OPERATIONS IN FINANCIAL MARKETS

MONETARY POLICY OPERATIONS

Since the mid 1980s, the RBA has been implementing monetary policy through domestic market operations, rather than using direct controls on banks as was previously the case. The basic nature of these operations has not changed over the intervening period: in essence they involve either sales of securities to reduce the amount of funds in the money market (and so cause interest rates to rise) or purchases of securities to produce the opposite effect. The funds on which market operations focus are a very specialised form of money, known as Exchange Settlement funds. These are the funds that banks hold in their Exchange Settlement accounts at the RBA, and which they use to settle transactions among themselves. Banks' demand for these funds is quite predictable, as it is based on their patterns of payment flows, and so any action by the RBA to change the supply leads to quick and predictable effects on the interest rate at which these funds are borrowed and lent – the so-called cash rate. Changes in this interest rate then feed through to the more general structure of interest rates in the financial system.

During 2000/01, the Reserve Bank Board changed the target cash rate – the way in which monetary policy changes are expressed – on four occasions. In August 2000, the target was raised by 0.25 of a percentage point, to 6.25 per cent, the last in the series of monetary tightenings that had begun the previous November. Then, between February and April 2001, the target was reduced on three occasions, in two cases by 0.5 of a percentage point, and once by 0.25 of a percentage point. This took the cash rate back to 5 per cent, only a little above the lows reached in the early and late 1990s. The background to these changes in policy has been detailed in the various issues of the *Statement on Monetary Policy* that were published during the year.

Movements in the Target Cash Rate

	Change (percentage points)	New Level (per cent)
2 Aug 2000	+0.25	6.25
7 Feb 2001	-0.50	5.75
7 Mar 2001	-0.25	5.50
4 Apr 2001	-0.50	5.00

Even though monetary policy is changed only infrequently, daily market operations are needed to maintain the cash rate around the target during intervening periods. In 2000/01, the difference between the RBA's target cash rate and actual rates in the interbank market averaged less than two basis points, around the same as or even slightly lower than in the past few years.

As can be seen from these outcomes, market operations provide a very effective way of implementing policy. There have, nonetheless, needed to be changes to operating procedures in recent years to take account of market and institutional developments. A major change occurred in 1998 to accommodate the introduction of new payments system arrangements, known as real-time gross settlement (RTGS). These changes were discussed in detail in the 1997/98 *Annual Report*.

More recently, the challenges for market operations have been in adapting to the declining supply of Commonwealth Government securities (CGS) on issue, as the Government used budget surpluses and proceeds of privatisations to repay

CASH RATE

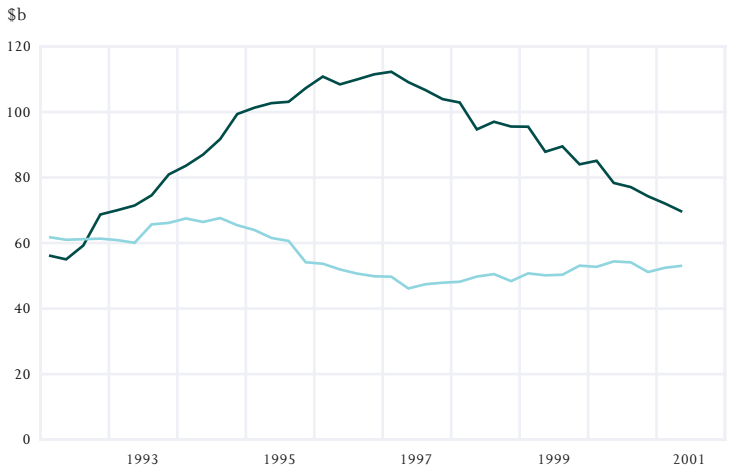
debt. Traditionally, market operations had been limited to transactions in CGS, either outright purchases and sales or repurchase agreements[1] (repos as they are often called). While technically, domestic market operations could be carried out in any asset, the RBA had traditionally confined domestic operations to CGS because they carry no credit risk and the market for them was deep and liquid, facilitating the large transactions often involved in domestic market operations. However, with the supply of CGS in the market declining by more than a third since 1996, it has become necessary to broaden market operations to encompass new instruments.

One such change was to use foreign exchange swaps more actively for domestic liquidity management. Foreign exchange swaps work similarly to repos, with the difference being that Australian dollars are exchanged for foreign currency rather than domestic securities. As with repos, the counterparties can agree the term of the swap to suit their particular needs. Use of these instruments began in a small way in the late 1980s, but has become much heavier in recent years. Turnover in foreign exchange swaps associated with liquidity management grew to $90 billion last year, or about one-quarter as large as repo operations, which themselves increased sharply last year to $393 billion. This rise in repo turnover reflected more pronounced volatility in liquidity flows through the year (see below) and the fall in the average maturity of repos compared with the previous year when the term of many repos had been deliberately extended to span the century-date change.

The usefulness of foreign exchange swaps for

1 Repurchase agreements involve the sale of a security with an agreement to repurchase it on an agreed future date and at an agreed price. This avoids exposing the buyer to the possibility of changes in the price of the security during the term of the repo, and in effect serves the same purpose as a loan of funds collateralised by securities.

SUPPLY OF GOVERNMENT SECURITIES
End quarter



domestic market operations reflects the fact that the foreign exchange market is very deep and liquid. It should also be noted that, while the use of foreign exchange swaps increases the RBA's holdings of foreign exchange, it has no effect on net foreign reserves, as the increased holdings of foreign exchange are matched with a commitment to sell foreign exchange at a pre-determined price and date. For the same reason, use of swaps has no effect on the exchange rate.

The extent to which swaps are helping to ease shortages of securities is illustrated by the fact that, if the RBA eliminated its swap position and replaced these transactions with repos, it would now be holding about 40 per cent of the combined total of securities issued by the Commonwealth and State governments. Clearly, this would not be a viable situation as the market would have great difficulty functioning in such circumstances.

The RBA has also sought to address the problems caused by the declining supply of CGS by widening eligible repo collateral. The first move was in 1997 when securities issued domestically by State borrowing authorities were accepted. This boosted eligible collateral by around $50 billion to around $150 billion, but did not provide a permanent solution as the stock of government securities has continued to fall.

Market Operations for Liquidity Management Purposes

($ billion)

	1996/97	1997/98	1998/99	1999/2000	2000/01
Repurchase agreements[(a)]					
– Purchases	201	275	300	244	376
– Sales	9	8	13	14	17
Short-term CGS					
– Purchases	23	26	21	9	5
– Sales	1	0	0	0	0
Total domestic operations	234	309	334	267	398
Foreign exchange swaps[(a)]	35	33	52	67	90

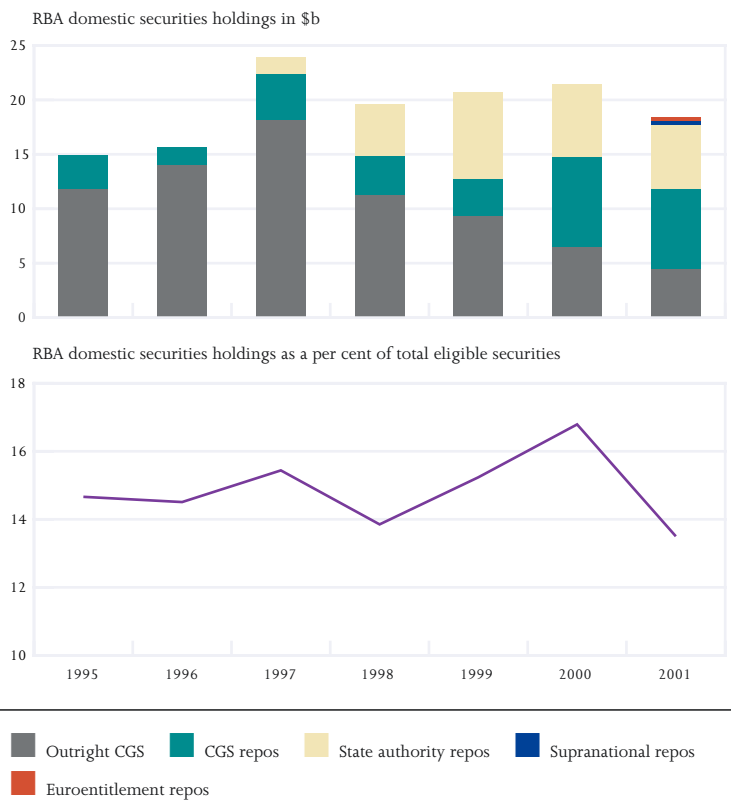
(a) First leg of transaction

In October 2000, eligible repo collateral was further widened to include Australian dollar securities issued by supranational organisations of which Australia is a member, and lodged in Austraclear. The actual outstandings of such securities at the time were quite small, around $3 billion in total, though it is expected that these markets will develop over time. Also in October, the RBA announced that it would lengthen the term to maturity of CGS that it was prepared to buy outright in its market operations from around 12 months to around 18 months.

In June 2001, the RBA announced that it would be prepared to accept Australian dollar securities from a broader range of major supranational organisations. Decisions will be made on a case-by-case basis but subject to a minimum requirement that the organisation has a Aaa-rating. At the same time it was announced that, in addition to State-authority securities issued in Australia, Australian dollar securities issued in euro markets by State authorities, and lodged domestically in Austraclear in a form known as Euroentitlements, would also be accepted. At the time of the announcement, such securities were not held to any significant extent by the RBA's regular counterparties to domestic market operations. Nonetheless, they began being presented to the RBA as collateral shortly after the announcement was made.

These measures, coupled with the increased use of foreign exchange swaps for domestic liquidity-management purposes, helped to ease pressure on the collateral pool during the year. By the end of the financial year, the RBA's holding (outright or on repo) of securities representing eligible collateral for market operations was, as a share of total outstandings, well down from its share a year earlier, at around 14 per cent of the total.

RBA DOMESTIC PORTFOLIO
As at 30 June



Another challenge for market operations over the past year was to respond to the changing pattern of liquidity flows to and from the Commonwealth Government as a result of the introduction of the New Tax System on 1 July 2000.

Under the new system, most companies, superannuation funds and investment income-earning individuals lodge a tax return, known as the Business Activity Statement, and make payments each quarter. These payments encompass liabilities under the Goods and Services Tax and the Pay-As-You-Go tax system, which replaced 11 previous tax collections.

The concentration of tax payments into a few days each quarter, combined with government outlays being relatively even through the quarter, had the potential to result in large swings in government cash balances during each quarter, falling for most of the quarter as payments exceeded tax collections, and then rising sharply as taxes flowed in. This would be reflected in associated swings in market liquidity.

To avoid this, the Australian Office of Financial Management and the RBA jointly announced in June 2000 a modification to the issuance of Treasury notes. Treasury notes are short-term securities traditionally issued by the

Commonwealth to help bridge within-year mismatches in the timing of its receipts and outlays. Rather than being issued for set terms, such as 13 or 26 weeks, as used to be the case, Treasury notes are now issued with standardised maturity dates coinciding with peak tax collection dates. The amount of Treasury notes maturing on those dates is built up in the lead up to the tax collections (helping to bridge the Government's shortfall in cash during that period) and their maturity results in a flow of funds from the Government which helps offset tax receipts.

In the event, these new arrangements have offset less than half the impact of Government transactions around peak tax dates. The rest of the Government's cash fluctuation is being absorbed by its fixed deposits at the RBA. But, while this avoids large swings in Commonwealth current cash balances, it leaves liquidity imbalances in the money market which the RBA needs to smooth through more intensive use of market operations.

Adding to the challenge of smoothing the liquidity implications of the new tax system was the uncertainty relating to the exact timing of tax payments. There was considerable uncertainty as to how much advantage would be taken of deferral provisions introduced by the Government and the extent to which payments would be made through the RTGS system, and so impact on the market immediately, or by cheque, and thereby not impact until the following day.

The RBA was concerned that there would not be enough securities in the market to allow it to rely on repos alone to offset these drains of liquidity that would take place at peak tax collection times. Evidence of this was that transactions involving government securities were commanding a significant premium in the lead up to tax collections. As a result, the RBA supplemented its repo operations at these times with large foreign exchange swaps. The increased use of swaps at these times accounted for much of the rise in swap activity during the year.

Looking ahead, a development which will have implications for liquidity management and the demand for collateral is the likely commencement of "continuous linked settlement" (CLS) for foreign exchange transactions in the coming year. When implemented, CLS will virtually eliminate settlement risk in foreign exchange transactions (see the chapter on "Business Services"). However, it may make liquidity management in domestic markets more difficult as the extension in trading hours required (to 8.00 pm in winter and 10.00 pm in summer) will make it harder for the market to accommodate the Australian dollar payments and receipts involved. Also, while the Australian dollar is relatively heavily traded around the world, the bulk of this trading is ultimately settled on the books of only a very small number of Australian banks. This concentration of business, combined with the somewhat tight schedule of payments to CLS Bank each night, could occasionally result in one or more of those Australian banks having to make large Australian dollar pay-ins to CLS Bank, thereby placing significant demands on domestic liquidity.

Predicting the magnitudes of such drains on liquidity is very difficult but they may, on occasion, be large. Hence, the RBA is discussing with banks the liquidity requirements that could be generated by the commencement of CLS, and seeking to ensure that adequate liquidity is available.

APPEARANCE BEFORE THE HOUSE OF REPRESENTATIVES STANDING COMMITTEE ON ECONOMICS, FINANCE AND PUBLIC ADMINISTRATION IN THE LEGISLATIVE COUNCIL CHAMBER OF THE VICTORIAN STATE PARLIAMENT, MELBOURNE, MAY 2001.

CUSTOMER-BASED OPERATIONS

As in the past four years, the main operation in domestic markets on behalf of the Commonwealth was to assist with debt retirement. The Commonwealth's ability to retire debt early in 2000/01 reflected the fact that it was again in surplus for the year. The RBA sold $2 billion of short-dated CGS and $1 billion of long-dated CGS to the Commonwealth during the year. Most of these securities were acquired by the RBA during 2000/01, with the short-dated CGS largely acquired during the course of normal daily market operations.

STOCK LENDING

The RBA stands ready to lend to the market from its outright holdings of CGS. The purpose of this activity, known as stock lending, is to alleviate temporary market shortages of specific lines of stock. Typically, these shortages arise because dealers short-sell stock to clients as part of their market-making operations, and so need to borrow stock to deliver to the client. The RBA's stock lending activity for the year just ended was sharply down on that for previous years. As noted in previous *Annual Reports*, the RBA changed the pricing of its stock lending so as to be the least attractive lender in the market and avoid the risk that it was displacing activity between market participants. The results of the past year are to a degree a reflection of this pricing policy.

Stock 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
1999/2000	510	8.9	0.6
2000/01	75	1.2	0.1

FOREIGN EXCHANGE OPERATIONS

The most significant transactions the RBA undertakes in the foreign exchange market are those designed to influence the exchange rate, typically referred to as intervention. These involve outright purchases or sales of US dollars against Australian dollars or, occasionally, derivative transactions such as options. These operations are the focus of the discussion below, along with foreign exchange transactions with clients, the main one being the Commonwealth Government.

Foreign exchange swap operations, which are undertaken mainly for domestic liquidity management, have already been discussed under the section on "Monetary Policy Operations", while management of foreign exchange reserves is described in the following section.

The floating exchange rate regime which Australia adopted in 1983 means that the exchange rate fluctuates in response to changes in the demand for and supply of the currency in the market, allowing it to adjust to changes in underlying economic and financial conditions. Under these arrangements, the RBA engages in foreign exchange operations only when it wants to influence the exchange rate.

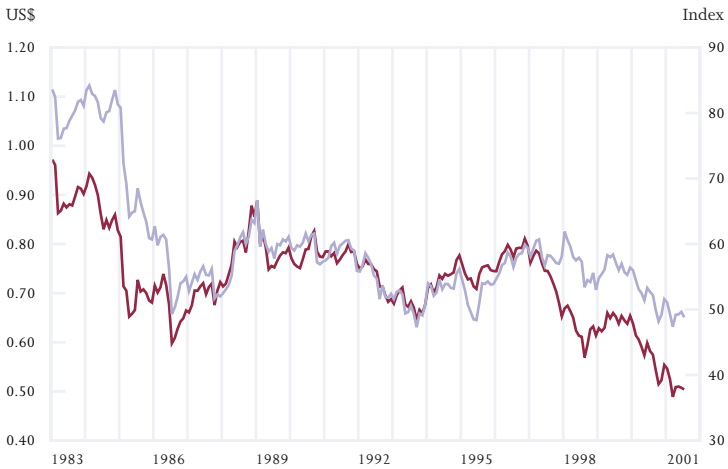
It is a feature of all markets that they can be subject to periods when prices seem to move too far in one direction or another. Foreign exchange markets around the world are particularly prone to such "overshooting". This may be because exchange rates are subject to many and varied influences, and no clear model of exchange rate determination exists. In such circumstances, the market can easily become subject to trend-following behaviour, herding, or various fads. Virtually all central banks therefore maintain a capacity to intervene in the market from time to time. They do this because large and prolonged deviations of the exchange rate from "fair value" can have adverse effects both at the macro level – by affecting confidence and inflationary expectations – and at the micro level – by affecting resource allocation and investment decisions.

The main differences between countries are the extent and frequency of their interventions. Australia's intervention operations are fairly typical of those of developed countries with floating exchange rates. Over the past decade for example, the RBA has intervened on average on about five per cent of all trading days, or a little more than 10 days in every year. In other words, circumstances when intervention occurs tend to arise relatively infrequently.

With the Australian dollar very low by historical standards, the RBA has been inclined to intervene more frequently than average over the past 18 months.

The latest fall in the Australian dollar, which began in January 2000 and lasted through to March 2001, was the fourth time since the floating of the exchange rate that it has moved down by a significant amount. But two aspects of the latest fall made it different from earlier episodes. First, it followed relatively quickly after the previous fall in 1998 – i.e. unlike earlier falls which did not start until the previous one had been largely reversed, this fall and its previous one were punctuated by only a modest rise in 1999.

AUSTRALIAN DOLLAR
Monthly



Second, this was the first time that the exchange rate has fallen without being preceded by a significant negative external shock, such as a large fall in commodity prices or a significant economic contraction among our major regional trading partners. With Australia's international trading environment remaining robust, at least until late in the period, the fall therefore was quite exceptional.

Although the exchange rate started to depreciate in January 2000, it was not until September of that year that the RBA intervened in the market, after the exchange rate had already fallen by over 15 per cent against the US dollar and a little less on a trade-weighted basis. The RBA's practice has always been to allow scope for the exchange rate to adjust, and to intervene only when there is clear evidence of overshooting. Intervention operations continued over the next couple of months. These were on a limited basis, designed to moderate the fall in the exchange rate rather than prevent further movement, recognising that the weakness of the Australian dollar against the US dollar was not unique to it. In fact most floating rate currencies (with the exception of the yen) were falling against the US dollar at this time, indicating that part of the problem was US dollar strength rather than Australian dollar weakness.

The fall in the Australian dollar was eventually partially reversed towards the end of 2000 when there was some reassessment by the market of the exceptional strength of the US dollar. But this rebound proved to be temporary as the US dollar resumed its upward trend during the March quarter this year, despite the substantial easing of monetary policy by the US Federal Reserve over this period. The Australian dollar weakened unilaterally for a time after the publication of the unexpectedly weak figure for December quarter GDP in March. This figure had a major impact on confidence, and led to heavy selling of the currency, sending it to a new low of US47.75 cents by early April. As with the earlier fall, the RBA again intervened in the market to provide a

moderating influence. In the event, the level reached in early April proved to be the low point for the currency, as the combination of intervention and a reassessment of the domestic economic situation saw the Australian dollar recover. No further foreign exchange market intervention was undertaken over the rest of the financial year.

Overall, intervention in 2000/01 amounted to around $2.5 billion. This is not large in historic terms, being about the same size as the RBA's intervention in the single episode of June 1998, during the Asian financial crisis. On two occasions during the year, the RBA purchased call options on the Australian dollar to supplement purchases in the spot market.

Foreign exchange sales to the Commonwealth Government for the year were about $4.5 billion, a fairly typical amount. These were offset, however, by interest received on foreign reserves and other transactions. As such, the only impact on net reserves – i.e. reserves the RBA holds outright – came from the intervention noted above. In fact, net reserves fell by only $1.5 billion over the year, to about $9 billion, as valuation changes partially offset the effect of intervention operations.

Gross reserves, which include foreign exchange acquired under swap agreements, rose strongly during the year with the increased use of swaps to help manage domestic liquidity (as discussed in the section on "Monetary Policy Operations"). At the end of the year, total holdings of official reserve assets were $38 billion, up from $28 billion a year earlier. Swaps outstanding rose by $11 billion to $29 billion, the difference between this and the gross reserves figure representing the net reserves position.

During the year there was some discussion among market participants about the adequacy of reserves. Some of this flowed from an incorrect extrapolation of past trends, and did not take adequate account of the extent to which reserves were being supplemented by the unusually high rate of foreign currency interest earnings flowing from the foreign exchange swap position, as well as other transactions. The RBA is comfortable with its current holdings of reserves. Net reserves are about as low as they fell to in the early 1990s and provide adequate scope for intervention.

MANAGEMENT OF FOREIGN CURRENCY ASSETS

In managing its portfolio of financial assets, the RBA draws a sharp distinction between domestic and foreign assets. In the case of the former, the RBA accepts that its special position in the financial system, as well as the large size of its portfolio, rule out active portfolio management as it would be too disruptive to the market. In the case of foreign investments, however, where the RBA is operating in very large foreign markets in which it has no special status, these constraints do not apply, and there is scope to structure holdings of foreign assets to fit in with risk and return objectives.

Financial modelling based on historical patterns of volatility and return in these markets led the RBA to decide some years ago that, for the level of risk it is willing to assume, returns over time would most likely be maximised by holding 40 per cent of the funds in US assets, with 30 per cent each in German and Japanese assets. Identical ratios have also been adopted in regard to the currency exposures across the US dollar, euro and Japanese yen. Duration is targeted at 30 months in each of the asset markets with the maturity on any investment limited to 10.5 years. These "benchmark" allocations are periodically reviewed to ensure that they still represent the optimal risk/return trade-off.

In the past, portfolio managers within the RBA would seek to enhance returns on the portfolio by departing from the benchmark allocations, at times significantly, to take advantage of expected changes in market conditions. This discretionary management was undertaken within limits approved by the Governor. As noted in last year's *Annual Report*, however, a review of these operations after a decade of experience indicated that, even though active management did yield returns in excess of the benchmark, the average size of these returns relative to their variability was not sufficient to justify maintaining such an approach.

During the past year, a more passive approach to management of foreign currency reserves was therefore undertaken. Deviations from benchmark were relatively small, only short-term and, as can be seen from the table below, much smaller than in previous years. The only significant variation from benchmark was in the duration of Japanese securities, as the short position carried over from the previous year was cleared gradually over the first half of the year. In the second half of the year, there were no large or continuous deviations from benchmark.

Deviations from Benchmark
(Absolute size of deviation)

	Average 1993/94-1999/2000	2000/01
Asset allocation (percentage points)		
– US	5.8	0.3
– Germany	6.9	0.3
– Japan	2.8	0.3
Currency allocation (percentage points)		
– US dollars	8.0	0.4
– Deutsche Mark/euro	5.9	0.4
– Japanese yen	2.9	0.2
Duration (months)		
– US	3.9	0
– Germany	3.0	0
– Japan	16.0	6.4

The return for the year, 11.0 per cent measured in SDRs, was the highest since the early 1990s, reflecting mainly large capital gains as yields on bonds fell sharply in the second half of the year. The return achieved for the year was a little above benchmark, mostly due to security lending activities. As the US assets held by the RBA include highly liquid, "on-the-run" US treasury bonds, the RBA is able to take advantage of the market's frequently strong demand to borrow these securities by engaging in stock lending. Interest rates paid by borrowers of stock were particularly high during the past year as debt repayments by the US Treasury have made some stock more scarce. Earnings from these lending operations totalled close to A$44 million during 2000/01, equivalent to 38 basis points on the US portfolio. The remainder of the above-benchmark return reflected short-term trading, within the narrow limits approved by the Governor, to take advantage of market anomalies.

Actual and Benchmark Returns

	Rates of Return in SDRs (per cent)		Value of Difference (A$ million)
	Actual	Benchmark	
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
1999/2000	2.8	3.8	-202
2000/01	11.0	10.8	74

The RBA also holds a portion of its foreign reserves in gold. No outright sales or purchases of gold were made during the past year, leaving gold holdings unchanged at around 80 tonnes.

These are presently valued at $1.4 billion. To enhance the return from this investment, gold holdings are loaned to the market, a program that has been in place for over a decade now. Returns from gold loans were a little lower in 2000/01 than in other recent years, reflecting low levels of gold interest rates in the second half of 2000 when demand from miners for hedging of future gold production was limited. For the main maturity for which the RBA lends (around one year) the interest rate on loans averaged 1.4 per cent during the past year, compared with 2.0 per cent the year before. In absolute terms, returns on gold loans amounted to $17 million for the year, down from $21 million the previous year.

As with the RBA's operations in the domestic money market, the range of eligible securities accepted as collateral for gold loans was widened during the past year to include Australian dollar-denominated securities issued by Aaa-rated supranationals.

RISK MANAGEMENT

Like any institution dealing in financial markets, the RBA is exposed to various financial risks, including credit exposures to counterparties with which it deals or places deposits, movements in market yields and exchange rates which may adversely affect the value of its financial assets, and various operational risks such as fraud and errors. The RBA is somewhat more constrained than commercial institutions when it comes to managing financial risks, particularly those relating to adverse movements in yields and exchange rates, as it must put its policy responsibilities ahead of commercial considerations. Nonetheless, there are some steps the RBA can take to reduce at least some of the risks.

Credit Risks

Credit risk is one exposure that the RBA can keep to a minimum as the nature of its central banking operations leads naturally to low credit exposures. For example, its operations tend to be mainly in government securities markets because these are typically the markets that are deepest and most liquid, important characteristics given the large volumes in which the RBA deals.

Domestic dealings were restricted until 1997 to CGS, which involve no credit risk for the RBA. The falling supply of CGS has since necessitated that repo operations be broadened somewhat, but the RBA has nonetheless sought to maintain the very highest credit standards. Apart from CGS, the only securities it will accept in repo operations are those issued by State borrowing authorities or supranational organisations that have a 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 get from liquidating the securities would be less than the cash supplied to the counterparty. However, this risk is reduced by requiring that the counterparty provide 2 per cent over-cover in terms of securities, and marking all security collateral to market daily.

In the case of foreign assets, the RBA again seeks to confine its operations to securities of the highest rating. The bulk of the RBA's foreign assets (over 90 per cent) are held in the form of securities issued by the US, German and Japanese governments. Operational considerations do, however, also require the RBA to hold some deposits with foreign commercial banks, which entail some credit risk. Tight limits are maintained on these exposures. No more than 25 per cent of each country 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.

The overall framework for managing counterparty exposures on foreign operations revolves around determining a maximum acceptable level of risk for each counterparty. This is based on the counterparty's financial strength, credit rating and size of its capital. Financial strength ratings represent a bank's intrinsic safety and soundness and differ from credit ratings to the extent that the latter are affected also by risks external to the firm (such as actions of governments which could impact on the firm) and by credit support arrangements which might be available (e.g. assistance that may come from owners, the industry group, or official institutions). As such, financial strength ratings seek to measure the likelihood that a bank will require external support whereas credit ratings measure the bank's ability to honour its obligations, which might be affected by a range of factors beyond financial strength.

While financial strength and credit rating are correlated, they do not always go hand in hand. For example, a bank that had a low capital ratio or a risky portfolio, but whose obligations were guaranteed by a highly rated government, could have a low rating on financial strength but a high credit rating. Therefore the RBA uses a matrix of credit ratings and financial strength ratings to determine the maximum risk that it is prepared to accept in relation to a counterparty. These risk limits are expressed as a percentage of the RBA's foreign currency portfolio. In addition, to ensure that the RBA's exposure is not large relative to the counterparty's capital, in situations where the counterparty's capital is smaller than the foreign currency portfolio of the RBA, the percentage limit applies to the size of the counterparty's capital rather than the RBA's portfolio. In essence, the limit applies to the smaller of the RBA's portfolio or the counterparty's capital.

The following table outlines the current matrix. It shows, for example, that the maximum acceptable risk for a counterparty with a credit rating of Aaa and a financial strength rating of A would be 3.75 per cent of the RBA's foreign portfolio. The percentage limit falls away as credit ratings and financial strength ratings decline, particularly once ratings fall below relatively high levels. The percentage limits in the matrix are devised so as to ensure the maximum possible diversification of risks among counterparties, consistent with the need to have sufficient limits available to allow the portfolio to be fully invested.

Maximum Acceptable Level of Risk for Counterparties

(per cent)

Financial Strength Indices	Credit Rating								
	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2
A	3.75	3.74	3.66	3.45	2.75	1.67	0.74	0.38	0.00
B+	3.74	3.73	3.65	3.44	2.75	1.67	0.74	0.38	0.00
B	3.66	3.65	3.58	3.37	2.69	1.63	0.73	0.37	0.00
C+	3.45	3.44	3.37	3.18	2.54	1.54	0.69	0.35	0.00
C	2.75	2.75	2.69	2.54	2.02	1.23	0.55	0.28	0.00
D+	1.67	1.67	1.63	1.54	1.23	0.75	0.33	0.17	0.00
D	0.75	0.75	0.73	0.69	0.55	0.33	0.15	0.08	0.00
E+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Once a maximum acceptable level of risk has been allocated to a counterparty, the next step is to determine how this will be allocated among the various products that are traded with that counterparty. The RBA is exposed to varying degrees of credit risk on different products due to the different levels of collateralisation, contractual protection, and the volatility of the instruments themselves. For example, an uncollateralised bank deposit is inherently more risky than a cash repo with the same counterparty, because the collateral in the latter provides a significant degree of protection in the event of counterparty default.

As a result, different risk factors and minimum credit ratings are applied to the different classes of product. The accompanying table shows the risk factors and the minimum credit rating of counterparties for various financial instruments. The risk factor for bank deposits is 100 per cent for all three foreign currency portfolios. The risk factor for foreign currency transactions is lower, at 10 per cent, because, apart from the very short period between settlement of the first and second legs of the transaction, the RBA is not exposed to the counterparty for the full amount of the transaction. Rather, its exposure represents the probability that a counterparty will default before settlement date, requiring a replacement transaction at prevailing market rates, which may have moved adversely. Risk factors for repos are lower again because they are fully collateralised with securities marked to market daily. They vary from 1.6 per cent in the US to 9.9 per cent in Japan, reflecting differences in the volatility of security prices in each country and in the average terms of repos.

Risk Factors Applying to Various Financial Instruments

	Risk Factor (per cent)	Minimum Counterparty Credit Rating
Bank Deposits	100.0	Aa3
Foreign Exchange	10.0	A3
Repurchase Agreements:		
– US	1.6	Baa1
– Germany	1.9	Baa1
– Japan	9.9	Baa1
Gold	15.0	Baa1

The application of risk factors to counterparty limits is best illustrated by way of example. As noted, a 100 per cent risk factor applies to bank deposits because there is no protection against default. Therefore, a US$10 million bank deposit would use up US$10 million of the counterparty's available credit limit. On the other hand, the risk factor of 1.6 per cent applying to US repurchase agreements means that a US$10 million repo transaction would use up only US$160 000 of the counterparty's available credit limit.

In addition to the higher risk factor applying to bank deposits, an absolute minimum limit of Aa3 is placed on the credit rating of banks with which deposits are lodged, a much higher rating than that required of firms with which the RBA is prepared to have a dealing relationship in repo or foreign exchange transactions. The minimum credit rating for counterparties in repo transactions is Baa1, while that for foreign exchange counterparties is A3.

The risk limit framework is administered by a "middle office" which is separate from dealing operations. Risk factors are reviewed annually to ensure recent trends in volatility and holding periods are taken into account. Counterparty limits are reviewed monthly to allow for movements in exchange rates, the size of the RBA's foreign currency portfolio and the capital base of each counterparty. This process would also capture any recent upgrades of counterparty credit ratings. Any ratings downgrades result in an immediate cut in limits.

Reflecting the very high standards applying to credit exposures, the RBA has not experienced any losses due to counterparty default.

Interest Rate Risk

The nature of the RBA's financial assets – mainly securities with fixed coupons – means that it is exposed to what is commonly referred to as interest rate risk. This is the risk that the capital value of the securities will fall due to rises in market yields. Unlike commercial financial institutions, which can structure the composition of their liabilities to offset risks in their assets, the RBA can do little to eliminate interest rate risk through this means because of the unique nature of its liabilities. They are mainly notes on issue (which carry no interest rate), current deposits of clients (which pay a floating interest rate) or its own capital.

The RBA therefore needs to find other ways to manage this risk. Again, as with credit risk, a sharp distinction is drawn between domestic and foreign assets. In the case of the former, the RBA accepts that its special position in the financial system means that there is little it can do to actively manage this risk. The structure of its domestic assets is therefore determined purely by policy needs. However, a side effect of the shift over recent years from outright holdings of securities to repo operations (as discussed earlier) has been a reduction in interest rate risk, since the interest rate on repos is more in the nature of a floating rate, and in line with the rate paid on deposit liabilities.

On the foreign side, these constraints do not apply and financial modelling is used to determine the most efficient portfolio structure from a risk/return point of view. As noted in the previous section, this has resulted in a benchmark of 30 months for the duration of foreign assets, with a maximum term to maturity of any single security of 10.5 years.

Exchange Rate Risk

As the holder of Australia's official reserve assets, the RBA of necessity carries a large foreign exchange exposure. It also has little scope to manage this exposure, as the proportion of its assets held in foreign currency is determined by the intervention operations it undertakes to influence the Australian dollar.

On average, about half the RBA's assets have been in foreign currency, but this ratio was as high as 90 per cent in the late 1980s when the RBA was intervening in the market, buying foreign exchange and selling Australian dollars to limit the rise in the exchange rate. At present, holdings of foreign exchange are about 50 per cent of the portfolio, but a large proportion of this is held under swap agreements and is therefore committed to a forward sale at an agreed exchange rate. This means that there is no exposure to exchange rate changes on this part of the portfolio. The RBA's exchange rate risk arises only from its holdings of net reserves which, at present, account for about 15 per cent of the RBA's overall assets. Given the historically low level of the exchange rate, and therefore the probability that it will rise in the future causing losses on foreign currency holdings, a low exposure to foreign currency is appropriate at present.

For any given level of foreign currency holdings, the RBA can seek to minimise its exposure by holding a range of foreign currencies. As noted in the previous section, a relatively even distribution is held among the three major world currencies: 40 per cent in US dollars, 30 per cent in yen and 30 per cent in euros.

OPERATIONAL RISKS

The nature of the RBA's operations means that it undertakes a very large volume of transactions each day. In the past year, for example, settlement flows resulting from transactions in various instruments were as follows:[2]

- domestic securities – A$791 billion;
- foreign securities – A$3 568 billion;
- bank deposits – A$198 billion; and
- foreign exchange and gold – A$383 billion.

These figures mean that, on average on any given day, the RBA has about $19 billion of transactions to settle. It is therefore essential that its systems be efficient and robust, and ensure adequate separation of duties to prevent those staff initiating transactions from also being involved in their settlement.

These systems have several key elements:

- at the managerial level, a clearly defined decision-making hierarchy, with overall guidelines and limits determined by the Governor and authority for decisions clearly delegated below that;
- an organisational structure that maintains clear separation between the front office (dealing), middle office (risk management) and back office (settlement);
- computer systems that automate all the processing, embody the various risk controls (e.g. separation of front and back office functions) and allow dealing staff to monitor compliance with various limits in real time; and
- finally, and perhaps most importantly, ensuring that staff are fully trained and aware of their responsibilities.

2 These figures include both sides of repo transactions as well as the related cash flows.