

OPEN MARKET OPERATIONS¹

*Address by Dr Guy Debelle, Assistant Governor
(Financial Markets), to the Australian Debt Markets
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Introduction

Today I would like to talk about the Reserve Bank's operations in the domestic money market. I spoke about this topic last November,² but it is an opportune time to again describe the overall framework for our operations in some detail and discuss how we have conducted our operations over the past 10 months during the period of turmoil in credit markets. The operating framework has proven to be resilient and effective throughout the period.

The Australian Money Market

The Reserve Bank Board implements monetary policy by setting a target for the cash rate – the interest rate on overnight unsecured loans in the interbank market. This rate directly influences interest rates in other wholesale and retail markets, which in turn affect economic activity and inflation.

A key determinant of activity within the interbank market for overnight funds is the aggregate volume of exchange settlement (ES) balances held at the Reserve Bank. ES accounts are maintained by banks and a number of other institutions to meet their settlement obligations with each other and with the Reserve Bank. As such, they are the most immediate source of liquidity for banks.

In Australia, banks are not required to meet targets for holding reserves at the central bank. However, a bank's ES balance must always be non-negative, even on an intraday basis.³ As the Reserve Bank remunerates ES balances at a rate of 25 basis points below the cash rate target, this creates an incentive for account holders to recycle excess balances within the interbank market by lending them to other institutions at the cash rate. That is, there is an incentive to economise on cash holdings which must be weighed against the cost of running short of cash balances at the end of the day and needing to borrow from the Reserve Bank at a penalty rate (see below).

The Reserve Bank controls the supply of ES balances through its transactions in financial markets. For example, when the Bank purchases securities from a counterparty, that counterparty's

1 *I thank Matt Boge for his help in writing this speech.*

2 *'Open Market Operations and Domestic Securities', speech given to the Australian Securitisation Forum, 29 November 2007, available at <http://www.rba.gov.au/Speeches/2007/sp_ag_291107.html>.*

3 *This is in contrast to the systems in the US, Europe and the UK where there is a reserves target that is required to be achieved over a period of time, but the Australian framework is similar to that in Canada.*

ES account (or the ES account of their bank) is credited with funds at the same time the transfer of title to the security occurs. In other words, the Bank injects funds into the system when it purchases a security (and conversely withdraws funds when it sells a security).

Each day then, the Reserve Bank must gauge the overall demand for ES balances from the financial system and adjust the supply of funds accordingly so as to keep the cash rate at the target set by the Reserve Bank Board.

Even if the Bank wishes to hold the amount of ES balances stable from one day to the next, the Bank will generally be required to transact with the market to offset the impact of its customers' payments, in particular those of the Australian Government, which is the Bank's largest customer. Payments to or from these customers can significantly alter overall balances in the system. Each day, the Bank will estimate the likely net impact of these payments and its own transactions and derive the estimated cash position. This is the amount by which the pool of ES balances would change if the Bank did not conduct any market operations. In doing so, Bank staff liaise closely with the relevant departments within the Australian Government and with our other clients to ascertain the timing and size of payments and receipts.

If, in aggregate, private financial institutions are expected to pay an amount of funds into the Government's account at the Reserve Bank (for example, in the form of tax payments) greater than the funds being received, then the cash position will be a deficit and, other things equal, ES balances will decline. Conversely, on days where payments from the Bank and its customers are estimated to be greater than receipts, there will be a cash surplus and ES balances will increase. Almost always, the Reserve Bank will act to offset the liquidity impact of these exogenous flows by purchasing (or selling) securities in open market operations.

At 9.30 am each morning, the Bank publishes the estimated cash position for that day and its intention to either buy or sell securities. The Bank will also indicate a preference for the maturities at which it wishes to conduct its operations. Counterparties have 15 minutes to submit approaches, from which the Bank will select those that best match its dealing intentions and are at the most attractive rates. The Bank is usually in a position to advise market participants of the success or otherwise of their approaches by 10.00 am. The results of our market operations are published electronically by about 10.15 am. They show the amount dealt as well as the maturities at which the Bank dealt, the type of collateral and the average price.⁴ The overall impact on system liquidity of the Bank's operations on any given day is not the amount dealt but any net injection or withdrawal of funds, that is, the amount dealt less the cash position. This is reflected in the net change in ES balances day to day.

The Bank's preferred maturities for dealing are derived from our projections for future withdrawals and additions to system balances. Where large payment flows can be anticipated well ahead of time (such as when a large amount of tax is expected to be paid), the Bank may augment its market operations by using foreign exchange swaps to partly sterilise the liquidity impact. For example, the Bank can increase ES balances by arranging to sell Australian dollars against the receipt of US dollars with the 'swap' to be reversed at a future date at an

⁴ This information is published on the Reserve Bank's Reuters and Bloomberg pages and is also available on the website at http://www.rba.gov.au/Statistics/open_market_operations.xls.

agreed price. These foreign exchange swaps are simply repos in foreign currency rather than domestic currency.

On rare occasions, unforecastable flows between private financial institutions and the Bank can have implications for system liquidity. For example, if tax receipts on a particular day are significantly higher than the Bank anticipated, the volume of ES balances will fall relative to the Bank's projections. In such a circumstance, the Bank may deem it necessary to conduct a second round of market operations to restore system liquidity. Generally, however, the Bank is able to predict payment flows with a sufficient degree of accuracy that additional rounds of dealing are uncommon. Over the past couple of years, there have not been any occasions where a second round has been needed.

To deal with institution-specific, rather than market-wide, liquidity needs, the Bank maintains a standing facility through which ES account holders can obtain funds overnight, at their discretion, at 25 basis points over the cash rate target. The funding is secured against collateral. Generally, banks will access this facility when they have miscalculated their payment flows or are experiencing other operational problems and would otherwise see their ES balance fall below zero. In the past year, there have been 17 instances where counterparties have obtained funds overnight from the Bank via this facility, a little less than in the previous year. Because the facility is designed to deal with temporary technical hitches in the operation of the money market, there is no stigma associated with its use. Indeed, importantly, there is no stigma attached to any of the Bank's open market operations. A wide range of counterparties participate in the Bank's operations on a regular basis.

In conducting its open market operations, the Bank's securities transactions may be either outright purchases or sales, or contracted under repurchase agreements, meaning that the securities act as collateral against a loan and their transfer is unwound at the maturity of the agreement.

In recent years, the Bank has not relied very much on outright securities transactions to adjust liquidity. Nevertheless, the Bank maintains a small portfolio of semi-government securities (currently around \$3 billion) which gives it the option of selling securities under repo to lower ES balances when needed.

By holding most of its domestic assets under repurchase agreements, the Bank's investment profile is typically reasonably short. Consequently, much of the Bank's activity in financial markets involves rolling over its repo book. That is, when a repo trade matures, the Bank is reselling securities into the market and therefore reducing ES balances. As a result, on most days, the Bank's estimate of the system's cash position is a deficit and the Bank needs to purchase more securities to return ES balances to the desired level. The repo book is structured to smooth the impact of payment flows over the course of the year.

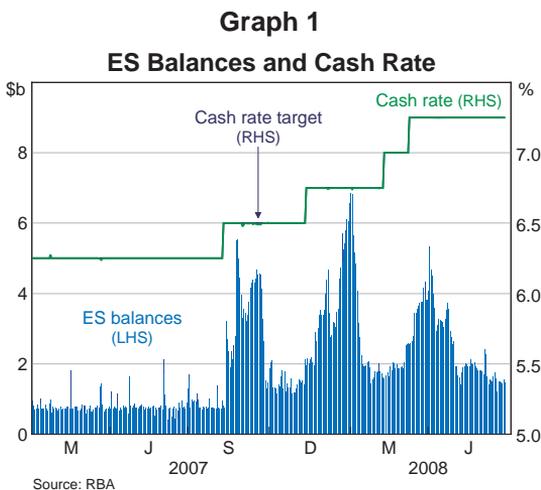
Overall, the Bank has found it advantageous to be as flexible as possible in the way that it manages system liquidity. We operate daily in the market with a relatively wide range of counterparties and over a wide range of maturities. This has been particularly beneficial over the past year, as it has allowed the Bank to respond in a timely way to emerging pressures in financial markets.

Market Operations during the Credit Turmoil

The root causes of the credit turmoil and its transmission through the financial system over the past year have been discussed extensively elsewhere. Here I will just focus on its effect on the Australian money market and the Reserve Bank's operational response.

As banks became less certain of their own funding requirements and less confident of the credit profile of their counterparties, the interbank borrowing markets became quite tight. Banks were more inclined to hold onto cash, both because of an increased unwillingness to lend it, but also reflecting a concern about their ability to obtain funding themselves from the market in the future should they require it. Although this was most evident in term markets, where borrowing rates increased sharply, the tightening of credit limits and the generally precautionary attitude meant that ES balances were less easily recycled in the overnight cash market. The effect was the demand curve for ES balances shifted out.

The Reserve Bank's initial response last August to this increase in demand was to increase the supply of ES balances, from the level of \$750 million which had prevailed for a number of years to more than \$5 billion (Graph 1). If the Reserve Bank had not increased the supply, the



cash rate would have risen above the target set by the Reserve Bank Board as financial institutions bid harder for funds in an attempt to increase their cash balances. Because of the framework for monetary operations, in particular the fact that we deal in the market every day, the Bank was able to very quickly gauge the extent of the increased demand for cash and react accordingly.

As the demand for cash in the market has ebbed and flowed throughout the past year, the Bank has continued to vary the supply of ES balances. Since August 2007, ES balances have averaged almost \$3 billion, peaking at \$6.9 billion at the end of December 2007. ES balances have generally increased approaching the end of a quarter as institutions have sought to hold more cash on their balance sheets through the quarter end. This phenomenon had been evident prior to the credit turmoil but has been particularly accentuated over the past year. Reflecting the improved sentiment in financial markets, ES balances have tended to decline over recent months and are currently around \$1.5 billion. It would appear that the market is now comfortable with this level of liquidity in the cash market. It is higher than that observed in previous years reflecting the desire, on average, to carry larger cash balances than in the past.

Throughout the period, the demand for ES balances has fluctuated quite considerably and the Bank has adjusted supply accordingly. On the whole, the Bank's ability to gauge the extent

of these fluctuations in demand has been successful as the cash rate has continued to trade at, or close to, the target. Indeed, the cash rate has only deviated from the target on nine days and by no more than 2 basis points (Table 1).

Table 1: Deviations from Cash Rate Target
Number of days

	Basis point deviations					
	-2	-1	0	1	2	3
2002/03	0	27	223	3	0	0
2003/04	0	0	250	5	0	0
2004/05	0	0	253	0	0	0
2005/06	0	0	253	0	0	0
2006/07	0	2	248	0	0	1
2007/08	1	8	237	0	0	0

Source: RBA

However, beyond simply adjusting the supply of settlement balances, recent events have made it clear that, in central bank operations, the manner in which these balances are provided to the market can also be important.

The range of institutions with which the central bank is willing to deal in its market operations can be relevant in determining how well cash balances are distributed within the system during periods of market stress. Permitting a wide range of institutions to bid directly for central bank funding makes it more likely that liquidity is directed to where it is most needed. The range of institutions eligible to deal with the Reserve Bank is quite broad and extends beyond banks and other ES account holders to include, for example, securities dealers and nominee companies.

While the Bank deals with a wide range of counterparties, the credit risk the Bank incurs through its counterparty exposures is mitigated by three factors: the quality of the collateral, the fact that it only accepts ‘third-party’ collateral and the margin or ‘haircut’ taken on that collateral.

Over the past 10 years or so, the Bank has gradually expanded the range of securities which it is willing to accept as collateral. In general, these changes had been prompted by the evolving nature of the debt markets in Australia. Specifically, as the stock of Commonwealth Government securities (CGS) has fallen, the Bank has needed to accept other highly rated collateral. Securities issued by the borrowing authorities of State and Territory governments became eligible collateral in 1997, the AAA-rated Australian dollar debt of certain supranationals became eligible in 2000, while those of foreign governments and agencies with government guarantees, as well as bank bills and certificates of deposit issued by authorised deposit-taking institutions (ADIs) became eligible in 2004.

The Bank also draws a distinction between securities to which its counterparty is related and those to which it is not. Collateral is only effective as protection against counterparty default if its credit quality is unrelated to the counterparty. Thus, while the Bank is prepared to accept as

collateral bills and certificates of deposit from any ADI, an ADI dealing in repurchase agreements with the Reserve Bank cannot offer its own securities, or those of a related party, as collateral.

When lending cash against the receipt of collateral, the Bank always imposes a margin or ‘haircut’ on its counterparty. For the securities listed above, the margin has been 2 per cent.⁵ That is, for every \$100 lent by the Bank, securities worth \$102 need to be pledged as collateral. If, during the term of the repo, the security declines in value, the counterparty is required to post additional collateral.

From mid September 2007, the Bank further expanded its list of eligible collateral by accepting securities with a remaining term to maturity longer than 12 months as collateral on repos secured by ADI debt. These securities are subject to minimum credit-rating requirements and margins as high as 9 per cent.

With the market for securitised debt becoming particularly dysfunctional, the Bank announced that from early October 2007, residential mortgage-backed securities (RMBS) and asset-backed commercial paper (ABCP) would also be eligible collateral. In addition to being of the highest credit quality (AAA-rated and P-1 rated, respectively), the Bank only lends funds against these securities to the extent that at least 90 per cent of the assets backing them are ‘full-doc’ mortgages. Furthermore, a margin of at least 10 per cent is imposed. The RMBS and ABCP can be issued by both authorised deposit-taking institutions (ADIs, which are banks, building societies, credit unions) as well as non-ADIs. The securities need to be vetted by the Bank’s Risk Management Unit before being deemed to be eligible collateral.

In the case of asset-backed securities, what constitutes a related party is less obvious than in the case of a bank bill. Most ABCP programs will have a liquidity provider, with the adequacy of that liquidity support being a key determinant of the program’s credit status. For this reason, the Bank does not accept ABCP as collateral from a counterparty if that counterparty is the liquidity provider or any other party related to the program.

For RMBS, the credit rating is attributable to the quality of the underlying mortgages and the degree of subordination ceded to the senior tranche. However, there are external parties which, to varying degrees, provide support to the trust issuing the securities or to the underlying mortgages. These can range from institutions which have insured the pool of mortgages to entities which act as swap counterparties to the trust to help align the interest rate profile of the underlying mortgages with that structured into the RMBS.

While accepting that these forms of support can often be tangential to the credit quality of the RMBS, from the Bank’s point of view, we wish to have a very simple framework for assessing relatedness. For that reason, the Bank will not, in the normal course of events, accept RMBS as collateral when the counterparty has sponsored the trust issuing the securities or sold mortgages which it has originated into the trust. However, as long as the security meets the Bank’s eligibility criteria, it can be used by any non-related party as collateral.

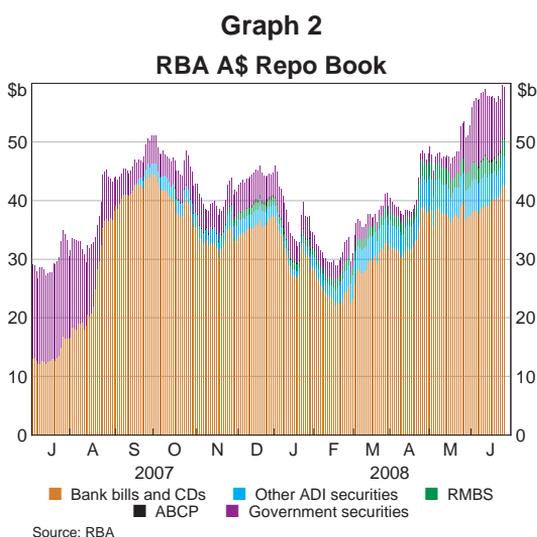
Separate from this day-to-day dealing, the Reserve Bank has been working with APRA and market participants to strengthen arrangements for dealing with extreme market disruptions. In

⁵ The full list of eligible collateral and details of the margin requirements are available on the Bank’s website. Available at <http://www.rba.gov.au/MarketOperations/Domestic/eligible_securities.html> and <http://www.rba.gov.au/MarketOperations/Domestic/OperationalNotes/open_market_operations.html#margin_maintenance> respectively.

such circumstances, the Bank would be willing if an institution is experiencing serious funding difficulties to provide funds against RMBS collateral to which it is 'related'. Reflecting that, both the Bank and APRA have encouraged depository institutions to package residential mortgages they are retaining on their balance sheets into a securitised form as a means of accessing contingent financing from the Bank. To date, eight institutions have created these 'self-securitised' RMBS and a number more are in the process of doing so.

In their transactions with the Reserve Bank, counterparties are required to bid separately for repos backed by 'general collateral' (Commonwealth Government, semi-government and supranational securities), ADI paper, RMBS and ABCP. In this way, the Bank retains control over the composition of its collateral holdings. We rank the bids separately according to the type of collateral presented and prices tend to vary depending on the nature of the collateral.

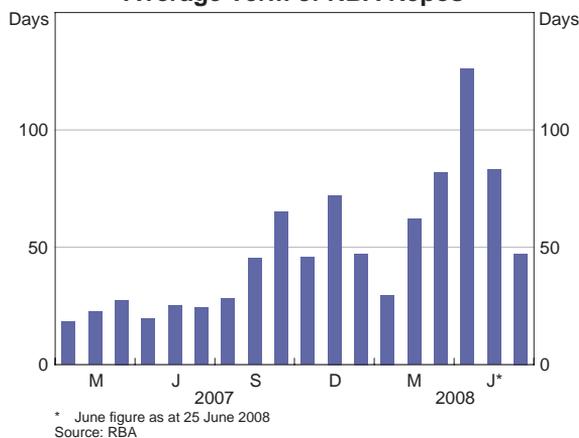
Throughout the past year, the composition of the Bank's collateral has altered significantly. Counterparties have always been prepared to pay a higher interest rate for repos secured by private paper than those secured against general collateral. During the period of market turmoil, when yields on private securities in the market rose sharply, institutions were able to purchase bank bills in the market and repo them to the Bank at a rate which, though higher than the rate on general collateral, was still cost effective. The Bank adjusted the structure of its repo portfolio in response to this shift in demand in a way which was helpful to the market for private debt securities. As a result, at various stages throughout 2007/08, as much as 90 per cent of the Bank's collateral holdings were in ADI paper, compared with an average of around 50 per cent over 2006/07 (Graph 2).



Since their introduction last October, the Bank's holdings of RMBS and ABCP have been reasonably low. Outstanding repos in these securities have never been more than \$3 billion, compared to a total repo portfolio of between \$30 billion and \$60 billion. Largely, this is a function of how often these securities have been offered to the Bank in its market operations. That is, the Reserve Bank is certainly no less inclined to lend funds against asset-backed collateral than against other asset types. That there has not been more RMBS and ABCP offered to the Bank in large part reflects the fact that the Bank's counterparties do not tend to hold a large amount of these asset types on their balance sheets.

In the past year, the Bank has not only varied the composition of its collateral as market conditions have warranted, it has also varied the maturity of its repurchase transactions quite

Graph 3
Average Term of RBA Repos



significantly (Graph 3). Particularly at times when term markets for bank funding have become particularly stressed, the Reserve Bank has signalled that it is willing to deal for longer terms so as to provide greater certainty of funding for counterparties and encourage liquidity in the underlying market for bank paper. Around the middle of April, when tensions in the market were around their peak, the Bank nominated a preferred term of around one year and accepted some approaches at that maturity, including in RMBS.

Throughout this period, the Bank has made comparatively little use of foreign exchange swaps in managing domestic liquidity. This is in contrast to the previous couple of years, where the Bank held significant amounts of foreign currency which it had borrowed under short-term swaps. These assets were held to match the large deposits placed with the Bank by the Government and by the Future Fund. As the Future Fund began to invest its money outside the Bank in the second half of last year, the Bank accommodated this decline in its balance sheet by allowing its swaps position to progressively roll off. More recently, as the size of the Bank's balance sheet has begun to increase with greater Government deposits, the Bank has chosen to match this with an expansion in its domestic repo portfolio. This reflects a conscious decision by the Bank to provide an increased level of support to the domestic money market through the period of the turmoil. As a result, the Bank's repo portfolio is now larger than it has ever been and, approaching \$60 billion, is almost double its size of a year ago.

Conclusion

The framework for the Reserve Bank's market operations has been very flexible and has served us well. The fact that the Bank deals daily with a wide range of counterparties across a wide range of maturities allowed it to respond rapidly to the tensions in the domestic money market that resulted from the turmoil in global credit markets. The pool of collateral that the Bank is willing to accept in its operations has evolved over the years in response to market developments. Last year, it was further broadened, in part to address dislocations in the domestic credit market and in part as a natural progression along the path that had been followed previously. The Bank is continually reviewing this aspect of the operating framework to ensure that it is consistent with the evolving nature of the domestic financial market. ❖