Australian Financial Markets Association

Repurchase Agreement (Repo) Margining Best Practice Guide

April 2014

Contents

1. Preamble

It is default practice in the Australian Repo market to make margin calls, settled via either the transfer of cash or securities, in preference to repricing transactions to cover exposures between the parties.

This guide describes market best practice in relation to repurchase agreement margin call arrangements.

This guide should be read in conjunction with the [AFMA Reciprocal Purchase Agreements Conventions](#) and with the [AFMA Repurchase Agreement Trade Matching Best Practice Guidelines.](#)

2. Application and enforceability of the guidelines

These margining guidelines have been prepared by the AFMA Repo, Collateral Operations and Documentation Committees in consultation with AFMA members, and are intended to assist a financial market participant that engages in repo transactions ensure that appropriate risk mitigation policies and procedures are in place, thereby optimising the overall risk management of repo products.

AFMA acknowledges that members may also need to consider applicable rules in other jurisdictions and their own internal policies in applying these best practice guidelines, which do not replace the statutory obligations that could apply.
AFMA is not a regulatory body and does not have supervisory or disciplinary powers. Accordingly, adherence to these guidelines is a matter for each AFMA member to determine having regard to its own business circumstances. AFMA will not seek to enforce the guidelines or take action against a member who does not adhere to the guidelines.

AFMA will promote these guidelines to its members through appropriate forums, including publication on the AFMA website. The guidelines will be reviewed from time to time to ensure that they remain relevant and useful.

AFMA recommends that its members adhere to these guidelines and incorporate the principles into their business processes.

3. Matters to be agreed between parties prior to engaging in repo activities

Market participants are encouraged to bilaterally agree certain criteria before the commencement of trading activities. This will serve to minimise margin and collateral disputes.   Specifically, participants should agree:

a) A source or sources for prices that is available to both parties to be used to calculate collateral value and/or in the event of a margin dispute.

b) Rate basis (default mid-rate, or bid) to be used in the valuation of collateral.

c) Minimum transfer amounts and/or soft margin thresholds.

d) Margin credit criteria: Security issues or classes of security that will be acceptable in margin transfers

e) Applicability of initial margin or haircuts to margin securities.

f) Deadlines for agreeing and delivering cash margin and margin securities.

g) Interest rates applicable to cash margin.

4. General operating procedures

Market participants should follow general operational procedures as follows:

a) Net exposure should be calculated at least once every business day.

b) Exposure is to be based on the net open repo trade position between the parties.

c) Margin calls should be made and agreed upon by 11:00 am Australian Eastern Standard Time (AEST) except in circumstances where an operations team is located in an offshore jurisdiction (other than New Zealand), in which case all margin calls should issue and be agreed by 1:00 pm AEST.

d) Margin calls should be based on the positions at the close of business on the business day before the date of calculation and call (Call Date/CD), including transactions that start on the Call Date. Refer to Section 6.2

e) Margin calls should be calculated at the mid-price, and should take into account any haircuts or initial margin at trade or portfolio level.

f) The party with the exposure is responsible for making the margin call and the party with the advantage should expect to receive a margin call.

g) The party with the exposure is to apply the bilaterally agreed minimum Margin Transfer Amount (MTA) (or soft limit threshold if applicable) before issuing the call.

h) Margin call trade instructions should be matched in the market by 2:00 pm AEST on the CD.

a) Margin securities should be delivered wherever possible on CD+0 and not later than CD+1.

b) Any disputes should be addressed as a same day priority and in line with the deadlines previously mentioned

c) Calls issued to local parties after 11:00am AEST locally or after 1:00pm AEST to offshore parties are to be settled CD+1.

d) It is the responsibility of the collateral provider to recall excess margin collateral.

Guidance:
Margin settlement best practice is CD+0. In circumstances where margin is paid or delivered for value on CD+1 and CD+2, the inclusion of repos up until their Repurchase Date means that margin may be

paid or delivered after the Repurchase Date. The alternative is not to margin for collateral price movements over the last one or two business days of a transaction, which is a greater risk than overextended collateralisation. Any excess margin delivered as a result of this practice will be eliminated in whole or part thereof by the next margin call. Paying or delivering margin for value on CD+0 may not entirely mitigate this, as margin may still be paid or delivered on the day that the underlying transaction exposure is extinguished and is unlikely to then be returned until the next business day. However, CD+0 margin payment will significantly reduce risk.

Delivering margin on a CD+1 or CD+2 basis can result in a circumstance where repo(s) included in the valuation may have already matured.   This notwithstanding, the party receiving the call is obligated to deliver the full margin call. Margin calls cannot be netted across value dates or levels amended in response to intra-day trading. The mark-to-market is always calculated on the position in effect as at close of business CD-1. (refer to section 6.2 for trade inclusion details)

5. Basis and decimal points

All calculations should be made on an actual / 365 day basis and yields rounded to two decimal places unless otherwise bilaterally agreed.

6. Net Exposure

6.1   Calculating Net Exposure

All net exposure *between two parties* represents the amount by which the aggregate exposure of one party exceeds that of the other. Each party's aggregate exposure is determined by summing the outstanding transaction exposures with the other party, and which includes unpaid income and any net margin held or unreturned by the other party. Participants should refer to section 4 of the GMRA used for further clarification.

The calculation of net exposure is based on the assumption that margin called for will be delivered within the agreed timeframe.

Transaction exposure is determined by marking each transaction to market, the calculation of which is contingent upon whether the transaction is subject to an initial margin or haircut. Participants should refer to section 2 of the GMRA used for further clarification.

Interest accruing on cash margin, where the net exposure calculation includes interest accrued on the cash margin up to but excluding the margin delivery date

Guidance:
As a precursor to either making a margin call or responding to same, market participants ideally should have the capability to confirm actual settlement since this then allows and/or validates the

inclusion of new or maturing transactions. Absent this, the net exposure calculation should assume settlement on the Purchase Date and failure on Repurchase Date+1 in recognition that the Australian market assumes actual settlement on the Repurchase Date.

A transaction which fails on its Purchase Date is removed from the following day's calculation of net exposure, and remains excluded until such time that the failure has been remedied by the seller or the transaction has been terminated by the buyer.

Conversely, a transaction which fails on its Repurchase Date will thereafter be included in the calculation of net exposure until the failure has been remedied by the buyer or the transaction has been terminated by the seller, as the transaction will continue to have a transaction exposure.

6.2   Transactions included in the calculation of net exposure

In summary terms the following transactions are included in the calculation of net exposure:

a)   All open activity, including transactions with a Purchase Date that start on the Call Date;

b)   All current term repo transactions;

c)   Coupons (refer section 6.4)

Specifically, the calculation of net exposure should include all transactions between the counterparties for which:

a)   the Purchase Date is today or earlier, and

b)   the Repurchase Date is next business day or later.

Guidance:

In many jurisdictions the calculation of net exposure includes transactions where the repurchase date is today or later, in recognition that settlement failures are more common on the repurchase date and often carry greater risk. This notwithstanding, the Australian experience differs in that settlement failures are an unusual occurrence, and participants generally are comfortable excluding today's Repurchase Date transactions from the calculation. This recognises that firstly, the greater majority of repo transactions in the Australian market are conducted between prudentially regulated banks and that General Collateral represents the primary asset class underpinning the repo. Secondly, it recognises that repo with unregulated entities are a very small component of all repo activities, and are equally underpinned by the highest quality assets, i.e. General Collateral.

6.3   Transactions excluded in the calculation of net exposure

Certain transactions are excluded from the calculation of net exposure:

a)   Transactions that are due to mature or expire before the margin call date.

b)   Transactions that mature on the day on which the margin calculation is made, i.e. CD+0.

c) Forward starting repos, noting however that once the transaction's purchase date represents CD+0 it is from then on included in positions as at CD-1 close of business, and therefore ceases to be a forward starting transaction.

Guidance:

Forward starting repos are not included in the calculation since, if the seller fails to deliver collateral on the purchase date, then provided the buyer has not paid the purchase price to the seller, the buyer's risk is to adverse interest rate movements. This net replacement risk is considerably lower than that represented by the credit risk to which a party is exposed once an exchange of cash and collateral has actually taken place, i.e. the risk of losing the principal and accrued interest. Accordingly, the interest rate risk embodied in forward start repos is best hedged with appropriate interest rate risk management product.

6.4   Coupon treatment

a) Coupon payments are included in the margin calculation.

b) The fixed income dirty price is used to calculate market value.

Guidance:

Market best practice is to monitor forthcoming coupon payments. The application of the coupon value within the margin calculation depends upon the underlying trade types, for example, repo coupon exposure would be calculated differently to coupon on a buy-sell back where the coupon proceeds have already been factored into the end cash proceeds.

The Australian market generally follows the practice where there are 5 business days between coupon record date and pay date. Accordingly, bond lenders will be exposed for that coupon during ex-dividend period until the counterparty pays the coupon claim on the pay date. If the counterparty defaults during the ex-dividend period, then any exclusion of the coupon in the margin calculation will result in exposure to the coupon.

A key advantage of the margin protocol over repricing is that coupon coverage is readily accommodated, whereas with repricing it is not always possible to cover coupon exposure.

7.   Price Source and Valuation

a) Price sources to be used to value collateral, either routinely or in the event of a margin dispute should be bilaterally agreed prior to trading and can be documented in the GMRA.

b) The pricing source should be known and / or available to both counterparties. The point of reference may be a vendor page, or may be internal end-of-day trader marks.

c) The pricing source for calculation of the market value is the closing mid-rate of the preceding business day (CD-1) of the respective electronic trading platform or the brokers screen agreed to by the parties. The middle price assumes that the Buyer and Seller are equally likely to default.

d) Collateral securities are valued at their dirty or gross prices (i.e. including accrued interest), rather than their clean prices. The number of days used in the calculation of accrued interest should be calculated from and including the last coupon payment date up to but excluding the date on which margin is due to be delivered (the margin delivery date). Using this methodology, the market value of collateral securities will include accrued interest up to but excluding the margin delivery date.

Guidance:
Disagreement on the prices used in valuing collateral can be avoided if the sources are listed in the legal agreement between the two counterparties. However, this is not always practicable. The margin caller should use prices which can be reconciled back to one of the key market price sources used in the Australian market, for example, Yieldbroker, Reuters or Bloomberg. It is also recognized that participants would not be expected to agree to an undisputed margin level outside of any bilateral soft threshold that is in place. Note that participants are likely to have much tighter tolerances around these price levels at quarter end when there is commonly the requirement to margin call to zero.

If there is a disagreement on the price proposed by the margin caller and no price source has been specified in the legal agreement, the parties should agree a price or a price source, negotiating reasonably and in good faith.

8. Initial Margin and Haircuts

Initial margins and haircuts may be used to adjust the value of collateral sold in a repurchase agreement in order to anticipate with a reasonable degree of accuracy the loss of value that may be experienced if the collateral has to be liquidated following an event of a default by the counterparty.

The application of initial margin in the calculation of margin calls is different from that of haircuts:
- Initial margin represents a percentage of the purchase price;
- A haircut represents a percentage of the market value of collateral.

Initial margins and haircuts can be agreed in advance of trading and recorded in the legal agreement between parties e.g. in Annex I of the GMRA, or can be agreed ad-hoc at the point of trade and recorded in the confirmation. Once agreed for a particular transaction, the initial margin or haircut should be fixed for the term of that transaction.

9. Minimum Margin Transfer Amounts (MTA's) and soft thresholds

The minimum margin transfer amount is the net exposure that a party is willing to carry in relation to the other party before requiring a margin transfer, the latter assuming application to any net exposure above zero. However, for practical reasons it is generally deemed desirable to avoid the need to transfer de minimis amounts for small net exposures.

The minimum margin transfer amount may be bilaterally agreed. Parties may negotiate based on absolute values or by portfolio percentage. Parties can bilaterally agree to and document a MTA level within the

GMRA. Users of this guide should note that if this option is taken then every time conditions change, the respective Legal departments will need to amend and issue revised copies of the GMRA.

Alternatively a participant may establish a soft threshold, where it decides on a confidential MTA to observe internally but will not formally document that level with the counterparty. By determining a threshold external to the client agreement, flexibility exists to increase, reduce or eliminate the MTA level at any given time, for example, as a result of economic market change or concerns arising over the creditworthiness of the counterparty.

Once the net exposure has exceeded the MTA or soft threshold level, the participant will margin call their counterparty back to zero. For example, if Party A has a $500,000 threshold in place for Party B and today's mark-to-market is $570,000, Party A will submit a margin call to Party B for $570,000.

Guidance:
Repo market participants often opt to margin down to zero at the end of each calendar quarter regardless of any MTA or threshold that may be in place. The right to margin to zero at any given time and specifically at quarter end is commonly documented in the GMRA. This is performed for risk weighted asset calculation purposes and to lower internal capital costs.

10. Monthly Interest on cash margin transfers

a) Interest is accrued on cash margin at a rate indexed to a reference rate agreed between the parties plus or minus an agreed spread. The reference rate generally used in Australia is the interbank overnight cash rate calculated by the Reserve Bank of Australia, as displayed on Reuters screen RBA30 or any other widely published electronic page.

b) Market participants may choose to settle the cash interest between counterparties on a monthly basis.

c) Participants should reconcile and settle the interest with their counterparties in the first week of the following month.

11. Margin Securities

a) The use of both cash and/or securities as margin is acceptable.

b) Counterparties will bilaterally agree details as to the form of accepted margin.

c) Where collateral is to be delivered in the form of margin securities, they shall be either Equivalent Margin Securities or margin securities having value characteristics higher than the underlying repo security or as reasonably acceptable to the counterpart.

d) Parties may bilaterally agree to substitute collateral provided the substitution is effected using equivalent or better Margin Securities.

e) The out-of-the-money party may elect or nominate the securities to be delivered, often subject to funding requirements.

12. Failure of margin to be delivered

a) The failure to deliver margin is an event of default. It is not however an automatic event of default, and accordingly the non-defaulting party is required to serve a Default Notice in order to trigger a default. The non-defaulting party may choose not to serve a Default Notice. This notwithstanding, the defaulting party should continue to use best endeavours to deliver margin at the earliest opportunity.

b) Delayed payments or deliveries of margin from one party should not be set off or netted against margin calls made on the other party on subsequent days. Margin calls should not be netted across value dates, and any practice which postpones the settlement of obligations is strongly discouraged, as is any practice which attempts to eliminate transaction exposures by rolling forward obligations.

c) If a party making a margin call requests the return of margin securities delivered to the other party in response to a previous margin call, and the other party is unable to return those securities despite its best endeavours because of circumstances beyond its control, the GMRA 2011 allows the undelivered margin securities to be substituted by means of payment of a Cash Equivalent Amount (see 4(h) of GMRA 2011).

13. Margin Return

Cash margin and margin securities held by one party are not automatically returned to the other party. It is the responsibility of the collateral provider to recall excess margin collateral

14. Dispute Resolution and Common Issues

a) Margin disputes must be given high priority for resolution and within a suitable time frame to ensure that the call is agreed, matched and settled within the agreed time frames.

b) It is expected that firms engaged in Repo margining activities should have the ability to readily extract a trade file from their margining system, on a regular or ad-hoc basis, to facilitate bilateral portfolio reconciliation in the event of a dispute.

Guidance:

i. *A common reason for a margin dispute is the application of **different revaluation price sources** resulting in inconsistencies in portfolio valuation. The expectation under these circumstances would be that the internal prices applied by the caller can be reconciled back to one of the key market price sources used in the Australian market, for example, Yieldbroker, Reuters or Bloomberg. It is also recognized that participants would not be expected to agree to an*

undisputed margin level outside of any bilateral soft threshold that is in place. Note that participants are likely to have much tighter tolerances around these price levels at quarter end when there is commonly the requirement to margin call to zero. As per 3.a on the pre-trade checklist, it is preferable to discuss the price source with the counterparty prior to trading in order to minimise the number of discrepancies. Price source can be agreed outside of or within the GMRA if preferred.

ii. ***Treatment of coupon in the margin calculation*** *can also cause differences. Refer to section 6.4 for more details around coupon application. Coupon exposure continues to accrue throughout the ex-dividend period regardless of whether the underlying repo matures during this period and accordingly the security lender still has coupon exposure until the coupon pay date (assuming good value date settlement of coupon claim).*

iii. ***Soft thresholds*** *can also cause issues when there are slight differences in prices between counterparties. For example, if the parties agree a soft threshold of $500,000 and the GMRA states the right to margin to $0 at any given time, then one party may calculate exposure and a margin call as $550,000 while the other party may calculate the net exposure as $495,000 which is below the threshold. Irrespective of this difference, the parties still need to agree and potentially settle on a margin call sufficient to reduce the net exposure to approximately $0, since neither party has the right to automatically dismiss a margin call.*

iv. *Differences may also occur when participants do not apply the correct rule for inclusion of **accrued interest**. The market value of the collateral securities should include accrued interest up to but excluding the margin delivery date.*

v. *Discrepancies can occur due to different application of the **trade inclusion rules**. The inclusion of new or maturing transactions should be based on actual rather than assumed settlement. However, this practice requires firms to have the ability to confirm settlement before making or responding to a margin call. Where participants do not have the technical ability to consider 'actual' settlement in their margin reports, it is common place to include repo on legs starting 'today' but to exclude off legs maturing today on the basis that it is assumed that the off leg will settle for good value and any mark-to-market exposure will subsequently drop off same day. In circumstances where participants include repo's where the repurchase date is equal to today, i.e. CD+0, then the counterparty will need to have the ability to include these in their calculation also.*

vi. *A difference in mark-to-market level can simply be due to a **missing trade(s)** – this may be due to a delayed or slow feed into a participant's collateral management system, or incorrect economic fields on the underlying repo, for example, the repo rate. In these cases each party needs to have the ability to swiftly exchange their collateral balance statements and then agree on where the difference lies to remediate.*

vii. *In circumstances where **cash interest** is settled monthly an independent reconciliation by each party should be conducted following each month-end and a final interest amount for the previous month agreed to between the parties.*

15. Glossary

Reference should always be made to the GMRA for the exact definition terms.

Adjustment - The method described in the GMRA to eliminate Net Exposure by terminating a repo and creating a Replacement Transaction for the same date with a new Market Value of collateral calculated at its current market price that is substantially the same as the unchanged Purchase Price (adjusted by an initial margin or Haircut, where one of these apply). In other words, the Market Value of the collateral is adjusted into line with the Purchase Price. The cashflows and collateral transfers of the terminated transaction and the Replacement Transaction are netted where possible, in effect, achieving a Margin transfer. Adjustment is an alternative to margin maintenance. It is designed for sell/buy-backs but can be applied to repurchase agreements.

Cash Equivalent Amount - This is a cash payment that can be called, under the terms of the GMRA 2011, by a party making a Margin call, which has requested the return of Margin Securities delivered to the other party in response to a previous Margin call, if the other party is unable to return those securities, despite its best endeavours, because of circumstances beyond its control. The Cash Equivalent Amount is intended to temporarily eliminate Net Exposure. See 4(h) of GMRA 2011.

Call date (CD) – The day on which a call for Margin is made.

GMRA - The Global Master Repurchase Agreement, which is the master agreement for repurchase agreements published by the ICMA. It can be extended to include sell/buy-backs by attaching the Buy/Sell-Back Annex. The latest edition was published in 2011 and superseded the 2000 edition, which itself superseded the 1995 edition.

Haircut - An agreed percentage discount applied to the Market Value of collateral to fix the Purchase Price at the start of a repo. A haircut is expressed as the percentage difference between Market Value and Purchase Price. In the GMRA 2011, a Haircut applied to the Market Value of collateral securities being delivered as Margin is called a Margin Percentage.

Independent Amount - The term for a Haircut used in ISDA documentation.

Initial margin - An agreed premium applied to the Purchase Price to fix the Market Value of collateral at the start of a repo. An initial margin is expressed as the percentage of the Market Value compared to the Purchase Price. In the GMRA, an initial margin is called a Margin Ratio. An initial margin or Margin Ratio of 100% means no margin.

Margin - The term usually applied to a margin maintenance cash payment or transfer of collateral called and/or made in response to a Margin call to eliminate a Net Exposure.

Margin call – A request to a counterparty to eliminate a Net Exposure.

Margin maintenance - The right to call and the obligation to make cash payments or transfers of collateral in order to eliminate any Net Exposures that arise in a portfolio of repos between two parties.

Margin Percentage - The term used in the GMRA 2011 for a Haircut applied to the Market Value of collateral securities being delivered as Margin.

Margin Ratio - The term for an initial margin used in the GMRA.

Margin threshold - The Net Exposure below which one party will not call a Margin from the other. Once the Net Exposure equals or exceeds this threshold, a Margin is called which is sufficient to eliminate the entire Net Exposure. For this reason, the threshold is often called a minimum transfer amount. Margin thresholds are usually agreed between parties and are therefore reciprocal. The margin threshold defines what is considered to be a material Net Exposure.

Market Value The value of the collateral for the purposes of margin maintenance calculations. Under the GMRA, the calculation by default uses "a generally recognised source agreed to by the parties".

Minimum transfer amount (MTA) – A more common name for a margin threshold. This term emphasises the point that, when Net Exposure reaches or breaches the margin threshold/minimum transfer amount, it should be eliminated. See section 8 also.

Net Exposure - The credit exposure of one party to another on a portfolio of repos documented under the same master agreement. Under the GMRA, Net Exposure is the difference between (1) the aggregate of the Transaction Exposures of one party to the other plus the Net Income due to the first party but unpaid less the Net Margin held by the first party and (2) the aggregate of the Transaction Exposures of the other party to the first plus the Net Income due to the other party but unpaid less the Net Margin held by the other party. If (1) is greater than (2), the first party has a Net Exposure.

Purchase Price - The sum of money paid by the Buyer to the Seller at the start of a repo to buy the collateral. It is equal to the Market Value of the collateral less any initial margin or Haircut.

Repricing - The method described in the GMRA to eliminate Net Exposure by accelerating the Repurchase Date of a repo and entering into a Repriced Transaction for the same date with a new Purchase Price that is calculated by applying the current market price of the collateral to the original nominal value (adjusted by an initial margin or Haircut, where one of these apply). In other words, the Purchase Price is adjusted into line with the Market Value of the collateral. The cashflows and collateral transfers of the terminated transaction and the Repriced Transaction are netted where possible, in effect, achieving a Margin transfer. Repricing is an alternative to margin maintenance. It is designed for sell/buy-backs but can be applied to repurchase agreements. "Repricing" is commonly used as a generic term to describe both Adjustment and the above method.

Repurchase Price - The sum of money paid by the Seller to the Buyer at the end of a repo to buy back the collateral. It is equal to the Purchase Price plus a return for the use of the cash. This term also applies to the accrued value of the cash due to the Buyer on any day during the term of a repo, that is, the Purchase Price plus accrued return up to a particular date.

Transaction Exposure - This is the credit exposure of one party to another on an individual repo. Under the GMRA, Transaction Exposure is the difference between the Repurchase Price on the date of the calculation and the Market Value of the collateral on the same day.

16. Additional references

ICMA European Repo Council (ERC) *Repo Margining Best Practices — 2012*