OPERATIONS IN FINANCIAL MARKETS

The past year has seen continued evolution of the RBA's market operations on a number of fronts. A new intra-day liquidity facility was introduced and changes were made to the way open market operations are conducted. A greater range of material was also published on those operations. On the foreign side, the main point of interest for the year was the swing to net purchases of foreign currency, after five years when the RBA was a net seller. The shift in these operations reflected the turnaround in the exchange rate of the Australian dollar.

Domestic Market Operations

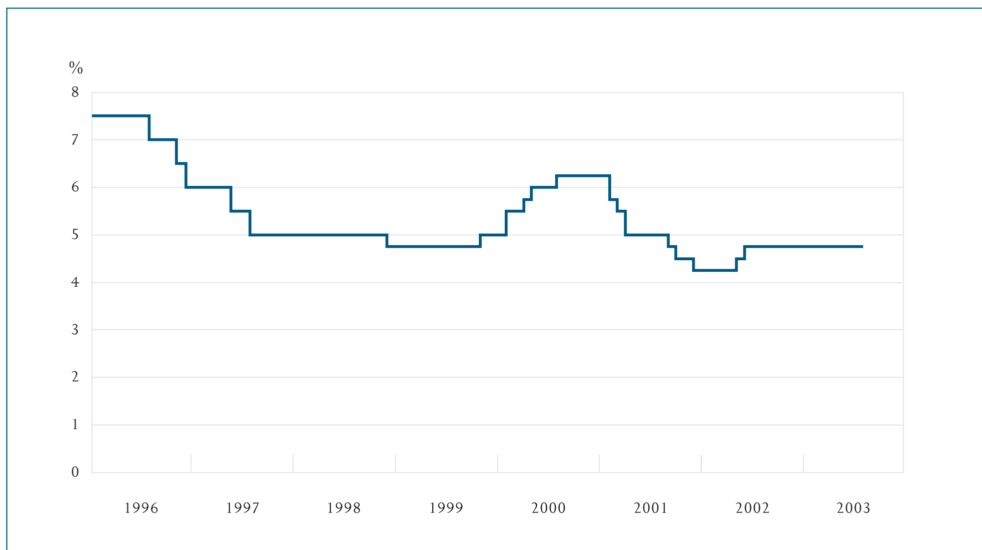
Monetary Policy Implementation[1]

The stance of monetary policy in Australia is expressed in terms of an operating target for the cash rate – the interest rate paid by banks on unsecured overnight loans. The target is determined by the Reserve Bank Board, with any change typically announced at 9.30 am on the day after the monthly Board meeting. The RBA operates in financial markets to maintain the actual cash rate as close as possible to the Board's target.

During 2002/03, the Board kept the target cash rate constant, at 4.75 per cent. The rationale for the Board's decisions was explained through the year, primarily in the quarterly *Statement on Monetary Policy* and in appearances before the House of Representatives Standing Committee on Economics, Finance and Public Administration.

Over recent years, deviations of the actual cash rate from the target have become smaller and less frequent as market participants have become more familiar with

GRAPH 13 | **TARGET CASH RATE**



Source: RBA

1 A detailed account of market operations, including their rationale and the processes involved was given in the June 2003 issue of the Reserve Bank *Bulletin*.

the current operating environment. During 2002/03, the cash rate was at the target on 88 per cent of days and the largest deviation was just 1 basis point.

Open market operations are conducted mainly in short-dated instruments, typically repurchase agreements (repos), most of which have a maturity of less than one month.[2] The use of repos mainly reflects the additional flexibility that they offer in managing day-to-day swings in liquidity. Outright transactions in Commonwealth Government securities (CGS) have been relatively infrequent over recent years, partly as a result of the decline in CGS on issue.

As in previous years, operations in domestic securities during the past year were augmented with foreign exchange swaps. This has been made necessary by the combination of the growth in the RBA's balance sheet and the decline in CGS on issue (see below). Typically, these swaps have maturities of less than three months and they are often rolled forward at maturity. As a result, the RBA's turnover in the swaps market was again significant in 2002/03, at around $90 billion.

A NEW DEALING ROOM, BRINGING TOGETHER THE DOMESTIC AND FOREIGN OPERATIONS IN ONE INTEGRATED AREA, CAME ON STREAM EARLY IN THE YEAR.

Open Market Operations ($ billion)

		1998/99	1999/00	2000/01	2001/02	2002/03
Repurchase agreements [(a)]	– Purchases	300	244	376	423	304
	– Sales	13	14	17	16	17
Short-term CGS	– Purchases	21	9	5	1	3
	– Sales	0	0	0	0	0
Total domestic operations		334	267	398	440	324
Foreign exchange swaps [(a)]		52	67	90	90	90

(a) First leg of transaction

2 Repurchase agreements involve a purchase or sale of securities with a simultaneous undertaking to reverse the transaction at an agreed date and price in the future.

During the year, a number of further changes to procedures for domestic operations were announced. These involved changes to repo operations, new arrangements to accommodate the start of continuous linked settlement, and the provision of more information on daily operations.

Changes to Repo Operations

In July 2002, the RBA began announcing each morning preferred terms for its repurchase agreements. Typically, two or three preferred terms are announced each day, generally for around one month or less. Prior to the new policy being introduced, market participants submitted bids/offers for a range of terms, usually less than one month, and the most suitable were selected. Now market participants have a clearer idea of exactly what maturities are sought, and are therefore in a better position to satisfy the RBA's requirements.

As part of this change, a decision was also taken to offer repos with longer terms in order to facilitate the development of the maturity profile of the repo market. Longer-term repos are usually offered once a week with terms of around 90 and 180 days.

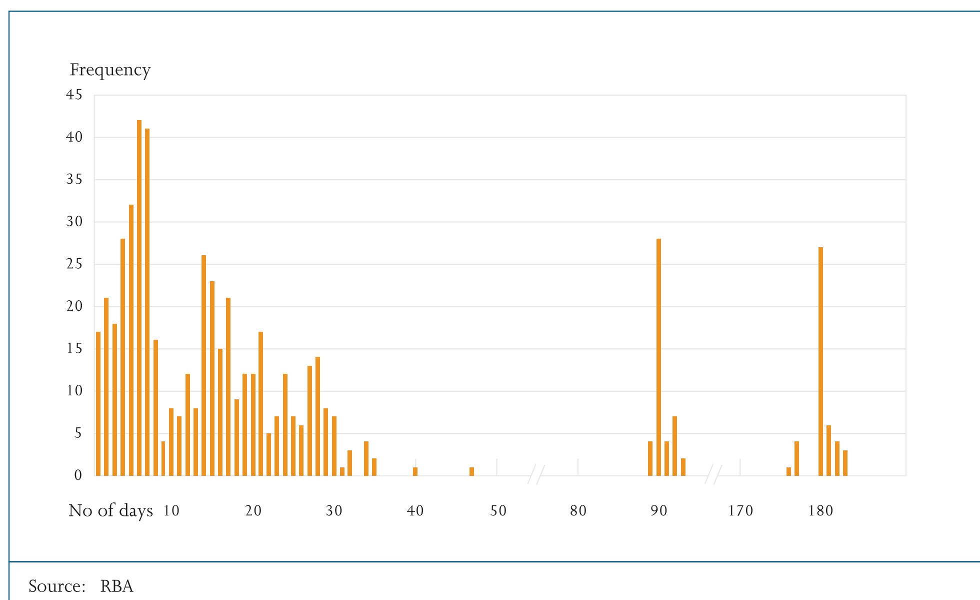
In allocating its operations across maturities, account is taken of forecast estimates of future swings in liquidity, as well as the pricing of the bids/offers received. The attractiveness of all bids/offers, including for the longer-term repos, is judged against market rates. There is no information content about the future course of monetary policy in the terms and rates that are accepted.

Over 2002/03, the RBA's turnover in repos was around $320 billion, of which around $22 billion was accounted for by the 90- and 180-day terms. The use of the longer maturities has meant that total turnover was down considerably on the previous year. It has also led to an increase in the weighted-average term of the RBA's outstanding repurchase agreements.

Continuous Linked Settlement (CLS)

An important development during the year was the commencement of operations of the CLS Bank, which operates a new global system for the settlement of foreign exchange transactions. Details of this system are given in the Business Services chapter.

GRAPH 14 | **RBA OPEN MARKET OPERATIONS – PREFERRED REPO TERMS** 2002/03



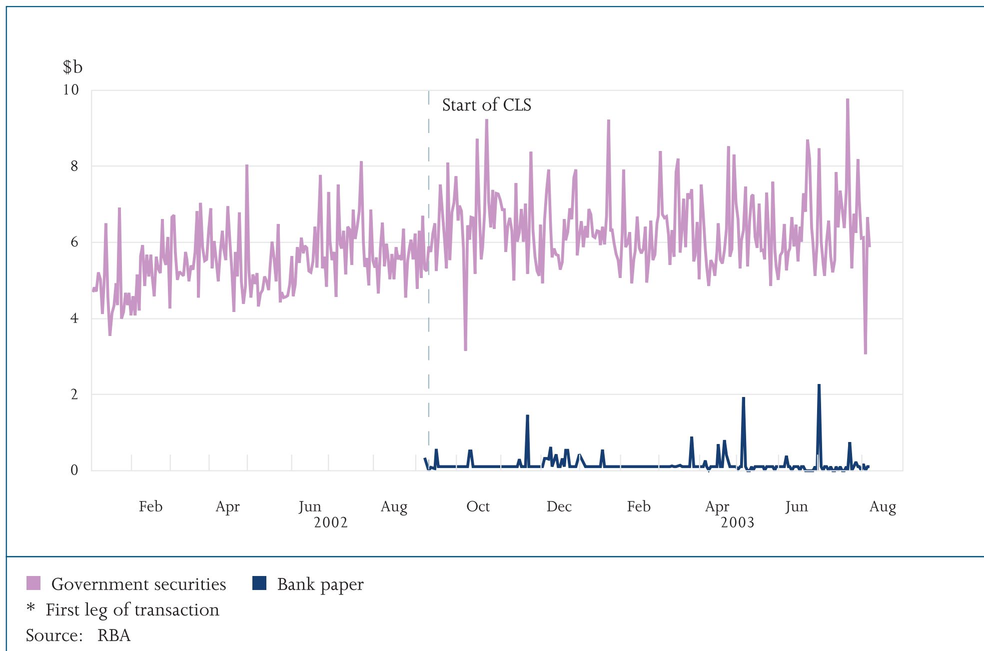
Source: RBA

While CLS has made a material contribution to reducing foreign exchange settlement risk, it has required financial institutions, including the RBA, to extend their operating hours, as CLS settlement takes place early in the European day. The extension to hours is most pronounced during Australian eastern daylight saving time, when the real-time gross settlement (RTGS) system is open until 9.00 pm. CLS has also created additional demands for intra-day liquidity, although to date the effect has been fairly modest. Total payments of Australian dollars to CLS each day have averaged around $2 billion, with most single payments by individual banks being less than $1 billion. Compared with the value being settled, these payments are relatively small reflecting the netting of members' pay-in obligations by CLS.

To assist financial institutions adjust to the introduction of CLS, the RBA introduced a new intra-day liquidity facility in September 2002 supplementing the existing intra-day facility based on government and supranational securities. Under the new facility, the RBA is prepared to undertake intra-day repurchase agreements in bank bills and negotiable certificates of deposit. Only securities issued by banks with a short-term credit rating of A1+ (or equivalent) and a long-term credit rating of at least AA- (or equivalent), and which have maintained a significant amount of eligible securities on issue over the previous year, are accepted. Also, the RBA will accept only third-party securities – a bank cannot present its own securities. A charge of 5 basis points per annum is levied on intra-day repos in bank paper, whereas there is no charge for intra-day repos in government and supranational securities.

The increase in demand for liquidity is evident in the rise in daily average turnover in intra-day repos. In the six months to September 2002, turnover averaged around $5.6 billion per day, while in the nine months since the introduction of CLS it has averaged around $6.5 billion. The new bank bill/certificate of deposit facility has been used on a regular basis, although the additional charge involved has generally made it more attractive for banks to generate intra-day liquidity using government securities, rather than bank-issued paper. Reflecting this, the bulk of the increase in intra-day repos has been under the longer-standing facility. The new facility, however, has played a role on

GRAPH 15 | **INTRADAY REPOS***



Government securities Bank paper
* First leg of transaction
Source: RBA

a number of occasions in allowing institutions to overcome payment bottlenecks that might have otherwise caused difficulties, particularly in making payments to CLS Bank.

In contrast to the increase in demand for intra-day liquidity, CLS has not led banks to hold higher balances in their Exchange Settlement accounts. Over the past year, these balances have been around $750 million on most days, a level similar to that in the previous year. Nor has there been any indication of an increase in the amount of borrowing and lending in the interbank cash market. On average, daily reported turnover (borrowing and lending) has remained fairly steady at around $7 billion. Around one fifth of the borrowing and lending that used to take place before 5.15 pm now takes place later in the day, towards the end of the CLS settlement session.

Use of the RBA's other liquidity facility – the overnight repo facility – has also remained subdued, consistent with the generally smooth operations of CLS. In 2002/03, this facility was accessed on only 14 occasions. Only one of the occasions was directly attributable to operational problems with CLS.

Overnight Repurchase Agreement Facility

	Number of times used	Value(a) ($ million)
1998/99	32	1 952
1999/00	11	862
2000/01	18	2 611
2001/02	11	673
2002/03	14	1 673

(a) First leg of transaction

Increased Information on Daily Operations

In June 2003, the RBA began publishing a wider range of information about the outcomes of its market operations. After consultation with financial market participants, it was decided to publish on a daily basis the amount dealt, the weighted-average and cut-off rates for each repurchase agreement term and details of the types of securities bought and sold under repurchase agreements. In addition, the RBA commenced publishing the aggregate level of Exchange Settlement balances on a daily basis, rather than weekly, as was previously the case. This information is now available since the start of 2003 on the website and in the monthly *Bulletin*.

The Government Securities Market

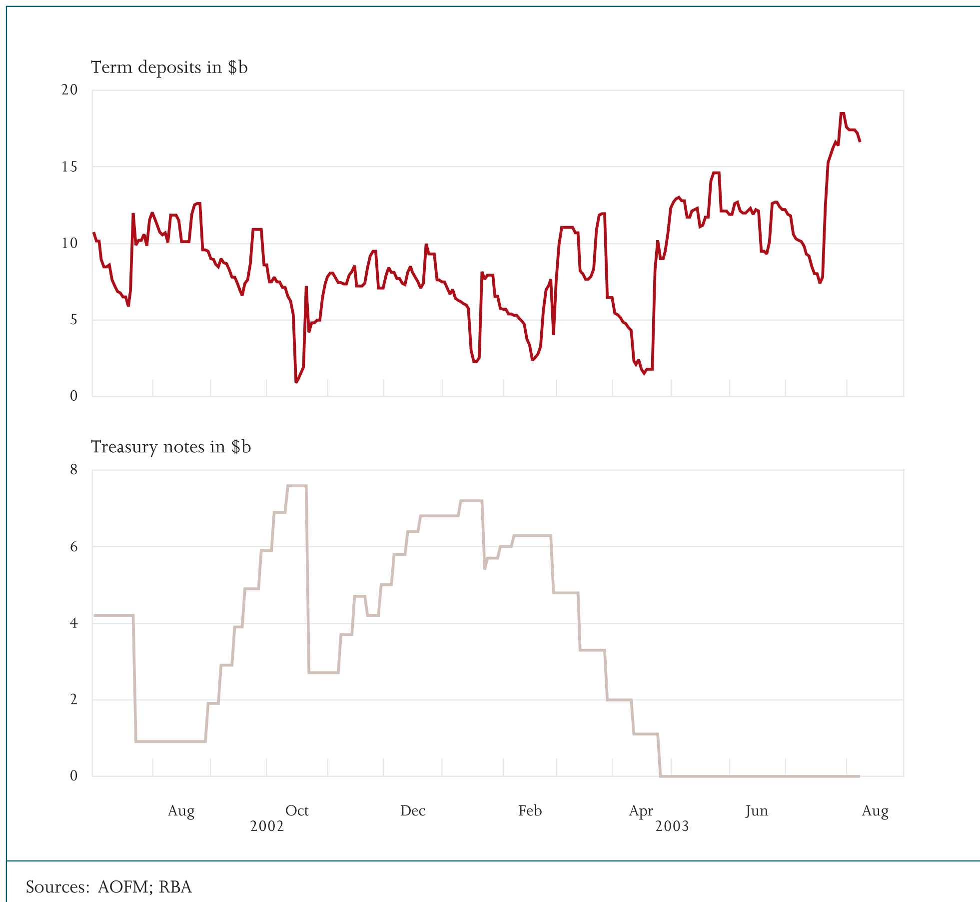
Over recent years, the decline in the stock of CGS on issue and projected budget surpluses and asset sales by the Australian Government had raised concerns about the future viability of the CGS market. In response to these concerns, the Government undertook a review of the market in late 2002, involving the release of a public discussion paper and extensive consultation with stakeholders. In announcing the outcome of the review, the Government indicated that it would maintain sufficient securities on issue to underpin liquidity in the Treasury bond futures market, given the important role that this market plays in the efficient management of interest-rate risk. The decision means that Treasury bonds will continue to be issued, although the outstanding stock of CGS is likely to continue to fall over the next few years.

The decision also means that, under current budget assumptions, the Government will continue to hold significant deposits at the RBA at various points in the year. Most of these deposits are held in term deposits of relatively short maturity, on which a market rate of interest is paid. They are used by the Government to help fund differences in the timing of its expenditure and receipts and thus fluctuate considerably over the course of a year. In 2002/03 they reached a low of just over $1 billion and a high of around $15 billion. As part of the review of the CGS market, the Government announced that, if these deposits were to exceed $25 billion on a sustained basis, it would consider alternative investments. Under current budget projections, and in the absence of the sale of the remainder of Telstra, this is unlikely to occur for some years.

Although the Government's deposits at the RBA can be large at times, they are not sufficient to deal fully with mismatches in timing of its receipts and expenditure. The Government, therefore, has also occasionally issued Treasury notes for within-year cash management, and will continue to do so. However, Treasury notes are no longer issued on a regular schedule, but rather on an as-needed basis. During 2002/03, $13.6 billion of notes were issued, with outstandings peaking in October at $7.6 billion. For the first time in over four decades, there were no Treasury notes outstanding at end June.

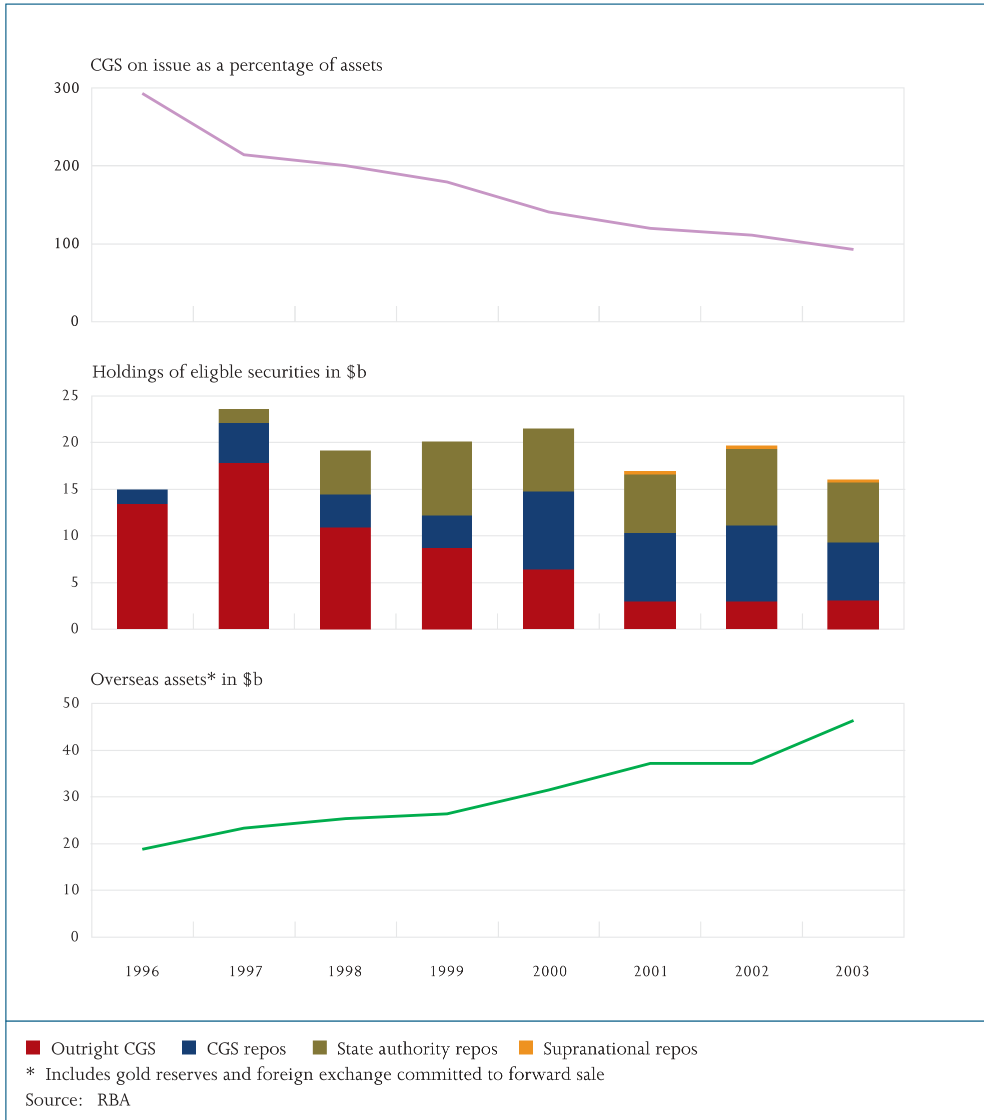
Recent budget outcomes have meant that the stock of CGS on issue has shrunk considerably relative to the RBA's balance sheet, which has continued to grow. In the mid 1990s, the face value of outstanding CGS was around three times the RBA's total assets. In contrast, by June 2003, the RBA's total assets exceeded the face value of CGS on issue. The RBA has responded to this change by widening the range of securities that it is prepared to accept under repurchase agreements when conducting its open market operations. In addition to CGS, it now accepts all domestic, and some offshore, Australian dollar securities issued by State and Territory borrowing authorities and AAA-rated Australian dollar securities issued in Australia by select supranational organisations. Reflecting this widening of eligible collateral, securities issued by entities other than the Australian Government accounted for 42 per cent of the RBA's domestic portfolio at end June 2003, up from 25 per cent five years ago.

GRAPH 16 | **GOVERNMENT TERM DEPOSITS AT THE RBA AND TREASURY NOTES OUTSTANDING**



Sources: AOFM; RBA

GRAPH 17 | **RBA BALANCE SHEET** As at 30 June



Securities Lending

For many years the RBA has operated a facility through which it is prepared to lend on an outright basis Treasury bonds that it holds. This facility is offered to assist market participants cover temporary shortages of particular issues. The RBA is mindful, however, of not displacing activity among other market participants and lends securities only on terms that are less attractive than those in the market. Securities are lent through repurchase agreements and on an overnight basis, with the liquidity impact being offset by the RBA buying under a repurchase agreement a security that is not in unusually high demand. In 2002/03, the facility was used on 32 occasions, the lowest level of usage in recent years. In part, this outcome reflects the relatively smooth functioning of the CGS market over the past year, despite the further decline in stock on issue.

Securities Lending by the RBA

	Number of transactions	Amount lent face value ($ billion)	Net income ($ million)
1996/97	540	11.9	0.7
1997/98	935	16.7	1.1
1998/99	805	14.6	0.9
1999/00	510	8.9	0.6
2000/01	75	1.2	0.1
2001/02	119	3.1	0.3
2002/03	32	0.9	0.1

Foreign Exchange Operations

The RBA operates in the foreign exchange market both on behalf of clients and on its own account. During the past year the volume of operations undertaken for clients rose, and the RBA stepped up purchases of foreign exchange on its own account.

Client Transactions

The RBA's main client in the case of foreign exchange transactions is the Australian Government, which undertakes all its foreign exchange operations, apart from some small deals by individual agencies, through the RBA. The Government has a substantial ongoing demand for foreign exchange to pay for foreign goods and services. In addition, over the past year or so, it has had demand for foreign exchange in order to repay its cross-currency interest rate swaps, reflecting the decision made in June 2001 to undertake an orderly rundown of the foreign currency swap position that had been built up over the previous 15 or so years.

Reflecting these factors, the amount of foreign currency sold to the Government in 2002/03 rose significantly, to around $7.4 billion. Over the previous few years, sales to the Government had averaged closer to $5 billion. The RBA covered all sales to the Government during the past year by purchases of foreign currency – i.e. it did not meet any of the sales to the Government from its reserves, apart from bridging short-term timing mismatches. This is the normal practice in the absence of strong downward pressure on the exchange rate.

In addition to the above outright sales, the RBA also continued to undertake transactions with the Government to assist it to manage the maturity of its cross-currency interest rate swaps. These began in 2000 while the policy in relation to cross-currency swaps was being reviewed. Rather than enter into new long-term contracts to replace swaps maturing during the review period, the Government decided to roll those maturities into forward positions. These were handled through the RBA, given its long-standing experience in this market. The RBA did not take any of the positions from the Government transactions onto its own book; rather, it passed them through to the market so that, in effect, it acted only as an agent. These transactions involved the RBA supplying to the Government foreign currency which was sourced from the market.

After the Government decided to run off the cross-currency swaps, no new long-term contracts were entered into and any maturing swaps were either repaid or rolled over in short-term transactions with the RBA. As such, the Government's forward position with the RBA continued to rise for a time, reaching a peak of $2.5 billion in September 2002. Since then, it has been reduced to $225 million. This was facilitated by the Government increasing its outright purchases of foreign exchange as the exchange rate rose, allowing it not only to repay maturing cross-currency swaps but also most of the position with the RBA. It is likely that in the period ahead the Government will continue to use transactions with the RBA to bridge timing gaps between maturities of cross-currency swaps (which are quite lumpy) and its purchases of foreign exchange which take place in a smoother fashion.

Operations on Own Account

There is a range of operations that the RBA undertakes in the foreign exchange market on its own account. The most noticeable, though least frequent, outright transactions are those intended to

influence the exchange rate – "intervention" in common parlance. In these cases, the RBA buys or sells the Australian dollar in exchange for US dollars, with a view to affecting not only the currency's short-term price but also expectations about its likely course over the longer run. Such transactions are typically infrequent, but in fairly substantial amounts, and may be accompanied by statements making explicit the RBA's views. Their impact on the domestic money market is fully offset, so that they have no impact on domestic monetary conditions.

The RBA also undertakes transactions to restore its reserve position after periods of intervention have occurred. Such transactions are typically consistent over a period of time, but in small amounts. While they probably, at the margin, have some impact on the exchange rate, they are undertaken in ways designed to minimise such effects. Their intention is to take advantage of a more favourable exchange rate to re-position the RBA's portfolio.

The third type of foreign exchange transaction is foreign exchange swaps, where a spot and forward transaction are simultaneously undertaken. There is no change to the RBA's exchange rate exposure and no effect on the exchange rate; these transactions are a regular part of the RBA's management of its own balance sheet and domestic liquidity.

Over the course of 2002/03, the RBA did not undertake any transactions of the first type outlined above. Even though the Australian dollar exchange rate appreciated significantly against the US dollar, it remained at a level below its post-float average and much of the move reflected the unwinding of the US dollar's rise in the second half of the 1990s. The Australian dollar was little changed against the euro for much of 2002/03 and the rise in the trade-weighted index was significantly less than that in the US dollar exchange rate. In other words, the rise in the Australian dollar represented the reversal of some of its overshooting in the downwards direction in earlier years.

The RBA did, however, begin to rebuild its foreign currency reserves by purchasing more than was needed to cover the Australian Government's requirements. These operations were undertaken in a low-key way, the aim being to accumulate reserves rather than to affect the exchange rate. Net foreign exchange reserves rose from $8.7 billion to

GRAPH 18 | **AUSTRALIAN DOLLAR** Daily

Source: RBA

$11.2 billion over the year. This reversed only part of the rundown in reserves in previous years which resulted from intervention-related sales of foreign currency and sales of foreign exchange to the Government.

The RBA also undertook a number of foreign currency transactions with the IMF during the year. Countries in a strong financial position are often asked by the IMF to provide foreign exchange which the IMF then on-lends to other members. About $545 million of foreign exchange was sold to the IMF during the year. This did not impact on Australia's overall holdings of official reserve assets, as the country's reserve position at the IMF was credited with an amount equal to the foreign currency supplied.

Reserves Management

Foreign currency reserve assets and gold are held primarily to support intervention in the foreign exchange market. In investing these assets, priority is therefore given to liquidity and security, in order to ensure that the assets are always available for their intended policy purposes. Consistent with this, investments are largely confined to instruments issued by highly rated foreign governments, government agencies and financial institutions.

The portfolio is managed passively against a benchmark which specifies asset and currency allocation across the countries in which reserves are held (the United States, the euro area and Japan) as well as the duration of the portfolio. The respective weights given to the three areas are 45 per cent, 45 per cent and 10 per cent, while the duration of the portfolio is set at 30 months. Within narrow limits approved by the Governor, there is some discretion to manage exposures around the benchmark in order to respond to market developments.

The Benchmark Portfolio

	US	Euro area	Japan
Asset allocation			
(% of total)	45	45	10
Currency allocation			
(% of total)	45	45	10
Duration (months)	30	30	30

The return on foreign currency assets for the year was 6.7 per cent measured in Special Drawing Rights (SDRs). This was higher than the previous year and above the average of the past decade. This reflected large capital gains as yields on bonds fell sharply, particularly in the first half of 2003. Returns also benefited from the changes to the benchmark portfolio introduced in 2002. Those changes, which involved a reallocation away from Japan and into the euro area and, to a lesser extent, the US, were undertaken in response to structural changes taking place in Japanese markets and in particular the declining credit rating of Japanese Government bonds. These changes served to boost returns in 2002/03 above those that would otherwise have been achieved, as Japanese investments significantly underperformed those in the euro area.

Rates of Return in Local Currency by Portfolio (per cent)

	US	Euro area	Japan
2000/01	8.6	5.7	2.3
2001/02	6.1	4.7	0.4
2002/03	6.6	7.2	1.3

Decisions taken by portfolio managers under the trading discretion available to them added $77 million, or 25 basis points, to returns for the year. This was split between transactions which took advantage of short-term market anomalies ($51 million) and returns from lending securities ($26 million). The other change to the benchmark which occurred in 2002 – the broadening of euro investments to include French as well as German securities – also helped in this regard as there were increased stock-lending opportunities in the French market.

Actual and Benchmark Returns

	Rates of return in SDRs (per cent)		Value of difference
	Actual	Benchmark	(A$ million)
1991/92	9.8	8.9	165
1992/93	16.3	11.6	420
1993/94	4.0	3.8	31
1994/95	5.2	7.4	-331
1995/96	4.0	3.7	40
1996/97	4.5	4.2	34
1997/98	4.5	4.6	-19
1998/99	4.9	5.1	-26
1999/00	2.8	3.8	-202
2000/01	11.0	10.8	74
2001/02	3.9	3.7	63
2002/03	6.7	6.4	77

The range of eligible securities in the foreign portfolio was widened slightly further late in the year, with the RBA announcing that it would subscribe US$50 million to the Asian Bond Fund. The Fund is an initiative of the EMEAP (Executives' Meeting of East Asian and Pacific central banks) group and is designed not only to expand investment opportunities but also to promote bond markets in the region. The Fund invests in a basket of US-dollar denominated bonds issued by a number of Asian sovereign and quasi-sovereign borrowers and has an initial size of US$1 billion. It is managed by the Bank for International Settlements.

In addition to foreign currency assets, the RBA also holds a small part of its assets in gold-approximately 80 tonnes, or about $1.3 billion. The return on this holding comprises the capital gain or loss resulting from changes in the price of gold, as well as the small interest return available through the gold-lending market.

The price of gold (in US$ terms) was particularly volatile over the past year, owing to the uncertainties about the conflict with Iraq and heightened tensions in north Asia as well as the falling value of the US dollar. At the end of June 2003, the gold price, in US dollar terms, was 8.4 per cent higher than a year earlier.

The RBA continued to lend gold, a program that has been in place for over a decade now. However, interest rates on gold loans fell sharply over 2002/03. The average rate on one-year loans in 2002/03 was around 0.5 per cent, compared with 1.2 per cent in the previous year. Returns from gold lending were, however, cushioned to some extent by the decision in early 2002 to lengthen the average term-to-maturity of gold loans, as this locked in those earlier higher rates. The return for the year was $19 million, down only marginally from the previous year.

Taking into account the increase in the price of gold and the interest on gold loans, the total return on gold assets in 2002/03 (measured in SDRs) was 3.4 per cent, compared with 13 per cent in the previous year. The return in the latest year was below that suggested by the increase in the US dollar price of gold owing to the depreciation of the US dollar against most major currencies. While the gold price has risen in US dollar terms over the past couple of years, it has been fairly steady when measured, for example, in euros.

Risk Management

The RBA is exposed to various risks in undertaking its financial market operations. They can be categorised under five headings.

- **Credit Risk:** The RBA's credit exposures are relatively low as its operations are mainly in government securities markets.

  For much of the RBA's history, domestic dealing was exclusively in Commonwealth Government securities (CGS), which involves no credit risk for the RBA as the Government is its owner. However, as noted above, the falling supply of CGS has meant that the RBA has had to broaden its operations beyond these securities. This began in 1997 when it included as eligible collateral in its repo operations securities issued by State and Territory borrowing authorities and, more recently, supranational organisations that have an AAA rating.

Counterparty exposures arising from domestic dealing relationships are generally small as all securities transactions are settled on a delivery-versus-payment basis – i.e. in settlement systems that allow the simultaneous transfer of cash and securities. There is some exposure to counterparties in repo transactions in the sense that, should a counterparty fail in its obligation to repurchase the securities it has sold to the RBA, it is possible that the value the RBA could realise from liquidating the securities would be less than the cash supplied to the counterparty. However, this risk is reduced by requiring that the counterparty lodge securities in excess of the value of the money being lent, and all security collateral is marked to market daily.

In the case of foreign assets, the RBA again seeks to confine its operations to highly-rated securities. The bulk of the foreign assets (over 80 per cent) is held in the form of securities issued by the US, German, French and Japanese Governments. As in the case of domestic operations, the RBA insists, in all its foreign operations in repos and loans of securities and gold, that collateral supplied by the counterparty is in excess of the value of the cash or assets being loaned.

The RBA also holds deposits with foreign commercial banks, which entail some credit risk. However, tight limits are maintained on these exposures. No more than 25 per cent of each currency portfolio can be held in the form of commercial bank deposits and the maximum maturity of each deposit may be no more than three months. In addition, there are credit limits on individual counterparties, based on the counterparty's financial strength, credit rating and the size of its capital. These credit limits also cover settlement risk and the risk that a counterparty defaults on a repurchase agreement or gold loan. Reflecting the very high standards applying to credit exposures, the RBA has not experienced any losses due to counterparty default.

- **Interest Rate Risk:** With the RBA holding much of its financial assets in the form of fixed income securities, it is exposed to considerable interest rate risk. This is the risk that the value of the securities will fall due to rises in market yields. Importantly, it is impractical to use the liability side of the RBA's balance sheet to offset this risk, owing to the unique composition of these liabilities, viz, notes on issue (which carry no interest rate), current deposits of clients (which pay a floating interest rate) and capital.

As a result, the RBA has developed a framework based on an acceptable level of interest rate risk. This applies only to foreign investments: in the case of the domestic portfolio, the need to give priority to monetary policy considerations means that interest rate risk cannot be managed actively. Interest rate risk in the domestic portfolio is, however, relatively low as the bulk of the portfolio consists of short-term repos.

For foreign assets, as noted earlier, a duration benchmark has been set at 30 months, with the maximum term to maturity of any single security limited to $10\frac{1}{2}$ years. This duration target was determined on the basis of the RBA's preferences for risk (i.e. volatility of returns) and return using financial modelling techniques to examine the trade-off between return and risk.

- **Exchange Rate Risk:** The RBA is required to hold a portfolio of foreign currency assets to give it the ability to conduct intervention operations in relation to the Australian dollar. This portfolio is exposed to exchange rate risk resulting from movements in the Australian dollar against the foreign currencies that the RBA holds.

Foreign exchange risk applies only to that part of foreign currency holdings that is held outright, as opposed to that part held under foreign exchange swap agreements. Foreign currency held under swap agreements does not expose the RBA to exchange rate risk as the exchange rate for the forward sale of the currency is agreed at the time the swap is entered into.

The share of the RBA's portfolio of financial assets exposed to exchange rate risk has averaged

around 50 per cent in the period since the float of the Australian dollar. However, it has varied widely due to the pattern of intervention operations as the exchange rate has risen and fallen. In the late 1980s, for example, the ratio was as high as 90 per cent when the RBA was intervening in the market, buying foreign exchange and selling Australian dollars to limit the rise in the exchange rate. In contrast, the ratio fell to about 10 per cent in late 2001 when the exchange rate was around an historically low level. Since then, the RBA as noted earlier has begun gradually to rebuild its outright holdings of foreign currencies, and the ratio of assets subject to foreign currency risk has risen to about 20 per cent. This is still well below historical norms.

- **Reputational Risk:** Operations in financial markets also expose the RBA to the risk of damage to its reputation. This could occur, for example, if it were to sustain large financial losses which could have been avoided. Reputational risk may also arise from other means, such as:
  - ineffectual undertaking of policy tasks, such as the targeting of the official cash rate;
  - mismanagement of market or policy-sensitive information; and
  - mismanagement of professional relationships with the public, the market or other official institutions and agencies.

  Damage to the RBA's reputation could impair its ability to carry out its statutory responsibilities, leading to a loss of authority and credibility in performing its core objectives. As a result, the RBA has a number of controls in place designed to limit the potential damage to its reputation. These include extensively documented policies and procedures, regular management review of procedures and controls, ensuring adequate and appropriate training is provided to staff, an internal audit of most areas of the RBA's financial market operations at least once a year and, where possible, the timely release of information to the public.

- **Operational Risk:** The nature of the RBA's operations means that it undertakes a large volume of transactions each day. Around 44 000 transactions were undertaken in 2002/03, compared with 42 000 in the previous year. Average daily settlement flows were around $19 billion. Thus, it is essential that its systems be efficient and robust, and that they ensure adequate separation of duties to prevent staff who initiate transactions from being involved in settling them. These systems have several key elements: there is a clearly defined decision-making hierarchy, with overall guidelines and limits determined by the Governor and authority for decisions clearly delegated below that; there is an organisational structure that maintains clear separation between the front office (dealing), middle office (risk management) and back office (settlement); and computer systems incorporate the various risk controls, which allow dealing staff to monitor compliance with various limits in real time. As discussed below, the RBA is currently upgrading the computer systems that support its financial market operations. It is also currently upgrading disaster recovery arrangements in order to reduce further the risk of disruption to its systems.

The RBA entered into a contract with Openlink in mid 2003 to install a new financial markets trading platform. The system will replace a number of existing systems, some externally provided and some internal, with the aim of putting all the dealing functionality and risk controls onto one integrated platform. The system is expected to be fully operational by mid 2004.