

ASIFMA–ICMA **Guide on Repo in Asia**



August 2015



Section I - ASIFMA

Laying the Policy and Regulatory Foundation for
Efficient Repo Market Development

Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

Disclaimer

For the avoidance of doubt, the best practices set out in this document are for guidance only and are non-binding. Individual parties should determine their own conduct in light of the prevailing legal, regulatory and commercial circumstances and should always satisfy themselves of the appropriateness or otherwise of following the guidelines set out in this document in any given case.

*Given the continued evolution of market practices, material within this **Guide on Repo in Asia (Section II – Best Practices across the Repo Trade Lifecycle)** that is drawn from the ICMA ERC Guide to best practice in the European Repo Market may not at all times fully reflect updates to that ICMA ERC Guide (the latest version of which is available on the [ICMA ERC website](#)).*



About ASIFMA and ICMA

Asia Securities Industry and Financial Markets (ASIFMA)

[ASIFMA](#) is an independent, regional trade association with over 80 member firms comprising a diverse range of leading financial institutions from both the buy and sell side, including banks, asset managers, law firms and market infrastructure service providers. Together, we harness the shared interests of the financial industry to promote the development of liquid, deep and broad capital markets in Asia. ASIFMA advocates stable, innovative and competitive Asian capital markets that are necessary to support the region's economic growth. We drive consensus, advocate solutions and effect change around key issues through the collective strength and clarity of one industry voice. Our many initiatives include consultations with regulators and exchanges, development of uniform industry standards, advocacy for enhanced markets through policy papers, and lowering the cost of doing business in the region. Through the [GFMA](#) alliance with [SIFMA](#) in the United States and [AFME](#) in Europe, ASIFMA also provides insights on global best practices and standards to benefit the region.

www.asifma.org

International Capital Markets Association (ICMA)

The [ICMA](#) represents financial institutions active in the international capital market worldwide and has around 480 members located in 60 countries. ICMA's market conventions and standards have been the pillars of the international debt market for almost 50 years, providing the framework of rules governing market practice which facilitate the orderly functioning of the market. Since the early 1990's, ICMA has played a significant role in promoting the interests and activities of the international repo market, and of the product itself. The [European Repo Council](#) (ERC), a special interest group established under the auspices of ICMA, represents the major firms active in Europe's cross-border repo markets.

www.icmagroup.org



Contents

Introduction	8
Understanding repurchase agreements and the repurchase market	8
Section I - ASIFMA	10
1. Why repo markets matter to the real economy	10
2. Role of repurchase markets in capital market development	10
3. Overview of a repurchase transaction	11
4. Other types of repurchase transactions	12
4.1. Sell/Buy backs	12
4.2. Pledge repos	12
5. Role of collateral in repo transactions	13
5.1. Legal rights to re-use securities	13
5.2. Function of rights to re-use underlying securities	14
5.3. Policies to discourage delivery fails	14
6. Repo maturities	14
7. Bilateral versus tri-party repo	15
7.1. Bilateral repo	15
7.2. Tri-party repo	15
8. Clearing repos through CCPs	16
9. Necessary conditions to grow regional repo market	16
9.1. Deep, liquid regional bond markets	16
9.1.1. Encourage a broad, diverse investor base	16
9.1.2. Improve market access, repatriation and convertibility rights for foreign investors	16
9.1.3. Increase the pool of eligible assets	17
9.1.4. Role of central bank money in repo markets	17
9.2. Critical components of the legal architecture governing repo markets	17
9.2.1. Recognition of repo documentation in legal regimes	18
9.2.2. Harmonizing legal constructions of repo	18
9.3. Neutrality in tax treatment	19
9.4. Market infrastructure connectivity	19
9.4.1. Links between ICSDs and CSDs	19
9.4.2. Interoperability between regional payment and settlement systems	20
10. Addressing policy and market constraints to developing a regional repo markets	20

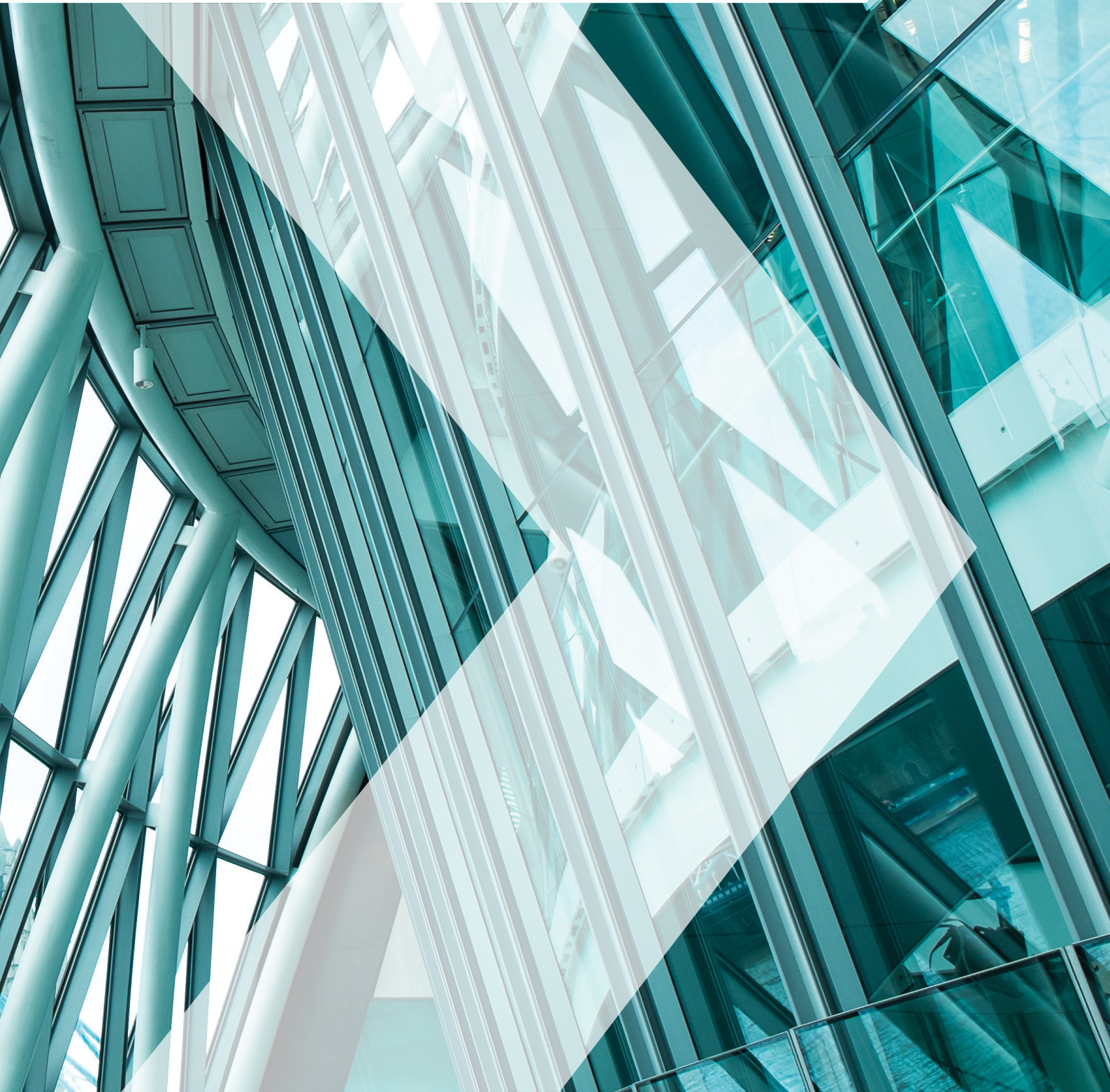
Section II - ASIFMA and ICMA	22
1. Pre-trade best practices	22
1.1. On-boarding a repo counterparty	22
1.1.1. Client due diligence	22
1.1.2. Negotiating repo documentation	22
1.1.3. Agreeing operational protocols	22
1.1.4. Securities & margin criteria	23
1.1.5. Tri-party securities and margin eligibility	23
1.1.6. Deadlines for margin calls and payments	23
1.1.7. Collateral valuation processes	23
1.1.8. Guidance on margin thresholds and minimum transfer amounts	24
1.1.9. Margin parameters to be agreed between parties before trading	24
1.1.10. Settlement systems and instructions	24
2. Best practices in initiating a repo transaction	25
2.1. Counterparty identification	25
2.2. Communication and messaging standards	25
2.3. How to quote the price of a repo	25
2.4. How to quote the purchase price	26
2.5. Fixing the purchase and repurchase dates	26
2.5.1. Forward repos	27
2.5.2. Floating-rate repos	28
2.5.3. Open repos	28
2.6. Agreeing interest rates for late payments	29
2.7. Verifying the terms of transactions	30
2.8. Affirmation process	31
2.9. Importance of confirmations	32
2.10. Recommended delivery size	32
2.11. Anticipating problems that may be caused by low or negative repo rates	33
2.12. Calculating floating-rate repo interest payments	33
2.13. Calculating open repo interest payments	36
3. Best practices in managing the life cycle of a repo	36
3.1. Managing collateral in repo transactions	36
3.1.1. Allocation of collateral in a general collateral (GC) repo	36
3.1.2. Agreeing the price of collateral	37
3.1.3. Fixing an initial margin or haircut	37
3.2. Collateral substitution	38
3.2.1. Agreeing rights of substitution	38
3.2.2. Exercising agreed rights of substitution	38
3.3. Margining best practices	38
3.3.1. Importance of two-way margining	38
3.3.2. Margin conventions	39
3.3.3. Margin call timing (for relevant currencies)	39
3.3.4. Mark-to-market conventions in margin maintenance	40



3.3.5.	Transactions that are included in the calculation of net exposure	40
3.3.6.	How often should net exposure be calculated and margin called?	42
3.3.7.	Interest payments on cash margin	42
3.3.8.	Should initial margin or haircut be deducted from margin securities.....	42
3.3.9.	Can margin securities be substituted?	42
3.3.10.	When is margin returned	42
3.4.	Repricing – alternative to margining and income payments	42
3.4.1.	How is “repricing” used to eliminate net exposures?	42
3.4.2.	Coupon, dividend and other income payments on collateral	43
3.5.	Confirmation and affirmation of post-trade amendments and updates to the terms of a repo	43
3.6.	Managing repo using tri-party services	44
3.6.1.	Pre-trade best practices in tri-party repo	44
3.6.2.	Initiating tri-party repo	44
3.6.3.	Collateral management by the tri-party agent	45
3.7.	Default management procedures	45
3.7.1.	Failure to deliver collateral versus event of default.....	45
3.7.2.	What happens if there is a dispute about a margin call.....	47
3.7.3.	Event of default protocol	48
3.7.4.	The issuance of termination notices to counterparties	48
3.7.5.	Exercising a ‘mini close-out’ in response to a failure to deliver	48
3.8.	Accepting partial settlement and pairing-offs	49
3.8.1.	Partial settlement	49
3.8.2.	Pairing-offs / net settlement	49

Annex I: Current Market Dynamics in Select ASEAN + 3 Economies.....	52
Annex II: Legal and Tax Arrangements in Select Asian Jurisdictions	53
Annex III: Forms of Confirmation in Annex II of the GMRA	54
Annex IV: Documentation Requirements for Client Onboarding Process	56
Annex V: Example of Mini Close-out Notice	57
Annex VI: Glossary of Repo Terminology	58
Annex VII: Citations	74

Introduction





Introduction

The ASIFMA-ICMA Guide on Repo in Asia was developed to put forth best practices for the orderly trading and settlement of cross-border repos in Asia in line with internationally recognized standards, and to address impediments to the growth of regional repo markets. This Guide lays out structural features (such as legal frameworks, settlement systems, and market conventions) that support sound and efficient repo markets, disseminates industry best practices to encourage market practitioners to adopt international standards for the efficient clearing and settling of repo transactions, and encourages reforms to legal and regulatory frameworks that are essential to create an enabling environment for repo markets¹.

Understanding repurchase agreements and the repurchase market

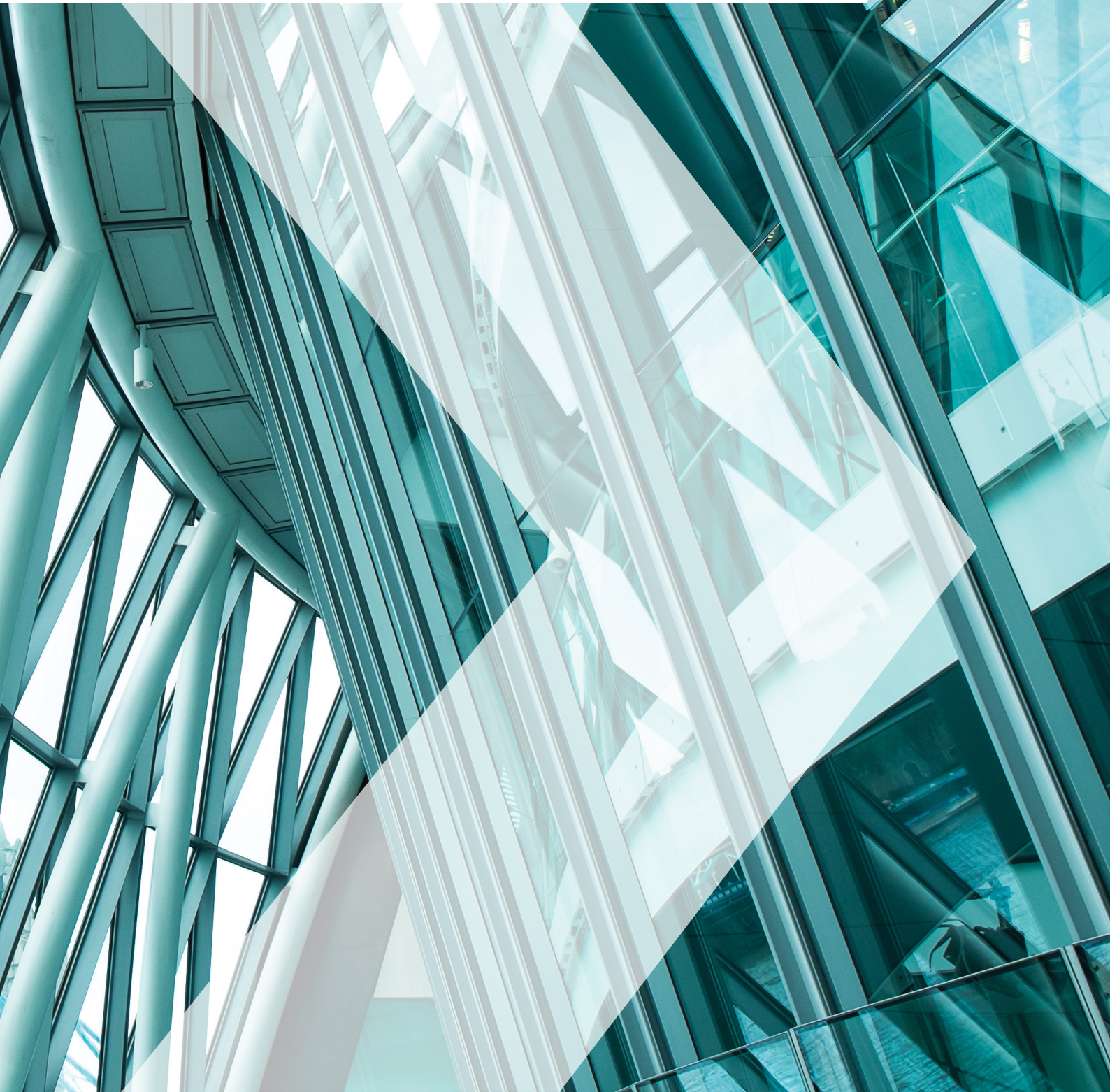
Repurchase agreements (or “repos”) – defined in this Guide as classic repos and documented sell/buy backs – are the most widely used form of secured financing transactions. Repo transactions are fully secured and subject to daily margining, which reduces their credit and liquidity risk profiles and substantially lowers the cost of financing for financial institutions. Repos are used to meet financing needs of banks, broker-dealers and non-bank financial institutions, among others. Institutional investors, central banks, endowments, corporate treasurers, banks and other risk-averse investors are the principal providers of cash in repo markets. Although repo transactions have traditionally been short-term instruments, the maturity of repos has been lengthening, particularly “in response to regulatory pressure on banks to lengthen the duration of liabilities.”²

¹ Eli Remolona, Frank Packer, *inter alia*, “Local currency bond markets and the Asian Bond Fund 2 Initiative” January 2012, <https://www.bis.org/publ/bppdf/bispap63f.pdf>, page 46.

² ICMA, “Frequently Asked Questions on Repo,” May 2015, page 9, <http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/short-term-markets/Repo-Markets/frequently-asked-questions-on-repo/>.

Section I - ASIFMA

Laying the Policy and
Regulatory Foundation for
Efficient Repo Market Development





Section I - ASIFMA

Laying the Policy and Regulatory Foundation for Efficient Repo Market Development

1. Why repo markets matter to the real economy

Liquid, deep repo markets help deepen capital markets and support the real economy.³ Specifically, repo markets support the real economy by: (i) increasing liquidity in local currency bond markets; (ii) expanding the pool of available finance and improving financial institutions' ability to meet their financing needs; (iii) mitigating the reduction in market liquidity due to regulatory change; (iv) mobilizing securities regionally; (v) improving investor confidence and participation in local bond markets; (vi) reducing funding costs for governments, pension funds, asset managers and other long-term investors; (vii) developing market infrastructures that are necessary to serve the real economy; and (viii) offering hedging tools which contribute to risk management.

Thus, integrating bond and repo markets in Asia would improve access to finance and diversify away from reliance on bank lending; support the development of local currency bond markets, bond futures markets, and OTC derivatives markets; encourage retention of regional savings for regional investment; and improve securities mobility to counter the adverse effects of increased asset encumbrance driven by regulatory change (such as Basel III, new asset segregation rules and central clearing mandates, among others).

However, the development of repo markets in Asia has been impeded by a number of factors, principally: (i) the divergent legal constructions of repos across economies; (ii) insufficient creditors' protections in bankruptcy and insolvency regimes; (iii) the lack of liquidity in regional bond markets; (iv) barriers to investor participation; (v) inefficient regional financial market infrastructures for clearing and settling repos and (vi) tax treatment that fails to recognise the temporary exchange of collateral.

2. Role of repurchase markets in capital market development

Deep, liquid repo markets are important for global capital markets to function and support local currency bond market development. Repo markets serve as a critical component of capital market development by:


- i. Improving investor appeal and broadening the investor base;
- ii. Developing the institutional and market infrastructure to serve the real economy;
- iii. Facilitating price discovery and transparency across short- and long-term securities;
- iv. Deepening liquidity in primary and secondary bond markets; and
- v. Developing hedging tools which contribute to risk management.

Improving investor appeal and broadening the investor base: The secured nature of repos reduces credit risk and subsequent financing costs, which allows a wider array of financial institutions (including risk-averse institutional investors) to participate in the wholesale money market. Accordingly, the secured nature of repos improves investor appeal, diversifies the investor base, expands trading volumes, and consequently creates a deeper and more robust market which is beneficial for market stability.

Developing market infrastructures that are necessary to serve the real economy: Deep, liquid government securities and repo markets contribute to institutional and market infrastructure to further capital market development. The same institutional and market foundations that are necessary for repo development – such as clearing and settlement infrastructure, the establishment of a benchmark yield curve, experienced broker-dealers and market-makers, among others – are the foundation upon which deeper and more liquid corporate bonds, derivatives and futures markets may grow. Thus, undertaking reforms to develop the repo market would have positive spill-over effects into the real economy.

Facilitating price discovery and transparency: Repo markets facilitate price discovery and transparency across short- and long-term securities. Since forward rates are derived from prevailing interest rates (spot rates), repurchasing securities at a future date (i.e. the closing leg of repos) helps discover the forward price and lengthen the yield curve.

³ Sound classic repo markets support primary markets, improve secondary market liquidity, allow for hedging mechanisms including the use of multiple trading strategies and are prerequisites for the development of bond futures and OTC derivatives markets. They broaden funding markets and serve as fundamental links between money, bond, futures and OTC derivatives markets.



In doing so, repo markets build a yardstick for pricing debt instruments which will stimulate greater issuance of long-term debt, such as infrastructure bonds.

Deepen liquidity in primary and secondary bond markets: Investors' appetite for government securities depends, in large part, on whether those securities can be sold in secondary markets with minimal impact on the selling price.⁴ Repos enhance market liquidity by providing a funding source for investments in government and corporate bonds and for financing dealer inventories of securities held for trading.⁵ Deep, liquid repo markets facilitate the continuous, reliable supply of government securities, which is necessary to meet the demand of primary dealers, market-makers and investors.⁶ Thus, repo markets boost secondary market trading of bond securities, which, in turn, improves investor appetite for government securities in primary markets and reduces the liquidity premium on government securities.

Develop hedging tools which contribute to risk management: Deep, liquid repo markets improve risk allocation and management by fostering derivatives markets. Government bonds are usually the securities underlying repurchase agreements; using repo to fund long positions and cover short positions in government securities is a fundamental precursor to the pricing of derivatives.⁷ As such, repo markets develop derivatives markets, which are essential tools of risk management for financial institutions and end-users.

3. Overview of a repurchase transaction

A repo is a secured financing transaction in which cash is exchanged for securities, usually in the form of fixed income securities. In a repo transaction, one party (the "seller") sells securities to a counterparty (the "buyer") and simultaneously commits to repurchase the same or equivalent securities at a future date at an agreed price.⁸ Typically, the "seller" is the bank, or non-bank financial institution (NBFIs) that sells securities in return for cash; and the "buyer" is the institutional investor, or other NBFIs that provides cash in exchange for securities.

Repo agreements are two separate transactions – the sale and simultaneous repurchase of the underlying security – which are stipulated in a single legal agreement. Importantly, repos provide full ownership transfer of title to underlying securities, which affords the buyer the right to re-use those assets or net them against the amount owed to them by the seller, if the seller defaults. Between the sale and the repurchase dates, the seller is able to use the cash proceeds of the sale of the assets; and the buyer takes legal ownership of the assets received in exchange for the cash he paid and is able to re-use these assets.⁹ Even though repos are a true sale and repurchase of underlying securities, they are generally motivated by the need to borrow or lend cash in a secure way. The secured nature of repos reduces credit risks for the buyer, and consequently offers a relatively cheap source of funding for sellers.¹⁰

The difference between the price paid by the buyer at the start of a repo and the price he receives at the end (the "repurchase price") is the buyer's return on the cash that he effectively lent to the seller. This return is called the "repo rate."

A reverse repo is the opposite of a repurchase agreement (i.e. buying securities, then selling them back). In effect, one party's repo is their counterparty's reverse repo.

⁴ Nicholas de Boursac, "Government Bond Secondary Market Liquidity: Seven Basic Requirements," February 2012.

⁵ Asian Development Bank Institute, "The Development of Local Debt Markets in Asia," November 2011, <http://www.adb.org/sites/default/files/publication/156181/adb-11-wp326.pdf>, page 19.

⁶ ICMA, "Frequently Asked Questions on Repo," May 2015, page 6.

⁷ ICMA, "Frequently Asked Questions on Repo," May 2015, page 6.

⁸ Note that the seller commits to buy back "equivalent assets," which means the same type but not specifically the same asset (e.g. the same bond issue but not the same certificate numbers). (Source: ICMA "Frequently Asked Questions on Repo," May 2015.)

⁹ ICMA "ERC Guide to Best Practices in European Repo Market," March 2014; and Euroclear, "Understanding Repos and Repo Markets," March 2009.

¹⁰ ICMA, "Frequently Asked Questions on Repos," May 2015, <http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/short-term-markets/Repo-Markets/frequently-asked-questions-on-repo/>, page 4.

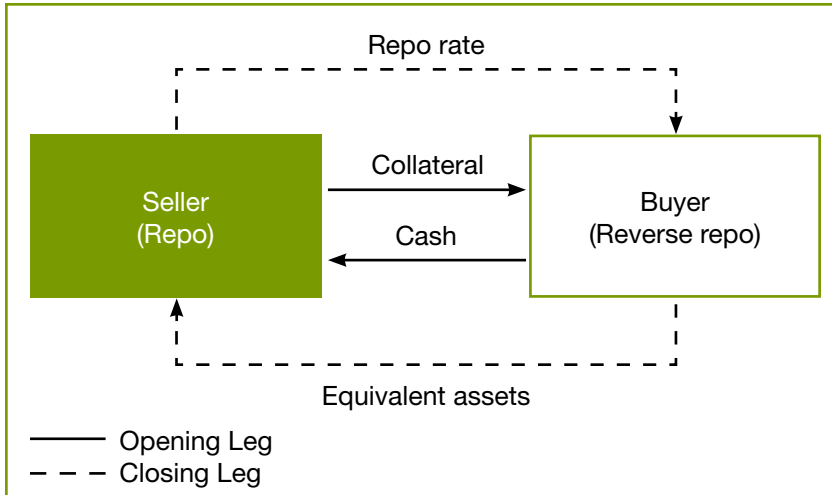


Section I - ASIFMA

Laying the Policy and Regulatory Foundation for Efficient Repo Market Development

An example of a repo is illustrated below:

Figure 1: Repo Transaction



4. Other types of repurchase transactions¹¹

4.1. Sell/Buy backs

Although sell/buy backs have the same economic function as repos, they have legal and operational differences. The principal difference is that, while repos are always documented, traditional sell/buy backs are not. This is an important distinction, as undocumented sell/buy backs may have serious pricing issues and are generally not subject to margining, which increases the risk factor of these transactions. The operational differences between documented and undocumented sell/buy-backs include the way that margining is performed, collateral (securities) substitution rights, and what happens when a coupon or dividend is paid on collateral securities.¹²

4.2. Pledge repos


Pledge repos establish priority right over the collateral pledged to a counterparty in a transaction; however other parties may have higher ranking rights over the collateral which may not always be transparent. Since pledge agreements do not afford the full transfer of ownership of the underlying assets, the use of pledge repos is discouraged as there is the potential for the collateral security to be re-pledged to multiple counterparties without their knowledge. Also, rights to re-use collateral are strictly limited in pledge repos to occasions in which the collateral-provider: (i) explicitly authorizes the collateral-receiver to rehypothecate (re-pledge) collateral; or (ii) defaults on his obligation, which would trigger enforcement of the default provisions of the agreement.

Limitations to the right to re-hypothecate (re-pledge) collateral assets in a pledge model – due to the lack of the full transfer of ownership rights to the assets – have three major drawbacks. First, it eliminates buyers' abilities to reduce their counterparty credit risk and liquidity risk exposures, since buyers do not have the explicit right to liquidate collateral assets or set-off in the event of a seller default. Therefore, pledge repos do not fully protect creditors' rights in bankruptcy or insolvency proceedings. Indeed, the purpose of collateralization is to secure a buyer (i.e. mitigate his credit risk) by giving him the right to liquidate collateral provided by the seller in the event that the seller becomes insolvent or perhaps defaults in another way.¹³ Second, since buyers cannot re-pledge assets, there is no ability to extend collateral chains and deepen secondary market liquidity. Limitations to re-pledge collateral encumbers assets on balance sheets, which reduces aggregate market liquidity and increases the cost of capital. Last, deciphering which party maintains the legal title of those assets and the extent to which rehypothecation has occurred is often very

¹¹ Note: In some Asian jurisdictions, such as Japan, a "borrow and lend" repo structure has emerged, in part in response to transaction taxes that deter development a "classic" repo structure.

¹² ICMA, "Frequently Asked Questions on Repo," May 2015, <http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/short-term-markets/Repo-Markets/frequently-asked-questions-on-repo/>.

¹³ ICMA, "Frequently Asked Questions on Repos," May 2015, <http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/short-term-markets/Repo-Markets/frequently-asked-questions-on-repo/>, page 15.



complicated and adds to legal risks and pricing difficulties of pledge agreements. These uncertainties are particularly pronounced in resolving settlement and delivery failures, and in default or insolvency proceedings.

5. Role of collateral in repo transactions

The secured nature of repos plays an integral role in reducing counterparty credit risk in repo markets. Indeed, repo agreements protect the buyer from counterparty default risk by giving the buyer the right to liquidate securities, or net against the amount owed to the buyer by the repo seller, if the seller defaults.¹⁴ Further, the underlying securities can also mitigate liquidity risk if they are liquid and can be re-used. That is, liquid securities purchased by the buyer can be used (sold or repoed to a third party) to meet any unforeseen need for liquidity during the life of the repo.¹⁵ Therefore, the exchange of securities is essential to hedging the credit exposure of the seller in the repo transaction and can help mitigate liquidity risk, which substantially reduces the risk of lending in repo transactions.

Nevertheless, in order for the transfer of collateral to have the intended effect of reducing credit and liquidity risk in repo markets, buyers must be entitled to the legal title to the collateral during the repo transaction. Investors are only protected in repo transactions if the title to the underlying assets becomes their property at the opening leg of the repo, which would give them the right to re-use the collateral, and to liquidate the collateral or set-off in the event of a seller default. Accordingly, legal certainty about the right to the title of assets and the right to net in the event of counterparty default is a vital cornerstone of repo transactions. Without such explicit protections, investors would be deterred from undertaking repos because they might be unable to enforce the claim to the security in the event of counterparty default. The transfer of the legal title to assets must underpin repo transactions in order to reduce credit and liquidity risk in repo markets, in general, and to protect creditors' rights and improve investor confidence in repos, in particular.

5.1. Legal rights to re-use securities

Although the terms collateral 'rehypothecation' and 're-use' are sometimes used interchangeably, they have distinct legal interpretations which have serious implications for legal risks and operational processes associated with the use of securities in repo agreements. The legal distinction between rights to 'rehypothecate' and rights to 're-use' underlying securities stems from differences in the legal frameworks that underpin "pledge" versus repo models, respectively.

In a pledge model, the collateral recipient does not have explicit rights to 'rehypothecate' or 're-pledge' the underlying collateral securities to a third-party. That is, in a pledge agreement, the ownership title of securities remains with the collateral-provider. The collateral-receiver would not be able to use or liquidate pledged collateral for his own purposes unless the collateral-provider defaulted on his obligation (which would trigger enforcement of the default provisions of the agreement); or explicitly awarded rights to rehypothecate to the collateral-receiver. Even if the collateral-provider grants the collateral recipient the right to rehypothecate those assets, the collateral-provider maintains the ownership title but only until the collateral-receiver exercises his right to rehypothecate. When that right of rehypothecation is exercised, the collateral-provider loses his title to the collateral and it is transferred to the third-party to whom the collateral has been rehypothecated.¹⁶ Deciphering which party maintains the legal title of those assets and the extent to which rehypothecation has occurred is often very complicated and adds to legal risks, pricing difficulties, and lack of transparency in pledge agreements. These uncertainties are particularly pronounced in resolving settlement and delivery failures, and in default or insolvency proceedings. Thus, pledge transactions are less secure than true-sale repos, as a pledge creditor (collateral-receiver) could become an unsecured creditor to the collateral-provider if the right to rehypothecate or liquidate assets is not expressly provided and the collateral-provider defaults.

Pledge repos should be discouraged due to insufficient protections of creditors' rights, the prospect that collateral securities can be re-pledged to multiple counterparties without their knowledge, and the subsequent legal and financial risks incurred by trading counterparties.

¹⁴ Euroclear's "Understanding Repos and Repo Markets," March 2009.

¹⁵ ICMA, "Frequently Asked Questions on Repos," May 2015, <http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/short-term-markets/Repo-Markets/frequently-asked-questions-on-repo/>, page 4.

¹⁶ ICMA, "Frequently Asked Questions on Repo," May 2015, <http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/short-term-markets/Repo-Markets/frequently-asked-questions-on-repo/>, page 10.



Section I - ASIFMA

Laying the Policy and Regulatory Foundation for Efficient Repo Market Development

By contrast, the right to 're-use' underlying securities is inherent in the true-sale framework of repos. In repos, the legal title of securities is actually transferred from the collateral-provider to the collateral-recipient at the outset of the agreement. That is, his "right of re-use is not a right granted by the seller. It is an automatic right arising from property ownership."¹⁷ Thus, the collateral-recipient may 're-use' collateral in any way he desires, such as selling or lending it to a third party, since he owns the collateral outright (while always bearing in mind his obligation to return equivalent issues when the repo matures).¹⁸

5.2. Function of rights to re-use underlying securities

The right to re-use securities plays a fundamental role in deepening capital markets. The ability to re-use securities decreases the net demand for quality assets and reduces liquidity requirements of market participants, since a given pool of securities can be reused in multiple sale/repo transactions with the same quantum of cash.¹⁹ Thus, the right to re-use securities enhances the efficiency of financial markets by increasing collateral velocity, extending collateral chains, reducing transaction costs, improving secondary market liquidity, improving price discovery, lengthening the yield curve, and mitigating temporary shortages of securities. Collateral mobility is necessary to meet new regulatory requirements under Basel III capital and liquidity provisions, central clearing mandates, and asset segregation rules, as well as to counter the adverse effects of asset encumbrance that are a product of such regulatory reforms.

5.3. Policies to discourage delivery fails

Delivery fails are an intrinsic characteristic of the repo market, as they are in all capital markets, due to the likelihood that market practitioners will face temporary operational challenges, illiquidity due to market conditions, or other obstacles that will lead to delays and delivery fails. While it is important to discourage fails to avoid market disruption and improve investor confidence, penalties for delivery fails should not be so punitive that they deter participants from trading. Fail clauses (i.e. in master repurchase agreements) ensure that the technical inability to deliver securities does not give rise to a formal default. Such fail clauses allow the market to tolerate occasional fails by giving counterparties alternative options to resolve deliveries and settlements (see "3.7. Default Management Procedures" of section II).

Additionally, the Global Master Repurchase Agreement (GMRA) – which is the standard repurchase agreement for cross-border repo markets – contributes to risk management in repo markets by stipulating safeguards of creditors' rights in the event of a default or fail. For instance, the GMRA protects repo sellers by affording them the right to initiate a mini-close out with buyer if he fails to deliver collateral on the repurchase date. Triggering a mini-close out is a serious and costly step, as it enables the seller to set-off and increases the credit spread for the buyer in future transactions (see "3.7. Default management procedures" of section II). The penalty provides enough incentive for a party to do everything that is commercially reasonable to not fail. Thus, the market corrects itself by providing incentives for market practitioners to self-govern in order to protect their reputation and credit risk profile, which thus preserves the integrity of the market.

In light of the inherent risks of delivery fails in repo markets, market practitioners should adhere to international best practices by ensuring fail clauses and pre-agreed penalties are incorporated into their master repurchase agreements, and adopt operational and liquidity management best practices to reduce the incidence of delivery fails. Such protections afforded in the legal agreements that underpin repos, coupled with the penalties imposed on fails, help support the development of efficient, sustainable repo markets.

6. Repo maturities

Repo transactions have no standard durations; and repo maturities range from overnight to a number of years (i.e. term repos), or they can be flexible to meet the needs of parties involved (i.e. open repos). Overnight repos are transactions in which securities are sold and then repurchased the following day. Financial institutions can use overnight or short-dated repos (with terms of one month or less) to raise short-term money (such as to finance securities inventories). Although repo contracts have traditionally been short-term instruments, their maturity dates are lengthening, particularly "in response to regulatory pressure on banks to lengthen the duration of liabilities."²⁰ Thus,

¹⁷ Ibid, page 11.

¹⁸ Singh, Manmohan, IMF Working Paper, "Velocity of Pledged Collateral," November 2011, <http://www10.iadb.org/intal/italcdi/PE/2011/09293.pdf>, page 9.

¹⁹ Ibid.

²⁰ ICMA, "Frequently Asked Questions on Repo," May 2015, page 9,

<http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/short-term-markets/Repo-Markets/frequently-asked-questions-on-repo/>.



overnight and short-dated repos are becoming less common and term repos are gaining popularity.

“Term” repos mature in one year or later. Due to their longer horizon, term repos are usually tied to floating (rather than fixed) rates and have enhanced rights of substitution to allow counterparties more flexibility to optimize their collateral/securities inventory over the duration of the repo agreement.

Further, “open” repos have no fixed maturity date and are callable by either party subject to a minimum period of notice. It is best practice, when negotiating an open repo, to agree to the delivery period for the collateral, collateral substitution rights, and the deadlines for margin deliveries and the minimum termination notice (see “1.1. On-Boarding a repo counterparty” of section II).²¹

The obligations of each counterparty do not implicitly extend beyond terms of the trade (i.e. there is no implicit expectation to roll beyond contractual maturity).

7. Bilateral versus tri-party repo

Repo transactions can be settled either bilaterally or with the facilitation of a tri-party agent for collateral management purposes.

7.1. Bilateral repo

Bilateral repo between sellers and buyers is conducted on a delivery-versus-payment (DvP) basis. That is – after the transaction has been agreed to on electronic trading systems, through phone or by electronic messaging – the transfer of cash and collateral occur simultaneously between the seller and the buyer or their agent custodian banks. DvP is a mechanism to reduce settlement risks by ensuring that delivery occurs if and when payment is made. In doing so, DvP protects counterparties from making delivery without receiving payment (or vice versa), the principal risk in bilateral repo transactions. Each trading party is responsible for providing accurate settlement instructions to their agents or entering them into the relevant settlement systems, where they are matched.²² DvP settlement facilitates the simultaneous transfer of securities (delivery) and funds (payment) between repo buyers and sellers over the life of the transaction. In order to efficiently trade and settle repos bilaterally, market participants must have suitable back office operational capabilities to link to and monitor their agent custodian banks or to directly manage securities inventories, including receiving and transferring securities, valuing assets, and administering margin calls.

7.2. Tri-party repo

Tri-party repo is the process by which parties outsource their post-trade processing to a third-party agent, which can be particularly valuable for non-banks, who may lack back office capabilities. Tri-party agents serve as independent custody agents, perform daily re-pricing for collateral securities and margin over the life of the repo transaction, manage collateral inventories, and settle trades by moving securities and cash to and from the accounts of repo buyers and sellers as necessary to fulfill their repurchase agreements. Understanding the credit risk profile of a tri-party repo provider, as well as their asset segregation and portability policies, is key to effective risk management in tri-party repo.

Tri-party repos reduce counterparty and operational risk, and facilitate multi-currency, cross-border collateral management, by having a centralized intermediary through which transactions are settled. By serving as an independent custody and holding collateral securities and margin, the tri-party agent ensures that collateral assets are truly available to the buyer and thus offers additional protection in the event of counterparty default. In consequence, settlement and delivery fails are more easily resolved in a tri-party platform compared to a bilateral platform. Tri-party agents also undertake the operational processes of managing and valuing collateral (including mark-to-market valuations and meeting margin calls) on a more granular basis than what would be operationally feasible on a bilateral basis, which may reduce operational risk. Tri-party agents enhance settlement efficiency by integrating their collateral management systems with their settlement platforms, which allows for automated substitution of collateral.

²¹ ICMA “ERC Guide to Best Practices in European Repo Market,” March 2014, Section 5.10.

²² Bank for International Settlements “Strengthening repo clearing and settlement arrangements”, page 27.



Section I - ASIFMA

Laying the Policy and Regulatory Foundation for Efficient Repo Market Development

Tri-party agents are responsible for the selection of collateral on behalf of the seller, subject to the buyer providing a schedule of acceptable securities. Collateral selection is typically done automatically by means of an algorithm. Consequently, the parties do not know the particular issues of securities that will be transferred. This means tri-party repos are cash-driven and cannot be used as a means of borrowing particular securities. In addition, the collateral selected by a tri-party agent's algorithm is typically a basket of several issues.

For initiating tri-party repo, see 3.6.2. of section II.

8. Clearing repos through CCPs

Repo transactions can be cleared through a central counterparty (CCP), which serves as an intermediary and becomes the buyer to every seller and the seller to every buyer in a repo transaction. CCPs can play a critical role in reducing risk in repo markets. In particular, CCPs reduce settlement risk by the multilateral netting offsetting transactions between multiple counterparties. In addition, CCPs reduce credit risk by assessing the credit risk profile of clearing firms, calling collateral and margin to protect against counterparty default, and sharing risk among members through contributions of initial margin and to a default fund. Thus, compared with bilateral trading, clearing repos through CCPs improves netting efficiency, reduces counterparty exposures and decreases subsequent capital charges for market participants.

However, the usefulness of a CCP depends on the level of standardization of repo contracts, which are often agreed bilaterally and may be too customized or too thinly traded to justify clearing.²³ Further, utilizing CCPs for repo clearing may also have some disadvantages, as CCPs concentrate credit, liquidity, operational and legal risks into one entity. Thus, there is growing concern that CCP failure could have systemic consequences. Therefore, it is imperative for CCPs to be adequately supervised, sufficiently capitalized, and to employ international best practices in risk management, such as those put forth by the Committee on Payment and Settlement Systems and International Organization for Securities Commissions in the Principles for Financial Market Infrastructures.²⁴

9. Necessary conditions to grow regional repo market

There are several policy issues to address to foster an enabling environment for repo markets. In particular, the necessary conditions to develop cross-border repo markets are: (i) Deep bond market liquidity; (ii) Sound legal framework that protects creditors' rights in bankruptcy and insolvency proceedings; (iii) Robust investor participation; (iv) Neutrality in tax treatment; and (v) Efficient and interoperable market infrastructures to support cross-border repo markets.

9.1. Deep, liquid regional bond markets

The relationship between efficient repo markets and local currency bond markets is mutually reinforcing. In particular, efficient repo markets depend on the liquidity provided by a robust government bond market, whilst the development of repo markets will also assist the further development of local currency government bond markets by deepening secondary market liquidity, improving price discovery mechanisms, and inducing broader investor participation in local currency bond markets.

9.1.1. Encourage a broad, diverse investor base


Broadening the investor base brings much needed liquidity to the market by having a range of investors with different risk profiles and investment horizons which enhances trading volumes and liquidity across short, medium and long term maturities. Thus, in order to deepen liquidity in regional bond and repo markets, policymakers must induce more participation from institutional investors and reduce restrictions on investor participation.

9.1.2. Improve market access, repatriation and convertibility rights for foreign investors

To further broaden and diversify the investor base, policymakers must improve market access, repatriation and convertibility rights for foreign investors. Restrictions on foreign investors – such as prohibitions or registration

²³ BIS Committee on Payment and Settlement Systems, "Strengthening Repo Clearing and Settlement Arrangements," September 2010, <http://www.bis.org/publ/cpss91.pdf>, page 8.

²⁴ Committee on Payment and Market Infrastructures (formerly CPSS) and International Organization for Securities Commissions, "Principles for Financial Market Infrastructures," April 2012, <http://www.bis.org/publ/cpss101a.pdf>.



requirements for nonresidents – deter market participation, reduce liquidity and impede the development of an efficient cross-border repo market. In addition, assured rights to convert currency and repatriate earnings for both foreign and domestic investors is necessary to instill confidence in bond and repo markets. Thus, it is essential to liberalize market access for foreign financial institutions across the region to enhance participation, diversify the investor base, and increase market liquidity.

9.1.3. Increase the pool of eligible assets

Market liquidity is dampened by restrictions on the pool of assets that are eligible for repo markets. For instance, limitations on the ability of financial institutions to utilize bond holdings in repo markets encumbers assets on balance sheets and reduces primary and secondary bond market liquidity. Thus policymakers should promote the use sovereign and corporate bonds in Asian economies as eligible collateral for repo transactions. This would contribute to the stability of repo market funding, as collateral in the form of benchmark securities (such as those issued by major governments) usually retain their value and are easily liquidated, even in market crises. Further, Asian central banks should collaborate to establish cross-border collateral arrangements to increase the pool of eligible securities to be traded across borders.

9.1.4. Role of central bank money in repo markets

The supply of central bank money in repo markets is not a requisite condition to develop sound and efficient repo markets. However, repo markets can serve as an important economic and monetary policy tool for central banks. Central banks often use repo to conduct monetary policy operations, transmit monetary policy to the real sector, and provide emergency liquidity in times of market stress. Therefore, central banks can serve as key players to promote the development of repo markets by smoothing the supply of high quality assets, and enhancing the stability and liquidity of the market.

More fundamentally, central banks play an important role in developing a stable yield curve (through issuing government bonds at a wide range of maturities) which provides the benchmark for broader credit markets.

9.2. Critical components of the legal architecture governing repo markets

Sound legal architecture of repo transactions is the foundation upon which repo markets may develop and grow. Repos are characterized by the full legal ownership title of collateral, which affords the buyer the right to re-use assets and safeguards creditors' rights by providing the buyer netting rights in the event of a counterparty default.

Yet legal regimes governing repo markets vary considerably across the Asian region, and many lack the necessary protections to instill investor confidence in repo contracts. Such legal ambiguity hampers the ability of market participants to operate across borders and undermines investor participation in repo markets. Although reforming legal and regulatory frameworks in certain jurisdictions may be challenging, such protections in the legal framework are a necessary component of building investor confidence in repo markets. For example, according to analysis by the Bank for International Settlements:

When financial institutions engage in repos with each other [in certain Asian jurisdictions], lenders often impose rather strict credit limits on their counterparties, thus behaving as if the transactions were not truly secured. This phenomenon seems to arise from master agreements and legal frameworks that fail to ensure that the lender will in fact be able to take possession of the collateral in the event of default.²⁵

The lack of investor confidence in repo transactions in Asia stems from the absence of explicit legal protections safeguarding creditors' rights in repo agreements. Investors are protected in repo transactions by the transfer of legal title to the securities, which gives the buyer the right to re-use assets during the term of the repo transaction, as well as the right to liquidate the securities or net (set-off) in the event of counterparty default.²⁶ A central concern for repo buyers is the risk that a court would invalidate the transfer of title to the securities and re-characterize the repo as a secured loan. In many jurisdictions, such re-characterization would deprive repo buyers of any rights to the securities,

²⁵ Eli Remolona, Frank Packer, *inter alia*, "Local currency bond markets and the Asian Bond Fund 2 Initiative" January 2012, <https://www.bis.org/pub/bppdf/bispap63f.pdf>, page 46.

²⁶ ICMA, "Frequently Asked Questions on Repo," May 2015, <http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/short-term-markets/Repo-Markets/frequently-asked-questions-on-repo/>, page 15.



Section I - ASIFMA

Laying the Policy and Regulatory Foundation for Efficient Repo Market Development

and the buyer would find itself without recourse in the event of counterparty default.²⁷

This ambiguity may stem from the fact that repo contracts are defined as a sale and simultaneous repurchase of the underlying security, but they behave economically as a means of borrowing and lending cash. Therefore, the “essential legal risk to be addressed for the development of a repo market is the risk of re-characterization of repo trades in bankruptcy courts.”²⁸ The principal aim of policymakers must be to ensure legal frameworks safeguard the unequivocal right of the counterparty acquiring securities in a repo transaction to sell them if the other counterparty defaults and that these rights are unambiguously reflected and upheld in bankruptcy procedures.²⁹

To address these legal uncertainties, the unique characteristics of repo contracts (i.e. that they are legally structured as a sell and repurchase of securities) must be explicitly reflected in legal frameworks including bankruptcy and insolvency regimes in each Asian jurisdiction. Further, policymakers must clarify in domestic law the property rights afforded to creditors regarding securities purchased in repo transactions (i.e. explicit transfer of title of underlying collateral assets) and their subsequent rights to set-off in the event of counterparty default.³⁰ The explicit transfer of title in repo markets in legal regimes is paramount to protecting creditors’ rights in the event of default.

Accordingly, undertaking legal and regulatory reform may be necessary to improve investor confidence in repo agreements and to establish well-functioning repo markets that support the real economy.

9.2.1. Recognition of repo documentation in legal regimes

Legal certainty is reinforced when domestic law explicitly recognizes that the repo contract or the master repo agreement is also enforceable in bankruptcy proceedings.³¹ As such, master agreements – which stipulate payment protocols, netting and close-out rights, etc. – must be soundly established in law to induce market practitioners to engage in these types of agreements.

The GMRA has emerged as the international standard for cross-border repo markets. In particular, the GMRA contributes to risk management in repo markets by stipulating safeguards of creditors’ rights in the event of default or fails; facilitating pre-trade agreement on key protocols such as transfer of legal title, margin and collateral; and standardizing management of payments on collateral.

The GMRA’s enforceability is determined by the underlying legal frameworks and rule of law in subject jurisdictions. In particular, the GMRA’s significance is predicated upon: (i) recognition of the legal and economic characteristics of repo transactions in subject jurisdictions; (ii) recognition of the GMRA that underpins repo transactions in domestic legal frameworks; and (iii) arbitration clauses for cross-border transactions.

In consequence, recognition of repo documentation (such as the GMRA) in domestic law and bankruptcy and resolution frameworks is an essential element to protect creditors’ rights in insolvency cases and to assure investors of enforceability of repo contracts. See Annex II for a list of Asian jurisdictions which utilize the GMRA.

9.2.2. Harmonizing legal constructions of repo

Many legal regimes governing repo markets lack the necessary protections to instill investor confidence in repo contracts. Bankruptcy and insolvency law protections vary considerably across Asian jurisdictions and impair legal certainty, which hampers the ability of market participants to operate across borders and undermines investor participation in repo markets. Harmonizing the legal construction of repos by adopting the true-sale framework of repos would ensure that legal rights to re-use collateral assets and creditors’ rights to set-off (net) in the event of counterparty default would be unambiguously protected in bankruptcy and insolvency regimes across all Asian jurisdictions. Thus, consistency in the legal and market characteristics of repo markets across Asian markets is imperative to: (i) reduce legal uncertainties and risks of conducting repo transactions across borders; (ii) improve investor and business confidence; (iii) reduce compliance costs; and (iv) improve efficiency and lower the cost of cross-border trading.

²⁷ Ibid, page 15.

²⁸ World Bank handbook on repo markets, 2010, page 12.

²⁹ Ibid, page 12.

³⁰ Ibid, pages 12-13.

³¹ Ibid, page 60.

9.3. Neutrality in tax treatment

In many Asian jurisdictions, tax policy distorts pricing and hinders the development of a repo market. The main distortionary taxes are stamp duties and transaction taxes which adversely impact market development by raising the cost of repo transactions and reducing demand for government securities.³² Further, withholding taxes “reduce investment yield and the attractiveness of the investment in local currency securities for non-resident [investors]”.³³ Levying withholding taxes on nonresident investors can severely reduce foreign participation in the secondary market, which raises the cost of trading and reduces aggregate market liquidity.³⁴

Stamp duties and transaction taxes increase costs disproportionately to the interest income derived from repo transactions. Thus, stamp duties or financial transaction taxes would make repo transactions economically unviable and unattractive for financial institutions. Further, the implementation of a transaction tax undermines investor confidence, dampens investor appetite for government securities and repos, increases the cost of debt financing for governments and financial institutions and reduces the attractiveness of secured financing transactions.

For instance, implementation of a financial transaction tax on securities trades in Japan caused its major repo market – the gentan market – to morph into a borrow and lend structure rather than repurchase market in order to avoid the tax. As a result, the securities lending structure does not fully protect against credit risk (as it does not afford the transfer of title of securities) as well as restricts collateral re-use which hampers the positive impact on market liquidity. Consequently, it is best practice to eliminate stamp duties and transaction taxes to help foster an enabling environment for bond and repurchase markets.

9.4. Market infrastructure connectivity

Cross-border investment is aided by the efficient financial market infrastructures which facilitate the deployment and transmission of capital across borders. Strengthening connectivity between (or interoperability of) financial market infrastructures in Asian markets would improve efficiency and reduce the cost of trading, improve price discovery and enhance risk management.

Efficient market infrastructure, including clearing and settlement systems, is an integral component of developing deep, liquid repo markets. Interconnectivity between market infrastructures is central for cultivating an efficient repo markets to enable the transfer of collateral assets between cross-border investors. Fragmented securities clearing and settlement infrastructures is a barrier to the efficient mobilization of collateral. Currently, market infrastructures are fragmented across the Asian region, which increases costs for cross-border transactions, slows settlement timing, and increases operational risk.³⁵ Market infrastructures need to be strengthened to espouse international standards and connected in order to support cross-border repo markets.

9.4.1. Links between ICSDs and CSDs

In particular, regional markets must develop links between domestic Central Securities Depositories (CSDs) and International Central Securities Depositories (ICSDs) so government bonds can be efficiently delivered and held at ICSDs in cross-border transactions. In addition, it is necessary to establish cross-border links between securities settlement systems (SSS) in order to manage the flows of funds and securities between buyers and sellers in cross-border transactions. Strengthening and integrating market infrastructures is critical to improving the cross-border mobility of assets and reducing operational risks in repo markets.

The most important benefits of such connectivity between CSDs and ICSDs are: (i) increased liquidity for local currency bonds since they can be used offshore; (ii) enhanced stickiness of foreign investments in local markets; and (iii) deeper pool of collateral since barriers to cross-border flows are removed. Further, efficient links between CSDs and ICSDs improve settlement efficiency by: (i) providing timely information and feedback on the status of settlement instructions in order to allow users to fix unsettled transactions as soon as possible; (ii) improving efficiency in matching processes which reduces settlement and operational risks; (iii) allowing failed repos to be netted off

³² IMF, “A Framework for Developing Secondary Markets for Government Securities,” July 2008, <https://www.imf.org/external/pubs/ft/wp/2008/wp08174.pdf>, page 10.

³³ Eli Remolona, Frank Packer, inter alia, “Local currency bond markets and the Asian Bond Fund 2 Initiative” January 2012, <https://www.bis.org/publ/bppdf/bispap63f.pdf>.

³⁴ IMF, “A Framework for Developing Secondary Markets for Government Securities,” July 2008, <https://www.imf.org/external/pubs/ft/wp/2008/wp08174.pdf>, page 19.

³⁵ IMF, “A Framework for Developing Secondary Markets for Government Securities,” July 2008, <https://www.imf.org/external/pubs/ft/wp/2008/wp08174.pdf>, page 5.



Section I - ASIFMA

Laying the Policy and Regulatory Foundation for Efficient Repo Market Development

against each other; and (iv) allowing the immediate finality of settlement which reduces legal risks and allows the prompt re-use of securities.³⁶

9.4.2. Interoperability between regional payment and settlement systems

Interoperability between regional payment and settlement systems is very important to bring to fruition Straight through Processing (STP) of bond and repo transactions. STP is important to improve settlement processing and efficiency and reduce risk for cross-border bond and repo transactions. STP enhances settlement efficiency by automating post-trade processing of securities transactions. However, the use of different proprietary messaging codes and securities identifiers across CSDs makes STP more difficult, as it requires reconciliation by either the local or global custodian and increases the risk of error for settling cross-border transactions. Consistency in messaging standards and securities numbering is integral to implement STP and it is best practice to adopt international standards for messaging formats³⁷ (such as ISO standard) as well as for securities identifiers³⁸ (such as ISIN codes) to enhance settlement efficiency and reduce the risk of errors for cross-border transactions.

10. Addressing policy and market constraints to developing a regional repo markets

Developing a cross-border repo market in Asia will require addressing a number of policy and regulatory issues to create an enabling environment for repo markets. Regional policymakers can engender a well-developed repo market by implementing the following recommendations:

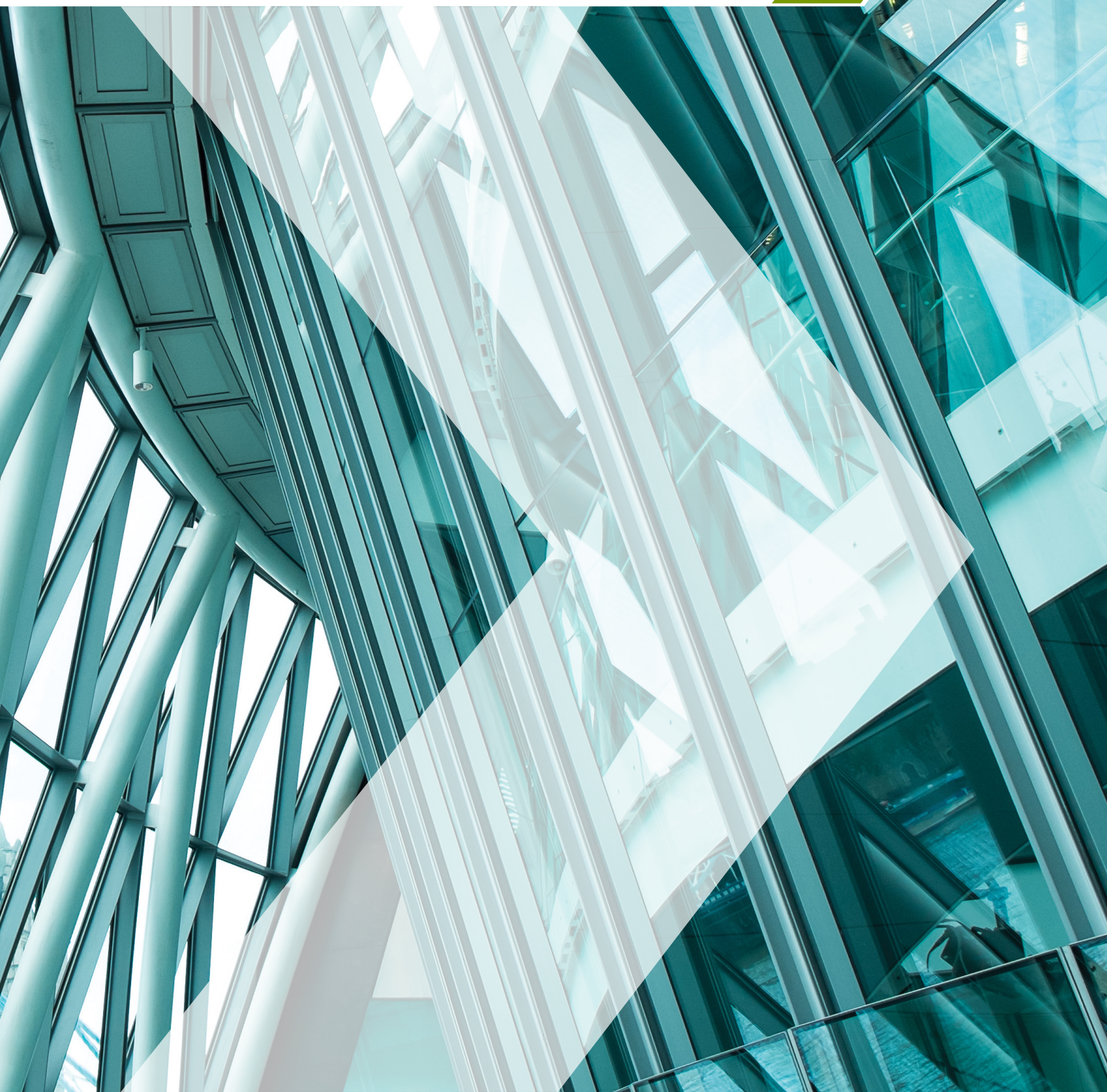
- Move towards a true sale repo market in Asian economies;
- Improve creditors' rights protections in legal frameworks;
- Adopt standardized legal documentation;
- Improve liquidity in Asian bond markets; and
- Strengthen interoperability of market infrastructures.

³⁶ ICMA white paper on the operation of the European repo market, the role of short-selling, the problem of settlement failures and the need for reform of the market infrastructure, July 2010, http://www.icmacentre.ac.uk/files/euro_repo_market_white_paper_jul10.pdf

³⁷ Asia Development Bank, "ASEAN + 3 Bond Market Guide, Part 1: Bond Markets and Their Infrastructures in ASEAN+3," page 13, <http://www.adb.org/publications/asean3-bond-market-guide>.

³⁸ Ibid, page 23.

Section II - ASIFMA and ICMA Best Practices across the Repo Trade Lifecycle





Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle³⁹

1. Pre-trade best practices

1.1. On-boarding a repo counterparty

The counterparty on-boarding process is a preliminary assessment to help firms understand their counterparty's financing goals and trading preferences. In addition, due to a web of regulatory requirements, the on-boarding process has become a crucial procedure in assessing and mitigating reputational, operational, legal, market and credit risks before establishing a trading relationship.

1.1.1. Client due diligence

The client due diligence process aims to assess each counterparty's risk, in terms of credit risk as well as regulatory risk (i.e. anti-money laundering (AML) and know-your-customer (KYC) requirements). In order to assess credit risk and establish credit terms for the execution of repo agreements, counterparties must share financial and corporate information to determine their counterparty's risk rating. In turn, each trading partner will establish credit limits as appropriate.

A general list of documents required during the client on-boarding process can be found in Annex IV.

In addition, counterparties must perform regulatory AML and KYC due diligence as required by law in home and host jurisdictions. In order to fulfil their AML and KYC due diligence obligations, counterparties will need to share information on the internal controls and procedures that they have in place to identify and monitor high risk activities undertaken by their customers and the procedures in place to mitigate exposure to illicit behaviors, which is a key element of reputational and legal risk management.

The AML/KYC process varies significantly across jurisdictions and is beyond the scope of this document. Please contact your repo counterparty/provider for specific requirements.

1.1.2. Negotiating repo documentation

In order to minimize legal risks in repo transactions, it is best practice to ensure proper documentation underpins all repo transactions before they are executed. Documentation requirements include the Global Master Repurchase Agreement (GMRA) or relevant Master Repurchase Agreements (MRA) in host jurisdictions and in addition, if done under a tri-party arrangement, a tri-party collateral management service agreement. To decrease the operational burden of managing diverse repo contracts, the GMRA has emerged as the international standard for cross-border repo markets. The standard provisions of the GMRA reduce operational requirements by harmonizing market practices and expectations (thereby reducing the risk of fails), and reducing the effort (and time) necessary to negotiate such contracts. In addition, the annexure to the GMRA provides supplemental terms and conditions for repo counterparties to customize the terms of their repo agreement which offers flexibility to tailor the agreement to market and transaction-specific conditions. Also, transaction specificity is given by the use of confirmations, and Annex I to GMRA allows tailoring to each relationship.

The use of a legally enforceable, industry-standard master repurchase agreement affords specific legal protections and mitigates counterparty-specific inconsistencies that could result unresolvable disputes and/or ambiguous enforcement procedures to handle an events of default. It is also important to recognise the need for regular review of legal opinions (e.g. annually) to ensure such agreement continues to be robust, which is a condition set by regulators for the recognition of collateral in the reduction of capital charges. Moreover, without an acceptable written agreement, many global banks will no longer transact repo. These specific legal protections, embedded in the GMRA, include: (i) close-out netting upon the incidence of a counterparty default; and (ii) rights to liquidate collateral assets to reduce liquidity risk to recoup values owed in the event of a counterparty default.

1.1.3. Agreeing operational protocols

There are several parameters to be agreed between parties before trading, including margin criteria, payment protocols, collateral valuation processes, and management of margin calls and minimum transfer amounts, among others.

³⁹ Given the continued evolution of market practices, material within this section that is drawn from the ICMA ERC Guide to best practice in the European Repo Market may not at all times fully reflect updates to that ICMA ERC Guide (the latest version of which is available on the [ICMA ERC website](#)).

1.1.4. Securities & margin criteria

Prior to initiating a trading relationship, parties should agree to collateral criteria, particularly the types of security issues and classes of security that will be acceptable in securities and margin transfers, and record those specifications in the legal agreement.⁴⁰ In a repo transaction, the cash provider (or repo buyer) dictates the terms of the acceptable securities or margin required of the buyer or seller.⁴¹ The repo buyer should specify their securities and margin criteria up front to convey their preferences for certain asset classes or instrument types, and preclude other securities as acceptable margin. Securities and margin criteria would also reflect a buyer's concentration limits on issuers, countries and asset types, among others, as well as their preferences regarding liquidity considerations and credit ratings. Also, the parties can agree to a basket of securities which would afford the securities provider the right of substitution.⁴²

It is best practice for the margin-taker to accept securities given as margin if they are recognized as general collateral in the repo market or if they have characteristics the same as or better than the collateral being reversed in by the margin-taker. It is also best practice to specify acceptable margin securities in the legal agreement between the parties. However, if that is not possible, the margin-taker should act reasonably and in good faith when offered margin securities.⁴³

1.1.5. Tri-party securities and margin eligibility

Securities and margin eligibility is up to the discretion of the repo buyer and seller. Additionally, the tri-party system allows them to consider a broader range of securities due to the granularity in determining asset eligibility (such as concentration limits per asset type, differentiated haircuts per asset type, maximum age of quotation, activation of specific restrictions, etc.) Such granularity in the securities eligibility schedule, combined with automated substitution, increases the range of eligible securities for use in tri-party repo transactions.

1.1.6. Deadlines for margin calls and payments

Margin call cut-offs should be agreed prior to the point-of-trade and listed in the annex to the legal agreement (master repurchase agreement). For margin transfers between two APAC-based counterparts, margin calls should be made by latest of buyer/seller 14:00 local time, or otherwise as agreed by both counterparties, to allow margin to be transferred the same day as or the day after the call is made. Further, if a party receiving a margin call wishes to fulfil the margin call with securities, it must notify its counterparty of the margin securities selected by latest of buyer/seller 17:00 local time, or otherwise as agreed by both counterparties.

For APAC-EMEA trades (i.e. for circumstances in which one party's operations team is located outside of Asia), margin calls should be issued and agreed by 14:00 CET.

Margin calls made after the relevant deadlines listed above should be treated as though they were made on the next business day.

It is best practice to respond to margin calls operationally by T+0 for all margin calls received by the relevant deadlines listed above. Cash should be delivered on the same day as the call is made (T+0), if possible, or the next day (T+1). Further, bonds or other margin securities should be delivered the next business day after receiving the margin call (T+1), but is preferred that they be delivered on the same business day (T+0), where possible.

1.1.7. Collateral valuation processes

Industry-recognized 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 available to both counterparties. Disagreement about the prices used in valuing collateral can be avoided by documenting the pricing sources in the legal agreement between the two counterparties (such as the GMRA).⁴⁴

⁴⁰ ICMA "ERC Guide to Best Practices in European Repo Markets," Annex II - Repo Margining Best Practices, page 65.

⁴¹ Barclay's "Repo Market Masterclass," May 2014.

⁴² Barclay's "Repo Market Masterclass," May 2014.

⁴³ ICMA "ERC Guide to Best Practices in European Repo Markets," Annex II - Repo Margining Best Practices, page 65.

⁴⁴ AFMA, Repurchase Agreement (Repo) Margining Best Practice Guide, April 2014, http://www.afma.com.au/standards/codes-practices/AFMA_Repo_Margining_Best_Practice_Guide.pdf, page 7.



Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

Collateral securities should be valued at their dirty or gross prices, rather than their clean prices.⁴⁵ However, since the margin collateral transfer date (T+0, +1 or +2) may vary depending on the instrument used, applying a different rule for fixing accrued interest on collateral can be cumbersome. Thus, it is best practice to value collateral securities at their dirty or gross prices with accrued interests up to the date on which the collateral is valued (which is typically the close of business day prior to margining date).

1.1.8. Guidance on margin thresholds and minimum transfer amounts

In order to reduce the operational burden posed by a high volume of daily margin calls, parties often agree to a minimum net exposure below which they will not call a margin on each other, which is referred to as a margin threshold. Once the Net Exposure meets or exceeds this threshold, parties will call margin sufficient to eliminate the entire net exposure.⁴⁶ Minimum transfer amounts (MTAs) define the minimum amount that can be called for margin in order to reduce the operational burden (and risk) of reconciling the volume of daily margin calls. Typically, the margin threshold and MTA amounts are the same, but could be different so long as the minimum transfer amount is equal to or greater than the margin threshold so that it is sufficient to eliminate the entire net exposure. It is best practice to confirm the relevant margin threshold and MTA at the point-of-trade.

In some ways, MTAs illustrate a trade-off between minimizing operational risks and maintaining prudent counterparty credit risk practices. Therefore, the establishment of margin thresholds and minimum transfer amounts should be negotiated bilaterally, as they depend on parties' internal risk tolerance / risk limits and counterparty credit assessments, which vary across transactions. Margin thresholds and minimum transfer amounts should be determined based on mutual credit assessments and agreed to before trading starts⁴⁷. In general, it is best practice to employ tighter margin thresholds for smaller cap entities, and to vary threshold levels to reflect distinct credit risk profiles (i.e. credit ratings). There are no standard margin thresholds and minimum transfer amounts, though "counterparties may agree to thresholds and minimum transfer amounts based on their mutually agreed credit assessments".⁴⁸

1.1.9. Margin parameters to be agreed between parties before trading⁴⁹

In order to reduce the scope for misunderstandings and margin disputes, it is best practice to agree the following parameters before trading:

- Price sources to be used to value collateral, either routinely or in the event of a margin dispute
- Whether the middle or bid rate will be used in the valuation of collateral
- In the case of sell/buy-backs, the rate at which manufactured payments will be reinvested until the repurchase date
- Minimum transfer amounts
- Security issues or classes of security that will be acceptable in margin transfers
- Whether initial margin or haircuts will be applied to margin securities
- Deadlines for delivering cash margin and margin securities
- Interest rates on cash margin
- In the case of sell/buy-backs, whether the re-pricing or adjustment method will be used instead of margining

1.1.10. Settlement systems and instructions

The international standard is that repo trades are settled on a T+1 basis (next business day settlement) or T+0 (same business day settlement). Yet currently, T+2 is common in Europe, and it is the practical settlement timeline for repo agreements in Asia due to the operational challenges posed by different currencies and time zones across the region.

⁴⁵ ICMA "ERC Guide to Best Practices in European Repo Markets," Annex II - Repo Margining Best Practices, section 4.

⁴⁶ ICMA "ERC Guide to Best Practices in European Repo Markets," Annex II - Repo Margining Best Practices, section 6-7, pages 64-65.

⁴⁷ ICMA "ERC Guide to Best Practices in European Repo Markets," Annex II - Repo Margining Best Practices, section 6-7, pages 64-65.

⁴⁸ ICMA "ERC Guide to Best Practices in European Repo Markets," Annex II - Repo Margining Best Practices, section 6-7, p64-65

⁴⁹ ICMA "ERC Guide to Best Practices in European Repo Markets," Annex II - Repo Margining Best Practices, page 69.



The clearing agent (i.e. Clearstream, Euroclear, Domestic Agent, Fed wire / DTC, CREST) should be confirmed between counterparties at the point of trade.⁵⁰

2. Best practices in initiating a repo transaction

2.1. Counterparty identification

Be certain of the identity of your counterparty - A party to a financial transaction is typically one of a number of legal entities within a group, often with similar names. It is essential, for legal, regulatory, operational and credit risk management purposes, that both parties to a transaction know the precise legal identity of their counterparty.

Best practice recommendation: Parties should determine the precise legal identity of their counterparty.⁵¹

A party can transact repos with another under the same Global Master Repurchase Agreement (GMRA) as either a principal (dealing in its own name and for its own benefit) or an agent (dealing in a client's name and for the client's benefit). The legal relationship and risk exposure between principals is very different to that between a principal and an agent, or between two agents.

Parties should therefore make clear to each other, at the point of trade, on what basis they are dealing. In addition, where one party is acting as an agent, they should both have signed the Agency Annex to the GMRA. If both parties are acting as agents, they will have to seek legal advice, as the Agency Annex to the GMRA does not cover agent-agent transactions.⁵²

Best practice recommendation: Each party should make clear to the other, at the point of trade, if is acting as a principal or an agent.

2.2. Communication and messaging standards

When negotiating by telephone or electronic messaging system, it is essential that the precise terms of a transaction are clearly understood by both parties. On the telephone, there is a tendency towards the use of market slang. When typing on an electronic messaging system, it is common to try to speed up conversation by using abbreviations (above and beyond widely understood conventions such as ISO currency codes). Both practices can lead to confusion and parties should avoid sacrificing clarity for speed. It is the responsibility of both parties to ensure that they understand fully the terms of a transaction and to insist on clarification from the other party where there is any uncertainty. On the telephone, the key economic terms of a transaction should be listed by one of the parties at the end of the conversation. Post-trade checks should also be conducted using confirmations and affirmation (see paragraphs 2.7). Further, in a tri-party arrangement, arrangement terms will be matched, and confirmations are necessary for tri-party repos.

Best practice recommendation: When negotiating by telephone or electronic messaging system, parties should ensure that they understand fully the terms of a transaction and insist on clarification from the other party where there is any uncertainty. On the telephone, the key economic terms of a transaction should be listed by one of the parties at the end of the conversation. Post trade checks should also be conducted using confirmations and affirmation.⁵³

2.3. How to quote the price of a repo

Repurchase agreements are quoted in terms of the repo rate, that is, the percentage per annum rate of return on the purchase price to be paid by the buyer to the seller on the repurchase date as part of the repurchase price. The repo rate should be quoted on the basis of the day count/annual basis convention (also called the day count fraction convention) prevailing in the wholesale money market in the currency of the purchase price (notably, the deposit and forward foreign exchange markets). This is almost always actual/365 days (A/365F) or actual/360 days (A/360). In the GMRA, the repo rate is called the pricing rate.⁵⁴

⁵⁰ Barclay's "Repo Market – Masterclass," May 2014.

⁵¹ ICMA "ERC Guide to Best Practices in European Repo Markets," page 7.

⁵² ICMA "ERC Guide to Best Practices in European Repo Markets," page 7.

⁵³ ICMA "ERC Guide to Best Practices in European Repo Markets," page 7-8.

⁵⁴ ICMA "ERC Guide to Best Practices in European Repo Markets", section 2.4-2.5, p8.



Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

2.4. How to quote the purchase price

Parties to a repurchase agreement conventionally agree the purchase price of fixed-income securities in terms of the dirty price of the collateral (that is, including the accrued interest since the last coupon date). The purchase price of a repurchase agreement also incorporates any initial margin or haircut.⁵⁵

2.5. Fixing the purchase and repurchase dates

Parties are able to vary the period between the date on which a repo is agreed (transaction date or T) and the purchase date, when cash and collateral are exchanged. Depending on the currency, parties can agree to schedule the purchase date on:

- the same day as the transaction date (in which case, settlement is said to be 'same-day' or T+0);
- the next business day (called 'next-day' or T+1 settlement);
- the second business day after the transaction date (called 'spot' or T+2 settlement);
- the third business day after the transaction date (T+3 settlement).

Any purchase date later than T+3 is now usually considered a forward repo in any currency.

The most common non-forward settlement period in the repo market is usually one business day shorter than the most common non-forward settlement period in the cash market for the same securities. This is because the net cash positions that need to be financed and the net securities positions that need to be covered in the repo market are only known after close of business on the cash market transaction date and therefore have one less business day than the cash market to settle.

Where non-bank customers in the repo market are unable to deliver securities one day faster than is usually required for cash settlement, dealers can agree to settle one business day later, in line with the cash market. This later repo purchase date is known as a 'corporate value date'. For the purchase date of forward repos, see paragraphs 2.5.1.

The repurchase date of a repo can be fixed in a variety of ways.

- For fixed-term repos, the repurchase date can be agreed in terms of:
 - a specific date; or
 - for round date maturities, using the Modified Following Business Day Convention and End/End Rule.
- For open repos, the repurchase date is not fixed on the transaction date but can be called at any time, by either the buyer or the seller, subject to a minimum period of notice (see paragraphs 2.5.3).⁵⁶

Business days: The purchase date and repurchase date of a repo must both be business days in the city in which the currency of a repo is to be paid. If the city in which the currency is to be paid is different from the city in which the collateral is to be delivered (eg in the case of cross-currency repos), the purchase date and repurchase date must also be business days in the latter city as well. The purchase date and repurchase date of a repo would also have to be a business day in more than one city, if collateral has to be delivered between securities settlement systems (SSS) and/or custodian banks in different cities. Under the GMRA 2000 paragraph 2(e) and 2011 paragraph 2(f), a business day is defined as:

- For repos to be settled at an SSS, any day on which that system is open for business;
- For repos to be settled by delivery of securities at a custodian bank, any day on which that bank is open for business, as well as a day on which banks generally are open for business in the city which hosts the central bank payments system for the currency of the purchase price, or, a day when payments can be made in the local settlement / payment system.

⁵⁵ ICMA "ERC Guide to Best Practices in European Repo Markets", section 2.6-2.7, p8.

⁵⁶ ICMA "ERC Guide to Best Practices in European Repo Markets", section 2.6-2.7, p9.

A business day is defined as a day when payments can be made in the local settlement / payment system.

The definition in the GMRA does not specify when the business day ends. This can create uncertainty about when a notice served by one party on another (eg a default notice) comes into effect. It is therefore best practice for parties to agree times to be taken as close of business in the countries in which they are located, and in other relevant locations, and record these times in Annex I of their GMRA or, if that is not practical, in confirmations.

Best practice recommendation: It is best practice for parties to agree the times to be deemed as being the close of business in the countries in which they are located, and in other relevant locations, and record these times in Annex I of their GMRA or, if that is not practical, in confirmations.

It is best practice for parties to agree on whether to include relevant domestic public holidays in the definition of a business day in Annex I of their GMRA or, if that is not practical, in confirmations.

Best practice recommendation: It is best practice for parties to consider whether to include relevant domestic public holidays in the definition of business day in Annex I of their GMRA or, if that is not practical, in confirmations.⁵⁷

Unless otherwise agreed between the parties, the day or days between but not including the transaction date and purchase date should be business days in the city in which the currency of a repo is to be paid. If the city in which the currency is to be paid is different from the city in which the collateral is to be delivered, the day or days between but not including the transaction date and purchase date must also be business days in the latter city as well. However, the day or days between the transaction date and purchase date do not have to be business days in the city or cities in which the parties are located, if these are different from the cities in which payment and delivery are due, unless the parties agree otherwise.

The convention is summarised in the following table.

Which days should be business days in each relevant location?

	location of			
	Party A	Party B	currency (central bank payment system)	security settlement system(s)
transaction date (T)	yes	yes	yes	yes
any Business Days between T and Purchase Date	not necessary	not necessary	yes	yes
Purchase Date	yes	yes	yes	yes
Repurchase Date	yes	yes	yes	yes

2.5.1 Forward repos

A forward repo is a transaction with a purchase date later than the most common purchase date in the currency of the purchase price. For example, since 6 October 2014, the purchase date of a forward repo in euros should be T+3 or later (except in the case of a repo for a corporate value date). For forward repos for which the periods from the transaction date to the purchase date and repurchase date are both multiples of one month, there are two methods of fixing these dates:

- Method 1. Both dates should be the same date in the relevant future months as the conventionally-earliest purchase date (unless this is not a business day, in which case, the modified following business day convention

⁵⁷ ICMA "ERC Guide to Best Practices in European Repo Markets", page 10.



Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

applies). For example, in euro, for which the conventionally-earliest purchase date is the spot date or T+2, a 1x3 forward repo would have a forward purchase date which is the same date one calendar month after the current spot date and repurchase date which is the same date three calendar months after the current spot date. Thus, assuming a currency which settles T+2, the dates for a 1x2 forward repo transacted on Wednesday, 4 September 2013, would be:

- conventionally-earliest purchase date: (Friday) 6 September
 - 1-month purchase date: (Monday) 7 October 2013 (as 6 October 2013 is on Sunday)
 - 2-month repurchase date: (Wednesday) 6 November 2013.
- Method 2. The forward purchase date should be the same date in the relevant future month as the conventionally-earliest purchase date and the repurchase date should be the same date in the relevant future month as the forward purchase date (unless one or both of these dates are not business days, in which case, modified following business day convention applies). Using the same example as above (a 1x2 forward repo in a currency which settles T+2 transacted on Wednesday, 4 September 2013), the dates would be:
- conventionally-earliest purchase date: (Friday) 6 September
 - 1-month purchase date: (Monday) 7 October 2013 (as 6 October 2013 is on Sunday)
 - 2-month repurchase date: (Thursday) 7 November 2013.

In contrast to the first method, the repurchase date in this second method is fixed by reference to the forward purchase date of 7 October, not the spot value date of 6 September. Therefore, a change in the fixing of the forward purchase date, because it is not a business day, would affect the fixing of the repurchase date. This would not be the case in method 1.

The second method is recommended as best practice, as this ensures that the period between the purchase date and repurchase date will have the same number of days as new non-forward transactions for the same purchase date. The second method is the convention applied elsewhere in the money market. It is best practice for parties to specify the use of this convention in Annex I of their GMRA or, if that is not practical, in confirmations.

Best practice recommendation: It is best practice to fix the purchase date of a forward repo at the same date in the relevant future month as the conventionally-earliest purchase date and to fix the repurchase date at the same date in the relevant future month as the purchase date. Therefore, a change in the fixing of the purchase date, because it is not a business day, would affect the fixing of the repurchase date.⁵⁸


2.5.2. Floating-rate repos

Floating-rate repos can be linked to money market indexes, commonly LIBOR, or overnight index swaps (OIS) fixings depending on currencies. . It is convention for such transactions to pay interest at the end of each interest rate period. For example, a repo indexed to 3-month USD LIBOR would conventionally pay repo interest every three months. The market convention for fixing the dates here is different to that described for fixing the dates of forward repos in paragraphs on "Forward repos" above. For example, for interest rate periods which are multiples of one month, the start of all future periods should be the same dates in the relevant future months as the purchase date, unless that a future date is not a business day, in which case, the modified following business day convention and end/end rule would apply to this date. This convention ensures that the day counts of the second and subsequent interest rate periods are not shortened by the deferral of the starting dates of earlier periods because of the occurrence of non-business days. This would have the undesirable effect of progressively compressing periods as one approached the fixed final repurchase date.

2.5.3. Open repos

In the GMRA, this type of repo is called an 'on demand' transaction. An open repo is initiated without fixing a repurchase date. Instead, either party may terminate the transaction (in whole or in part) by giving agreed notice to the other. The GMRA states that termination shall 'occur after not less than the minimum period as is customarily

⁵⁸ ICMA "ERC Guide to Best Practices in European Repo Markets," pages 11-12.



required' for delivery (GMRA paragraph 3(e)). When negotiating an open repo, it is essential that the parties have the same understanding about what is the customary delivery period for the collateral. It is also essential that they have the same understanding of what the deadline is (and in which time zone) for giving the notice of termination. Notice given after this deadline will not be effective on the same day, in other words, the return of equivalent collateral will not be initiated until the next business day. It is best practice for the parties to agree the delivery period and deadline.

Best practice recommendation: It is best for the parties to an open repo of less commonly-used collateral to agree the delivery period and deadline for serving a termination notice and to document their understanding in Annex I of their GMRA or, if that is not practical, in confirmations.⁵⁹

It is possible that a dispute may arise about whether a deadline applies to the sending or receiving of the notice of termination. Parties should avoid such disputes by acting reasonably and in good faith. It is best practice, if giving notice at a time close to the agreed deadline, to ensure that the other party is aware of the notice. This could be done by giving notice by telephone, rather than by electronic messaging, so that there is no uncertainty about whether the other party received notice before the deadline.

Best practice recommendation: It is best practice, when giving notice to terminate an open repo at a time close to the agreed deadline, to ensure that the other party is aware of the notice. This could be done by telephone, rather than by electronic messaging, so that there is no uncertainty about whether the other party received notice. It is also best practice for parties to document the termination requirements on open repos in Annex I of their GMRA or, if that is not practical, in confirmations.⁶⁰

Parties need to be sure about when equivalent collateral will be returned to the seller and the repurchase price will be paid to the buyer following a termination. Unless this is specifically documented in Annex I of their GMRA or in confirmations, the default under the GMRA will be 'not less than the minimum period as is customarily required for the settlement or delivery of money or equivalent securities of the relevant kind' (GMRA 2000/2011 paragraph 3(e)). Parties need to consider whether this provides sufficient certainty.⁶¹

2.6. Agreeing interest rates for late payments

The standard provision in the GMRA 2000 (paragraph 12) is that the interest rate on late payments should be the higher of the repo rate on a particular transaction and 1-month LIBOR. However, parties are free to agree another rate. In this case, it is best practice for the parties to agree such a rate before trading and to record this rate in Annex I of their GMRA. In the GMRA 2011 (paragraph 12), the default rate is the higher of the repo rate on a particular transaction and an agreed 'Applicable Rate', which should be recorded in Annex I. It is also best practice for parties to agree an interest rate on late payments that reflects only the need of the party suffering late payment for economic compensation. The interest rate on late payments should not be used to penalise the other party.

Best practice recommendation: Where parties decide to agree an interest rate to apply to late payments, it is best practice to do so before trading and to record the rate in Annex I of their GMRA. It is also best practice for parties to agree an interest rate on late payments that reflects only the need of the party suffering late payment for economic compensation. The interest rate on late payments should not be used to penalise the other party.⁶²

Where a late payment by one party has caused the cash account of the other at an International Central Securities Depository (ICSD) to go into deficit and suffer an overdraft charge, the practice has developed of passing that charge back to the first party, regardless of the fact that the parties have accepted the standard provision of the GMRA. If parties to a repo wish to be able to pass on overdraft charges incurred because of a late payment by their counterparties, it is best practice to do so by including a supplementary term to this effect in Annex I of their GMRA.

⁵⁹ ICMA "ERC Guide to Best Practices in European Repo Markets," pages 14-15.

⁶⁰ ICMA "ERC Guide to Best Practices in European Repo Markets," page 15.

⁶¹ ICMA "ERC Guide to Best Practices in European Repo Markets," page 15.

⁶² ICMA "ERC Guide to Best Practices in European Repo Markets," page 18.



Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

Best practice recommendation: If parties to a repo wish to be able to pass on overdraft charges incurred at an ICSD because of a late payment by a counterparty, it is best practice to do so by including a supplementary term to this effect in Annex I of their GMRA.⁶³

2.7. Verifying the terms of transactions

Once a transaction has been agreed, it is best practice for each party to verify that its understanding of the terms of the transaction is the same as the other party's. A post-trade process of verification should be performed promptly after the execution of a contract, which means as soon as possible on the same day. Prompt same-day verification is required in order to give the maximum opportunity to correct any mistakes made in recording the terms of a transaction or resolve any disagreements over the agreed terms, if necessary, by agreeing to terminate the transaction. Such promptness is particularly essential in order to be able to verify the details of transactions requiring overnight settlement.

The later that mistakes or disagreements are discovered, the more difficult and expensive it will be to repair and reprocess transactions. Until mistakes or disagreements are identified and addressed, the parties will be exposed to unexpected market and liquidity risks. Regulators are pressing for record-keeping to be accurate and complete on the transaction date, in order to improve risk management by firms and to allow more effective prudential supervision. Verification of the terms of a transaction can be done by means of confirmation and, if necessary, affirmation.

Confirmation is the process of providing a complete record of the commercial terms of a transaction and settlement instructions to the other party. Either, the parties exchange confirmations or, by agreement, one party sends a confirmation to the other. The provision of a confirmation allows the recipient to cross-check the sender's record of the terms of a transaction against the recipient's own records.

Confirmations play a key role in the legal construction of a transaction. Whereas, the GMRA and Annex I set out the general terms and conditions of the business relationship between the parties, a confirmation describes the terms and conditions specific to the transaction. The content of confirmations should be consistent with the GMRA and refer to the same terms (eg Pricing rate, not repo rate). Annex II of the GMRA provides a form of confirmation (which is reproduced in Annex III of this Guide). A confirmation would be regarded as prima facie evidence of the terms of a transaction. In the event of a conflict between the terms of such confirmation and the GMRA, the confirmation shall prevail in respect of that transaction and those terms only. It is best practice therefore for parties to promptly compare a confirmation received from the other party with their own records and to revert to the other party urgently, on the transaction date, if there are any differences.

For transactions executed over an automatic repo trading system, bilateral confirmations may be substituted by the notifications or records generated by the trading system. Parties need to ensure that such notifications or records provide the information that would otherwise be contained in a confirmation. If not, confirmations should be sent between the parties.

Best practice recommendation: It is best practice for parties who wish to substitute confirmations with notifications or records generated by an automatic trading system to ensure that such notifications or records provide the information that would otherwise be contained in a confirmation.⁶⁴

The essential terms which should be included in a repo confirmation (which are set out in GMRA paragraph 3(b) and/or Annex II of the GMRA) are:

- Transaction date
- Collateral (including ISIN or other identifying code)
- Nominal value of collateral

⁶³ ICMA "ERC Guide to Best Practices in European Repo Markets," section 2.31-2.32, p18-p19.

⁶⁴ ICMA "ERC Guide to Best Practices in European Repo Markets," pages 23-24.

- Precise legal identities of the buyer and seller
- Purchase date
- Purchase price
- Currency of the purchase price
- Repurchase date or confirmation that the transaction is an open repo
- Repo rate (Pricing rate) in the case of a repurchase agreement
- Settlement instructions, including the bank accounts of the buyer and seller
- Where the Agency Annex has been signed, confirmation of whether the transaction is an agency transaction or between principals and, if it is an agency transaction, which party is the agent and the identity of the principal(s) in terms of name or code
- Any additional terms.

Where a party has agreed to send confirmations, it is best practice that, subject to applicable laws and regulations, such confirmation be made through an electronic communication system agreed between the parties or, in the absence of such an agreement, such electronic medium as the party who is under the obligation to confirm may choose, provided that the confirmation is capable of being promptly and accurately reproduced on paper.⁶⁵

2.8. Affirmation process

Affirmation is a process in which (1) one party contacts the other by telephone or e-mail on the transaction date, as soon as possible after the execution of a transaction, in order to secure immediate verification from the other party of at least the key economic terms of a transaction and the settlement instructions, or (2) both parties report batches of transactions to a third-party affirmation service for automatic comparison. Affirmation is performed where the checking of a confirmation is not practicable.

Because affirmation by telephone or e-mail is a manual process, it may not be practicable to affirm all transactions or events. Instead, such bilateral affirmation may be applied only to certain counterparties or to riskier transactions, which may include less creditworthy counterparties, riskier collateral, larger size, longer duration or complicated structures requiring economic decisions to be made in the future. Automated third-party affirmation services should make it possible to affirm all repos, an objective which is highly desirable.

Typical terms to be affirmed are:

- transaction date
- purchase date
- repurchase date or whether the repo is open
- collateral (ISIN)
- nominal value of collateral
- market value of collateral
- purchase price
- repo rate or, for open and floating-rate repos, interest rate index and spread
- currency of purchase price
- counterparty
- buy or sell
- settlement account(s)

⁶⁵ ICMA "ERC Guide to Best Practices in European Repo Markets," page 22.



Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

Affirmation is also used during the life of a transaction to verify changes in its terms, either an update of a variable term (eg re-fixing the repo rate on a floating-rate repo) or an amendment (eg the early termination of a transaction).

Typical changes include:

- Early termination (eg termination of an open repo, mini close-out, fails)
- Change in repo rate or re-fixing of an interest rate index (for open and floating-rate repos)
- ISIN for new collateral after a substitution⁶⁶

2.9. Importance of confirmations

Unless both parties exchange confirmations, one party could not prove that the other received a confirmation in the event that there was a disagreement about the terms of a transaction. Where it is agreed that confirmations will be exchanged, any problem would automatically become apparent to both parties. A party not receiving, or claiming not to have received, a confirmation by the end of the transaction date could reasonably have been expected to request the other party to re-send the confirmation. Where a party agrees that its counterparty does not have to send a confirmation, it is good practice for it to affirm these transactions (but best practice is the affirmation of all transactions). Otherwise, it is exposed to the risk that any queries by the other party may be too late to avoid disputes.

It is best practice for transactions to be confirmed and, if desired, affirmed by the operations departments of the parties, not by their trading desks. This is in order to ensure the proper segregation of functions.

Best practice recommendation: It is best practice for each party to verify that its understanding of the terms of a transaction is the same as the other party's, by means of confirmation and, if necessary, affirmation. Verification should be performed promptly after the execution of a contract, which means as soon as possible on the same day. Subject to applicable laws and regulations, such confirmation should be made through an electronic communication system agreed between the parties or, in the absence of such an agreement, such electronic medium as the party who is under the obligation to confirm may choose, provided that the confirmation is capable of being promptly and accurately reproduced on paper. A party should promptly compare a confirmation received from the other party with their own records and revert to the other party urgently, on the transaction date, if there are any differences. It is best practice to affirm all transactions where only one party is obliged to send confirmations. Transactions should be confirmed by operations departments.⁶⁷

A template for transaction confirmations for cross-border repo trades can be found in Annex III, which is the form of confirmation used in GMRA (Annex II of GMRA).

In the event of bespoke structured transactions, the GMRA lends itself to verification through the use of long form confirmations.

2.10. Recommended delivery size

It is best practice to divide or 'shape' instructions for the delivery of a large amount of collateral into smaller deliveries or 'shapes', so as to reduce the economic impact of settlement failures. However, while such partial delivery is helpful in mitigating the economic impact of settlement problems, it does not change the legal obligation on the delivering party to deliver the full agreed amount of collateral and the other party is within its rights to decline a partial delivery. Shaping is therefore different from 'partialling', where the parties have agreed to accept partial deliveries in part fulfillment of their contract.

Best practice recommendation: It is best practice to divide instructions for the delivery of large amounts of collateral into 'shapes'.⁶⁸

⁶⁶ ICMA "ERC Guide to Best Practices in European Repo Markets," page 22.

⁶⁷ ICMA "ERC Guide to Best Practices in European Repo Markets," section 2.33-2.45, p18-p23.

⁶⁸ ICMA "ERC Guide to Best Practices in European Repo Markets," section 2.46, p23.

2.11. Anticipating problems that may be caused by low or negative repo rates

Repo is the only instrument where rates of return can become negative in normal market conditions. Repo rates become negative when a particular collateral asset is subject to exceptional borrowing demand in the repo market and/or reduced supply, and goes on special. Very low, zero or negative rates become more common when the general level of interest rates (including the general collateral (GC) repo rate) is low. It is also possible for GC repo rates to become negative during a period of financial stress, if the whole basket of general collateral in a particular collateral market is subject to exceptional demand because the underlying securities, which are typically government securities, are seen as a safe haven. A negative repo rate means that the buyer (the cash lender) effectively pays repo interest to the seller (the cash borrower), because the repurchase price will be lower than the purchase price. Problems can arise, because the GMRA was designed only with positive repo rates in mind. Parties need to be aware of these problems.

If a seller fails to deliver collateral on the purchase date of a repo, he will not receive or be able to retain the purchase price until he does deliver. However, the seller will remain obliged to pay the full amount of repo interest to the buyer at the repurchase date, even if he delivers the collateral late and therefore has delayed use of the cash, or even if he never delivers the collateral and therefore never has use of the cash. Having to pay interest without having the use of cash is a cost that provides an incentive to the seller to remedy a failure to deliver, as well as compensation to the buyer.

At negative repo rates, the automatic cost of failing to deliver collateral becomes a perverse incentive to fail. Given that the repo contract remains in force in the event of a failure to deliver by the seller (unless the buyer chooses to terminate the transaction), the seller is obliged to pay a repurchase price to the buyer on the repurchase date which, in this case, is lower than the purchase price which the buyer is obliged to pay to the seller on the purchase date. Thus, the seller is rewarded for his failure. To eliminate the perverse effect of negative repo rates, the ICMA issued a recommendation in November 2004 on behalf of the ERC that, when the seller fails to deliver on the purchase date of a negative rate repo, the repo rate should automatically reset to zero until the failure is cured, while the buyer has the right to terminate the failed transaction at any time. Subsequently, this recommendation has been included as an optional supplementary condition in Annex I of the GMRA 2011. For parties using the GMRA 2000, it is best practice to adopt the ICMA recommendation by an agreed amendment to the GMRA or, if that is not practicable, by inclusion in confirmations. For parties using the GMRA 2011, it is best practice to elect to include the supplementary condition in Annex I.

Best practice recommendation: For parties using the GMRA 2000, it is best practice to adopt the ICMA recommendation of November 2004 on failure to deliver in repos at negative rates by an agreed amendment to the GMRA or, if that is not practicable, by inclusion in confirmations. For parties using the GMRA 2011, it is best practice to elect to include the supplementary condition on failure to deliver for repos at negative rates in Annex I.

Given that the repo rate (C) is used as the reinvestment rate for equivalent income payments, if that rate is negative, reinvestment will erode the value of the equivalent income payment. This does not make sense. The repo rate is typically negative only because it implicitly incorporates a borrowing fee for the collateral that reflects the specialness of the collateral. Cash reinvestment rates should be close to the GC repo rate or some other money market rate for the short-term borrowing or lending of cash. Otherwise, the buyer is paying a hidden, additional fee for borrowing a special. It is best practice for parties to adopt an agreed amendment to their GMRA or, if that is not practicable, include a supplementary term in their confirmations, unless they are content with that possibility, or they are willing to accept a negative reinvestment rate (for example should the general interest rate level, as represented by the relevant GC repo rate or official policy rate, also become negative). Otherwise, they could agree an alternative reinvestment rate to the repo rate.

2.12. Calculating floating-rate repo interest payments

In the case of floating-rate repos linked to overnight (OI) or tom/next (TN) interest rate indexes; interest is not paid during the term of the repo but is accrued until the final repurchase date. Nor is the daily interest compounded. Instead, an arithmetic average is calculated. For a floating-rate repo with a day count of n:



Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

$$\text{Repurchase Price} = \text{Purchase Price} \times \left[1 + \frac{\left(\frac{(R_1 \times D_1) + (R_2 \times D_2) + \dots + (R_n \times D_n)}{n} \right) \times n}{100 \times B} \right]$$

where:

R₁	is the per annum index fixing for day 1
R₂	is the per annum index fixing for day 2
R_n	is the per annum index fixing for day n
D₁	is the number of days to which index fixing R ₁ applies (normally 1 for a weekday and 3 for a weekend)
D₂	is the number of days to which index fixing R ₂ applies
D_n	is the number of days to which index fixing R _n applies
n	is the number of days in the term of the transaction (ie day count)
B	is the annual basis (ie assumed number of days in the year)

Where the term of a repo crosses one or more non-business days, the OI fixing on the last business day is applied to the non-business day(s). For example, Friday's fixing will be applied to the Saturday and Sunday of a normal weekend.

The repurchase price of a floating-rate repo linked to an OI cannot be paid until the final OI is fixed. The problem is that OI are published after close of business, which may be too late to send settlement instructions to the appropriate CSD or ICSD in time for settlement on the repurchase date. If the fixing of the OI is not too late, then Method 1 below is used. Method 1 is best practice.

Worked example of Method 1 for 1W USD 100 million repo at ON LIBOR

	Day count	ON LIBOR fixing	ON LIBOR applied	Payment	
Thu 13-Nov 2014	1	0.09390 %	0.09390 %		
Fri 14-Nov 2014	3	0.09400 %	0.09400 %		
Mon 17-Nov 2014	1	0.09450 %	0.09450 %		
Tue 18-Nov 2014	1	0.09640 %	0.09640 %		
Wed 19-Nov 2014	1	0.09850 %	0.09850 %		crystallisation day
Thu 20-Nov 2014				1848.06	

$$\begin{aligned} \text{Repurchase Price} &= 100,000,000 \\ &= 100,001,848.06 \end{aligned} \quad \left[1 + \frac{\left(\frac{0.0939 + (0.094 \times 3) + 0.0945 + 0.0964 + 0.0985}{7} \right) \times 7}{100 \times 360} \right]$$

If the fixing of the OI is too late to send settlement instructions to the appropriate CSD or ICSD in time for settlement on the repurchase date, then Method 2 below is used. Method 2 has traditionally been used in the cross-border market, where it has not always been possible to send instructions to the CSD or ICSD on the business day before the repurchase date (R-1, where R is the repurchase date) in time for settlement the next day. Instead, the OI fixing on R-2 is also applied to R-1. Method 2 is becoming less common as settlement infrastructure improves.

Worked example of Method 2 for 1W USD 100 million repo at ON LIBOR

	Day count	ON LIBOR fixing	ON LIBOR applied	Payment	
Thu 13-Nov 2014	1	0.09390 %	0.09390 %		
Fri 14-Nov 2014	3	0.09400 %	0.09400 %		
Mon 17-Nov 2014	1	0.09450 %	0.09450 %		
Tue 18-Nov 2014	1	0.09640 %	0.09640 %		
Wed 19-Nov 2014	1	0.09850 %	0.09640 %		crystallisation day
Thu 20-Nov 2014				1842.22	

$$\begin{aligned} \text{Repurchase Price} &= 100,000,000 \\ &= 100,001,842.22 \end{aligned} \quad \left[1 + \frac{\left(\frac{0.0939 + (0.094 \times 3) + 0.0945 + (0.0964 \times 2)}{7} \right)}{100 \times 360} \times 7 \right]$$

Note that, in the example above of Method 2, the fixing on 19 November is not used as the final fixing. Instead, the fixing on 18 November is repeated. The latter is said to be the “crystallisation day”. In Method 1, the sequence of LIBOR is said to be “crystallised” into a fixed rate on the business day before the repurchase date (R-1). In Method 2, the sequence of LIBOR is said to be crystallised into a fixed rate two business days before the repurchase date (R-2).

Best practice recommendation: It is best practice, when calculating the repurchase price of a floating-rate repo linked to an overnight index, to apply the rates fixed and published for each and every business day, rather than repeating a previous day's fixing for the last day.

It is best practice to confirm in writing the method of calculating the repurchase price of a floating-rate repo ahead of trading.

Best practice recommendation: It is best practice to confirm in writing the method of calculating the repurchase price of a floating-rate repo linked to an overnight index ahead of trading.

Under Method 2, there will obviously be a discrepancy between the repurchase price that is calculated and settled by the parties, and the repurchase price that would have been paid had it been possible to apply the correct OI fixings for each and every day. Such discrepancies are usually insignificant, particularly for very short-term transactions, and will tend to be written off by the parties.

However, for longer-term transactions, this may not be the case and parties may agree to make a retrospective reimbursement for any difference between the actual and correct repurchase prices. Such a term should be agreed at the point of trade. It is best practice to document this agreement and the deadline for reimbursement in the confirmation of the transaction, and for any reimbursement to be made on the business day immediately following the repurchase date. In any event, reimbursement should be made no later than 30 days after the repurchase date. It is also recommended that, where several reimbursements are to be claimed on the same day, they should be claimed in aggregate, rather than separately for each transaction. The aggregate claim per day usually depends on counterparties and should not be for less than about USD 500 or the approximate equivalent in other currencies.

Best practice recommendation: Where the repurchase price of a floating-rate repo indexed to an overnight index has to be calculated before the fixing and publication of the final rate and the parties decide to make retrospective reimbursements for any difference between the actual and correct repurchase prices, it is best practice to document this agreement and the deadline for reimbursement in the confirmation of the transaction, and for any reimbursement to be made on the business day immediately following the repurchase date, but no later than 30 days later. Where several reimbursements are to be claimed on the same day, a single aggregate claim should be made, rather than separate claims for each transaction. The aggregate claim per day usually depends on counterparties and should not be for less than about USD 500 or the approximate equivalent in other currencies.



Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

If a TN index is used instead of an OI, because a TN rate is fixed one day in advance of the day to which it applies, there is no problem about sending the necessary settlement instructions to the relevant CSD or ICSD in time for the repurchase to be made on the repurchase date. Therefore, only Method 1 should be used.

Some floating-rate repos are linked to term indexes such as USD LIBOR (other than the ON or TN LIBOR indexes). In contrast to repos linked to OI or TN indexes, it is convention to pay the repo rate at the end of each floating interest rate period. For example, a repo indexed to 3-month LIBOR would conventionally pay repo interest every three months. The convention for fixing the repurchase dates of floating-rate repos is described in paragraph “floating-rate repos” above).

Floating-rate repos require the monitoring and recording of floating-rate indexes, sometimes over extended periods. In order to avoid operational error, it is best practice to confirm or affirm a new floating rate ahead of the period to which it will apply (see paragraphs 2.7).⁶⁹

2.13. Calculating open repo interest payments

When an open repo is transacted, a repo rate close to the overnight rate will be agreed by the parties. That rate will not change unless and until the parties agree a new rate. Either party may propose a change in the rate. Agreement to update the repo rate (often called ‘re-pricing’ the repo) must be made before the agreed deadline for termination of the transaction in order for the change in rate to take effect on the next business day. It is best practice to confirm or affirm such changes.

Unless otherwise agreed, the interest on an open repo accrues daily until payment without compounding.

Worked example: calculating the interest on an open repo

Consider an open repo with a purchase price of USD 10 million that runs from Tuesday, 6 August, to the following Thursday, 15 August (seven business days but nine calendar days). The initial repo rate is 0.75% but this is changed on Monday to 0.55%. The total interest due on the repo is:

$$= 10,000,000 \left[\begin{array}{c} \frac{0.75 \times 1}{100 \times 360} + \frac{0.75 \times 1}{100 \times 360} + \frac{0.75 \times 1}{100 \times 360} + \frac{0.75 \times 3}{100 \times 360} \\ \frac{0.55 \times 1}{100 \times 360} + \frac{0.55 \times 1}{100 \times 360} + \frac{0.55 \times 1}{100 \times 360} \end{array} \right] = 1,708.33$$

As open repos may run for extended periods, it is customary to make regular periodic payments on continuing transactions. This is typically done monthly, usually after the end of each calendar month and in aggregate for all open repos between the same parties running during the calendar month. Parties to open repos should agree the frequency and date for payment when negotiating such transactions in Annex I of their GMRA or, if that is not practical, in confirmations.⁷⁰

3. Best practices in managing the life cycle of a repo

3.1. Managing collateral in repo transactions

3.1.1. Allocation of collateral in a general collateral (GC) repo

In general collateral (GC) repos which have not been executed on an automatic repo trading system and/or are not being settled across a tri-party collateral management system, it is best practice for the seller to notify the buyer of the collateral which he proposes to deliver as soon as possible after execution and no longer than one hour later.

⁶⁹ ICMA “ERC Guide to Best Practices in European Repo Markets,” section 2.54-2.63, p28-p32.

⁷⁰ ICMA “ERC Guide to Best Practices in European Repo Markets,” section 2.64-2.66, p32-p33.



Best practice recommendation: In general collateral (GC) repos in which the seller selects the collateral to be delivered to the buyer, it is best practice for the seller to notify the buyer of the identity of the collateral which he proposes to deliver as soon as possible after execution and no longer than one hour later.⁷¹

3.1.2. Agreeing the price of collateral

In repos which have not been executed on an automatic repo trading system and/or are not being settled across a tri-party collateral management system, it is best practice for the parties to agree the price or prices to be used to value the collateral as soon as possible after execution and no longer than 15 minutes later. The value for a fixed-income security should include the outstanding accrued interest on that security.

Best practice recommendation: In general collateral (GC) repos in which the seller selects the collateral to be delivered to the buyer, it is best practice for the parties to agree the price or prices to be used to value the collateral as soon as possible after execution and no longer than 15 minutes later.⁷²

3.1.3. Fixing an initial margin or haircut

Initial margins and haircuts are tools to mitigate risk associated with liquidating collateral in the event of a counterparty default. Therefore, initial margins or haircuts are used to anticipate the loss that may be experienced if there is an adverse move in the collateral price during the close-out period.⁷³ A haircut is based on several factors, including: (i) the volatility of collateral; (ii) close-out period of 10 days (i.e. assumes it would take 10 days to liquidate the collateral); (iii) counterparty credit worthiness; (iv) tenor of the repo (as longer-dated transactions can have different levels of volatility); (v) and the correlation between the collateral and counterparty.

Haircut method is the main methodology and most widely used for calculating a haircut:

$$\text{Haircut} = \frac{\text{Market value of collateral} - \text{Purchase price}}{\text{Market value of collateral}} \times 100$$

- HC is a percentage discount deducted from the market value of a security that is being offered as collateral in a repo in order to calculate the purchase price.
- Haircuts are therefore expressed as the percentage difference between the market value of the collateral and the purchase price of the repo.

Worked example: applying a haircut

Collateral worth USD 20 million is repoed out subject to a haircut of 5%. The purchase price would be

$$20,000,000 \times (1 - 0.05) = 19,000,000$$

Because an initial margin is expressed relative to the purchase price, while a haircut is a percentage of the market value of collateral, the arithmetic of initial margins and haircuts is slightly different. For example, an initial margin of 102% is not equivalent to a haircut of 2%, but to one of 1.961% (ie 100/102%). The difference can become substantial for high initial margins and deep haircuts.

Initial margins and haircuts are likely to be agreed at the point of trade, in which case, it is best practice to record the initial margin or haircut in the confirmation.

Best practice recommendation: It is best practice to record the initial margin or haircut in writing. If agreed at the point of trade, an initial margin and haircut should be recorded in the confirmation.⁷⁴

⁷¹ ICMA "ERC Guide to Best Practices in European Repo Markets," section 2.20, p15.

⁷² ICMA "ERC Guide to Best Practices in European Repo Markets," section 2.21, p16.

⁷³ Barclays, "Repo Market – Masterclass," May 2014.

⁷⁴ ICMA "ERC Guide to Best Practices in European Repo Markets," section 2.22-2.27, p16-p18.



Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

3.2. Collateral substitution

3.2.1. Agreeing rights of substitution

Rights of substitution must be clearly defined at trade inception.

A buyer in a repo may grant the seller one or more rights to substitute some or all collateral during the term of the repo. This permits the seller, at any time between the purchase date and repurchase date, to call for the buyer to return equivalent collateral in exchange for substitute collateral. In return for this right, the seller will usually agree to pay a higher repo rate. Where there is more than one right of substitution, the exercise of the second and any subsequent rights will result in the substitution of previous substitutes. See paragraphs 3.7.5 on exercising a 'mini close-out' in response to a failure to deliver on the repurchase date below.

It is best practice to record the original number of rights of substitution in the initial confirmation of the transaction and to confirm each substitution, noting the number of rights of substitution remaining.

Best practice recommendation: It is best practice to record the original number of agreed rights of substitution in the initial confirmation of a transaction and to confirm each substitution thereafter, noting the number of rights of substitution remaining.

When negotiating rights of substitution, it is necessary to agree:

- The total number of substitutions to be allowed.
- The deadline for the seller to give notice of substitution for earliest delivery.
- The delivery period for the return of the equivalent collateral and the delivery of the substitute.
- Whether substitute collateral should have at least the same market value or nominal value as the collateral being substituted. See 8(a) of the GMRA.
- To the extent possible, what are acceptable and/or unacceptable substitute securities.⁷⁵

3.2.2. Exercising agreed rights of substitution

Ideally, substitution should be performed by means of a simultaneous delivery versus-delivery (DVD) exchange of the equivalent collateral and substitute collateral; or by back-to-back (delivery-versus-payment) DVP deliveries⁷. However, DVD and even back-to-back DVP deliveries are often not possible or practicable, in which case, it is usual for the seller to deliver the substitute before the buyer releases the existing collateral. This of course exposes the seller to credit risk on the buyer.

Although the seller may have an agreed right of substitution, the buyer is not obliged to accept any substitute offered by the seller. To insist otherwise might jeopardise the validity of the outright transfer of legal title to the collateral from the seller to the buyer. The substitute should be at least of the same value and at least of the same quality in terms of credit and liquidity. If a disagreement arises over the acceptability of a particular proffered substitute security, the parties should negotiate reasonably and in good faith. Disputes can be avoided if security issues or classes of security that would be acceptable or which would not be acceptable to the buyer as substitutes are agreed in advance in writing (see paragraph 3.2.1 above).

Rights of substitution can be sought not only by the seller from the buyer, but parties can agree rights of substitution on margin securities held by either.⁷⁶


3.3. Margining best practices

3.3.1. Importance of two-way margining

The application of margin requirements over the term of the repo should be implemented both ways to mitigate

⁷⁵ ICMA "ERC Guide to Best Practices in European Repo Markets," section 2.28-2.30, p18.

⁷⁶ ICMA "ERC Guide to Best Practices in European Repo Markets," section 3.7-3.9, p36.



credit risk, whereby both counterparties anticipate the loss of value that may be experienced if the collateral has to be liquidated following an event of a counterparty default. Net exposure ought to be calculated on a daily basis, with margin calls being implemented two-ways for counterparties to mitigate credit risk on each other. A net exposure is an unsecured credit exposure and should be below the parties' pre-agreed margin threshold as well as be subject to the credit limit for repo.

Even though master repurchase agreements (such as the GMRA) stipulate the legal obligations for counterparties to calculate net exposure and make margin calls on a daily basis, many practitioners in Asia lack the operational capabilities in place to meet such obligations. However, foregoing such margining protocols would leave net exposures on one party's trading book. Thus, it is best practice for market practitioners to enhance operational capabilities to properly assess and meet the demands of increased collateral requirements and higher frequency of margin calls, and to enhance collateral mobility as part of a holistic view of liquidity, operational and credit risk management processes.

3.3.2. Margin conventions

Cash or collateral margin is preferred over repricing (see section 3.4) a trade. Both cash and collateral margining are best practices methods adopted by the market participants using mutually agreeable cash or securities.

Repricing, although it has the same effect as a margin call, is not the preferred market standard. Parties can mutually agree to reprice, which changes the purchase price of a repo instead of the market value of collateral. Under this method, it is possible for the parties to agree a complete or partial substitution of collateral. By netting, repricing achieves a margin transfer of cash and is an alternative to margin maintenance.⁷⁷ And some banks have a policy to reprice open trades on a monthly basis to keep prices fresh.

Also, margin calls require delivery of collateral/cash to a margin account to cover exposure without the need to alter or close and reopen the original trade; therefore there is less chance of instructions in the market being mismatched and fail.

Timing for margin calls and payments have been addressed at paragraphs on "1.1.6. Deadlines for margin calls and payments".

Best practice recommendation: It is best practice to adopt cash or collateral margining.

3.3.3. Margin call timing (for relevant currencies)

A margin call should be made when one party has a net exposure to the other (see section 4(c) of GMRA 2000 and 2011). A net exposure arises when the aggregate exposure of one party to another exceeds the aggregate exposure of the second party to the first. The aggregate exposure of each party is equal to the sum of the exposures on each transaction still outstanding with the other party (Transaction exposure – see section 2(ww) of GMRA 2000 and 2(xx) of GMRA 2011) plus any income due from the other party but unpaid (ie manufactured payments and interest payments) plus net margin still held by the first party.

Transaction exposure is calculated by marking each transaction to market. The mark-to-market calculation depends on whether the transaction is subject to an initial margin or to a haircut. In the interval between a margin call being made by one party and margin being delivered by the other, the calculation of net exposure should assume that margin will be delivered.

1. where the collateral is subject to an initial margin

$$\text{Transaction Exposure} = \left(\text{Repurchase Price} \frac{\text{initial margin}}{100} \right) - \text{Market Value of collateral}$$

⁷⁷ ICMA "ERC Guide to Best Practices in European Repo Markets," page 93.



Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

$$\text{Repurchase Price} = \text{Purchase Price} \left(1 + \frac{\text{repo rate} \times \text{day count}}{100 \times \text{annual basis}} \right)$$

The repurchase price should be calculated for the day on which margin is due to be delivered (the margin delivery date). In other words, the day count for the repo rate should be the number of days up to but excluding the margin delivery date.

$$\text{Market Value of collateral} = \text{nominal value} \left(\frac{\text{clean price} + \frac{\text{coupon} \times \text{day count}}{\text{annual basis}}}{100} \right)$$

2. where the collateral is subject to a haircut

$$\text{Transaction Exposure} = \text{Repurchase Price} - \left(\text{Market Value of collateral} \left(1 - \frac{\text{haircut}}{100} \right) \right)$$

The day count and annual basis for the calculation of repurchase price follows the money market (ie deposit or forward FX) convention for the relevant currency (eg actual/360 for EUR, USD, CHF and JPY, and actual/365 for GBP). The day count and annual basis for the calculation of the accrued interest in the market value of collateral follows the bond market convention for the relevant currency and security.

3.3.4. Mark-to-market conventions in margin maintenance

Price sources to be used to value collateral, either routinely or in the event of a margin dispute, as well as whether the middle or bid rate will be used in the valuation of collateral, should be agreed before trading in order to reduce misunderstandings and margin disputes (see 1.1.9). Further, in the event the desired outcome after completion of the practices described in 1.1.9 is not achieved, reference can also be made to a standard of reasonableness and generally accepted pricing to those pricing listed on platforms of data providers. It is also suggested to mutually select a number (1-3) of dealers to price a disputed collateral and to take the midpoint of the prices. The mark-to-market practices are generally based on GMRA provisions where specifics of the arrangements are up to the discretion of the two parties conducting the transaction.

3.3.5. Transactions that are included in the calculation of net exposure⁷⁸

a. General rule:

The calculation of net exposure should include all transactions between two parties for which:

- The purchase date is today or earlier; and
- The repurchase date is today or later.

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 firms cannot confirm settlement before making or responding to a margin call, then the above general rule should be applied literally. In other words, transactions should be included in the calculation of net exposure on both their purchase date and repurchase date. This means assuming settlement on the purchase date but not on the repurchase date. The reason for this asymmetry of treatment is that settlement failures on the repurchase date are more common and are likely to have larger transaction exposures than new transactions. Transactions which fail on their purchase date should be removed from the calculation of net exposure on next business day and not included

⁷⁸ ICMA "ERC Guide to Best Practices in European Repo Markets," Annex II - Repo Margining Best Practices, page 60.

until the failure has been remedied by the seller or the transaction has been terminated by the buyer. Transactions which fail on their repurchase date should continue to 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. Where margin is paid or delivered for value on T+1 and T+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 by the next margin call. Paying or delivering margin for value on T+0 may not entirely eliminate this problem, as margin may still be paid or delivered on the day that the underlying transaction exposure disappears and is unlikely to then be returned until the next business day. However, T+0 margin will significantly reduce the problem.

What transactions to include in the calculation of Net Exposure

Today is Thursday, 1 March 2012. You wish to calculate Net Exposure and, if necessary, make a margin call on counterparty ABC. Consider the following outstanding repo transactions with ABC:

Transaction Date	Purchase Date	Repurchase Date	Type	Include?
	1-Dec-12	1-Mar-12	3M	yes
	2-Feb-12	2-Mar-12	1M	yes
	9-Feb-12	1-Mar-12	1M	yes
	16-Feb-12	23-Feb-12 (failed)	1W	yes
	27-Feb-12	5-Mar-12	1W	yes
	23-Mar-12	25-Jun-12	forward	no
27-Feb-12	28-Feb-12	6-Mar-12	1W	yes
29-Feb-12	1-Mar-12	2-Mar-12	ON	yes
1-Mar-12	2-Mar-12	5-Mar-12	TN	no
1-Mar-12	5-Mar-12	5-Apr-12	1M	no

The reason for not including transactions between their transaction date and purchase date is that, if the seller does fail to deliver collateral on the purchase date, provided the buyer has not paid the purchase price to the seller, the buyer will only have an interest rate risk, sometimes called a “net replacement cost”, rather than the type of credit risk to which a counterparty is exposed once an exchange of cash and collateral has actually taken place (the risk of losing principal). Such a risk should be hedged with interest rate risk management instruments rather than collateral.

b. Forward repos:

Following the general rule set out in the previous sub-section, forward repos should not be included in the calculation of net exposure (until they reach their purchase dates and cease to be forward transactions). This is because, until collateral and cash are exchanged on the forward purchase date, the only risk on the transaction that is posed by the possible default of one of the parties is that the non-defaulting party will have to arrange a replacement transaction at a worse repo rate or buy-back price. In other words, until the purchase date, the risk on a forward repo is an interest rate risk (similar to the counterparty risk on a derivative) rather than the type of credit risk to which a counterparty is exposed from the purchase date (the risk of losing principal). Such interest rate risk can be hedged.

By the purchase date of a forward repo, a net exposure is likely to arise because the required market value of the collateral (taking account of any initial margin or haircut) will almost certainly have diverged from the purchase price. Rather than by margining, this credit risk can be mitigated by the procedure set out in 2(b) of Annex I of GMRA 2000 and 2(c) of Annex I of the GMRA 2011, which allows parties, just prior to the purchase date, to adjust the purchase price or the number of purchased securities in order to eliminate any material difference between the purchase price and the required market value of the collateral.



Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

3.3.6. How often should net exposure be calculated and margin called?⁷⁹

Net exposure should be calculated at least every business day. In exceptional circumstances, it can be calculated intra-day.

Margin should be called whenever net exposure exceeds an acceptable threshold.

3.3.7. Interest payments on cash margin⁸⁰

Interest is due on cash margin, except where such margin is paid because of a failure by the Buyer to return certain collateral securities on the Repurchase Date (see 4(h)(i) of GMRA 2011).

Interest should be accrued on cash margin at a rate indexed to a reference rate agreed between the parties plus or minus an agreed spread. Common reference rates are overnight indexes such as EONIA for EUR, SONIA or RONIA for GBP and Fed Funds Effective for USD.

Interest accruing on cash margin up to but excluding the day on which margin called today is due to be delivered (the margin delivery date) should be included in the calculation of Net Exposure.

Where parties have agreed to use a particular interest rate reference to calculate the reinvestment income on cash margin, one party cannot unilaterally apply another reference rate if and when the agreed rate becomes negative. Parties have to agree changes to such contract terms and any changes, like the original rate, should be recorded in their master agreement or, if that is not practicable, in confirmations. When an agreed reference rate goes negative, unless and until a new reference rate is agreed, parties are contractually obliged to pay negative rates.

3.3.8. Should initial margin or haircut be deducted from margin securities⁸¹

If an initial margin or haircut has been taken from a particular issue of securities used as collateral in a repo with a particular counterparty, it is logical to apply an initial margin or haircut to that same security if it is to be given as margin. However, the initial margin or haircut to be imposed on margin securities could be different from that imposed on the same securities when they were first repoed because of changing circumstances in the interval between the purchase date and the margin call. In the GMRA 2011, provision is made for a haircut (but not an initial margin) on margin securities. Such a haircut is called margin percentage (see section 2(aa) of GMRA 2011).

3.3.9. Can margin securities be substituted?⁸²

Securities given as margin by one party to a repo can be substituted with the agreement of the other party, who should act reasonably and in good faith in response to such a request.

Parties often require substitute securities to be delivered before the original securities are released. Substitute securities and securities being substituted should be delivered in line with the deadline for delivering margin above.

3.3.10. When is margin returned⁸³

Cash margin and margin securities held by one party are not automatically returned to the other party unless the second party specifically requests the return of previous margin when making a margin call on the first party.

3.4. Repricing – alternative to margining and income payments

3.4.1. How is “repricing” used to eliminate net exposures?⁸⁴

Net exposures on sell/buy-backs and many repurchase agreements are not eliminated by means of margin. Instead, the transaction is terminated and simultaneously a new transaction is created for the remaining term in which either (1) the purchase price of the new transaction is set equal to the new market value of the securities or (2) the nominal

⁷⁹ ICMA “ERC Guide to Best Practices in European Repo Markets,” Annex II - Repo Margining Best Practices, page 64.


⁸⁰ ICMA “ERC Guide to Best Practices in European Repo Markets,” Annex II - Repo Margining Best Practices, page 66.

⁸¹ ICMA “ERC Guide to Best Practices in European Repo Markets,” Annex II - Repo Margining Best Practices, page 66.

⁸² ICMA “ERC Guide to Best Practices in European Repo Markets,” Annex II - Repo Margining Best Practices, page 66.

⁸³ ICMA “ERC Guide to Best Practices in European Repo Markets,” Annex II - Repo Margining Best Practices, page 67.

⁸⁴ ICMA “ERC Guide to Best Practices in European Repo Markets,” Annex II - Repo Margining Best Practices, page 67.



value of the securities is changed to bring the market value at the new market price into line with the original purchase price (see 4(j) and 4(k) of the GMRA 2000 and 4(k) and 4(l) of the GMRA 2011). In method (1), the repurchase price of the terminated transaction (as of the termination date) and the purchase price of the new transaction should be set-off and paid net. In method (2), the amount of the collateral securities of the terminated transaction and the amount of the collateral securities of the new transaction should, if they are the same (see below), be set off and delivered net.

These methods are sometimes collectively called “repricing”. In the GMRA, however, the first method is called repricing and the second method is called adjustment.

Under the repricing method, accrued repo interest is “cleaned up”, ie paid over to the buyer by not including in the new purchase price.

Whereas margining is applied to transactions in aggregate, repricing and adjustment have to be applied to individual transactions. It is usual to reprice or adjust transactions in sequence, starting with the transaction with the highest transaction exposure, and continuing until net exposure is reduced to an acceptable level.

Under the GMRA, when a transaction is adjusted, the parties can agree to allow the substitution of the collateral.

The repricing method is more common than the adjustment method.

3.4.2. Coupon, dividend and other income payments on collateral

During the term of a repo, the collateral is the property of the buyer, which means that all income generated by the collateral is paid by the issuer directly to the buyer. However, because the repurchase price is fixed or calculable, both the risk and return on collateral in a repo should be retained by the seller. So, under the terms of a repo contract, the buyer is obliged to make equivalent income payments to the seller (often called ‘manufactured payments’). On the other hand, if the issuer does not make an income payment due on collateral, the buyer does not have to make the equivalent payment to the seller. The guiding principle is that the seller should receive the equivalent of all income payments due on collateral to the same extent that it would have received actual income had it not repoed out the collateral.

In a repurchase agreement, an equivalent income payment from the buyer is due on the same day as the corresponding income payment by the issuer of the collateral. The equivalent income payment plus reinvestment income is deducted from the repurchase price. The buyer will suffer the loss of the equivalent income plus reinvestment income, as this will have been deducted from the repurchase price he is due to receive from the seller, even though he will not have received the coupon from the issuer. In effect, the deduction means the seller will receive the equivalent income payment (plus reinvestment income), despite the intention that he should be the party exposed to the risk of any default on the collateral. As there is no provision in the GMRA to do this, such a provision would have to be adopted by parties by an agreed amendment to their GMRA or, if that is not practicable, by inclusion in their confirmations.⁶⁵

3.5. Confirmation and affirmation of post-trade amendments and updates to the terms of a repo

When the agreed terms of a repo are amended or updated after its purchase date, it is best practice to promptly confirm or affirm the change. Confirmation will constitute prima facie evidence of the amendment or update in the event of a dispute. Confirmation or affirmation is particularly important in structured transactions, such as term repos, evergreen repos and floating-rate repos. Confirmation or affirmation is also particularly important for large (over USD 50 million or equivalent) or longer-term repos (with an initial term of one year or more), as the consequences of a mistake or disagreement about terms would be greater.

It is best practice to cross-reference confirmations of post-trade updates to a repo to the confirmation of the original transaction in order to allow the terms which are being updated to be checked.

⁶⁵ ICMA “ERC Guide to Best Practices in European Repo Markets,” section 3.4-3.6, p35-p36.



Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

Best practice recommendation: It is best practice to promptly confirm or affirm post-trade amendments or updates to the agreed terms of a repo. Updates should be cross-referenced to the original confirmation.⁸⁶

3.6. Managing repo using tri-party services

Tri-party repos reduce counterparty and operational risk by having a centralized intermediary through which transactions are settled. However, the tri-party arrangement does not affect the transfer of ownership of the collateral securities between bilateral counterparties to a trade. Rather, “buyers receiving collateral in a tri-party repo benefit from the same level of asset protection as if they were receiving the collateral bilaterally, as the tri-party agent is not a principal in the transaction.”⁸⁷ By serving as an independent custody and holding collateral securities and margin, the tri-party agent ensures that collateral assets are truly available to the buyer and thus offers additional protection in the event of counterparty default. In consequence, settlement and delivery fails are more easily resolved in a tri-party platform compared to a bilateral platform.

3.6.1. Pre-trade best practices in tri-party repo

Bilateral agreements, such as a GMRA, must first be in place before the principal parties negotiate a tri-party service agreement with the tri-party agent of their choice. The buyer must also set up dedicated securities accounts to separate the collateral purchased through tri-party repos.⁸⁸

Before entering into the transaction, each party must decide their collateral eligibility requirements, limits on how much of each type of collateral it is willing to accept, and the initial margin/haircuts it will apply in each category.⁸⁹ Collateral is usually categorized according to its credit rating, market, and type of security and country of issuance.⁹⁰ Alternatively, parties can agree to a basket of securities and the collateral provider has the right of substitution.⁹¹

3.6.2. Initiating tri-party repo

To initiate tri-party repos, bilateral repo documentation (such as a master repurchase agreement) is required between the buyer and seller, and parties will enter into an additional agreement with the tri-party agent to agree on collateral management services to be provided. Once a transaction has been agreed bilaterally, both parties independently “notify the tri-party agent of the specifications of the transactions (e.g. deal size, maturity and rate) and the collateral profile (or basket) to be used.” The tri-party agent matches the instructions and, if successful, “initiates the movement of cash and collateral between the accounts of the counterparties, on the basis of delivery versus payment, and reports settlement results to both parties.”⁹² Figure 2 below illustrates a basic tri-party repo transaction whereby the tri-party agent serves as an intermediary between the buyer and seller for custody services, collateral management, margin maintenance, payment and settlement.

⁸⁶ ICMA “ERC Guide to Best Practices in European Repo Markets,” section 3.12-3.13, p38.

⁸⁷ Euroclear, “Understanding Repos and the Repo Market,” 2009, page 33.

⁸⁸ Euroclear, “Understanding Repos and the Repo Market,” 2009, page 34.

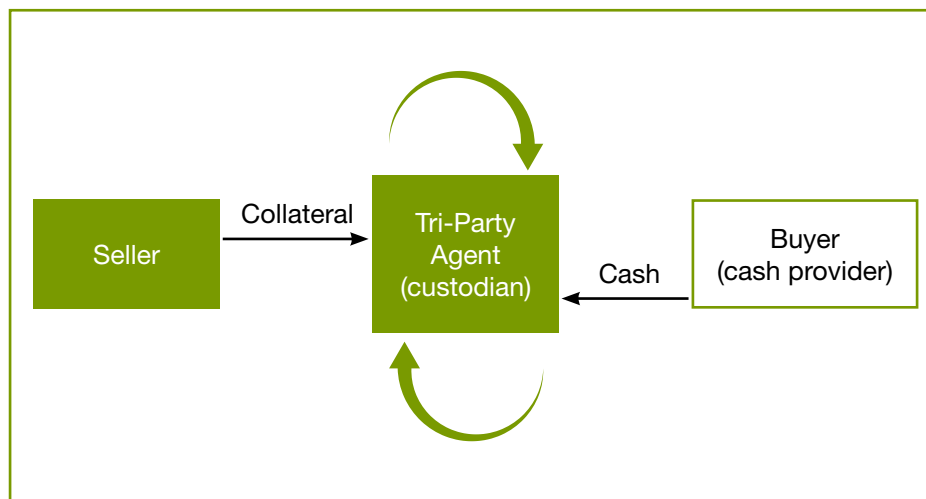
⁸⁹ Euroclear, “Understanding Repos and the Repo Market,” 2009, page 34.

⁹⁰ Euroclear, “Understanding Repos and the Repo Market,” 2009, page 34.

⁹¹ Barclays, “Repo Market – Masterclass,” May 2014.

⁹² Euroclear, “Understanding Repos and the Repo Market,” 2009, page 35.

Figure 2: “Classic” Tri-Party



3.6.3. Collateral management by the tri-party agent

Tri-party agents also provide collateral management services throughout the life cycle of the repo transactions. Tri-party agents undertake the operational processes of managing and valuing collateral (including mark-to-market valuations and meeting margin calls) on a more granular basis than would be operationally feasible on a bilateral basis, which is designed to reduce the risk of unsecured exposures as a result of market movements. Tri-party agents enhance settlement efficiency by integrating their collateral management systems with their settlement platforms, which allows for automated substitution of collateral.

Since the scope of eligible collateral is agreed between two counterparties upfront, all collateral management processes are performed directly by the agent.⁹³ For instance, the agent continuously monitors the collateral throughout the life cycle of the transaction to ensure that collateral remains within the pre-agreed eligibility criteria (such as if it suffers a ratings downgrade, etc.) and sufficient to cover exposures (e.g. if it suffers a material decline in value).⁹⁴ The agent also triggers margin calls and transfers collateral between the accounts of the seller and buyer to cover collateral shortfalls, should the value of initial collateral fall below sufficient levels. Further, tri-party agents optimize collateral inventories, which “involves the continuous re-evaluation of the securities available to sellers for use as collateral (e.g. through new purchases), and the automatic substitution of collateral, to release the best collateral back to the seller by using the full range of eligibility specified by buyers.”⁹⁵ Rights to re-use collateral are also allowed in a tri-party framework whereby “tri-party clients are able to use collateral bought through one tri-party repo (or another type of tri-party transaction) in another tri-party repo (or another type of tri-party transaction), with no impact on the relationship between the original counterparties.” However, the securities provider must agree to the re-use of those securities.

3.7. Default management procedures

3.7.1. Failure to deliver collateral versus event of default

The 2011 GMRA provides protections against counterparty default, as well as protocols to deal with delivery fails, which contribute to risk management. Under the GMRA, there is an important distinction between a failure to deliver securities and an event of default: a failure by either party to deliver collateral is not an automatic event of default. Rather, the non-defaulting party is required to serve a default notice in order to trigger a default, provided that the parties elected to treat failure to delivery as an event of default when they negotiated their GMRA. If the non-defaulting party chooses not to serve a default notice, the defaulting party should endeavour to deliver margin at the earliest opportunity. Since the contractual provisions do not automatically trigger a default, it allows securities deficits to be promptly handled between counterparties and enables them to reach a solution where possible.

⁹³ Euroclear, “Understanding Repos and the Repo Market,” 2009, page 35.

⁹⁴ Euroclear, “Understanding Repos and the Repo Market,” 2009, page 35.

⁹⁵ Euroclear, “Understanding Repos and the Repo Market,” 2009, page 35.



Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

What happens if margin is not delivered?


Failure to deliver margin is an event of default. It is not however an automatic event of default, so the non-defaulting party is required to serve a default notice in order to trigger a default. If the non-defaulting party chooses not to serve a default notice, the defaulting party should endeavour to deliver margin at the earliest opportunity.

Delayed payments or deliveries of margin from one party should not be set off against margin calls made on the other party on subsequent days. To do so would encourage the unacceptable practice of trying to avoid a margin call by rolling that obligation forward to see if movements in market prices eliminate transaction exposures.

However, 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, but 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).⁹⁶

- a. In the event of a failure by a seller to deliver collateral to the buyer on the purchase date, the GMRA (paragraph 10(g)) provides that:
 - If the parties so elected when they negotiated their GMRA (2000 or 2011), a failure to deliver collateral would be an event of default but not an automatic one. It is up to the buyer to serve a notice in order to put the seller into default and trigger the process of closing out and netting outstanding repos with the defaulter. Under the GMRA 2000, the notice will be a default notice. Under the GMRA 2011, it will be a notice of an early termination date (no earlier than the date on which the notice becomes effective and no later than 20 days afterwards). Putting a counterparty into default is a very serious step, with potential market and systemic implications, and should only be taken by senior management. They need to be sure that the failure to deliver reflects credit problems at the counterparty and not temporary operational problems (at the seller or its custodian, or within the settlement infrastructure) or market illiquidity beyond the control of the seller.
 - If the buyer does not put the seller into default, the buyer should withhold the purchase price from the seller or, if this has been paid, he should immediately require the seller to repay or, if necessary, call for cash margin from the seller (but if the buyer owes any sums to the seller, these will be set off against the purchase price).
 - Unless the buyer puts the seller into default, the contract remains in force until the intended repurchase date, unless the buyer terminates the transaction, which he is entitled to do at any time.
 - At any time while the transaction remains in force, the seller will be able to deliver the collateral to the buyer and is entitled to receive the purchase price in exchange.
 - Whether or not the seller makes a late delivery of the collateral, on the repurchase date, the seller will be obliged to pay the purchase price to the buyer and the buyer will be obliged to pay the repurchase price to the seller. The difference is the repo interest for the full intended term of the transaction. In other words, the seller will be liable for the full amount of repo interest, even if he delivered the collateral late and therefore only had limited use of the purchase price, or even if he never delivered the collateral and therefore never had any use of the purchase price.
 - If the buyer terminates the transaction before the repurchase date, the seller will be obliged to pay the purchase price to the buyer and the buyer will be obliged to pay the repurchase price on the date of termination to the seller. The difference is the repo interest for the period until termination.
- b. In the event of a failure by a buyer to deliver equivalent collateral back to the seller on the repurchase date, the GMRA (paragraph 10(h)) provides that:
 - If the parties so elected when they negotiated their GMRA, a failure to deliver collateral would be an event of default but not an automatic one. It is up to the seller to serve a notice in order to put the buyer into default and trigger the process of closing out and netting outstanding repos with the defaulting party. Under the GMRA 2000, the notice will be a default notice. Under the GMRA 2011, it will be a notice of an early termination date (no earlier than the date on which the notice becomes effective and no later than 20 days

⁹⁶ ICMA "ERC Guide to Best Practices in European Repo Markets," page 10.



afterwards). As emphasised already, placing a counterparty into default is a very serious step, with potential market and systemic implications, and should only be taken by senior management. They need to be sure that the failure to deliver reflects credit problems at the counterparty and not temporary operational problems (at the buyer or its custodian, or within the settlement infrastructure) or market illiquidity beyond the control of the buyer.

- If the seller does not put the buyer into default, the seller should withhold the repurchase price from the buyer or, if this has been paid, he should immediately require the buyer to repay or, if necessary, call for cash margin from the buyer (but if the seller owes any sums to the buyer, these will be set off against the repurchase price).
 - Unless the seller puts the buyer into default, the contract remains in force until the buyer delivers or the seller terminates the transaction, which he is entitled to do at any time.
 - The seller can trigger a mini close-out. This is an informal term used to describe the termination of a failed transaction by the seller under the terms of paragraph 10(h)(iii) of the GMRA 2000 or 10(i)(iii) of the GMRA 2011. Under this procedure, the buyer will be obliged to pay to the seller the difference between (1) the default market value of the collateral due under the failed transaction (all other repos continue in force), as determined by the seller and (2) the repurchase price due to the buyer.
- c. The mini close-out is the equivalent process in the repo market to the buy-in process used to deal with failed transactions in the cash market. However, while attempts have been made by the ICMA to harmonise the two processes, there are still important differences between them. There can be delays of up to four business days between a mini close-out and a buy-in, because the valuation of collateral under a mini close-out can take place at any time over the five business days following a mini close-out notice, whereas a buy-in occurs at a fixed four business days following a buy-in notice. In addition, the methodology applied to the calculation of the payment due to the seller in a mini close-out is different to that applied in a buy-in by a buyer in the cash market. In particular, a mini closeout can use an estimate of fair market value, whereas a buy-in depends upon an agent purchasing a security from a third party. Therefore, in an illiquid market, a mini close-out can be completed, but a buy-in might not. This means that there is a basis risk where a party has purchased a security in the cash market to deliver to another party on the repurchase date of a repo but the cash market seller fails to deliver. If the party consequently fails to deliver on the repo and the other party to the repo (the buyer) triggers a mini close-out and opts to value the collateral at its fair market value in order to calculate the amount owed by the first party (the repo seller), the first party would be left with a long position in the cash market. Given the illiquidity of the cash market, the position will not be closed out easily if at all (although some of the market risk might be hedged in the derivatives market).⁹⁷

Best practice recommendation: It is best practice to accept partial deliveries in a 'mini close-out' under paragraph 10(h) of the GMRA 2000 or 10(i) of the GMRA 2011.⁹⁸

3.7.2. What happens if there is a dispute about a margin call⁹⁹

The GMRA does not include a dispute resolution procedure. However, the parties have a general legal obligation to act in good faith and need to be aware of the potential regulatory consequences of disputed margin calls. In addition, members of the ASIFMA/ICMA are expected to be conscious of their reputation in the market and of the need to preserve the integrity of the market by resolving disputes as promptly and efficiently as possible, and to do so by acting reasonably and in a professional manner. It will anyway be in their own interests if they wish to preserve the business relationship with their counterparty.

The parties to a disputed margin call also need to be aware that failure to meet a margin call is a potential event of default. On the other hand, the party making a margin call has a duty to act in good faith in making its calculation and should be able to prove this.

Upon receiving a query about a margin call, a firm should act quickly to check their calculation and the accuracy of the

⁹⁷ ICMA "ERC Guide to Best Practices in European Repo Markets," Annex I, p47-p50.

⁹⁸ ICMA "ERC Guide to Best Practices in European Repo Markets," section 2.47, p24.

⁹⁹ ICMA "ERC Guide to Best Practices in European Repo Markets," Annex II - Repo Margining Best Practices, page 68.



Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

margin call notice that they have given to the counterparty. A firm disputing a margin call should detail the grounds on which they dispute the call. It is therefore important that margin calls provide adequate information on the underlying calculation.

The party disputing the margin call should not delay transferring margin securities or paying cash margin up to the amount on which both parties agree.

3.7.3. Event of default protocol

- Receipt of a default notice will trigger all transactions to be terminated (closed out) and their repurchase dates accelerated for immediate settlement.
- The net present value of the obligations owed to the defaulting party are then netted (set off) against the net present value of obligations owed by the defaulting party to leave a residual net amount.

3.7.4. The issuance of termination notices to counterparties

Before serving termination notices, including mini close-out notices but not default notices, it is best practice, if time allows, to give advance notice to a counterparty, including its repo desk, of your intention to serve a notice. Such courtesy is a matter of good relationship management but it may prompt the counterparty to take urgent action to help remedy the underlying problem. Banks should therefore ensure that the department responsible for issuing such notices forewarns their repo desk of planned termination notices. This may require formal procedures to be put in place, particularly where such operations have been delegated to geographically distant locations. However, this does not mean that the repo desk should try to delay or prevent the issuance of a termination notice.

Best practice recommendation: It is best practice, if time allows, before serving termination notices, other than default notices, to give advance notice to a counterparty, including their repo desk, of the intention to serve a notice. However, repo desks should not try to delay or prevent the issuance of such notices.

It is best practice to prepare for termination events, including events of default and failures to deliver collateral, by drafting templates of termination notices in advance of possible future need. A model form of the notice that should be served on a buyer to trigger a mini close-out, which has been prepared by the ICMA, is attached at Appendix V.

Best practice recommendation: It is best practice to prepare for termination events, including events of default and failures to deliver collateral, by drafting templates of termination notices in advance of possible future need.¹⁰⁰


3.7.5. Exercising a 'mini close-out' in response to a failure to deliver

- In the event that a buyer has failed to deliver equivalent collateral on the repurchase date, a seller may trigger a mini-close out.
- Seller must provide advisory note to the buyer ASAP on the same day as the fail or the morning of the next business day
- Seller ought to accept partial delivery of the equivalent securities from the buyer

Where the buyer in a repo fails to deliver equivalent collateral to the seller on the repurchase date, the seller has the right to exercise a mini close-out on that transaction (under paragraph 10(h) of the GMRA 2000 or 10(i) of the GMRA 2011)⁶. Where a seller decides to trigger a mini close-out (which is an exceptional step – see the next paragraph below on “Great caution should be exercised”), in order to minimise the interval between the mini close-out and a buy-in on the linked cash transaction, it is best practice, for the seller to serve, as soon as possible, a notice advising the buyer that he intends to serve a mini close-out notice. The advisory notice should be served on the same day as the fail or as soon as the seller decides to trigger a mini close-out, if that is later, but otherwise as early as possible on the morning of the next business day. The subsequent mini close-out notice should state that, if the buyer has not delivered equivalent securities to the seller by noon of the same day, the seller will serve a mini close-out notice by close of business. An example of an advisory and mini close-out notice is provided in Annex V (options A and B, respectively).¹⁰¹

¹⁰⁰ ICMA “ERC Guide to Best Practices in European Repo Markets,” section 3.10-3.11, p37.

¹⁰¹ ICMA “ERC Guide to Best Practices in European Repo Markets,” section 3.1-3.3, p34-p35



If a seller triggers a mini close-out, it is best practice for the seller to accept partial delivery of the equivalent security from the buyer.

Great caution should be exercised before triggering a mini close-out in the repo market for Asian securities. This is because the potential cost of a mini close-out in this market is considerably greater than the average return being made on the trading of repos. The risk of facing expensive mini closeouts would be likely to deter many banks from active participation in the repo market, which would seriously undermine market liquidity and raise the cost of transacting. Consider the potential cost of a mini close-out. Assuming that collateral is valued at the middle cash market price in the repo market, but at the offer price for a mini close-out, the cost of a buy-in would be equal to half the bid/offer spread in the cash market. Half the typical cash market bid/offer spread of 10 basis points on a USD 100 million cash transaction in government bonds is worth USD 50,000, whereas the typical repo market bid/offer spread of 5 basis points per annum for a 30-day repo of USD 100 million of collateral would be worth only USD 4,167. In addition, the mini close-out would have to take into account movements in the value of collateral between the repurchase date and the date of the mini close-out calculation.

Best practice recommendation: It is best practice for the seller in a repo on which the buyer has failed to deliver equivalent collateral on the repurchase date, who wishes to trigger a mini close-out, to serve an advisory notice to the buyer as soon as possible on the same day as the fail or as soon as he decides to trigger a mini close-out, if that is later, but otherwise as early as possible on the morning of the next business day. The subsequent mini closeout notice should state that, if the buyer has not delivered equivalent securities to the seller by noon of the same day, the seller will serve a mini close-out notice by close of business. It is best practice for the seller to accept partial delivery of the equivalent securities from the buyer.¹⁰²

3.8. Accepting partial settlement and pairing-offs

Partial settlement and pairing-offs/net settlement are the market conventions and best practices in international markets.

3.8.1. Partial settlement

Partial settlement is a market practice where part of the trade is settled with movement of securities taking place at the initial purchase of the repo trade or at the time of the repurchase when the transaction is not subject to a rollover that is net-settled. Counterparties such as inter-dealers and established participants (such as the hedge fund community) would normally accept partial settlement as it is more likely for them to get the full size earlier when accepting partial delivery as compared to waiting for the full size to be delivered, especially for bonds that are difficult to borrow. It allows the trade to happen by settling as much as possible.

It is also best practice for partial deliveries be accepted in mini close-outs under paragraph 10(h) of the GMRA 2000 or 10(i) of the GMRA 2011, given that there will be no prospect of further deliveries because of the termination of the transaction.

The motivations of partial settlement include: (i) improves liquidity in 'difficult to borrows'; (ii) reduces the number of fails in the market; (iii) frees up the bonds and keeps two-way flows more liquid; (iv) an important practice for bonds that are less liquid.

Best practice recommendation: It is best practice to accept partial settlement in order to allow the trade to happen, as well as under the situation of a 'mini close-out' under paragraph 10(h) of the GMRA 2000 or 10(i) of the GMRA 2011.

3.8.2. Pairing-offs / net settlement

Pairing-off allows for settlement of net differences of cash amount and it is the international best practices to pair-off particular cash flows at the time of a rollover.

¹⁰² ICMA "ERC Guide to Best Practices in European Repo Markets," section 3.1-3.3, p34-p35.



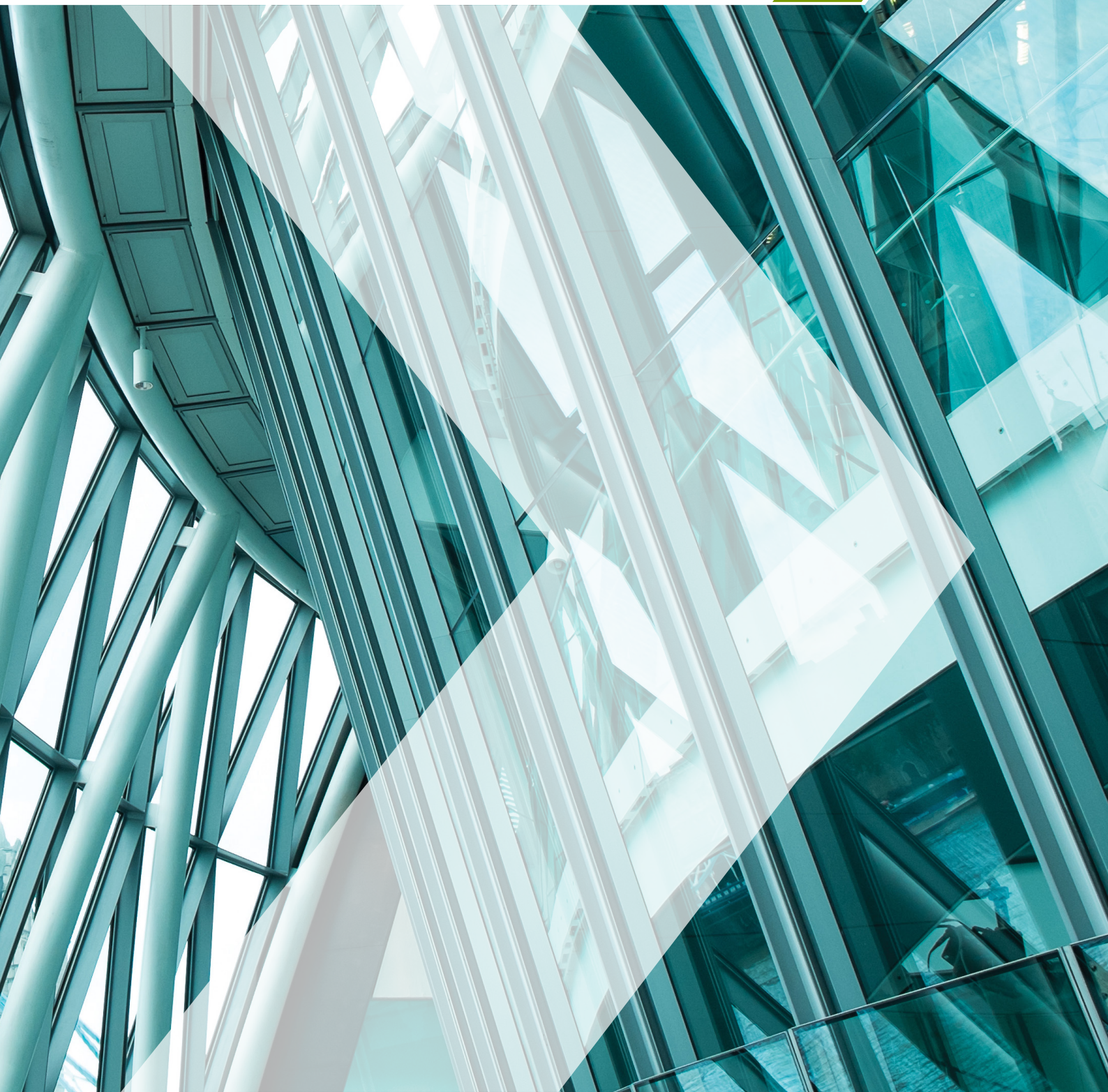
Section II - ASIFMA and ICMA

Best Practices across the Repo Trade Lifecycle

The motivations of pairing-offs include: (i) reduces risk (settlement, funding and credit); (ii) avoids market disruption of having to recall onward pledged securities; and (iii) provides an additional opportunity to confirm trade details with settlement (marginal benefit).

Best practice recommendation: It is best practice to accept paring offs to settle on a net basis of cash amount when there are rollover trades at the end of the repo trade period.

Annex





Annex I: Current Market Dynamics in Select ASEAN + 3 Economies

	Sale & purchase (Classic or buy and sell backs), borrow & lend, and pledge¹⁰³	OTC vs. Exchange¹⁰⁴	Foreign participation permitted¹⁰⁵
China	Pledged repo (turnover approximately 96.6%); Classic repo (turnover approximately 3.4%)	OTC (mainly) and exchange	N
Hong Kong	Classic repo; Borrow and lend also exists	OTC (mainly) and exchange	Y
Japan	Borrow & lend (mainly), also classic repo (Gensaki market)	OTC	Y ¹⁰⁶
Korea	Classic repo	OTC (mainly) and exchange	N
Indonesia	Buy/Sell-back (mainly) & Classic repo	OTC	Y
Malaysia	Classic & Buy/Sell-back	OTC ¹⁰⁷	Y ¹⁰⁸
Philippines	Classic repo ¹⁰⁹	OTC	Y
Thailand	Classic repo (mainly); Sell/buy back structure exists but is not widely used	OTC	Y
Vietnam	Classic repo	Exchange	Y

¹⁰³ Ryuichi Shiina, Japan Securities Dealers Association's working document, "Enhanced Comparative Analysis of Repo Markets in 9 ASEAN + 3 Countries & Jurisdictions," 15 April 2014.

¹⁰⁴ Ibid.

¹⁰⁵ EMEAP, Repo Markets: State of Play, 2014, page 15.

¹⁰⁶ http://www.emeap.org/wp-content/uploads/2015/04/Publications_EMEAP_Working_Group_on_FinancialMarkets_-_Report_on_EMEAP_Repo_Markets_.pdf

¹⁰⁷ Note: Foreign third party collateral managers must obtain regulatory approvals such as FIP, QFI, among others.

¹⁰⁸ Note: Almost all repos are conducted between Bank Negara Malaysia and the Primary Dealers.

¹⁰⁹ Non-resident institutions are eligible provided they have a resident counterparty. Foreign exchange regulations limit outstanding positions to RM10 million. Source: EMEAP, "Repo Markets: State of Play," 2014, page 15.

¹⁰⁹ http://www.emeap.org/wp-content/uploads/2015/04/Publications_EMEAP_Working_Group_on_FinancialMarkets_-_Report_on_EMEAP_Repo_Markets_.pdf

¹⁰⁹ Note: Although the legal framework recognizes full title transfer, repos are taxed as loans (see Annex II).

Annex II: Legal and Tax Arrangements in Select Asian Jurisdictions

	Use of GMRA	Tax Treatment Basis	Withholding Tax
Australia	Y	Loan	Y
China	N	Loan and Outright	N
Hong Kong	Y	Loan	N
Indonesia	N	Loan	Y
Japan	Y	Loan	N
Korea	Y	Loan	Y
Malaysia	Y	Loan	N
New Zealand	Y	Outright	N
Philippines	N	Loan	Y
Singapore	Y	Loan	N
Thailand	Y	Loan	N

Source: EMEAP, Repo Markets: State of Play, 2014.

http://www.emeap.org/wp-content/uploads/2015/04/Publications_EMEAP_Working_Group_on_FinancialMarkets_-_Report_on_EMEAP_Repo_Markets_.pdf



Annex III: Forms of Confirmation in Annex II of the GMRA

Form of Confirmation in Annex II of the GMRA 2000

Form of Confirmation

To:
From:
Date:
Subject: [Repurchase] [Buy/Sell Back]* Transaction
(Reference Number:)

Dear Sirs,

The purpose of this [letter]/[facsimile]/[telex], a "Confirmation" for the purposes of the Agreement, is to set forth the terms and conditions of the above repurchase transaction entered into between us on the Contract Date referred to below.

This Confirmation supplements and forms part of, and is subject to, the Global Master Repurchase Agreement as entered into between us as of [] as the same may be amended from time to time (the "Agreement"). All provisions contained in the Agreement govern this Confirmation except as expressly modified below. Words and phrases defined in the Agreement and used in this Confirmation shall have the same meaning herein as in the Agreement.

1. Contract Date:
2. Purchased Securities [state type[s] and nominal value[s]]:
3. CUSIP, ISIN or other identifying number[s]:
4. Buyer:
5. Seller:
6. Purchase Date:
7. Purchase Price:
8. Contractual Currency:
- [9. Repurchase Date]:*
- [10. Terminable on demand]:*
11. Pricing Rate:
- [12. Sell Back Price:]*
13. Buyer's Bank Account[s] Details:
14. Seller's Bank Account[s] Details:
- [15. The Transaction is an Agency Transaction. [Name of Agent] is acting as agent for [name or identifier of Principal]]:*
- [16. Additional Terms]:*

Yours faithfully,

* Delete as appropriate

Form of Confirmation in Annex II of the GMRA 2011

Form of Confirmation

To:
From:
Date:
Subject: [Repurchase] [Buy/Sell Back]* Transaction
(Reference Number:)

Dear Sirs,

The purpose of this [letter] [facsimile], a "Confirmation" for the purposes of the Agreement, is to set forth the terms and conditions of the above repurchase transaction entered into between us on the Contract Date referred to below.

This Confirmation supplements and forms part of, and is subject to, the Global Master Repurchase Agreement as entered into between us as of [] as the same may be amended from time to time (the "Agreement"). All provisions contained in the Agreement govern this Confirmation except as expressly modified below. Words and phrases defined in the Agreement and used in this Confirmation shall have the same meaning herein as in the Agreement.

1. Contract Date:
2. Purchased Securities [state type[s] and nominal value[s]]:
3. CUSIP, ISIN or other identifying number[s]:
4. Buyer:
5. Seller:
6. Purchase Date:
7. Purchase Price:
8. Contractual Currency:
- [9. Repurchase Date]:*
- [10. Terminable on demand]:*
11. Pricing Rate:
- [12. Sell Back Price]:*
13. Buyer's Bank Account[s] Details:
14. Seller's Bank Account[s] Details:
- [15. The Transaction is an Agency Transaction. [Name of Agent] is acting as agent for [name or identifier of Principal]]:*
- [16. Additional Terms]:*

Yours faithfully,

* Delete as appropriate



Annex

Annex IV: Documentation Requirements for Client Onboarding Process

During the client onboarding process, documentation and information requirements will vary based on the business to be conducted and information available publicly. In general, documentation required to fulfill customer onboarding and due diligence processes includes:

- Certificate of Incorporation, together with change of name certificates
- Memorandum and Articles of Association
- Specimen signatures of the authorised signatories
- Process Agent Letter (if applicable)
- Audited financials of past 3 years
- Prospectus
- Investment Management Agreement
- Applicable tax forms (W8/W9, US FATCA)

Annex V: Example of Mini Close-out Notice

Form of mini close out notice to be served under paragraph 10(f)/(h)

To:
From:
Date:

Dear Sirs

**Subject: [PSA/ISMA Global Master Repurchase Agreement 1995]
[TBMA/ISMA Global Master Repurchase Agreement 2000]110 dated _____
(the “Agreement”)
[Repurchase] [Buy/Sell]1 Transaction (reference number: _____)
(the “Transaction”)**

Seller:
Buyer:
Purchase Date:
Repurchase Date:
Purchased Securities (including ISIN):

Terms defined in the Agreement have the same meaning in this letter.

You have failed to deliver Equivalent Securities on the Repurchase Date for the Transaction.

[Option A¹¹¹

We hereby notify you that if you do not deliver Equivalent Securities by _____ we will serve notice on you under paragraph 10[(f)][(h)]112 (iii) of the Agreement terminating the Transaction in accordance with that paragraph.]

[Option B¹¹³

In accordance with paragraph 10[(f)][(h)]3(iii) of the Agreement, we hereby declare that the Transaction be terminated immediately in accordance with paragraph 10(c) of the Agreement.

We will determine the amount of the Repurchase Price and the Default Market Value of the Equivalent Securities in accordance with paragraph 10(c) as at the date on which this notice is given. For this purpose the Default Valuation Time is [_____]].

[For the avoidance of doubt, we are not treating the failure to deliver Equivalent Securities as an Event of Default under paragraph 10(a)(ii) of the Agreement and this notice does not constitute a Default Notice.

This notice does not constitute a waiver of our right to serve a Default Notice in respect the failure to deliver Equivalent Securities.^{114]}

We reserve all our right to exercise any other remedy under the Agreement including, without limitation, the right to serve a Default Notice in respect of any Event of Default that may occur under the Agreement.

Yours faithfully

110 Delete as appropriate

111 Option A: notice of intention to exercise rights under mini close-out

112 Delete as appropriate; sub-paragraph (f) for the GMRA 1995 and (h) for the GMRA 2000

113 Option B: notice terminating the transaction under mini close-out

114 Include only for GMRA 2000 where the parties have specified that paragraph 10(a)(ii) applies



Annex VI: Glossary of Repo Terminology¹¹⁵

Where terms are used in the Global Master Repurchase Agreement (GMRA), they are indicated by Capital Initials. Reference should always be made to the GMRA for the exact definition of these terms. References to terms defined elsewhere in the glossary are in italics.

Accrued interest: Part of the Market Value of a fixed-income security. On any particular day during the life of a security, accrued interest is the amount corresponding to the share of the next coupon payment which is owed to whoever is recorded as being the owner of the security on that day, but which is not yet due for payment by the issuer (ie accrued but not due). Market Value is equal to the agreed clean price of the security times its normal value plus the outstanding accrued interest (see the formula below).

$$\text{market value} = \text{nominal value} \left(\frac{\text{clean price}}{100} + \frac{\text{coupon} \times \text{day count}}{100 \times \text{annual basis}} \right)$$

The clean price of a security plus accrued interest expressed in price terms (as a percentage of the nominal value of the security) gives the dirty price (see the formula below).

$$\text{dirty price} = \text{clean price} + \frac{\text{coupon} \times \text{day count}}{\text{annual basis}}$$

Fixed-income securities being used as collateral in the repo market should be valued inclusive of accrued interest (this is called 'full accrual pricing', as opposed to 'flat pricing').

Adjustment: In the GMRA, a method that can be used to eliminate a Net Exposure by terminating a repo and creating a Replacement Transaction for the remaining term to maturity. The Replacement Transaction will have a new Market Value of collateral. This is calculated by adjusting either (1) the Repurchase Price on the day of the Adjustment or (2) the original Purchase Price of the repo by the Margin Ratio or Haircut, where one of these applies, and then marginally increasing or decreasing the result to coincide with the closest multiple of the minimum denomination of the security issue being used as collateral.

$$\text{new Market Value} \approx \text{latest Repurchase Price} \times \text{Margin Ratio} \quad (1)$$


$$\text{or new Market Value} \approx \frac{\text{latest Repurchase Price}}{1 - \text{Haircut}} \quad (2)$$

$$\text{or new Market Value} \approx \text{original Purchase Price} \times \text{Margin Ratio} \quad (3)$$

$$\text{or new Market Value} \approx \frac{\text{original Purchase Price}}{1 - \text{Haircut}} \quad (4)$$

The new Market Value is the value of the collateral that the Seller is obliged to deliver to the Buyer under the Replacement Transaction. The Purchase Price of the Replacement Transaction can be set equal to either (1) the Repurchase Price on the day of the Adjustment or (2) the original Purchase Price (in other words, the cash value of the repo is largely, if not entirely, unchanged). If the new Purchase Price is set equal to the latest Repurchase Price, as the cash flows of the terminated transaction and the Replacement Transaction are netted, the Buyer will not receive an early payment of the repo interest accrued up to the day of Adjustment. If, on the other hand, the new Purchase Price is set equal to the original Purchase Price, the Buyer will receive the accrued repo interest. As the collateral transfers of the terminated transaction and the Replacement Transaction are netted where possible, only the differences between the original and new Market Values of collateral will actually have to be transferred. By netting, Adjustment achieves a margin transfer of collateral. Adjustment is an alternative to Margin Maintenance. It is designed for sell/buybacks but can be applied to repurchase agreements. The related method of Repricing involves changing the Purchase Price rather than

¹¹⁵ ICMA "ERC Guide to Best Practices in European Repo Markets," Annex III – glossary of repo terminology, page 71.



the Market Value of the collateral. 'Repricing' is commonly used as a generic term that includes Adjustment. Under the Adjustment method, it is possible for the parties to agree a complete or partial substitution of collateral. See GMRA 2000 paragraph 4(k) and GMRA 2011 paragraph 4(l).

Affirmation: A process in which (1) one party contacts the other by telephone or e-mail in order to secure immediate verification from the other party of the key economic terms of a transaction and settlement instructions or (2) both parties report to a third-party automatic affirmation service, which makes comparisons and identifies mismatches. The function of an affirmation overlaps that of a Confirmation but is less comprehensive.

Agency repo: A repo executed with a counterparty on behalf of a customer or customers by an agent. For example, a fund manager may transact a repo with a dealer on behalf of several pension funds (the repo should be allocated among the customers after execution). The risk on the transaction is shared by the customer(s) and the agent's counterparty, but not by the agent. The transaction will be documented under a master agreement, such as the GMRA, between the agent and the counterparty. In the case of the GMRA, the standard agreement has to be supplemented by the Agency Annex. There will be separate contracts between the agent and his customer(s). The counterparty will need to know the identity of the customer(s) in order to be able to calculate its credit exposure and fulfil regulatory requirements. However, the identity of the customer(s) may not be provided to the front office of the counterparty (for commercial reasons) but to the credit or another department of the counterparty. It is vital, when negotiating a repo, to inform the counterparty whether one is transacting as a principal or an agent.

Annual basis: The number of days that are conventionally assumed to be in one year, for the purpose of calculating the amount of return from an annualised percentage rate of return. The annual basis is conventionally denoted by the letter B and is the denominator of the day count fraction (D/B), where the numerator is the day count of the term of the transaction. There are often different conventions for the annual basis in the money market and capital market of the same currency.

ASIFMA: ASIFMA is an independent, regional trade association with over 70 member firms comprising a diverse range of leading financial institutions from both the buy and sell side, including banks, asset managers, law firms and market infrastructure service providers. Together, we harness the shared interests of the financial industry to promote the development of liquid, deep and broad capital markets in Asia. ASIFMA advocates stable, innovative and competitive Asian capital markets that are necessary to support the region's economic growth. We drive consensus, advocate solutions and effect change around key issues through the collective strength and clarity of one industry voice. Our many initiatives include consultations with regulators and exchanges, development of uniform industry standards, advocacy for enhanced markets through policy papers, and lowering the cost of doing business in the region. Through the GFMA alliance with SIFMA in the United States and AFME in Europe, ASIFMA also provides insights on global best practices and standards to benefit the region. For more information, please visit www.asifma.org.

Business Day: A day on which a transaction can be settled by means of transferring securities and/or making payments of cash. Actions required to fulfil the contractual obligations of a transaction, such as the service of notices, can only be performed on a Business Day. The ability to transfer of securities and/or make payments of cash requires that the relevant securities settlement systems (SSS) and/or cash payment systems be open for business. Weekends are therefore not Business Days. Public holidays are also usually not Business Days.

Given that securities may have to be delivered between two SSS or between two custodian banks, and the possibility of cross-currency repos, the Purchase Date and Repurchase Date of a repo may have to be a Business Day in more than one city. Under GMRA 2000 paragraph 2(e) and 2011 paragraph 2(f), a Business Day is defined as:

- for repos to be settled at a SSS, any day on which that system is open for business;
- for repos to be settled by delivery of securities at a custodian bank, any day on which that bank is open for business, as well as a day on which banks generally are open for business in the city which hosts the central bank payments system for the currency of payment or, in the case of the euro, any day on which the TARGET system is open.



The GMRA does not define what is meant by the close of business. This can be important, as attempts to make transfers or payments, or to serve notices, after the close of business, mean that they will not be initiated or become effective until the next Business Day. It is best practice for parties to agree a time for close of business in the countries in which they operate and record it in Annex I of their GMRA or in Confirmations.

Buyer: In the GMRA, this is the party to a repo who buys collateral at the Purchase Price on the Purchase Date and commits to sell back equivalent collateral on the Repurchase Date – which will be a fixed maturity or, in the case of open repo, on demand – at an agreed or calculable Repurchase Price. The Buyer is effectively a lender of cash and is said to be doing a reverse repo. Cf Seller.

Buy-in: A procedure that can be initiated by the buyer of a security in a cash trade following a failure to deliver that security on time and/or in full by the seller. Under the ICMA Rules and Recommendations (Section 450), a party affected by a fail can remedy the problem by arranging to 'buy in' the security from a third party. He has to give the failing party five Business Days' notice of his intention to do so (a pre-advice notice on the day of the fail and a buy-in notice two Business Days later). If the failing party does not remedy the fail within five Business Days of the fail, despite notification by the buyer, the affected party appoints an agent to buy in the security in the 'best available market for guaranteed delivery'. Any excess in the cost of the buy-in over the price agreed originally with the failing party is charged to the latter. In a repo under the GMRA, the equivalent process to a buy-in is a mini close-out but there are differences.

Buy/sell-back: Another term for a sell/buy-back. Strictly-speaking, this is a sell/buy-back from the point of view of the Buyer. Sometimes abbreviated to 'buy/sell'.

Cash Equivalent Amount: In the GMRA 2011, this is a cash payment that can be called by a party making a margin call, who has requested the return of Margin Securities, as part of the required margin, that were delivered to the other party under a margin call that the other party had previously made on the first party, in the event that 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 any consequent increase in Net Exposure. See GMRA 2011 paragraph 4(h).


Cash trade: An outright sale or an outright purchase of a security (with no obligation, as in a repo, to buy or sell back that security).

CCP: The acronym for a central counterparty or central clearing counterparty. A CCP is a specialist intermediary, part of the infrastructure of the OTC market, which interposes itself into every transaction registered with it by its members, to become the seller to every buyer and the buyer to every seller. The CCP then nets opposite transactions with the same counterparty to produce a single margin call. Netting reduces the credit risk and operational cost of transactions. The CCP is protected by taking initial margins upon the registration of transactions, transferring variation margins between members to eliminate exposures on a daily basis, maintaining its own capital, requiring members to contribute to a default fund and, in the event of a default by one or more members, having the right to share remaining losses among surviving members.

Classic repo: Another name for a repurchase agreement.

Clean price: The price of a fixed-income security as generally quoted in the secondary cash market for that security. It measures the capital value of the security in the secondary market but excludes the accrued interest on the security.

Clearing: A term which means the netting by a third party of opposite mutual obligations between two other parties. Netting can be for operational convenience or to reduce risk. Clearing for operational convenience is performed by custodian banks, CSD and ICSD, acting as agents, in order to reduce the volumes of transfers of securities and payments of cash needed to settle transactions. Clearing to reduce risk is performed by CCP, acting as principals by means of 'novation' or by 'open offer'. Netting by novation as performed by a CCP means the creation of two new contracts from an original. The original contract is that between the parties to a transaction. When this contract



is registered with the CCP, the original contract is replaced by two new contracts: a new contract between the seller and the CCP; and a new contract between the CCP and the buyer. In this way, the CCP becomes the buyer to every seller and the seller to every buyer. Under open offer, when the buyer and seller transact, contracts are automatically and immediately created between each party and the CCP. At no stage is there a contract directly the buyer and seller.

Close-out and set-off: A contractual form of netting based on the legal technique of set-off (and sometimes called 'contractual netting'). Under the GMRA, the non-defaulting party terminates all transactions outstanding with the defaulter that have been documented under the same agreement (this is 'close-out') and all obligations under those transactions are accelerated for immediate settlement. Acceleration requires the calculation of the present values of obligations owed to and by the defaulter, and conversion into the same currency. Then, the net present value of the obligations owed to the defaulting party are netted against the net present value of obligations owed by the defaulting party, to leave a residual net amount (this is 'set-off'). This residual amount may be a small net exposure to the defaulter (which has to be pursued by the non-defaulting party as an unsecured claim on the defaulter) or a surplus (which has to be returned to the defaulter). See GMRA paragraph 10.

Collateral: Legally-speaking, collateral is an asset or assets owned by a borrower to which a security interest has been attached in order to provide security to a lender. As a result, the secured lender is given a property interest in the asset(s) by the borrower, which entitles the lender to seize and liquidate the collateral in the event that the borrower defaults. The borrower retains a property interest in the asset(s), which means that, absent a default by the borrower, the asset(s) cannot be sold by the secured lender, unless the borrower has given him a right of re-hypothecation. Upon the discharge of the debt by the borrower, the secured lender must return a legally identical asset or assets. A pledge is a type of security interest in which the asset acting as collateral must be transferred from the pledgor into the possession of the pledgee.

The term 'collateral' is used colloquially in the repo market to describe the asset or assets sold in a repo. This is not legally correct, as a repo transfers full legal title to the asset(s) from the Seller to the Buyer for the term of the transaction. The Seller retains no property interest in the asset and the Buyer has the unfettered right to sell the asset to a third party (ie without permission from the Seller).

Collateral Assets (CA): A type of collateral in a categorisation by the BIS Committee on the Global Financial System (CGFS). CA is the broadest of three categories and encompasses all assets that qualify for use in collateralised funding transactions, such as in covered bonds, agency and private-label mortgage-backed and asset-backed securities. The other CGFS categories are High Quality Assets (HQA) and High Quality Liquid Assets (HQLA).

Collateral downgrade trade: A combination of (1) a short-term repo of one asset or basket of assets from one party to another and (2) a reverse repo of another asset or basket of assets of lower liquidity and sometimes lower credit quality by the first party from the second for the same term. The net result is an exchange by the first party of higher quality collateral for lower quality collateral (a downgrade). The difference in quality will be reflected in an enhanced spread between the reverse repo rate being received by the first party and the lower repo rate being paid by the first party. A collateral downgrade trade is an example of collateral transformation. A collateral downgrade trade for one party is a collateral upgrade trade for the other.

Collateral upgrade trade: A combination of (1) a short-term reverse repo of one asset or basket of assets from one party to another and (2) a repo of another asset or basket of assets of lower liquidity and sometimes lower credit quality by the first party to the second for the same term. The net result is an exchange by the first party of lower quality collateral for higher quality collateral (an upgrade). The difference in quality will be reflected in an enhanced spread between the repo rate being paid by the first party and the lower reverse repo rate being received by the first party. A collateral upgrade trade is an example of collateral transformation. A collateral upgrade trade for one party is a collateral downgrade trade for the other.

Collateral swap: Also known as a liquidity swap. An exchange of an asset or basket of assets for another asset or basket of assets of lower liquidity and sometimes lower credit quality, either (1) directly, through a securities lending transaction, or (2) via a combination of a repo of the lower quality asset or assets and a matching reverse repo of



the higher quality asset or assets between the same parties. A collateral upgrade trade is an example of collateral transformation. It differs from collateral downgrade or upgrade trades in that it is for longer than one year.

Collateral transformation: Exchanging assets of different liquidity and sometimes lower credit quality, usually through collateral/liquidity swaps or collateral downgrade/upgrade trades, which can be securities lending transactions or combinations of repos and matching reverse repos between the same parties.

Confirmation: A Confirmation is a written record (paper or electronic) recording: the unique economic terms of a transaction (price, term, amount, etc); any ad hoc terms (not already included in or different from those in the master agreement between the parties); and settlement instructions (the accounts to which payments and deliveries should be made). A Confirmation should be sent as soon as possible after a transaction has been agreed. It should be sent by one party to another or by each party to the other. Parties receiving Confirmations should urgently cross-check in order to identify mistakes in recording the terms or disagreements about what has been agreed. Mistakes or disagreements should be promptly notified by the recipient to the other party and action initiated to resolve the problem. A Confirmation plays a key role in the legal construction of the transaction. Whereas the GMRA and Annex I set out the general terms and conditions of the business relationship between the parties, a Confirmation describes the terms and conditions special to the transaction. A Confirmation would be regarded as prima facie evidence of the terms of a transaction, in the event of a disagreement, and ad hoc terms set out in a Confirmation would take precedence for the transaction being confirmed over any conflicting standard terms set out in the master agreement. The function of a Confirmation overlaps that of an affirmation but is more comprehensive. The essential terms which should be included in a repo Confirmation are set out in GMRA paragraph 3(b) and in Annex II of the GMRA. For transactions executed over an automatic repo trading system, traditional Confirmations tend to be substituted by the notifications generated by the trading system.

Corporate value date: In a repo, the Purchase Date on which cash and collateral are usually exchanged is a money market value date rather than a capital market settlement date. However, where one party (typically a customer) cannot manage this earlier settlement, the value date of the repo may be deferred until the conventional capital market settlement date, which is then referred to as a 'corporate value date'.

Cost of carry: The difference between the amounts of accrued interest and repo interest earned over the term of a repo. A positive (negative) cost of carry means that a long position in a security will earn more (less) accrued interest than it costs to finance that position by repoing out that security.


$$\text{cost of carry} = \left(\text{nominal value} \times \frac{\text{coupon} \times \text{day count}}{100 \times \text{annual basis}} \right) - \text{Purchase Price} \left(\frac{\text{repo rate} \times \text{day count}}{100 \times \text{annual basis}} \right)$$

Credit repo: A repo against collateral other than government securities. This category usually includes high-quality collateral such as supranational, sovereign and agency securities (SSA).

Cross-currency repo: A repo of a Purchase Price in one currency against collateral denominated in another currency.

CSD: The acronym for a central securities depository. A CSD is a specialized domestic institution, part of the market infrastructure, which records (1) holdings of domestic securities, by providing accounts for the holders or their agents, and (2) changes in holdings, by means of entries between these accounts (book-entry transfer), rather than by the physical transfer of certificates. Securities may be issued to the CSD or another entity. To allow book-entry transfer, securities are either dematerialised or immobilised. Most CSD are linked to independent cash payment systems. Cf ICSD.

Day count: The number of days that are conventionally assumed to be in the term of a transaction, from and including the value date up to but excluding maturity, for the purpose of calculating the amount of return from an annualised percentage rate of return. The day count is conventionally denoted by the letter D and is the numerator of the day count fraction (D/B), where the denominator is the annual basis. There are often different conventions for the day count in the money market and capital market of the same currency.



Day count fraction: The ratio of the day count (D) to the annual basis (B). The day count fraction is used to calculate the amount of return from an annualised percentage rate of return. It is the assumed fraction of the year over which a transaction runs.

$$\text{repo interest} = \text{Purchase Price} \left(\frac{\text{repo rate} \times \text{day count}}{100 \times \text{annual basis}} \right)$$

Default: A failure by one party to a transaction to perform one of the obligations to which it is contractually committed and for which the parties have agreed that failure would constitute an Event of Default. Events of default include acts of insolvency.

Delivery repo: Also known as deliver-out repo. A repo in which the collateral moves from the possession of the Seller or its agent to the possession of the Buyer or its agent for the term of the transaction. Delivery is required in some jurisdictions to prove that title to the collateral has been transferred and only delivery repo are covered by the EU Financial Collateral Directive. Cf hold-in-custody repo and tri-party repo.

Dirty price: The price of a fixed-income security including accrued interest, from which the Market Value of the security can be directly calculated. Cf clean price.

$$\text{dirty price} = \text{clean price} + \frac{\text{coupon} \times \text{day count}}{\text{annual basis}}$$

DVP: The acronym for delivery-versus-payment, which means settlement of the sale or other transfer of a security by means of the simultaneous exchange of that security for cash. Cf FOP.

End/end rule: The convention that normally applies in the foreign exchange and money markets (unless specified otherwise) for periods that are multiples of one month and for which the value date is the last Business Day of a calendar month. The end/end rule specifies that the maturity is the last Business Day of the calendar month at the end of the period. For example, a 3-month deposit for value on 28 February (in a non-leap year) matures not on 28 May but on 31 May (or, if that is not a Business Day, then the nearest preceding Business Day in May). See also the Modified Following Business Day Convention.

Equivalent: On the Repurchase Date or termination date of a repo, the Buyer is obliged to return equivalent collateral to the Seller. Equivalent collateral is economically but not legally identical to that sold to the Buyer on the Purchase Date, ie from the same security issue but not the original holding. This flexibility is needed because, during the term of the repo, the Buyer has the right to sell the collateral to a third-party, in which case, it would then have to buy back the collateral from the market in order to settle with the Seller on the Repurchase Date. The collateral obtained and returned by the Buyer is very unlikely to be the same holding as that received on the Purchase Date but it will be from same security issue, in other words, economically but not legally identical. The use of the term 'equivalent' also allows the legal definition of collateral in a repo to accommodate collateral in the form of equity, which can be transformed during the term of a repo by corporate events such as take-overs, rights issues, etc. The terms 'fungible' and 'same or similar' are sometimes used instead of 'equivalent'.

ERC: The acronym for the European Repo Council (ERC), which is a regional sub-council of the International Repo Council, established by ICMA to represent member firms active in the repo market in Europe. Among other things, the ERC provides guidance on the maintenance of the GMRA, publishes this Guide and organises a semi-annual survey of the European repo market. Membership of the ERC is open to all ICMA members who, among other things, have a dedicated repo activity. Details of the European repo market survey and the other activities of the ERC can be found on the ICMA website, www.icmagroup.org.

Event of Default: An event, action or omission which parties to a master agreement accept will constitute a breach of the contract between them. The most important Event of Default is an act of insolvency. Under the GMRA, upon an Event of Default occurring, the affected party is provided with remedies, possibly subject to notification of the defaulting party. The GMRA lists a set of standard Events of Default. See GMRA 10.



Evergreen repo: A fixed-term repo in which the parties have the right to terminate the transaction before maturity, or an open repo with the standard right to terminate, but subject to giving several days' or weeks' notice of termination.

Failure to deliver: The failure by one party to a cash trade or repo to deliver the full amount of securities or other collateral to the other party on the agreed Business Day. Failure to deliver therefore includes partial delivery and late delivery. In a repo, failure to deliver can occur on the Purchase Date (the Seller fails) or on the Repurchase Date (the Buyer fails). Under the GMRA, the parties can agree to treat failure to deliver as an Event of Default. If failure to deliver is not chosen or, where it is, if default is not actually triggered by the affected party, remedies include early termination or, in the case of a failure on the Repayment Date, the calling of a mini close-out by the affected party. Otherwise, a repo contract remains in place. Failure to deliver on a cash trade may result in a buy-in.

Floating-rate repo: A repurchase agreement in which the repo rate is periodically re-fixed by reference to an interest rate index such as LIBOR (in the case of LIBOR or other overnight or tom/next index, the repo rate would be re-fixed daily). The repo rate may incorporate a spread under or over the index (eg LIBOR minus 3 basis points). Open repo and term repo are also floating-rate repos.

FOP: The acronym of free-of-payment, which means settlement of a sale or other transfer of a security without a simultaneous exchange of cash. Margin transfers are made FOP. Cf DVP.

Forward price: The traditional method of quoting sell/buy-backs, although many are now quoted in terms of their repo rate. The forward rate is the forward break-even price of the collateral on the Repurchase Date of the repo and is equal to the Repurchase Price of the collateral minus its cost of carry, quoted as a percentage of the nominal value of the collateral. The forward price shows the level above which the clean price of a security needs to be trading on the Repurchase Date of a repo for the Seller to make a profit by selling off the collateral when he gets it back at the end of the repo. There are two formulae for the calculation of the forward price.

Formula (1)

$$\text{forward price} = \frac{R - \left(N \times \frac{C \times D}{100 \times B} \right)}{N} \times 100$$

where

R	Repurchase Price
N	nominal value of the collateral
C	coupon on the collateral
D	number of days according to the applicable convention from and including the last coupon payment date to but excluding the Repurchase Date
B	annual basis for the collateral

Formula (2)

$$\text{forward price} = \frac{\left(N \times \frac{M}{100} \right) - \left(\left(N \times \frac{C \times D}{100 \times B_c} \right) - \left(P \times \frac{R \times D}{100 \times B_r} \right) \right)}{N} \times 100$$

where

M	clean price of the collateral as quoted in the appropriate <i>cash market</i>
N	nominal value of the collateral
C	coupon on the collateral
D	day count according to the applicable convention from and including the Purchase Date to but excluding the Repurchase date
B _c	annual basis for the collateral
P	Purchase Price of the sell/buy-back (see the Guide 2.7)
R	repo rate on equivalent repurchase agreements
B _r	annual basis for the repo

Forward repo: A repo with a Purchase Price on a forward date (ie after the nearest conventionally-earliest money market value date) and a Repurchase Price on a later forward date.

General collateral (GC): Where the Seller in a repo has some choice about precisely what collateral to deliver to the Buyer. For example, the Buyer may be willing to accept any of a number of certain government bond issues as collateral. GC repos are therefore driven by the need to borrow and/or lend cash, rather than the precise identity of the collateral, which means there will be a common GC repo rate for each currency and term to maturity.

GC repos constitute money market transactions and the GC repo rate should therefore be highly correlated with other money market rates. The spread between the GC repo rate and unsecured money market rates will reflect the credit and liquidity risk premia on unsecured lending.

GMRA: The acronym for 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 of the GMRA was published in 2011, and superseded the 2000 edition, which itself superseded the 1995 edition. See www.icmagroup.org.

GMSLA: The acronym for the Global Master Securities Lending Agreement, which is the master agreement for securities lending transactions published by ISLA. The latest edition of the GMSLA was published in 2010, and superseded the 2000 edition, which itself superseded master agreements such as OSLA. See www.isla.co.uk.

Haircut: In the GMRA, an agreed percentage discount applied to the Market Value of collateral to fix the Purchase Price on the Purchase Date 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 securities being delivered as margin is called a Margin Percentage.

$$\text{Haircut} = \left(\frac{\text{Market Value of collateral} - \text{Purchase Price}}{\text{Market Value of collateral}} \right) \times 100$$



High-Quality Assets (HQA): A type of collateral in a categorisation by the BIS Committee on the Global Financial System (CGFS). HQA is the second of three categories and comprises assets that market participants can use to meet collateral demand from derivatives transactions. The other categories are Collateral Assets (CA) and High Quality Liquid Assets (HQLA).

High-Quality Liquid Assets (HQLA): A type of collateral in a categorisation by the BIS Committee on the Global Financial System (CGFS). HQLA is the narrowest of three categories and follows the Basel Committee on Banking Supervision in including assets eligible for the Level 1 and Level 2 definitions of assets suitable for the Basel Liquidity Coverage Ratio (LCR). Assets that qualify for the LCR are expected to have low credit and market risk and be easy to value, exchange-listed, traded in active markets, unencumbered, liquid during times of stress and ideally central bank-eligible. The other categories are High Quality Assets (HQA) and High Quality Liquid Assets (HQLA).

Hold-in-custody (HIC): A repo in which the Seller retains possession of the collateral, even though legal title passes to the Buyer. HIC repos have been used where there are practical difficulties or high costs in moving collateral. However, HIC repo exposes Buyers to the risk of 'double-dipping' by the Seller, ie the Seller selling the same piece of collateral in more than one repo. In some jurisdictions, the transfer of title to collateral in a HIC repo may be contestable if there is no delivery and HIC repo are not covered by the EU Financial Collateral Directive. Cf delivery repo and tri-party repo.

ICMA: The acronym for the International Capital Market Association, which represents financial institutions active in the international capital markets worldwide and has members in over 50 countries. ICMA's market standards and conventions have been pillars of the international debt market for over 50 years, providing the framework of rules governing market practice which facilitate the orderly functioning of the market.

ICSD: The acronym for an International Central Securities Depository. An ICSD is a specialised international bank, part of the market infrastructure, to which international securities (traditional eurobonds) are issued, which provides accounts for holders of these and many domestic securities, and which records changes in holdings by means of entries between these accounts. As they are banks, ICSD provide cash accounts to members and can therefore offer DVP settlement of securities transactions. They also provide tri-party services. Cf CSD.


Income: In the GMRA, coupons, dividends and other non-capital payments made by the issuer of a security.

Initial margin: An agreed premium applied to the Purchase Price of a repo to determine the required Market Value of the collateral to be delivered on the Purchase Date. It is also applied each day during the term of a repo to the Repurchase Price on that day to calculate the Market Value of collateral required in order to meet the contractual obligation of the parties. If the difference between the Repurchase Price and the current Market Value of collateral is less (more) than the initial margin, the Buyer (Seller) has the right to call a margin from the Seller (Buyer). An initial margin can be expressed either as (1) the Market Value as a percentage of the Purchase Price or (2) a ratio of the two amounts. In the GMRA, an initial margin is called a Margin Ratio. A percentage initial margin of 100% means there is no margin.

$$\text{initial margin (percentage)} = \left(\frac{\text{Market Value of collateral}}{\text{Purchase Price}} \right) 100$$

$$\text{initial margin (ratio)} = \left(\frac{\text{Market Value of collateral}}{\text{Purchase Price}} \right)$$

ISLA: The acronym for the International Securities Lending Association, a trade association established in 1989 to represent the common interests of participants in the European securities lending market. ISLA has around 90 members (comprising banks, pension funds, investment managers and insurance companies) and publishes the Global Master Securities Lending Agreement (GMSLA). See www.isla.co.uk.



Liquidity swap: Another term for a collateral swap. **Manufactured payment:** A term common in the UK for a contractual compensatory payment in a repo, made by the Buyer to the Seller, which is triggered by the payment of a coupon, dividend or other Income on collateral by the issuer to the Buyer (the issuer pays the Buyer because the Buyer has the legal title to the collateral during the term of the repo). In a repurchase agreement, the manufactured payment should be made on the same day as and be equal in value to the Income payment. In a sell/buy-back, the manufactured payment is deferred until the Repurchase Date and should be equal in value to the Income payment plus re-investment income to compensate for the delay. In a sell/buy-back, the manufactured payment plus reinvestment income is deducted from the Repurchase Price.

Margin: The term usually applied to a cash payment or transfer of collateral made by one party, in response to a margin call by the other, to eliminate an unintended credit exposure in a transaction between them. Under the GMRA, either party is entitled to call margin to eliminate any Net Exposure. Known in other markets as 'variation margin'.

Margin Maintenance: Under the GMRA, the process of calling on a repo counterparty to deliver margin, either by making a cash payment or by delivering additional collateral, in order to eliminate a Net Exposure in the portfolio of repos and reverse repos between two parties that have been documented under the same agreement. The calculation of margin calls requires the marking-to-market of the collateral. There is choice of alternative procedures, designed for sell/buy-backs, called Adjustment and Re-Pricing, which achieve the same result. See GMRA paragraph 4.

Margin Percentage: In the GMRA 2011, the term for a Haircut applied to the Market Value of collateral being delivered as margin. See GMRA 2011 paragraph 2(aa).

Margin Ratio: In the GMRA, the term for an initial margin. See GMRA 2000 paragraph 2(z) and GMRA 2011 paragraph 2(bb).

Margin threshold: The Net Exposure below which the parties to a repo may agree not to call a margin from each 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.

Market Value: In the GMRA, the value of the collateral for the purposes of Margin Maintenance, calculated using "a generally recognised source agreed to by the parties". See GMRA 2000 paragraph 2(cc) and GMRA 2011 paragraph 2(ee).

Master agreement: A written legal contract between two parties that sets out the terms and conditions governing all transactions between them (unless specifically excluded) in the same financial instrument (eg repo) or class of instrument (eg derivatives), as well as their rights and obligations, including remedies available in an Event of Default. The GMRA is the standard master agreement for cross-border repos. It consists of: (1) the main agreement, which sets out terms and conditions generic to the market and is a framework that should not need to be negotiated or amended; (2) Annex I, which sets out terms and conditions generic to the business relationship between the parties and needs to have various elections recorded and any supplemental terms and conditions added, effectively customising the main agreement, so will need negotiating; (3) other annexes that adapt the main agreement to sell/buy-backs, agency repos and some specific markets and jurisdictions; and (4) Confirmations, which set out the terms and conditions specific to individual transactions. Each year, the ICMA commissions legal opinions on the enforceability in over 60 jurisdictions of the GMRA overall or of key parts such as the close-out and set-off provisions. Master agreements help to standardise and clarify procedures in a market, adding to operational efficiency and liquidity; they provide legal certainty by setting out the contractual terms and conditions accepted by the parties, which is reinforced where legal opinions are commissioned; and they facilitate risk reduction by providing procedures such as margining, the netting of opposite payments and transfers and, in an Event of Default, close-out and set-off, which are recognised by reductions in regulatory risk capital requirements.

Mini close-out: An informal term for the remedy available to the Seller, under the GMRA, of terminating an individual repo on which there has been a failure to deliver equivalent collateral by the Buyer on the Repurchase Date.



Minimum transfer amount: A common term for a margin threshold. This term emphasises the point that, when Net Exposure reaches or breaches the margin threshold, it should be eliminated.

Modified Following Business Day Convention: This is the rule that is most commonly applied in the foreign exchange and money markets, including the repo market, to determine the maturity of an instrument. The convention is that, for terms to maturity which are multiples of one month, the maturity will fall in the month which is the same number of calendar months after the month in which the value date falls. For example, if the value date of a 3-month transaction is in March, then the maturity will fall three calendar months later, which means in June. Furthermore, the maturity will be the same date as the value date, unless this date is not a Business Day, in which case, it will be the next Business Day in the same calendar month. However, if the next Business Day would fall in the following calendar month, the maturity will be the last Business Day in the same calendar month. For example, if the value date of a 3-month transaction is 29 March, the normal maturity would be 29 June. If, however, the 29 June is not a Business Day, then the maturity would be 30 June. If 30 June is also not a Business Day, then the maturity would be 28 June and so on. See also the end/end rule.

Net Exposure: In the GMRA, the term for the credit exposure of one party to another on a portfolio of repos and reverse repos documented under the same agreement. Specifically, the 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, if any, 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, if any, held by the other party. If (1) is greater than (2), the first party has a Net Exposure and may make a margin call. See paragraphs 2(dd) and 4(c) of the GMRA 2000 and paragraphs 2(ff) and 4(c) of the GMRA 2011.

Netting: The process of off-setting mutual obligations between two parties to calculate a net claim or obligation.

One week: The term from and including the value date of a transaction up to but excluding a maturity date seven days later or, if that day is not a Business Day, the next Business Day thereafter. If the next Business Day is in the next calendar month, it still becomes the maturity date. In other words, the following business day convention applies, not the Modified Following Business Day Convention.

Open repo: Also known as a repo that is terminable on demand or a demand repo. This is a repurchase agreement in which the Repurchase Date is not fixed at the start but is called by either party giving due notice to the other. Interest is usually calculated daily but is rolled over without compounding and paid monthly or, if there is only one open transaction and it is terminated before the month-end, on the Repurchase Date.

Overnight (O/N): The term from and including today up to but excluding the next Business Day or, if that day is not a Business Day, the next Business Day thereafter. If the next Business Day is in the next calendar month, it still becomes the maturity date. In other words, the following business day convention applies, not the Modified Following Business Day Convention.

Overnight indices (OI): In many currencies, an interest rate index is calculated and published daily for actual interbank transactions by a selected panel of banks, or recorded by voice-brokers, in overnight unsecured deposits over the entire course of several hours. OI are weighted-average rates, where each individual rate is weighted by the total amount of deposits transacted at that rate. The rates that go into an OI are offered rates.

Partialling: The delivery of less than the contracted amount of a security sold in a cash trade or repo. Partialling does not satisfy the contractual obligation of the seller but it reduces the adverse impact of the failure to deliver the full amount.

Pledge: A type of security interest which is a property interest in an asset, given by a borrower (pledgor) to a lender (pledgee) to secure a debt. This interest gives the secured lender the right to seize and liquidate the asset in the event that the borrower defaults. Until then, the borrower retains a property interest in the asset, which means that the asset cannot be sold by the secured lender, unless the borrower has given him a right of re-hypothecation. Upon



the discharge of the debt by the borrower, the secured lender must return a legally identical asset. Sometimes called a 'pawn'.

Purchase Date: In the GMRA, the term for the value date of a repo.

Purchase Price: In the GMRA, the term for the sum of money paid by the Buyer to the Seller on the Purchase Date of a repo. It is equal to the Market Value of the collateral less any Margin Ratio or Haircut.

Regular dates or round dates or fixed dates: Maturities of one week, two weeks, three weeks, one month, two months, three months, four months, five months, six months, seven months, eight months, nine months, 10 months, 11 months and one year, or some sub-set (a minimum definition would include only one week, one month, three months, six months and one year). These dates derived from 'brokers' runs', which were the terms for which voice-brokers would automatically provide quotes when asked for an indication of prices in the inter-bank forward foreign exchange or deposit markets.

Re-hypothecation: The right which a pledgor can give to a pledgee to sell or repo pledged assets. Without the right, the pledgee can only sell pledged assets in an Event of Default by the pledgor. If the pledgee exercises a right of re-hypothecation, the pledgor's right to recover the pledged asset is replaced by an unsecured contractual right to receive an equivalent asset. Re-hypothecation is typically given by hedge funds to their prime brokers in return for cheaper funding.

Repriced: In the GMRA, a method that can be used to eliminate a Net Exposure by accelerating the Repurchase Date of a repo and entering into a Repriced Transaction for the same date. The Repriced Transaction will have a new Purchase Price that is calculated by applying the latest-available market price of the collateral to the original nominal value to calculate a new Market Value, to which any agreed Margin Ratio or Haircut is applied.

$$\text{new Purchase Price} = \frac{\text{New Market Value}}{\text{Margin Ratio}}$$

or

$$\text{new Purchase Price} = \text{new Market Value} (1 - \text{Haircut})$$

The new Purchase Price is the cash amount which the Buyer is obliged to pay to the Seller in the new transaction. In other words, the Purchase Price is brought into line with the latest Market Value of the collateral. The nominal amount of collateral does not change. As the collateral transfers and cash flows of the terminated transaction and the Repriced Transaction are netted where possible, only the differences between the Repurchase Price on the Repricing date and the new Purchase Price will actually have to be paid (which means that repo interest accrued up to the day of Repricing is paid to the Buyer). By netting, Repricing achieves a margin transfer of cash. By netting, Repricing is an alternative to Margin Maintenance. It is designed for sell/buy-backs but can be applied to repurchase agreements. The related method of Adjustment involves changing the Market Value of the collateral rather than the Purchase Price. "Repricing" is commonly used as a generic term to describe both Adjustment and the above method. See GMRA 2000 paragraph 4(j) and GMRA 2011 paragraph 4(k).

Repo: The generic term for repurchase agreements and sell/buy-backs. Repos (along with securities lending) are a type of securities financing transaction (SFT). In a repo, at the start of the transaction (the Purchase Date), one party (the Seller) sells assets (the collateral, which are typically securities) to another party (the Buyer) at one price (the Purchase Price) and commits to repurchase assets which are equivalent to those sold on the Purchase Date at a future date or on demand (the Repurchase Date) at an agreed or calculable but different price (the Repurchase Price).

Repo interest: The market term for the return to the Buyer on the cash he effectively lends through a reverse repo. Legally-speaking, however, the term is a misnomer, as the legal form of a repo is not an interest-paying loan or deposit. Rather, the return is just the difference between two securities prices. Under the GMRA, repo interest is called the Pricing Differential.



Repo rate: The market term for the annualised percentage rate of interest on the cash in a repo. Legally-speaking, however, the term is a misnomer, as the legal form of a repo is not an interest-paying loan or deposit. Rather, the return is just the difference between two securities prices. Traditionally, the repo rate was the price of a repurchase agreement, but sell/by-backs are now often quoted in the same way. Under the GMRA, the repo rate is called the Pricing Rate.

Repurchase agreement: Also known as a classic repo, US-style repo or all-in repo. In some countries, there are also domestic names for this type of repo. A repurchase agreement is a type of repo which is documented under a master agreement, in consequence of which, both legs of the transaction form a single contract. Among other things, a master agreement makes provision for: initial margins and/or Haircuts at the start of a repo; margin calls during the term of a repo; the ability of the Buyer to grant rights of substitution to the Seller; the immediate making of a manufactured payment to the Seller upon the payment of coupons, dividends or other Income on the collateral during the term of a transaction; and close-out and set-off in an Event of Default by either party. Cf sell/buy-back.

Repurchase Date: In the GMRA, the term for the maturity of a repo.

Repurchase Price: Under the GMRA, the term for the sum of money paid by the Seller to the Buyer on the Repurchase Date to buy back equivalent collateral. It is equal to the Purchase Price plus repo interest. 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 that particular date. In the case of sell/ buy-backs, the Repurchase Price is net of any manufactured payment due to the Seller following the payment of a coupon, dividend or other Income on the collateral plus re-investment income to compensate for the delayed payments.

Re-rate: Market terminology for re-fixing the repo rate on a floating-rate repo or changing the repo rate on an open repo.

Reverse repo: The Buyer's side of a repo. The Buyer is said to 'reverse in' collateral (whereas the Seller is said to 'repo out' collateral).

Right of Substitution: The right that may be given by the Buyer to the Seller, during the negotiation of a repo, to recall equivalent collateral during the term of the transaction and substitute collateral of equal quality and value that is reasonably acceptable to the Buyer.

Securities financing transaction (SFT): The family of financial instruments in which a security is provided against a payment of cash. SFT include repo, securities lending and margin lending but not the collateralisation of derivatives.

Security interest: An umbrella term for a property interest in an asset, given by a borrower to a lender to secure a debt. This interest gives the secured lender the right to liquidate the asset in the event that the borrower defaults. Until then, the borrower retains a property interest in the asset, which means that, absent a default by the borrower, the asset cannot be sold by the secured lender, unless the borrower has given him a right of re-hypothecation. Upon the discharge of the debt by the borrower, the secured lender must return a legally-identical asset. A common type of security interest is a pledge. Others include charges and mortgages.

Securities lending: Securities lending transactions (along with repos) are a type of securities financing transaction (SFT). In a securities lending transaction, one party (the Lender) transfers title to a security or basket of securities to another party (the Borrower) in exchange for either (1) title to another security or basket of securities or (2) cash (the collateral), and the payment of a fee, and commits to either (1) transfer title to equivalent collateral or (2) repay cash plus an agreed return at a future date or on demand, in exchange for title to a security or basket of securities equivalent to the one it transferred at the start. Despite securities lending counterparties being called Lenders and Borrowers, title to securities is transferred (at least outside the US), as in repo.

Securities lending transactions and repos are analogous instruments in legal and economic terms. The main differences are that: securities lending does not necessarily involve cash (it can be security against security); is



generally driven by the demand to borrow specific securities (rather than cash); and tends to be transacted on an open basis. The standard master agreement for securities lending is the ISLA GMSLA.

Sell/buy-back: A type of repo, different to a repurchase agreement. Sell/buy-backs are economically identical to repurchase agreements and, just as in a repurchase agreement, the collateral in a sell/buy-back is transferred by means of a transfer of legal title. The main differences are that sell/buy-backs are not necessarily documented under a master agreement. In the case of undocumented sell/ buy-backs, the two legs of the transaction form separate contracts. Because of this, it is not possible to margin undocumented sell/buy-backs or grant rights of substitution to the Seller. Because of the lack of documentation, there is also no express provision for: initial margins and/or Haircuts at the start, or close-out and set-off in an Event of Default by either party. Manufactured payments have to be delayed until the Repurchase Date and incorporated into the Repurchase Price. Lack of documentation also makes undocumented sell/buy-backs legally less robust.

Since 1995, it has been possible to document sell/buy-backs using the Buy/ Sell-Back Annex of the GMRA. Undocumented sell/buy-backs are increasingly giving way to the documented version, under pressure from regulatory requirements for written legal agreements, margin and express rights of close-out and set-off. The difference between repurchase agreements and documented sell/buy-backs now rests mainly in the mechanisms used in the latter to eliminate credit exposures due to fluctuations in the Market Value of collateral. While repurchase agreements typically use margin to re-align the values of cash and collateral, documented sell/buy-backs achieve the same result through the termination of the transaction and simultaneously creation of a new transaction for the remaining term to maturity, with the values of cash and collateral re-aligned, but otherwise typically on the same terms as the original transaction (there are two options: Adjustment or Re-Pricing). These alternatives to margin are helpful in avoiding legal difficulties over margins that arise in some jurisdictions.

Also known as a buy/sell-back, buy/sell or sell/buy. In some countries, there are also domestic names for this type of repo. Strictly-speaking, a sell/buy-back involves the borrowing of cash, while a buy/sell-back involves the lending of cash (and is therefore equivalent to a reverse repo).

Seller: In the GMRA, the party to a repo who sells collateral for cash in the form of the Purchase Price on the Purchase Date and commits to buy back equivalent collateral on the Repurchase Date – which will be a fixed maturity or, in the case of open repo, on demand – at an agreed or calculable Repurchase Price. The Seller is effectively borrowing cash. Cf Buyer.

Set-off: A legal technique for the netting of mutual obligations between two parties. One party's obligations to another are extinguished to the extent of the other party's mutual obligations to the first party. Another legal technique to achieve netting is by 'novation'. Netting by novation involves the creation of two new contracts (introducing a new party) from a single original contract (this happens at some CCP) or the creation of one new contract from two original contracts (this happens in master agreements). Set-off occurs in the event of one party defaulting, whereas netting by novation occurs as soon as a deal is transacted.

Shaping: The practice of dividing deliveries of securities into smaller amounts before instructing a securities settlement system, in order to minimise the effect of any settlement failures. A standard 'shape' is 50 million.

Short dates: Maturities that are one month or less in the future.

Short-selling: A sale in a cash trade of securities that are not owned by the seller. The seller should borrow the securities in order to be able to fulfil his commitment to deliver those securities to the buyer. He can do this in the repo or securities lending markets. The short-seller will then have to purchase the securities at a later date in order to return to the seller/lender in the repo or securities lending transaction. In the meantime, he is exposed to the risk of a rise in the price of the security (as well as any positive cost of carry) and the risk that it may not, in practice, be possible to buy the security because of market illiquidity. Short positions may be established in order to hedge long positions in similar securities or related derivatives, or to arbitrage. Short-selling with no intention of delivering is called 'naked short-selling'.



Special collateral: Collateral on which the repo rate is materially below the GC repo rate for the same term. This differential is caused by the demand for a particular piece of collateral which is manifest in offers of cheap cash from potential Buyers in the repo market. Cf GC repo.

Spot-next (S/N): The term from and including the spot value date up to but excluding the next Business Day or, if that day is not a Business Day, the next Business Day thereafter. If the next Business Day is in the next calendar month, it still becomes the maturity. In other words, a following business day convention applies, not the Modified Following Business Day Convention.

Synthetic repo: A combination of instruments to replicate the risk/return of a repo. A synthetic repo is constructed from a cash trade and derivatives such as a total return swap, a futures contract or a combination of options. The derivative(s) replace the repurchase leg of a repo. Synthetic repos are entirely off-balance sheet (whereas a repo leverages the balance sheet of the Seller).

Term repo: A repo with a term of one year or more. These are often used in collateral swaps. They are structured and floating-rate, and have deep Haircuts and enhanced Rights of Substitution.

Terminable on demand: Of an open repo, in which either party has the right to terminate the transaction by providing due notice.

Tom-next (T/N): The term from and including the next Business Day up to but excluding the following Business Day or, if that day is not a Business Day, the next Business Day thereafter. If the next Business Day is in the next calendar month, it still becomes the maturity date. In other words, a following business day convention applies, not the Modified Following Business Day Convention.


Trade-matching: The comparison of settlement instructions from two parties to a transaction by a custodian bank acting as securities settlement agent for one or both, or by a CSD or ICSD, in order to ensure that the settlement of that transaction across a securities settlement system (SSS) at a CSD or ICSD will not fail because of differences in the instructions from the two parties. Cf affirmation and Confirmation.

Trade repository: A specialised institution, part of the infrastructure of the over-the-counter (OTC) market, to which market users report the details of their transactions in a particular instrument or class of instruments, and/or the resulting positions, typically to satisfy regulatory requirements. The repository stores these data and provides access to supervisors and certain other official agencies to assist the regulation of individual firms, the supervision of markets and the monitoring of systemic risk. The repository will also publish aggregated statistics in order to enhance market transparency for users.

Transaction Exposure: In the GMRA, this is the difference between the Repurchase Price (adjusted by any initial margin) on the date of the calculation and the Market Value of the collateral (adjusted by any Haircut) on the same day. In other words, Transaction Exposure measures the current credit exposure or mark-to-market exposure of one party to another. See GMRA 2000 paragraph 2(ww) and GMRA 2011 paragraph 2(xx).

Transfer of title: The transfer of the full property rights to an asset from one party to another. The result is that the new owner has the unfettered right to do what he wishes with the asset and the right to all benefits of ownership (eg coupons). In repo, transfer of title takes place through a true sale of the asset. Cf security interest.

Tri-party repo: A repurchase agreement in which a third-party agent (who is the custodian bank for both the parties) undertakes the settlement, custody and post-trade management of the transaction. Settlement is made by book-entry transfers between accounts on the books of the agent and so avoids the cost of settling across a CSD. The services of tri-party agents include the automatic selection of collateral from the account of the Seller, subject to collateral eligibility criteria predefined by the Buyer, margining, management of manufactured payments and the automatic 'optimisation' of collateral. Optimisation means ensuring that the collateral held by the Buyer is always of the lowest quality acceptable to the Buyer (this means the Seller is making the most efficient use of his collateral, while



the Buyer is earning the highest return). Optimisation is achieved by substituting existing collateral with new collateral whenever the Seller purchases a security of lower but still acceptable quality. The tri-party agent will also substitute when the Seller wishes to sell a security he has repoed out as collateral, or when collateral is no longer acceptable to the Buyer (eg because of a ratings downgrade) or when collateral is due to make an Income payment that might cause tax problems. Cf delivery repo and HIC repo.

Two weeks: The term from and including the value date of a transaction up to but excluding a maturity date 14 days later or, if that day is not a Business Day, the next Business Day thereafter. If the next Business Day is in the next calendar month, it still becomes the maturity date. In other words, a following business day convention applies, not the Modified Following Business Day Convention.

Three weeks: The term from and including the value date of a transaction up to but excluding a maturity date 21 days later or, if that day is not a Business Day, the next Business Day thereafter. If the next Business Day is in the next calendar month, it still becomes the maturity date. In other words, a following business day convention applies, not the Modified Following Business Day Convention.

Voice-broker: An agent who matches parties, typically financial intermediaries, who wish to transact financial instruments. The voice-broker collects prices from customers willing to quote and broadcasts the best bid price and the best offer price back to all his customers, without revealing who is quoting these prices (pre-trade anonymity). When genuine interest is expressed in one of these prices, the voice-broker puts the party expressing interest in touch with the party quoting the price and the two parties settle the transaction between themselves. The voice-broker is not a principal intermediary in the transaction and earns a commission rather than a bid/offer spread. Although voice-brokers originally broadcast prices over dedicated loudspeaker systems installed in customers' offices, they now tend to broadcast prices on screens.



Annex

Annex VII: Citations

[Asian Development Bank Institute, "The Development of Local Debt Markets in Asia," November 2011](#)

[Asia Development Bank, "ASEAN + 3 Bond Market Guide, Part 1: Bond Markets and Their Infrastructures in ASEAN+3,"](#)

[Bank for International Settlements, Committee on the Global Financial System, "Asset encumbrance, financial reform and the demand for collateral assets," May 2013](#)

Bank for International Settlements "Strengthening repo clearing and settlement arrangements".

[Committee on Payment and Market Infrastructures \(formerly CPSS\) and International Organization for Securities Commissions, "Principles for Financial Market Infrastructures," April 2012](#)

[BIS Committee on the Global Financial System, "Asset encumbrance, financial reform and the demand for collateral assets," May 2013](#)

[Eli Remolona, Frank Packer, inter alia, "Local currency bond markets and the Asian Bond Fund 2 Initiative" January 2012](#)

[EMEAP, Repo Markets: State of Play, 2014](#)

[Euroclear, "Understanding Repos and Repo Markets," March 2009](#)

[Federal Reserve Bank of Chicago, "The scarcity value of Treasury collateral: Repo market effects of security-specific supply and demand factors," November 2013](#)

[FSB, Securities Lending and Repos: Market Overview and Financial Stability Issues, April 2012](#)

[International Capital Market Association, "Frequently Asked Questions on Repo," May 2015](#)

[International Capital Market Association, "ERC Guide to Best Practices in European Repo Market," March 2014](#)

[International Capital Market Association white paper on the operation of the European repo market, the role of short-selling, the problem of settlement failures and the need for reform of the market infrastructure, July 2010](#)



[IMF, “A Framework for Developing Secondary Markets for Government Securities,” July 2008](#)

[Manmohan Singh, IMF Working Paper, “Velocity of Pledged Collateral,” November 2011](#)

Michael Manna, Barclays, “Repo Market – Masterclass,” May 2014.

Nicholas de Boursac, “Government Bond Secondary Market Liquidity: Seven Basic Requirements,” February 2012.

[Re-using the collateral of others, European University Institute, Vincent Maurin,](#)

Ryuichi Shiina of Japan Securities Dealers Association, Working document for the ABMF, “Enhanced Comparative Analysis of Repo Markets in 9 ASEAN + 3 Countries & Jurisdictions,” 15 April 2014.

[World Bank, Repo markets handbook, March 2010](#)

Asia Securities Industry & Financial Markets Association

Unit 3603, Tower 2
Lippo Centre
Admiralty
Hong Kong
Tel: +852 2531 6500
Email: info@asifma.org
www.asifma.org

International Capital Market Association

Dreikönigstrasse 8
CH-8002 Zurich
Switzerland
Tel: +41 44 363 4222
Email: membership@icmagroup.org
www.icmagroup.org