formed in the States to concentrate much of this borrowing in the hands of a single borrowing authority, thereby achieving greater order and reduced costs, though certain of the large borrowers in a State (*e.g.* the electricity authorities) have remained independent. Also many semi-government loans are now raised by selling securities through tenders to institutional investors and professional trading houses. The amount of funds semi-governments may borrow each year is for the most part allocated to the States by the Australian Loan Council.[28] In addition

[28] The Loan Council was established under the Financial Agreement of 1927 to co-ordinate Commonwealth and State Government borrowings. Semi-government and local government authorities were brought under the Loan Council – on the basis of a gentlemen's agreement – in 1936. By the early 1980s, however, the Loan Council was exercising increasingly less influence under the gentlemen's agreement over the totality of authority borrowings. This reflected extensive use of non-conventional financing tech-

to these State authorities, there are Commonwealth entities like Telecom Australia and the Australian National Railways, which borrow on public markets in the same way as the State authorities, but they carry a Commonwealth government guarantee. To some extent, these semi-government borrowers may also now borrow in markets overseas.

Bank bills – As an alternative to the overdraft, which was for long employed as the main means of bank lending in Australia, there is bill finance. In 1965,[29] banks were authorised to undertake additional commercial bill activity in order to test and explore the real demand for this form of financing. Simultaneously, the authorised dealers were granted permission to deal in commercial bills, which had been accepted or endorsed by a trading bank, and to hold a proportion of their portfolios in bills of this type. For middle-sized to larger companies, an integrated financial package may be arranged with the several parts of a corporation's requirements being met by overdraft, a fully-drawn advance, and bills (bank acceptances or an acceptance discount line)[30] with terms (usances) of 3 and 6 months. In addition, merchant banks make accommodation available to large corporations in the form of non-bank bills against a rollover facility. These bills may be subsequently upgraded by bank endorsement. Banks were also involved in the development of a letter of credit market and in the underwriting of promissory note issues by larger companies and various statutory authorities.[31]

niques, such as financial leasing and similar forms of borrowing, which were outside the scope of the agreement. The decision in June 1982 to exclude domestic borrowings by electricity authorities from Loan Council control for a trial period of 3 years further reduced Loan Council influence on authority borrowings. These developments culminated in the gentlemen's agreement being suspended at the June 21, 1984 Loan Council meeting and the 'global approach' being adopted on a trial basis for 1984/85. The objective of the global approach was to broaden the scope of Loan Council oversight of authority borrowings by bringing within voluntarily agreed limits all forms of borrowings by Commonwealth and State semi-government and local authorities, government-owned companies and trusts. The global approach also allows for the publication of timely information on total borrowings by Commonwealth and State authorities.

[29] Previously, in Australia, commercial bills had been held within the banking system.

[30] Against which a customer can draw bills and discount them in the market.

[31] See J.S.G. Wilson, "The Australian Money Market", *cit.*, pp. 55-6.

There are three ways in which banks can facilitate financing through bills:

1) acceptance, where the bank accepts a bill for a customer who then on-sells into the market to obtain the required funds;

2) acceptance/discount, where the bank accepts the bill, purchases it from the customer and then (usually) rediscounts it into the market (sometimes these bills can be held on balance sheet); and

3) endorsement, where a bank lends its name to an existing non-bank bill to improve its credit quality and facilitate rediscounting in the market.[32]

One might note, too, that it is a convention in the market that bank bills are accepted by banks. Bills that are only endorsed by banks cannot be delivered in settlement of futures contracts, nor can they be traded on the screens without being clearly distinguished. The majority of bank bills may be bought initially by banks and other financial institutions, but non-financial institutions (*e.g.* corporates) constitute by far the largest of end-holders – 74.5 per cent of the total in October 1989.[33]

In Australia, very few bills are trade-related; the bulk – over 90 per cent – would be accommodation or finance bills, *i.e.*, not for value received. This is reflected in the fact that the bulk of them is in round amounts, with a minimum of (say) A$ 100,000, but commonly sold in the market in parcels of A$ 500,000. However, banks will accept bills for odd days and in odd amounts for small customer names. Small bills would be parcelled up into larger amounts before being sold. When buying bills, some banks apply internal limits to the names concerned, though the names of large banks are usually excepted. With the influx of a number of new banks after 1985, the application of internal limits has become more common. Usances (or the terms to maturity) are commonly 30, 90, or 180 days, but they may be drawn for any maturity.[34]

[32] Bank endorsed bills are said to be much less common and would be dealt in more in the unofficial market. They cost 5 to 10 cents more than bank accepted bills, depending on interest rates.

[33] See Table C8 in *Reserve Bank of Australia Bulletin*.

[34] With the introduction of financial futures (see below), bills tend to be drawn to approximate the next date for the related futures contract and these would tend to be the most liquid maturities.

Formerly, if bills passed through the market a number of times, they came to carry numerous endorsements and, if there ceased to be room for them on the bill itself, they could be carried on an annexed piece of paper called an allonge. It is now possible to endorse a bill, or to elect not to do so, and most would not now be endorsed as most of the paper traded by major trading banks is settled electronically through Austraclear.

Austraclear operates a computer (real-time) system for storing money market securities in safe custody and recording and settling transactions involving these securities. The Austraclear computer system known as FINTRACS (Financial Transactions Recording and Clearing System) is widely used in Australia (with depositories located in major financial centres) by banks, the official dealers, merchant banks, insurance companies, semi-government authorities, and other financial institutions. The system allows for the settlement of transactions in bank bills, bank endorsed bills, non-bank bills, NCDs, PNs, and semi-government fixed interest securities. It also caters for the recording and settlement of forward trades of securities, forward interest rate transactions, and cash transfers. The Reserve Bank is not part of the system at present, but by the first half of 1990 is expected to set up a parallel system for Commonwealth Government bonds utilising the Austraclear network. But manual settlement will continue to be offered.

A trade bill is where a supplier provides goods on extended credit and the buyer accepts the bill, which can then be discounted, or – if the supplier prefers it – it can be held. If discounted by a bank, a trade bill would normally be held in portfolio;[35] they rarely come on to the market. Bank bills (especially bank accepted bills), on the other hand, because they are readily marketable, are highly regarded as a liquid asset – indeed, after Commonwealth paper, they are a preferred liquid asset (they are also more remunerative). There is a good secondary market in bank bills.

The heyday of bank bill usage was the 1980s; after 1985, figures positively exploded.[36] In the earlier years, this was associated with the quantitative restrictions on bank lending, since it was a ready means of evasion. Growth in the figures only ran out of steam at the end of

[35] The small number of trade-related bank bills would also tend to stay in portfolio.
[36] See *Reserve Bank of Australia Bulletin*, Table C7 and 8.

the 1980s. Apart from the removal of restrictions on bank lending, this was because of a change in SRD regulations in 1988, also the lifting of the interest rates paid on non-callable deposits – when statutory reserve deposits only paid 5 per cent, bills were a substantially cheaper financing method. At the same time, there was a dramatic surge in NCDs.[37]

Certificates of deposit – Bank Negotiable Certificates of Deposit were introduced in Australia in March 1969, but their original introduction proved to be only moderately successful, mainly because of the ceiling on interest rates that then obtained. NCDs were also liable to stamp duty. Subsequently, this was abolished and replaced by a broader financial transactions tax. CDs were freed from all interest rate controls in September 1973. For a time, the amounts attracted against the issue of CDs were small and their significance was really only marginal, the banks resorting to them mainly when their liquidity was threatened and they needed an urgent addition to their funds. In other words, issues of CDs (minimum size of A$ 100,000) were then used primarily for topping up a bank's liquidity. By mid-1989, though subject to some variation from month to month, CDs outstanding totalled A$ 22 billion, compared with total fixed deposits of around A$ 65 billion and current account deposits not bearing interest of A$ 17 billion for all trading banks.

Some banks may still regard the issue of CDs as a basis of marginal adjustment, but the larger banks now seem to see them increasingly as a means of sustaining a desired level of funding. Resort to CDs, which are issued to bearer, became much more important with the establishment of quite an active secondary market, CDs being regarded as a liquid asset comparable to – indeed, interchangeable with – bank bills, rates being similar to bank-accepted bill rates. They may be issued for periods ranging from as short as a few days right out to several years.[38] Usually, one day to 180-185 days is the range. CDs are actively traded in the market; hence, one can readily disinvest. Banks hold other banks CDs as a liquid asset, as do authorised dealers, and a whole range of other financial institutions and investors (including corporates and wealthy individuals). As

[37] See *Reserve Bank of Australia Bulletin*, Table C6.
[38] Customers' needs are also a factor in determining the maturity of CDs issued.

already noted, the minimum size is A$ 100,000,[39] but it is normal to issue them in parcels of A$ 5 million, even A$ 20 million to A$ 30 million, often in pieces of A$ 500,000 or A$ 1 million. Another aspect of marketability is a good bank name on the CD, though all banks – even the four major banks – will have limits on their liabilities imposed by lenders. With the entry of new banks after 1985, these limits were significantly tightened up. It should be noted, too, that a bank NCD is totally different from other NCDs (*e.g.* as issued by merchant banks), because of different levels of risk.

We have noted that CDs and bank bills are largely interchangeable instruments; there is also a big forward market – *i.e.* buying now for delivery at a future date – with bills and CDs deliverable in that market on an interchangeable basis. The forward market relates, too, to the bank bill futures contract and forward rate agreements (FRAs) giving rise to arbitrage opportunities.

Another source of money (no longer subject to a maximum interest rate) are large market-oriented deposits (in amounts of over A$ 50,000), where rates are negotiable, though less volatile than on CDs). 'Big' deposits may be accepted for unrestricted terms. Merchant banks have also issued CDs as a means of raising funds, but they are less attractive than trading bank CDs and, indeed, are more like a P-note (see below). Although there is no legal restriction, building societies prefer not to issue CDs. Borrowing against CDs denominated in foreign currency became possible after December 1983, when exchange controls were virtually abandoned. However, it remains true that time deposits provide a more stable pool of money than CDs.

Promissory Notes (PNs) or *P-Notes* – One-name paper emerged in the Australian market in the early 1970s. It is in promissory note form and is generally referred to as a P-note. It is equivalent to what is described as 'commercial paper' in other countries. It is a convenient way of raising money used by both corporate and public sector authorities (like Telecom Australia and the Australian Wheat Board). Quite a lot of paper of all maturities is also issued by semi-governments. PNs are now issued by over 100 private sector companies and some 25 public sector authorities. P-notes are usually issued in maturities of 30, 60, 90, 120, or 180 days, but facilities to issue may be granted for up to 3 years on a rollover basis. Such notes would tend to be held to maturity. P-notes are covered by the Australian Bills of Exchange Act. A P-note must be signed by the party making the promise, must be for a specific sum of money, and must specify the time for repayment. These promissory notes are instruments in bearer form, transferable by delivery, and do not require endorsement when sold in the market. The notes are issued at a discount from face value, redeemable at par on maturity. Large issues may be underwritten by a bank (including a merchant bank) or syndicate and sold by attracting competitive bids from a tender panel of buyers. Other large corporates approach the market directly. They are generally priced at a margin above the bank bill rate of a corresponding maturity. Moreover, if desired, borrowings can be tailored to a specific maturity. Less well known names may secure the backing of a letter of credit, issued under a trust deed and confirmed by an Australian trading bank. This has been the means of further extending the market, which however has had its ups and downs; latterly, it has been about 20 per cent of the size of the bill market.

In the early 1980s, a number of banks attempted to develop business with the corporates – *e.g.* by underwriting PNs, which began to trade like bank paper. Margins were cut very fine and banks tended to make losses. PNs were not really very popular. It is now possible that they may be resuscitated. Because of capital adequacy requirements, PNs are not likely to be held by banks, but they may be held by other corporates (a variant of an inter-company market), though by mid-1989 they were not all that important. The major banks are now very selective as to what PNs they will underwrite and attempt to place any such PNs privately with end-investors.

[39] CDs for over A$ 50,000 and for maturities of 185 days or less attract a lower rate of 'financial transactions' duty, a tax that is applied on a State by State basis (except in Queensland).

The foreign exchange market

A word must also be said about the foreign exchange (FOREX) markets. The Australian trading banks and merchant banks had already moved some years ago towards a 24-hour coverage of their FOREX positions. Nowadays, however, Sydney positions are more

likely to be passed direct to London rather than through Asia. From London, operations may pass to New York and – towards the end of the 24 hours – finally to the US West Coast. Prior to October 1983, the Australian banks were not permitted to hold open FOREX positions overnight, although in effect this could be overcome by using overseas offices to generate trading. Between end-October 1983 and the floating of the Australian dollar in December, banks were permitted to hold net forward positions within limits approved by the Reserve Bank. After December 1983 (and the virtual end of exchange control), the Reserve Bank allowed banks and authorised FOREX traders to hold open FOREX positions overnight, subject to Reserve Bank oversight, and this stimulated 24-hour FOREX activity.

The main groups in the Australian FOREX market are the authorised FOREX dealers – banks and non-banks (92 in all), which make prices and trade currencies professionally; transactions between them account for about 41 per cent of gross market turnover; transactions with overseas banks (at 42 per cent) are slightly higher; they provide facilities through their overseas branch networks to enable local institutions to manage their foreign currency exposures, particularly in third currencies; the remaining 17 per cent involved transactions with customers, almost all residents in Australia. There are also foreign exchange brokers – intermediaries who bring together various principals in the market (and who are paid a commission) – they are involved in close to one-third of all transactions.

Most transactions are spot transactions (deals which must normally be settled within two working days of being arranged) – about 61 per cent of gross turnover; swaps (mostly short-dated) were about 32 per cent and forwards around 5 per cent. Trading in foreign currency options and futures has been a relatively minor activity; contracts with more than two working days to maturity account for the balance. The average size of transaction is around A$ 7 million, but larger amounts are common. The forward market is 'deep' out to 12 months; transactions beyond one year were insignificant.[40]

So far as currency composition is concerned, the bulk of the activity in the market involves the Australian dollar. "Gross Australian dollar turnover[41] averaged US$ 21.5 billion a day; after adjusting for double-counting daily turnover averaged US$ 16.3 billion. Australian dollar trading was about 58 per cent of gross turnover for all currencies, and was almost all against the US dollar... The main types of third currency trading were US dollar against deutschemark (15 per cent of gross turnover), US dollar against yen (9 per cent) and US dollar against sterling (8 per cent); there were also smaller but significant volumes of US dollar trading against the Swiss franc and the New Zealand dollar. 'Cross currency' trading, involving neither the US dollar nor the Australian dollar, was only 2 per cent of the total. Dealers generally prefer to effect such transactions by using the US dollar market where there is greater liquidity."

The Australian FOREX market is relatively concentrated. The top 10 dealers accounted for about 60 per cent of gross turnover and the top 20 for almost 80 per cent. The pattern of concentration is very similar in A$/US$ trading but differs for some third currencies (*e.g.* around 55 per cent of yen trading in Australia was accounted for by the top 10 yen dealers, but the comparable figure for Swiss franc and New Zealand dollar trading was around 80 per cent).

Most dealers are not significant position-takers, preferring to avoid currency risk. Corporate players are the real position-takers. On average, only about 29 per cent[42] of the net open overnight position limits set by the Reserve Bank is used, though of course some dealers will use more of their available limits than others, but on the whole they are not big risk-takers. At the same time, the market has become much more competitive in recent years, with inter-bank dealing spreads reducing from 10 points pre-float to about 5 points. Indeed, a major corporation would probably be quoted a 3-point spread. "Partly this narrowing simply reflects the removal of controls and the greater numbers of dealers. But it is also evidence of greater depth and stability in the market. Dealers are confident that they can take a position and trade it out without the risk of the market moving too far away from them".[43] The time zone has also been of considerable benefit to the growth of the market. The Australian market, centred as it is in Sydney and Melbourne, enjoys an advantage over other markets in the Asia/Pacific region as the early and late parts of the trading day overlap with late New York and early European trading

[40] See *Foreign Exchange Market Turnover Survey*, April 1989.

[41] *Ibid.* For purposes of international comparison, the Survey measured these items in US dollars.

[42] Since the definition was amended in July 1989.

[43] C.C. Proctor, "The Australian Foreign Exchange Market", *Reserve Bank of Australia Bulletin*, August 1987.

respectively. The Australian market can thus bridge effectively the world's two largest FOREX markets. Markets on the West Coast of the United States seem to have lost volume, with trading passing from New York to Australia. There also seems to be increased liquidity in the New York market during their afternoon. At the same time, there is an increased volume of trading between the Australian market and Tokyo.[44]

The Reserve Bank requires dealers to maintain certain conditions. Thus, it sets a minimum level for shareholders' funds; it looks for a competent and experienced dealing team and evidence of prudent internal controls; it also requires a dealer to keep its end-of-day open position within an agreed limit (both direct exposures against the Australian dollar and third currency exposures). So far as its attitude to market intervention is concerned, it does not try to dictate what the exchange rate should be or try to keep it at a particular level; it attempts to help the market deal with heavy pressures from time to time and to foster general market stability; following severe disturbances, its aim is to help the market find an acceptable rate and to test whether sharp rate movements are well based.[45]

Financial futures and options

As with certain other exchanges that now deal with financial futures (*e.g.* Chicago Board of Trade), Sydney also began as a market in commodity futures. As such, it began operating in May 1960 as the Sydney Greasy Wool Futures Exchange and wool[46] remained the only commodity future traded until the introduction of the live cattle futures in July 1975. The first non-pastoral commodity that was introduced was gold in April 1978. The name was changed to the Sydney Futures Exchange in 1972. The first of the financial futures came in October 1979 with the 90-day bank bill futures contract. The

[44] *Ibid.*
[45] See *Reserve Bank of Australia Bulletin*, December 1988.
[46] Currently, no greasy wool futures are being traded; the contract is dormant, though it could be resurrected.

SFE began trading currencies in March 1980, with US dollar and yen futures contracts, the choice being determined by two factors – most of Australia's trade is denominated is US dollars and the bulk of that trade is with Japan. The yen contract, however, was suspended in 1981, because of a disappointingly low level of activity. Sterling was introduced in 1980, but was suspended in early 1982. The US dollar futures contract is now the only currency contract traded on the SFE. Next came a contract based on the Stock Exchange all-ordinaries index introduced in February 1983; a 2-year Commonwealth bond contract was traded from February 1984 and this was followed in December 1984 by a contract based on a 10-year Commonwealth bond. Then from early in 1985 options were available on all financial futures contracts. And in October 1986, the SFE began trading a US Treasury bond contract listed jointly with LIFFE (in London) and which was fully fungible (*i.e.*, investors were able to open positions in one exchange and close them in the other). This was later suspended. Meanwhile, a 3-month Eurodollar interest rate futures contract was introduced from end-October 1986 (now also suspended). On the gold contract, there was a link with COMEX in New York (subsequently discontinued). In May 1988, a 3-year Treasury bond contract was introduced, followed in October 1989 by a contract in 5-year semi-government bonds.

One should note that the SFE offers different classes of membership. As at November 15, 1989, there were 29 floor members, 131 full associate members, 126 market associate members, 23 introducing broker members, and 71 local members, including 37 leased local memberships. These classes of membership have different rights. Floor members have full voting rights, are members of the clearing house, and can trade on the floor in their own right and on behalf of clients. Local members are the only other members permitted to trade on the floor. Local members do not represent clients but trade on their own account. Their trades are cleared through a floor member. None of the three types of associate member (full, market, and introducing broker) trade directly on the floor. However, full associate members and introducing broker members can deal with clients and hold client funds. While trading is conducted through a floor member, all three types of associate members are eligible to have their own accounts with the clearing house. All members who are permitted to represent clients must be licensed under the futures industry code.

So far, most of the interest has focused on domestic financial futures contracts for 90-day bank accepted bills and 10-year Australian Treasury bonds, and on a contract based on the all-ordinaries share price index. The 2-year bond contract did not take off and was replaced by the 3-year contract (see below). All the major banks – including the State banks – use financial futures actively and have seats on the exchange as do money market houses (sometimes through a subsidiary). Some Australian banks have seats on LIFFE in London. Certain of the big building societies are also interested in financial futures and use them as a basis for hedging on interest rates. There is also currency hedging and interest rate swaps. From the start, progress was good, with an emphasis on consolidation of the expansion achieved, though there was a feeling that overseas interest in the SFE was unlikely to develop fully until there were more 'locals' on the exchange – individuals physically located on the floor of the exchange, who trade on their own account. This is important, because speculators and 'locals' add to market liquidity and depth – both contribute to the market through their willingness to take on short-term positions, which add to market activity. And speculators are attracted to a market, if prices get out of line with the physical commodity in the 'real' world and there is an opportunity for profit. Nonetheless, by 1988, the volume of the 90-day bank bill contract was up 48 per cent on the same period for the previous year, while the 10-year Australian Treasury bond contract rose by 46 per cent. Options on bank bill futures more than trebled, and more than doubled on the bond contract. A further strong contribution came from the new 3-year bond futures and options contracts and to a lesser extent from the re-styled Australian dollar-US dollar FOREX contracts. However, the contract based on the all-ordinaries share price index showed the opposite trend, more than halving its volume, as did the related options contract. In both cases, this was a direct result of the stock market crash twelve months previously.

The SFE has now moved to new quarters, trebling the size of its trading floor, currently one of the most technologically advanced in the world.[47] Nevertheless, the SFE has been more successful with domestic futures than on the international front. This has been reflected in the revision of working hours (which had previously been

[47] See *Financial Times*, 31-1-89.

extended in an attempt to provide an international triple-exchange overlap); current trading floor hours are 8.30 a.m. (the earliest) to 4.30 p.m. (the latest), which no longer overlap with Chicago and London. In November 1989, the problem of hours was addressed through the introduction of an after-hours electronic dealing facility known as SYCOM (Sydney Computerised Overnight Market). Initially, trading hours for SYCOM were 4.45 p.m. to midnight (Sydney time), but with the intention that these be expanded, probably right through to 8.00 a.m. the following morning. SYCOM trades 10-year Australian Treasury bonds and (from January 1990) futures on bank bills, the all-ordinaries index, and semi-government bonds.

Intervention by the Reserve Bank

The Reserve Bank has a variety of techniques whereby it can influence the liquidity of the banking system and the economy, wheter through the money market in the narrow sense or by operating in financial markets across a wider spectrum. It does this by means of open market operations – buying or selling securities in the open market either outright or through repurchase agreements thereby either adding to or subtracting from the funds available to the banking and financial system. The central bank can also inject cash into the domestic system by buying foreign currency in exchange for Australian dollars. To drain funds from the system – or to 'mop up' excess cash – it can sell short-dated government securities to the market – *e.g.* selling securities of less than 12 months to maturity to the authorised dealers. It would tailor the maturities of the securities offered for sale to coincide with its projections for times of tighter money. It might also restrict the amount of cash it puts out. So far as price is concerned, the authorised dealers would come into the Reserve Bank by 10.00 a.m., with their bids for whatever the Reserve Bank was willing to sell. The Reserve Bank then considers the bids (or offers) made in the light of the volume of business it wishes to transact that day and accepts those most favourable to it. Dealing is usually completed by 10.30 a.m., each dealer being told individually whether he has been successful or not. The transactions would then be completed with the Registry. The Bank's transactions with the reporting bond dealers are less frequent and are conducted separately

– normally between 11.00 a.m. and 11.30 a.m. At 11.00 a.m., they will have been told what the Reserve Bank is doing, but not necessarily every day. The reporting bond dealers have no facility at the Reserve Bank other than direct dealing access. The Reserve Bank also provides weekly – on the Reuters and Telerate screens – a commentary on the cash effects of transactions like settlements for Treasury Notes and bonds, and any Repos between the Reserve Bank and the authorised dealers. The Reserve Bank continues to monitor market conditions throughout the day and may enter the market again, if conditions warrant.

Another technique for 'mopping up', which more recently has been revived, is the acceptance occasionally by the Reserve Bank from the trading banks of interest-bearing deposits (IBDs). The banks will put forward such a proposal for consideration by the Reserve Bank and ask whether the Bank could be interested in doing it. Such IBDs are only accepted by the Reserve Bank for short periods.

The Reserve Bank provides the system each day with the relevant figures at 9.30 a.m. – on the Reuters and Telerate screens (and through a press release). This provides the money market with the estimated cash position. The central bank also notes any settlements outstanding from Treasury Note or bond tenders and states its dealing intentions for the day (*e.g.* what the Reserve Bank will be doing with the authorised dealers in Treasury Notes and Repos). It also states the level of rediscount rate (if there is any change, this will be the first notice of such a change). In deciding on its operations, the Reserve Bank takes into account not only the opening cash position of the market but also the many other factors which might affect market conditions on that day, such as possible settlements of Treasury Note and bond tenders, the repayment of Repos, pressures in the bank cheque (unofficial) market, and the outlook for the days ahead. But the overriding consideration is the stance of monetary policy.

In addition, the Reserve Bank will have looked ahead on the basis of regular forecasting in order to establish the emerging trends (whether money will be plentiful or whether it will be tight). When one gets to the day in question, it will be an actual figure, including what has gone into the overnight clearing. They know what the money position is at the start of the day and this is the money market information that they provide. They are then ready to undertake sales or purchases of short-dated government paper, or to do Repos, with the latter becoming increasingly important.

However, the operations of the Reserve Bank do not always offset completely the surplus or shortage of funds as indicated by the cash position in the money market. Any remaining surplus or deficit is dealt with by the market in one of several ways. The market may – through the operations of the authorised dealers – shift funds to the next day, or borrow from the next day. And this is usually the main mechanism through which the final squaring of the books for the day takes place. If the market is very short of funds, the shortage may be overcome by rediscounting Treasury Notes, or by late-in-the-day balancing operations undertaken by the Reserve Bank, the chosen method being repurchase agreements or Repos. Usually, a 7-day fixed borrowing commitment will be imposed, though in fact the term may vary quite dramatically. The rate itself is determined by the Reserve Bank on application and is set at 2.30 p.m. on the basis of liquidity within the market, a need not to encourage a volatile interest rate environment (which could be occasioned by the dealer creating large volumes of additional liquidity), and the efforts made by the dealer to square off, *i.e.* it is expected that all reasonable efforts have been made to obtain funds in the market. In other words – as formerly with the lender of last resort facility – there is still a line of credit available to dealers, but the basis of the facility has changed – from loans to repurchase agreements.

Over the years, there has been much talk about the use made of open market operations based on the Reserve Bank's own portfolio of government securities or holdings of foreign exchange, though after the floating of the Australian dollar in December 1983 the Reserve Bank's declared intention was only a minimal intervention in foreign exchange. However, the Bank trades in the market for FOREX to service its customers, to smooth large transactions through the market, and to test movements of exchange rates. In general terms – according to the Reserve Bank – it seeks essentially to provide a steadying influence in the market, particularly when there is a pervasion of uncertainty. It does not seek to achieve or maintain a particular exchange rate, rather to ensure that movements in the exchange rate are well based. In this context, attention is paid to a number of factors including the US dollar/Australian dollar rate and the trade weighted index,[48] but it is not the intention – as has

[48] This appears every working day on the Reuters screen at 9.00 a.m., 12 noon, and 4 p.m. The index is as calculated at 4.00 p.m. on the basis of the representative rate for the US dollar and rates for other currencies from the Australian and Asian markets. The method of calculating the index was last changed in late September 1989.

sometimes been suggested – to 'target' the latter. If the Bank buys foreign currencies in exchange for Australian dollars, it adds to the supply of local currency and therefore to the pool of domestic cash. Alternatively, if the Bank were to sell foreign currency in exchange for Australian dollars, this would reduce the supply of cash.

Open market operations – in the sense of trading in securities with dealers – have existed since authorised dealers were established in 1959. They became important for the purposes of monetary management after the floating of the Australian dollar in December 1983. From August 1984 onwards, resort to open market operations has been supplemented to an important extent by the use of repurchase agreements (or Repos). They are carried out between the Reserve Bank and the authorised dealers and are particularly useful when there is a shortage of the precise maturities that the Bank requires. This procedure also provides additional flexibility in the Bank's management of liquidity, since securities of virtually any maturity can be employed for the purpose. By means of a Repo, the Reserve Bank can buy securities from the dealers when cash is tight, subject to the securities being repurchased by the same dealers on a specified date at a price agreed at the time of the initial purchase. When there is a temporary surplus of cash, the Reserve Bank can sell Repos, *i.e.*, sell securities to dealers subject to their resale to the Bank at a specified date and at a predetermined price. Repos are carried out at the Reserve Bank's discretion. The arrangements make a significant contribution to the Reserve Bank's ability to smooth out fluctuations in liquidity. Repos may be done for a few days, or even longer. They can therefore be trimmed to cover whatever period of cash shortage (or cash surplus) is judged to require offsetting action.

It should be noted that the bulk of open market operations[49] (and of Repos) would be undertaken for the purpose of 'smoothing out' fluctuations in liquidity, but they may also reflect a change in the emphasis of monetary policy. These are essentially two different things, though very often it is difficult to draw the line between them. However, if one were to take an average cash rate as a bench mark, one could probably establish whether there had been a change in a policy stance.

[49] Including purchase of short Commonwealth bonds from the trading banks (*e.g.* bonds within 3 months of maturity).

Debt management, too, has monetary effects and, again, there is a fine line to be drawn between action prompted by a change in monetary policy and what results from debt management as such. Hence, action under either head needs to be integrated with the other, such that overall policy is consistent. In Australia, the Reserve Bank shares with the Commonwealth Treasury responsibility for the Federal Government's debt programme. In other words, it is necessary to tailor the Government's borrowings to mesh with any requirements of deficit financing and to dovetail this with a longer term borrowing strategy. Within this framework, the Reserve Bank also has to consider short-term liquidity management, such that (say) the demands of selling a large quantum of Commonwealth bonds in order to fund a deficit are not exaggerated in their effects by a contemporaneous funding in the non-government sector of an outflow of cash to meet tax payments. Moreover, since the Australian dollar was floated in December 1983, the authorities have been able to smooth out more easily erratic movements in the availability of cash and therefore of interest rates.

Conclusion

In Australia, over recent years, the activities of the authorised dealers have become a smaller part of the money market complex than was initially the case. On the basis of total assets – and despite fluctuations – the unofficial market continues to grow more rapidly than the official market and is in any case considerably larger than the official market – again, subject to fluctuations, it has been fifteen to seventeen times larger on the basis of total assets. On the other hand, it is understood (the statistics are not published), that while official market turnover has increased, so too has turnover in the unofficial market.

It used to be the accepted view that there was little risk of the official dealers disappearing. They were too useful to the Reserve Bank as a means of undertaking the day-to-day-management of liquidity in the economy as a whole. To this end, the Reserve Bank entered the market as required and, in recent years, has traded on most days – buying and selling Commonwealth Government securities in the physical market both outright and through repurchase

agreements (Repos). Latterly, however, the situation has changed as a result of large Federal Government budget surpluses, which have begun to erode the supply of Commonwealth Government securities in which the official houses substantially deal.[50] Since the Federal Government has no need to borrow domestically (it has also paid off some external debt), there has been a drying up of new bond auctions. In addition to which, in December 1989, there was the first reverse bond tender, *i.e.* the buying back of domestic Government bonds. As a result, the Reserve Bank has had to put in a lot of work on possible changes to its operating methods. Thus, there has been an increasing resort to Repos.[51] It also enables the market to trade in long-term bonds without requiring the buyers of bonds under Repo to assume the capital risks (which are large for long-term securities) associated with changes in yields. Nonetheless, despite resort to Repos, if present trends continue, by the mid-1990s, there is likely to be an extremely limited supply of bonds. As a result, both the Federal Government and the Reserve Bank have announced intentions to begin dealing in private sector securities, even to issue central bank paper,[52] as a basis of open market operations.

In these circumstances, and given the reduced supply of Commonwealth Government securities, there may be less need for authorised (or official) dealers to serve as a channel for Commonwealth Government securities transactions. Moreover, despite raising the minimum level of capital for authorised dealers from $ 5 million to $ 10 million (in May 1989), their capital bases are still limited and they could find it increasingly difficult to compete in other areas. For

[50] In this context, see M.J. PHILLIPS, "A Central Banking Triptych", *Reserve Bank of Australia Bulletin*, October 1989, and R. RANKIN, "Some Recent Developments in Australian Money and Government Securities Markets", being a paper presented to the Melbourne Money and Finance Conference, Ballarat, November 24-25, 1989.

[51] See RANKIN (1989). "Statistics on RPs are not comprehensive, but for the authorised dealers, the share of their total CGS turnover (both with the Reserve Bank and with other traders) under RPs has risen from about 60 per cent at end 1987 to over 80 per cent in the September quarter 1989. RPs are also used extensively by banks to cover their PAR requirements during seasonal lows in the supply of CGS. Non-bank holders of CGS, who intend to hold the securities as a long-term investment, have been more willing to sell them on an RP basis than outright; this was a major factor in the market's ability to absorb the large run down in CGS on issue in the June quarter 1989 without undue disruption or a change in the PAR requirement.

[52] See PHILLIPS (1989). Examples could include debentures, notes, or certificates of deposit. Such instruments would have an advantage over movements in deposits with the central bank, especially if they could be traded in secondary markets.

these several reasons, the future of the authorised dealers must be in some doubt. Indeed, in the longer run, one might well see a move towards direct Reserve Bank dealing with the banks themselves. (There will also be implications for the meeting of PAR requirements.)[53] If for the time being it is thought wise to retain the authorised dealers, it may be necessary for the authorities to insist on an even larger capital provision and to encourage the merger of existing companies. Indeed, if they are to survive at all, it is likely that over time a smaller number of larger more adequately capitalised authorised dealers will emerge.

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[53] Again, see PHILLIPS, *loc. cit.*, pp. 14-5.