

The Repo Market in Australia

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Repurchase agreements (repos) are a financing instrument widely used by holders of debt securities and play an important role in assisting the smooth functioning of debt markets. Although akin to secured financing, repo rates have recently tended to trade above those on unsecured borrowings. This article outlines the structure of the Australian repo market and considers recent trends in the pricing of repos relative to other short-term interest rates.

Introduction

Repos are frequently used by holders of debt securities to fund their positions. They play an important role in assisting the smooth functioning of debt markets and are the main instrument used by the Reserve Bank to undertake its domestic market operations. This article outlines the structure of the Australian repo market based on a recent survey by the Reserve Bank and considers recent trends in pricing.

Repurchase Agreements

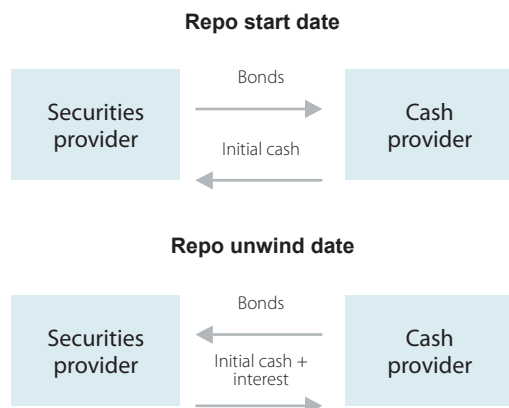
A repo is an agreement between two parties under which one party sells a security to the other, with a commitment to buy back the security at a later date for a specified price (see Figure 1).¹ The difference between the sale and repurchase price reflects the rate of interest to be earned by the cash provider.

While repos are similar to secured loans in an economic sense, a fundamental distinction is that title to the security passes to the cash provider for the duration of the repo. The standard legal documentation for repo trading, both in Australia

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1 The party that sells a security with an undertaking to repurchase it in the future is said to have contracted a repo. The counterparty (the purchaser of the security) is said to have contracted a reverse repo. The repo counterparties can be called securities providers and cash providers respectively.

Figure 1
Structure of a Repo



Source: RBA

and internationally, is a Global Master Repurchase Agreement (GMRA).

Repos can be contracted for various maturities, from overnight to longer terms.² Parties to these 'term' repos will agree on the maturity date at the inception of the transaction. In contrast, 'open' repos have no defined maturity date, with the interest rate and term being renegotiated each day until the

2 Additionally, institutions that hold Exchange Settlement (ES) accounts with the Reserve Bank are able to transact *intraday* repos with the Reserve Bank. In such a repo, both the sale and repurchase occur on the same day. Intraday repos carry no interest charge and are used to provide ES account holders with temporary funds with which to settle their real-time gross settlements (RTGS) payments.

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parties to the trade agree to let it mature. Within the Australian market, most repos are contracted on an open basis.

While repos can be negotiated against a specific security, most are contracted against a class of securities. In the domestic market, a repo against general collateral (GC) means the cash provider is willing to take any government-related security (see Table 1). In addition, throughout the term of a repo, the entity which sold the securities (the securities provider) can substitute other GC-eligible securities against those initially delivered. (The market convention allows one substitution per week, though in its dealings with the market the Reserve Bank accommodates unlimited substitutions.) Alternatively, for open repos, when one party wishes to substitute securities, the existing repo is likely to be matured and a new repo with the same party undertaken.

The convention within the Australian market is to distinguish between those government-related securities which are most liquid (Treasury bonds and semi-government benchmark bonds) and those

which are less actively traded. The former qualify as GC1 and generally trade at lower repo rates than those securities classified as GC2. In its dealings with the market, the Reserve Bank draws no distinction between the different types of government-related securities.

Since the price of the forward (or unwind) leg of a repo transaction is set in advance, the cash provider is only exposed to changes in the value of the security if the counterparty defaults on the forward transaction. To limit the potential exposure to counterparty default, the cash provider may demand a margin (or 'haircut') on the security's value. For instance, when purchasing securities under repo in its domestic market operations, the Reserve Bank discounts the value of each security by between 2 and 10 per cent, with the size of the margin depending on the credit, price and liquidity risk characteristics of the security. If, during the life of a repo, the value of the securities changes by a sufficient amount, either party may make a margin call (or, equivalently, ask for the repo to be repriced), thereby realigning the cash value of the repo with the value of the securities. Within the

Table 1: Government-related Securities Eligible for Repo in the Australian Market

	AFMA market convention		Eligible for GC repo with RBA
	GC1	GC2	
Commonwealth Government Securities (CGS)			
– Treasury notes		✓	✓
– Treasury bonds	✓		✓
– Treasury indexed bonds		✓	✓
State and territory government securities (semis)			
– Promissory notes		✓	✓
– Benchmark bonds	✓		✓
– Non-benchmark bonds		✓	✓
Supranational, foreign sovereign and Agency debt securities^(a)			
		✓	✓
Government Guaranteed Debt Securities^(a)			
		✓	✓

(a) Certain other criteria (such as credit ratings) determine the eligibility of these securities.

For details, see <<http://www.rba.gov.au/mkt-operations/tech-notes/eligible-securities.html>>.

Source: RBA

Australian market, there is no fixed convention on the trigger for making a margin call. In the case of the Reserve Bank, movements in the security's value of more than 1 per cent trigger such a call. For repos contracted on a tri-party basis, it is the responsibility of the tri-party agent to value the securities and determine whether margin is owing (see Box A).

The Structure of the Domestic Repo Market

The repo market plays a significant role within the domestic financial market. For investors managing large or varying cash balances, repos offer a lower-risk alternative to other money market instruments. By holding title to securities, the cash investor's exposure to their counterparty is significantly reduced.

Repos are the main instrument used by the Reserve Bank in its domestic market operations and, as the Bank is usually buying securities at these operations, it typically takes the role of cash provider as per Figure 1. Through these operations, the Bank alters the supply of Exchange Settlement (ES) funds so as to keep the cash rate as close as possible to the Board's target for monetary policy. Buying securities under repo provides the Bank with a low-risk instrument for market operations and allows greater flexibility than outright security purchases because repo terms may be adjusted to manage future cash flows and alter the projected supply of ES funds (Baker and Jacobs 2010).

Holders of debt securities can use repos to manage their short-term funding requirements. Selling via repo allows them to raise liquidity without having to sell assets outright, thereby maintaining their positions in the securities. Investors can also use repos as a means to enhance returns in a securities lending portfolio (see below) or as a source of leverage.

Repos also play an important role in arbitrage trades that help align securities with the derivatives that are priced against them. For example, an investor who thought that bond futures were overpriced relative to the contract's reference bonds could sell

the futures contract and purchase the bonds in the spot market, funding that purchase via a repo which matures at the time of futures expiry.

More generally, a well-functioning repo market promotes liquidity within securities markets. Those dealers who act as price-makers in the outright market for various debt instruments will use repos to manage both their 'long' and 'short' positions (see Box B).

Most repo transactions in the domestic market are collateralised with government-related securities. The Australian Financial Markets Association (AFMA) 2009/10 survey, which covered ten dealers, reported average outstanding repos in government-related securities of \$66 billion. The survey only identified \$10 billion in outstanding repos against private securities (with around half of those being contracted with the Reserve Bank).

To better gauge the structure of the repo market, the Reserve Bank surveyed 17 securities dealers on their institutions' aggregate repo positions against government-related securities as at end July. The survey also sought information on the types of counterparties with which these dealers dealt (Table 2).³

The survey results show respondent institutions had raised \$54.3 billion in cash (by providing securities to the market) in late July while simultaneously providing \$55.5 billion in cash to the market (by receiving securities). The repo positions between respondents shown in the first line of Table 2 were substantial but these figures may partly reflect the same securities being passed among the surveyed institutions.⁴

3 As of July 2010, the seventeen price-makers in government-related securities on Yieldbroker DEBTS (an electronic trading platform) were ANZ Banking Group Limited, Bank of America Merrill Lynch, Barclays Capital, BNP Paribas, Commonwealth Bank of Australia, Citigroup, Credit Suisse, Deutsche Bank, JP Morgan, Macquarie Bank, NAB, Nomura, Royal Bank of Canada, RBS PLC Australia, TD Securities, UBS and Westpac. Subsequently, in October 2010, HSBC became the eighteenth price-maker on Yieldbroker.

4 The respondents' positions are identical because the cash provided by one respondent is collateralised with stock provided by another.

Box A

Tri-party Repo

When negotiating a repo against a class of securities (such as government bonds), the two parties will generally only need to agree on the interest rate, the cash value and the maturity of the trade. Only subsequent to the deal being struck will the parties confirm the precise security (or securities) which are to be delivered in settlement of the repo and the value to be attached to them. Settlement of the security transaction can then take place.

In a tri-party repo, while the terms of the transaction are still agreed bilaterally, the two parties instruct an agent to effect settlement. The exchange of securities takes place over the books of the agent, who transfers the securities between custodial accounts held by the two parties. While the exchange of cash can also take place through accounts held with the agent, this need not be the case.

It is the responsibility of the agent to ensure that the securities meet any eligibility criteria that the cash investor has specified. As well, the agent will independently price the securities and ensure that their value remains sufficient throughout the life of the repo.

For cash investors in repo, a tri-party arrangement may offer significant administrative and operational benefits, as they are no longer handling individual securities. For securities providers, a tri-party arrangement may make it easier for those with a large number of small-denomination security holdings to fund their assets via repo. Tri-party agents may also offer collateral optimisation tools, such that an investor funding a variety of assets through multiple counterparties (each with differing eligibility criteria) can allocate their securities in the most efficient manner. For the securities provider,

these sorts of benefits can offset any increase in custody and service fees levied by the agent.

It is only recently that any repos within the Australian market have been contracted under tri-party arrangements. Going forward, it is anticipated that most tri-party activity will occur in asset classes which have not previously been funded to a great extent via repo, such as corporate bonds and equities. Potentially, the existence of a tri-party market may encourage broader use of repo as a money market instrument, including by offshore investors in Australian dollar securities.

Internationally, tri-party repo has a longer history, with most repos in the US market having been contracted on a tri-party basis for some years. However, tri-party repo in the United States had a unique design and the experience of that market during the financial crisis has prompted the Federal Reserve to recommend several changes to how the tri-party repo market operates. Formerly, all US dollar tri-party repo trades (regardless of maturity) would be ‘unwound’ each morning on the books of the agent – that is, the cash would be returned to the investor’s account and the securities to the borrower’s account. At the end of each day, the collateral would be reset. This practice gave the cash borrower considerable flexibility in trading and managing their security holdings, but made them reliant on a large amount of intraday credit from the tri-party agent. In turn, the cash investor was left with sizeable intraday credit exposure to the agent. Going forward, tri-party repo trades in the United States will only unwind at maturity, as is the case elsewhere, including for Australian tri-party repo. ✦

**Table 2: Market Value of Outstanding Repos
in Government-related Securities**
As at 28 July 2010, \$ billion

Counterparty	Cash provided to respondents	Securities provided to respondents
Respondent institutions	29.4	29.4
Onshore institutions		
– Non-respondent onshore banks	3.4	0.4
– RBA	16.6	0.4
– Other (incl nominees, funds)	1.7	17.5
Offshore institutions		
– Government/central bank	2.3	2.7
– Other (incl banks, nominees, funds)	0.9	5.1
Total repos	54.3	55.5

Source: RBA

The survey results confirm the important role of the Reserve Bank in the domestic repo market, providing \$16.6 billion of cash to survey respondents as at late July.⁵ The size of the Bank's position in GC repo can be quite variable, often moving between \$10 and \$25 billion, with the swings largely driven by the cycle of payments and receipts of the Australian Government.

The survey also highlights that onshore institutions outside the banking sector sell a considerable volume of securities under repo. The \$17.5 billion in cash received by these entities mainly reflects nominees and domestic investment funds approaching dealers to contract GC repo.⁶ These entities frequently have a mandate to reinvest the funds in higher yielding short-term instruments. To a certain extent, this activity will also reflect repo dealers approaching these entities to borrow specific securities to cover their own short positions. Offshore institutions are also shown to be net sellers of securities under repo.

While Table 2 shows the respondent institutions as a group to be net lenders of just \$1.2 billion cash, each respondent also holds a portfolio of government-related securities associated with its role as a securities dealer. These securities are also available for repo. At the time of the survey the respondents held, in aggregate, a net long position of \$22.7 billion in these securities (see Box B). In addition, as many of the respondent institutions are banks, they may also be holding government securities as liquid assets for prudential purposes. Such holdings would not ordinarily create a demand for repo funding and are distinct from the positions of their bond desks.

Combining the net long positions of the respondents' securities dealers and the net provision of \$1.2 billion cash shown in Table 2, the domestic survey respondents are shown in aggregate to be a major provider of cash against the securities available to the repo market. This is quite different to other developed repo markets where securities dealers obtain a significant proportion of their funding from repos with money market funds and other cash investors.

⁵ The Reserve Bank also had outstanding GC repos worth \$3 billion with non-respondents as at 28 July 2010.

⁶ Nominees are companies that hold securities on behalf of other investors.

Box B

Price-makers in the Government Bond Market

In recent years, there has been an expansion in the number of institutions that act as price-makers (or dealers) in the domestic bond market. Eighteen institutions now contribute prices to Yieldbroker (an electronic trading platform), principally for Commonwealth Government Securities (CGS) and the securities issued by state and territory borrowing authorities (semis).

Purchasing securities from their customers or from the issuer gives these dealers a 'long' position in those securities. Dealers are able to carry these securities as inventory on their books and finance them by selling the securities under repo. Similarly, where dealers have arranged to sell a security to a customer and it is not in their inventory, they can use a repo to borrow the security to deliver to the customer, thereby maintaining a 'short' position in the security.

To complement its repo survey, the Reserve Bank surveyed the same institutions on their aggregate positions in government-related securities, specifically those positions arising from their role as price-makers (Table B1).

The results show that, as a group, the bond dealers held significant long positions in both CGS and semis in late July. While these long positions imply a demand for funding of over \$40 billion in the repo market, covering their short positions via repo would see these institutions providing cash to the market. Thus, it is the aggregate net position (\$22.7 billion) that represents the overall demand for cash arising from the bond dealers at the time of the repo survey. ✎

Table B1: Price-makers' Positions in Government-related Securities

As at 28 July 2010, \$ billion

	Long positions	Short positions	Net positions
CGS	18.2	8.9	9.3
Semis	19.0	8.5	10.5
Other	3.6	0.7	3.0
Total	40.9	18.1	22.7

Source: RBA

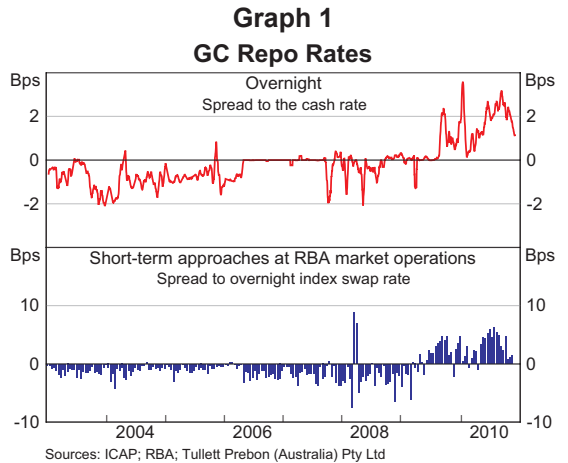
The disaggregated data from the survey suggest that around half of the cash provided by respondent institutions is used in repo with other respondents, while around half represents these institutions providing cash to their own bond desks. This 'internal funding' provides a significant source of cash that would otherwise need to be found in the broader repo market.

Recent Trends in the GC Repo Market

For most of the previous decade, short-term GC repo rates have generally traded below the cash rate, consistent with the fact that repos represent secured borrowings while the cash rate is the rate that applies to unsecured overnight borrowing. Since mid 2009, however, there has been a noticeable increase in short-term repo rates relative to unsecured rates. This is evident in both the rates on overnight repos contracted among market participants and in the approaches made to the Reserve Bank in its market operations (Graph 1).

These developments have occurred against a backdrop of greatly expanded issuance in government-related securities and an increase in the number of institutions operating as price-makers within the bond market. Frictions within these institutions appear to play a significant role in explaining the upward pressure on repo rates.

Ultimate responsibility for funding a financial institution rests with its treasury area. A bond desk is generally expected to fund its inventory via the repo market. As highlighted by the survey results, the domestic banking sector is the major source of cash provided to the repo market, both through internal transactions between the same institution's treasury and bond desks, and through external transactions with other institutions' bond desks. Moreover, within many organisations, there are often significant disincentives working against an over-reliance on internal funding. Most commonly, a high internal transfer rate (cost of funds) is imposed. These internal



funding rates, sometimes well in excess of the cash rate, can effectively create a ceiling for the rates bond desks are willing to pay for external funding.

This situation is compounded by the different timing constraints the funding areas face. Within the Australian market, repo trading (for same-day funding) begins winding down shortly after midday and indeed, some participants face internal pressure to fund on a one day-ahead basis. In contrast, trading in the unsecured cash market continues until the end of the settlement day, although an institution's ability to borrow in the unsecured market will be constrained by the credit limits its counterparties have available with them. Conscious of these limits, treasuries can often be hesitant to lend surplus funds until quite late in the day, wary of the possibility of unforeseen funding requirements. This creates a situation in which, for a given level of ES balances, the supply of funds appears to be tighter earlier in the day (when the repo market is clearing) than toward the end of the day (when the treasury areas square up via the cash market).

It is also noteworthy that the positive spread between repo and unsecured rates domestically has coincided with similar trends offshore, such as in the markets for US dollars and British pounds. In those markets, there appears to be even greater fragmentation between participants in the repo and

unsecured cash markets than exists in Australia. In the United Kingdom, many financial institutions active in the repo market do not have access to unsecured funding, either for regulatory reasons or because of their lower credit standing. In the United States, the large expansion in the supply of reserve balances has curtailed activity in the unsecured market, as the institutions that earn interest on balances held at the Federal Reserve are no longer active lenders of cash.

The Repo Market for Specific Collateral – the ‘Specials’ Market

Specific collateral (or ‘specials’) repos are used by market participants needing to borrow particular securities. In order to access a specific security via repo, the party borrowing the stock may be willing to earn a lower rate of interest on their cash investment than is available on a general collateral repo. For those who hold the stock outright in their portfolio, lower rates can act as an inducement to make the stock available for repo, as they represent a cheap source of financing.

The differential between the interest rate on general collateral and the interest rate on a specific security provides an indication of how special it is. The greater demand there is to borrow a security and/or the less willing investors are to lend it, the more the repo rate on the security will fall before the market clears and all parties are able to settle their positions.

When a party is unable to deliver a debt security in settlement of a trade, the convention within the Australian market is for settlement to be rescheduled for the next business day at an unchanged price. In this way, the party who has not received the security is effectively borrowing overnight funds from the other party at a zero interest rate. This means that zero will act as the lower bound for repo rates. This is usually sufficient disincentive for failing to deliver securities, though markets in other parts of the world

have introduced specific fails charges to ensure that the market continues to clear.⁷

In Australia, no specific fails charge is applied within the bond market. To help prevent failed trades, the Australian Office of Financial Management (AOFM), which issues Commonwealth Government Securities (CGS) on behalf of the Australian Government, introduced a securities lending facility in 2004. Through this facility, the AOFM is able to create additional amounts of each CGS, which dealers are then able to purchase via a repo with the Reserve Bank. At the same time, dealers are required to sell an equal amount of GC to the Bank in an offsetting repo. The repo rate on the GC repo is set equal to the Bank’s target for the cash rate, while the rate for the CGS repo is set 300 basis points lower. (However, when the cash rate falls to 3 per cent or less – as it did in 2009 – the rate on the CGS repo is set at 25 basis points.) While such a penalty means that dealers will only access the AOFM facility as a last resort, using the facility will always be preferable to failing. Since its inception, the facility has been successful in limiting the incidence of fails within the CGS market.⁸

The AOFM facility was most heavily utilised during 2008, when trading in the secondary market for CGS became quite illiquid. The financial crisis not only increased the demand for risk-free assets such as CGS, but also saw many securities providers retreat from the lending market because of elevated concerns

7 When interest rates are very low, the difference between the zero interest rate associated with failing and the prevailing policy rate may be so small that it is necessary to introduce a specific fails charge. This maintains sufficient disincentive for failing to deliver securities. See Treasury Market Practices Group and Securities Industry and Financial Markets Association (2009).

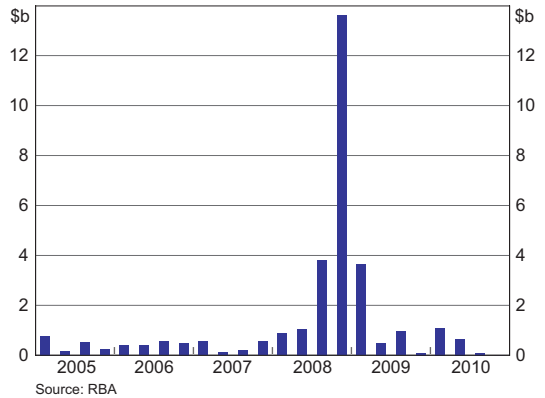
8 The AOFM facility is also available on an intraday basis. For intraday repos, no interest is payable or owing on either the CGS or the GC repo. The intraday facility is designed to resolve a chain of settlements, such as a ‘circle’, which would otherwise lead to a series of fails within the market.

about counterparty risk. As a result, repo rates on many CGS traded persistently below rates on general collateral and dealers accessed the AOFM facility with greater regularity (see Graph 2 and Graph 3). Although the AOFM facility acts to ensure that settlement of CGS trades can take place, when dealers are routinely required to cover their short positions at a 300 basis points penalty, they soon retreat from those positions. Consequently, by mid 2008, some dealers were no longer willing to make a two-way market on all CGS – that is, they were only willing to bid for, not offer, certain securities.

The increase in the supply of CGS to fund the Government’s fiscal position has improved the liquidity of the secondary market for outright trading and has also relieved the pressures within the repo market. Most lines of CGS now regularly trade as general collateral, though pressures can emerge from time to time in certain lines.

A specific collateral market also operates for other debt securities. In a similar fashion to the AOFM, the state borrowing authorities are also willing to temporarily expand the supply of semis via repo in order to assist dealers in meeting their settlement obligations. This, in turn, encourages the dealers to maintain a liquid market for investors. ✎

Graph 3
AOFM Stock Lending Facility
Face value borrowed, quarterly



References

Baker A and D Jacobs (2010), ‘Domestic Market Operations and Liquidity Forecasting’, RBA *Bulletin*, December, pp 37–43.

Treasury Market Practices Group and Securities Industry and Financial Markets Association (2009), ‘US Treasury Securities – Fails Charge Trading Practice’, Trading Practice, 31 March. Available at <<http://www.ny.frb.org/tmpg/pr033109.pdf>>.

Graph 2
Repo Rates on Specific CGS
Spread to 1 week GC repo

