



ICMA EUROPEAN REPO and COLLATERAL COUNCIL

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Impacts of the Net Stable Funding Ratio on Repo and Collateral Markets

Abstract:

Repo and collateral markets lie at the heart of today's financial market system and are vital to its smooth functioning. This has significant implications for both financing, of business and governments, and the effectiveness of financial regulatory measures designed to provide financial stability – each of which will be adversely impacted if the operation of repo and collateral markets becomes impaired.

The cumulative impact of the pressures being imposed on the repo market, most particularly by the leverage ratio, are such that it is already a market under significant stress. The impact of the NSFR, if simply adopted exactly as outlined by the BCBS, would create significant additional stress and weaken the effectiveness of the repo market; and, given their interwoven relationship, the collateral market.

Without dropping the worthwhile effort to enhance long term financing stability through the imposition of NSFR, there are a number of ways in which its details could be calibrated in order to better smooth its effects on repo and collateral markets. To avoid driving essential cash and collateral management activity out of the money markets, which would leave central banks having to intermediate liquidity, the ICMA ERCC believes there is a need to effectively exempt short-term activity from the NSFR imposition of an element of long-term funding costs.

The benefits of making such a market sensitive adaptation would be felt by borrowers, both corporate and governmental, and investors; and would help underpin the effective functioning of other regulations designed to deliver increased financial stability.

Impacts of the Net Stable Funding Ratio on Repo and Collateral Markets

Introduction:

Repo and collateral markets lie at the heart of today's financial market system and are vital to its smooth functioning. This short paper analyses and illustrates the impacts on these essential markets arising from the Basel Committee on Banking Supervision's ("BCBS's") "Basel III: the net stable funding ratio" ("NSFR"), as published on 31 October 2014. These impacts add to market concerns regarding the cumulative impact of regulation on repo and collateral markets. The International Capital Market Association's ("ICMA's") European Repo and Collateral Council ("ERCC") believes that this warrants careful examination and calibration of the NSFR, as work progress to implement it at national and regional levels – alongside increasing efforts to better understand the cumulative impact of regulation.

Repo and collateral markets – the heart of the financial market system:

The ICMA ERCC wishes to highlight that repo plays a vital role within the financial system. It underpins the functioning of secondary and primary capital markets, where corporate and government borrowers raise money to finance their long-term needs. The cost of borrowing in the capital markets will be increased in case there is not a well-functioning repo market. Repo is also the key component of the shorter-term money markets, which provide an essential mechanism to allow for the efficient management of short-term cash and collateral requirements. Since repo provides a secured means of financing in this market it is the instrument of choice, with market participants and public authorities keen to avoid the proliferation of unsecured counterparty exposures. In case the repo market is unable to fulfil this role, commercial banks would have no choice other than to conduct all their liquidity management through central banks.

The ICMA ERCC also observes that collateral now plays a key role in financial markets, in no small part as a result of official policy interventions designed to mitigate the risks of financial market activities. For these measures to work as intended, it is essential that there is sufficient collateral fluidity – such that the right amount, of the right type, of collateral can be available whenever and wherever needed. This needs a good infrastructure for the movement of collateral, but also a robust repo market, since the repo market provides the principal mechanism for the transfer of collateral.

Repo and collateral markets already face significant stresses and the NSFR will exacerbate this:

The ICMA ERCC has published a number of papers to illustrate the importance of repo and collateral and in its most recent paper has drawn attention to the state of the repo market. The cumulative impact of the pressures being imposed on the repo market, most particularly by the leverage ratio, are such that it is already a market under significant stress. The impact of the NSFR, if simply adopted exactly as outlined by the BCBS, would create significant additional stress and weaken the effectiveness of the market. Given the role of repo and collateral markets at the heart of the financial system, this would have negative implications for the smooth functioning of broader financial markets – which would, in turn, lead to increased costs and risk for market participants, including those corporates and governments borrowing to finance their economic needs. At the same time there would also be a detrimental impact on the effectiveness of many of the measures put in place to improve the stability of the financial system, dependent as they are on high quality collateral.

Certain key impacts of NSFR to consider in the context of repos and collateral:

Faced with a new requirement to hold long-term “stable” funding against short-term reverse repo assets, banks subject to required compliance with the NSFR will all face the same incentive structure regarding how they should seek to structure their activity. This will channel such activities to those combinations of counterparties and residual maturities which best fit within the NSFR construct, likely creating an element of famine and feast. It is unlikely all market participants will be able to smoothly fulfil their requirements with their first choice structures – for example because there will likely only be very limited scope available for transacting repos with Sovereigns, PSEs and non-financial corporates.

Yet not all firms will in fact be impacted by the NSFR in the same way at the same moment in time. Firms which fall under different regulatory constructs will face similar, but not identical, implementing requirements; not only in the global market context but also to some extent even within the EU. Also, firms will react to market pressures, so the impact of NSFR will run, unevenly, ahead of the official implementation timetable. Different corporate structures may have a very significant effect, especially if not all regulatory authorities adopt consistent approaches regarding the application of the NSFR at group, as opposed to individual entity, level. Furthermore, from the regulatory perspective the NSFR applies to a firm (or group) as a whole, yet to optimise the value of a firm it is necessary to assess the contribution made by different lines of business and this frequently involves the allocation of costs across business lines. Any push down of incremental costs stemming from NSFR compliance to business, or even desk, level it is likely to prompt a rebalancing of activity away from repo and collateral.

Carefully considered implementation of the NSFR can help to mitigate concerns:

Without dropping the worthwhile effort to enhance long term financing stability through the imposition of NSFR, there are a number of ways in which its details could be calibrated in order to better smooth its effects on repo and collateral markets. These include the possibility to further refine the applicable ASF/RSF proportions in order to rebalance their asymmetry driven behavioural effects (including potentially identifying more detailed specific treatments for special asset types such as HQLA, or in relation to desirable financing activities such as matched book repo facilitation); and relaxing the conditionality for SFT netting, and/or allowing for a more expansive interpretation of interdependent assets and liabilities, in order to allow more scope for mitigation of the impacts of NSFR. A different treatment of collateral within different types of transaction described (repo and derivative margining) regarding NSFR would have negative impacts on the interdependencies between these markets.

The IMCA ERCC believes that those responsible for NSFR’s implementation should give careful consideration to its impacts, conducting full and deep impact studies prior to concluding which specific details to adopt. The ICMA ERCC’s own considered view is that the best way to adapt the NSFR would be to re-calibrate it such that short-term – in this context, say those of up to six months – secured financing transactions, such as repo, are exempt. Short-term cash and collateral liquidity management activity is governed by the liquidity coverage ratio (LCR) requirements which have been imposed, already leading banks to far more carefully and actively manage their liquidity needs out to at least 90 days and affording supervisors with a high degree of visibility in relation to these activities. Such an exemption would avoid that the NSFR imputes an element of long-term funding costs into the financing of short-term assets. The ICMA ERCC also sees that a broadly equivalent set of considerations lead logically to the conclusion that all short-term money market activities should be exempt from NSFR’s imposition of an element of long-term funding costs. Money market activities will not be able to bear such costs and absent targeted relief central banks will be left having to intermediate liquidity.

Concluding remarks:

It appears clear to the ICMA ERCC that the NSFR will significantly impact short term markets. The ICMA ERCC is intensely aware of the importance of collateral to the financial system and of the vital role played by the repo market in facilitating the movement of collateral, such that it can be available when and where needed.

As outlined in this paper, the NSFR will have important impacts on repo and collateral markets, necessitating careful impact study and consideration of potential re-calibrations to NSFR.

Significant effects from these impacts will be felt by all clients of the banking industry, be they corporates, sovereigns, or buy-side firms, such as asset managers, pension funds, insurance companies, money market funds, hedge funds, represent money invested from the real economy.

Examples of a few of the problems which can be anticipated include:

- Banks being forced to hold billions of longer-term funding in relation to positions taken in the European repo market, in which data shows that almost two-thirds of outstanding volumes are traded for maturities of less than one month (see ICMA survey data on page 18) – there are significant costs in funding such a cautious mismatch of maturities.
- These much increased funding costs will be passed on to corporates, sovereigns, and buy-side firms, both through their direct involvement in the repo market and through the ways in which repo and collateral markets more broadly underlie activities in financial markets (see pages 7 - 12).
- Compliance with NSFR at a Group level, where any offsets between available and required funding are maximised, does not remove the fact that actual, or implied, NSFR cost impacts will be experienced on a standalone subsidiary level and by particular business lines and trading desks (see page 15) – where corporate structures are likely to offer fewer natural offsetting effects, leading to significantly increased costs for those actually transacting with clients.
- RSF applicable to variation margin for derivatives creates specific, significant effects, which are expected to meaningfully impact behaviours (see page 17).
- ASF factors incentivise banks to conduct repos < 6 months with Sovereigns/PSEs and non-financial corporates (see pages 13 - 14) – albeit that Sovereigns/PSEs are not overly enthusiastic to engage in such repo market transactions and that non-financial corporates represent a small, and inconsistent, funding source for the repo market.
- Uneven implementation, including a number of timing issues, will distort the market, as different firms' experiences of NSFR vary (see pages 14 - 15).
- Potentially helpful mitigating factors included within the structure of NSFR are very limited in their scope (see page 16).
- The impact of NSFR cannot be considered in isolation, but rather comes as a further part in an accumulation of pressures on the repo and collateral markets (see pages 19 - 20).

The ICMA ERCC stands ready to discuss all aspects of this topic, in order to best assist authorities with the necessary process of implementing this new element within the bank regulatory framework in a market sensitive manner.

Annex:

For further information, the following annex pages provide more detailed explanation of a number of aspects pertinent to the consideration of the impacts of the NSFR on repo and collateral markets:

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NSFR Background:

On 31 October 2014, the BCBS issued the final standard for the NSFR, which will become a required minimum liquidity standard by 1 January 2018. Yet whilst the BCBS' standard is an agreed international standard, it nevertheless needs to be implemented in various national and regional rules.

In the case of the EU the NSFR is to be implemented through provisions in the Capital Requirements Regulation ("CRR"). Currently the CRR contains "Stable Funding" provisions, but these are far less stringent than the requirements set out in the BCBS' NSFR.

On 17 December 2015, the European Banking Authority ("EBA") published its report on the Impact Assessment and Calibration of the NSFR, recommending the introduction of the NSFR in the EU to ensure stable funding structures. The EBA recommended that the NSFR should be applied on a consolidated and individual basis, with sub-consolidated requirements being subject to a competent authority's decision. The EBA's analysis did not find strong statistical evidence of significant negative impacts of the NSFR on bank lending, financial assets markets or trading book positions. Whilst generally finding that the calibration and definition adopted in Basel fit well with the European banking system, the EBA also explained that certain EU specificities should be taken into account – in particular in the cases of trade finance, pass-through models, CCPs, centralised regulated savings and residential guaranteed loans.

The EBA's report will inform the work on potential legislative proposals on NSFR of the European Commission, which is due to put forward an EU NSFR proposal during 2016.

Repo and collateral support essential components of financial markets:

Financial markets bring together buyers and sellers wishing to engage in transactions in cash, such as lending and borrowing or deposit taking, or cross currency exchanges; or in financial assets such as equities, bonds and derivatives. Amongst the essential components of financial markets are money markets, capital markets and derivatives markets. Money markets primarily comprise short-term (up to one year) cash or collateral oriented activities, whilst capital markets are based upon the longer-term (greater than one year) equity and bond (debt) market activities. Derivative markets provide an overlay to both money and capital markets, with a range of derivative contracts having evolved linked to the underlying cash and securities market products. Collectively these components comprise the major part of financial market and, in combination with each other, they service the needs of companies, governments and individuals.

Given their shorter-term nature, money markets provide investors with relatively lower risk, lower return ways in which to invest and manage their risks. They can access these markets with a higher degree of confidence in the liquidity of their positions, including by investing on an overnight basis. Borrowers meanwhile can equally benefit from the possibilities these markets present for the management of their liquidity needs. For instance, short-term debt can be issued, say in the form of commercial paper, to cover needs arising in respect of operating expenses, including payroll, or working capital. Market participants can also easily be involved on both sides of the money market, as their liquidity positions fluctuate – perhaps one day borrowing some cash to meet a required outbound payment and the next day finding themselves with some surplus cash to invest following a large payment receipt.

For bank treasurers, as for those in other firms, the money market plays a vital part in allowing them to manage their daily liquidity, without falling short and needing a more expensive loan or without holding excess funds and missing the opportunity of gaining interest on funds. Without access to this market banks would be wholly reliant on central banks to provide them with any required liquidity, or to take in any surplus liquidity. Repo plays a vital part in the money market, as it offers a secure way to transact, largely avoiding the principal risk experienced in unsecured money market activities. The liquidity of high quality liquid assets (HQLA), held for LCR purposes, depends upon a robust repo market able to support the conversion of HQLA securities for cash. Also, formulation of new transaction-based indices presupposes suitable transaction volumes in money markets. And repos are the mechanism for the transmission of monetary policy from central banks to the market.

And, at the same time, repo comprising an exchange of cash for collateral securities, also serves as the conduit for collateral market activity which has taken on an increasingly important role in financial markets (as further elaborated in the growing importance of collateral further below).

On the other hand, capital markets allow governments and corporates, including banks, to raise the long-term finance which they require, either as equity or debt. Investors in these instruments typically assume more risk than in the money markets and hence also enjoy higher returns. Whilst the borrowers long term prospects and credit standing are key factors in determining how high these returns need to be in order to attract the desired level of investment, another important factor which investors need to consider is the degree of liquidity risk which they will face in making their investment. In this regard the repo market again plays a vital role, as it is the possibility to lend out such securities as collateral, or to sell them to dealers, whose risk taking depends on their own access to repo markets, which is one of the key determinants of the extent of this investment liquidity risk.

Repo and collateral markets also play an essential part in the activities of buy-side firms. For short-term funds, particularly money-market funds, reverse repos provide an important, safe way in which to invest cash. Repos may be used as a way for investors to finance inventory, or to facilitate borrowing in case short positions need to be taken to provide risk hedges. Repos may also be as a way to enhance yields, by securely lending out securities from inventory in order to earn incremental returns. Increasingly repo activities are also essential tools for the liquidity management needs of investors – cash buffers being held for liquidity purposes can safely be invested in reverse repos; and repos can be used to quickly generate cash against investment portfolio holdings, allowing the meeting of short-term cash outflows whilst avoiding the need to actually sell down portfolios (or hold larger cash buffers). The need to manage increasing margin collateral requirements, being imposed in relation to essential derivatives hedging activities, is an important factor increasing the cash management needs of investors.

Derivatives markets activities meanwhile complement activities in the money and capital markets, better enabling the tailoring of transactions to manage, risks to factors such as interest rates, foreign currency exchange rates and counterparty credit. This again improves the overall effective cost of borrowing. And, once more, repo and collateral markets play a vital role, supporting and enhancing the functioning of derivatives markets. The use of repo, both to fund long positions and cover short positions in underlying securities; and to source collateral as margin and the availability of a collateral funding curve, is fundamental to the hedging and pricing of derivatives – which are the essential tools of risk management for both financial intermediaries and end-users of the financial markets.

Collateral meanwhile is an essential element in the risk management of CCP exposures, either in relation to the provision of initial margins, required to cover exposure to the closing out of positions in case of counterparty default, or variation margins, required to cover daily fluctuations in the value of open positions. Both these components are standard and essential elements in the risk management processes of those CCPs involved in clearing derivatives, and new regulations agreed at international level are moving the derivative market to equally utilise these two margin components in relation to non-CCP cleared derivatives. Furthermore, CCPs themselves depend upon the repo market as a safe way to invest cash margin receipts, against high quality collateral; and as a way to support the rapid realisation of collateral in case this needs to be sold responsive to a default.

Key functions of the repo market:

The repo market is pivotal to the efficient functioning of financial markets. A liquid and efficient repo market is a necessary precondition for an efficient functioning bond market which, in turn, is crucial to lowering issuer costs (both government and corporate) and reducing portfolio management risks for end-investors. More broadly, the repo market promotes the more efficient use of available tradable stock for collateral management, increasing the speed and efficiency of the settlement process, and mitigating disorderly or volatile price action of narrowly held bonds. Key repo market functions are:

- 1. Low-cost, widespread access to funding:** Repo represents a source of low cost funding which, because of its collateralised nature, can (a) extend more easily to counterparties that have limited access to unsecured funding; and (b) can be used to secure longer term funding than typically is on offer in unsecured markets.
- 2. Bond Market Liquidity Regulator:** Liquidity support is hugely important to the efficient functioning of bond markets, which are typically less liquid than equity or foreign exchange markets. For issuers (both corporate and government), good liquidity lowers interest payments: for end-investors, it reduces the cost of managing portfolio risk. The repo market acts as a bond market liquidity regulator of sorts, responding to shortages of bonds by automatically raising the return offered to bondholders for releasing scarce stock into the market, and lowering the return when excess demand has been satiated. Aside from directly supporting bond market liquidity through regulating the amount of tradable stock, this function provides important guidance to issuers about liquidity conditions across their respective bond maturity curves. Many regular issuers (governments, supranational and larger corporates) appreciate the value in supporting liquidity across their respective maturity curves, and the information from liquid repo markets enables them more efficiently and cost effectively to protect the liquidity of their bond curves. The role repo plays in helping to iron out short-term demand-supply imbalances in the bond market contributes to more stable valuations of government debt and smoother, more consistent yield curves, which are essential for the accurate pricing of other financial instruments, and thus the efficient allocation of capital by financial markets. In this way, repo also acts as a force against disorderly market conditions that can occur if the tradable supply of a particular bond is held with a very small number of investors, and thus “squeezed”.
- 3. Primary Dealer Support:** Primary dealers are significantly exposed to market risks through their role in allowing end-investors to trade against their balance sheets in all market conditions, which provides crucial liquidity support to bond markets. Repo plays a very important role, both in facilitating their ability to manage this risk and in lowering their operational costs. In particular, the repo market allows primary dealers to post continuous bids and offers without having to hold large inventories of stock. In addition, the repo market enables primary dealers to manage more efficiently the significant market risk their balance sheets are exposed to, both because of their commitments to post continuous bids and offers across the yield curve and their support for primary issuance. For example, a primary dealer underwriting the syndication of a new issue may sell a bond of equivalent risk, borrowed from the repo market, in order to protect its downside and ultimately lower the cost of its insurance to the issuer.

4. **Additional Benefits to Bond Holders:** Repo markets allow natural holders of bonds to extract additional value from otherwise inactive inventory holdings of bonds. This enhancement of the value that can be extracted from bond holdings tends to raise their demand and ultimately tends to lower issuer interest costs.
5. **Support for Central Bank Liquidity Management:** The collateral management framework necessary to support this market also indirectly provides support to central bank liquidity management, which is largely effected through repo, as it uses the same framework. Central bank repo feeds seamlessly into the commercial repo market.
6. **Hedging and Pricing Derivatives:** An active repo market is an absolute prerequisite for liquid markets in derivative instruments. The use of repo, both to fund long positions and cover short positions in underlying securities; and to source collateral as margin and the availability of a collateral funding curve, is fundamental to the hedging and pricing of derivatives – which are the essential tools of risk management for both financial intermediaries and end-users of the financial markets, including official debt and reserve management agencies.
7. **Preventing Settlement Failures:** Repo plays a critical role in supporting the day-to-day operational efficiency of securities markets by allowing issues to be borrowed in order to ensure timely onward delivery, where short positions have arisen unintentionally, usually because of unexpected lags between inward and outward deliveries of securities, infrastructure frictions or the tight supply of particular issues.
8. **Permitting Faster Settlement Times:** The role of repo as a means of borrowing securities has been, and will continue to be, crucial in allowing settlement periods to be shortened in order to reduce systemic risk in securities settlement systems. Faster settlement leaves less time for delivery problems to be corrected and therefore requires an efficient source of securities borrowing to prevent delivery failures. As required by the EU's CSD Regulation, standard bond settlement periods across the EU have been compressed to T+2.
9. **Collateral Management:** Trading in the repo market is key to the valuation and management of collateral, and allows collateral resources to be more fully mobilised and efficiently allocated. Collateral management is becoming ever more important. Demand for collateral for use in payments and settlement systems, as well as in the exchange-traded and OTC derivatives markets, is being compounded by regulatory pressure on market users to hold larger liquidity reserves and make greater use of (collateralised) CCPs. At the same time a loss of confidence in some sovereign debt is creating uncertainty over the future supply of high-quality collateral.
10. **Allowing More Efficient Employment of Capital:** The global economic impact of the increasing regulatory risk capital charges introduced since the 1980s was mitigated by the more efficient use of capital that was allowed by the underlying shift from unsecured to secured financing. The capital efficiency of repo will become even more important in the future as regulators increase capital charges and impose new liquidity requirements.

The growing importance of collateral:

Well before the 2007 financial crisis the use of collateral to protect against counterparty risk was common practice in the repo markets. Helped by Basel II reducing the practice of unsecured interbank lending, the repo markets had been created by central banks on the continent (France and Belgium); and throughout the late 1990's all other central banks in Europe endorsed and encouraged repo transactions. Since then the use of various types of collateral has developed and the central bank community's range of eligible collateral for the purpose of liquidity provision within the Eurozone has expanded to marketable and non-marketable assets.

The importance of collateral has thus grown over many years, but has accelerated significantly since the advent of the financial crisis in mid-2007. This is in no small measure related to the shift in risk appetite of market participants, with an increased demand amongst them to secure their credit risk exposures through the taking of high quality collateral. Official policy makers have also significantly fuelled the demand for high quality collateral as they have advanced steps to make markets more robust, to reduce systemic risk and help mitigate the risks of any future financial crises.

Amongst examples of these increasing demands are:

- increased focus on covered bond issuance by banks, secured against high-quality mortgage pools, as against senior unsecured issuance;
- increased use of repo funding to finance assets, including in context of an increase in the use of central bank financing;
- Basel requirements, translated in the EU through the CRR; introducing the holding of liquidity stress buffers – collateral assets to satisfy these requirements comprise a short list of high-quality liquid assets (HQLA);
- the shift of standardised OTC derivatives to CCP clearing, as required in the EU by EMIR, which gives rise to demands for significant amounts of initial margin; and
- increased requirements to margin any bilateral OTC contracts (outside of CCP arrangements), incentivised by penal treatment of uncollateralised exposures in the EU CRR/D requirements.

With the equivalent G20 agenda demanding ever more collateral, including the need to collateralise bilateral trading between the buy & sell side, coupled with the downgrade of a substantial part of previously reasonable good collateral, the pressure to widen the collateral base is on.

Given the competing demands that exist for the use of collateral assets, the management of collateral needs to encompass the deployment of optimisation techniques. These aim to ensure that the available collateral is utilised as effectively and efficiently as possible. This will be best achieved in case minimum acceptable collateral requirements are clearly stated and, wherever appropriate, harmonised, taking due account of the different classes of potential collateral assets. At the same time, although collateral is a good mitigating tool to reduce counterparty risk, there ought also to be focus on how to reduce the risk in the system. Netting through fixed income CCPs is such a measure. Risk reduction tools, like compression in the OTC derivatives markets, are another.

Repo and collateral markets – the heart of the financial market system:

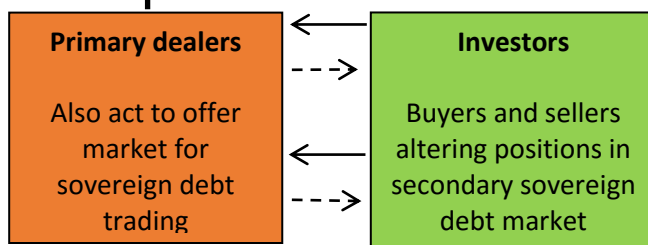
Repos underpin longer term capital market financing, having a direct role in supporting the trading of debt and equity and associated implications for the cost of originating financing in these markets. Having a more efficient and robust repo market leads to lower long-term financing costs and hence benefits real economy borrowers.

The following is a diagrammatic illustration of these relationships, based on the case of government bond financing:

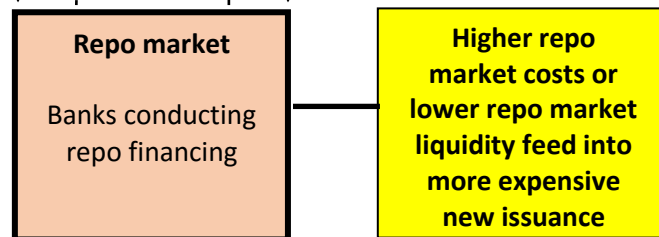
Origination



Secondary trading

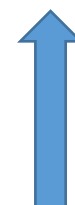


Financing



—————> Cash
 - - - - -> Securities

- New issue price reflects secondary trading prices for existing issues
- Secondary trading price depends upon the cost for the dealer to finance positions (long or short) taken to satisfy demand
- Financing cost for dealer set by repo market cost to lend or borrow sovereign securities



Analysis of BCBS NSFR in the context of repos and collateral:

The NSFR is defined as the amount of available stable funding (“ASF”) relative to the amount of required stable funding (“RSF”). The ASF is defined as the portion of capital and liabilities expected to be reliable over the time horizon considered by the NSFR, which extends to one year. The RSF calculation is a function of the liquidity characteristics and residual maturities of the various on- and off-balance sheet assets held by a specific institution. The ratio should be equal to at least 100% on an on-going basis.

$$\text{ASF} / \text{RSF} \geq 100\%$$

Repos generate ASF, the proportion being dependent on residual maturity and counterparty type. Reverse repos generate RSF, the proportion being dependent on residual maturity, counterparty type and collateral quality. However, there is a certain amount of asymmetry between repos and reverse repos depending on the type of counterparty and the residual maturity of the transaction:

Residual maturities ≥ 1 year repo ASF & reverse repo RSF proportions are:

- Symmetric for Banks & Other Financial Institutions (100%)
- Asymmetric for Non-Financials (100% ASF v. 65% RSF / 85% RSF)
(the lower 65% RSF applies for counterparties with Basel risk weights $\leq 35\%$ and 85% RSF otherwise)

Residual maturities ≥ 6 months (& < 1 yr) repo ASF & reverse repo RSF proportions are symmetric (50%)

Residual maturities < 6 months repo ASF & reverse repo RSF proportions are:

- Symmetric for Sovereigns & PSEs (50%); Non-Financial Corporates (50%); and Central Banks (0%)
- Asymmetric for Retail & Small Business Customers (0% ASF v. 50% RSF)
- Asymmetric for Banks & Other Financial Institutions (0% ASF v. 10% RSF / 15% RSF)
(the lower 10% RSF applies for “Level 1” collateral and 15% RSF for other collateral asset types)

Residual maturities	< 6 months		≥ 6 months and < 1 year		≥ 1 year	
	Repo ASF	Reverse RSF	Repo ASF	Reverse RSF	Repo ASF	Reverse RSF
Sovereign/PSE	50%	50%	50%	50%	100%	65%/85%
Non-fin corp.	50%	50%	50%	50%	100%	65%/85%
Central Banks	0%	0%	50%	50%	100%	100%
Bank/financial	0%	10%/15%	50%	50%	100%	100%
Retail & small	0%	50%	50%	50%	100%	65%/85%

In addition, it needs to be considered that unencumbered assets, such as cash trading desk positions, will be subject to RSF. The scale for these assets is related to HQLA (“high quality liquid assets” as defined in the Basel Liquidity Coverage Ratio, “LCR”), with the applicable RSF proportions being:

- 5% RSF for Level 1
- 15% RSF for Level 2A
- 50% RSF for Level 2B
- 85% RSF for non-HQLA (not in default and > 1 year)
- 100% RSF for other assets

Where such assets are funded through the proceeds of repo financing transactions, the minimum NSFR requirement will create the need to manage gaps between the ASF generated by such financing transactions and the RSF for the applicable funded asset.

Impacts of NSFR in the context of repos and collateral:

The differences in treatment linked to type of counterparty and residual maturity dictate that banks subject to required compliance with the NSFR will all face the same incentive structure regarding how they should seek to structure their repo and reverse repo activity. What is clear is that banks will be required to hold long-term “stable” funding against short-term reverse repo assets which will increase business costs. Accordingly, there will be a strong incentive for banks to tailor carefully their business profile given how the rules treat different residual maturities, counterparty types and collaterals. This will lead to changed market behaviour as banks seek to channel such activities to those combinations of counterparties and residual maturities which best fit within the NSFR construct. This is likely to create an element of famine and feast, as some counterparties are overlooked in favour of others, but unlikely to allow all market participants to smoothly fulfil their requirements with their first choice structures – for example because there will likely only be very limited scope available for transacting repos with Sovereigns, PSEs and non-financial corporates.

Looking at the Basel NSFR in more particular detail, for residual maturities:

1. < 6 months (which are the most typical) there is a strong incentive to transact repos with Sovereigns, PSEs and non-financial corporates (all 50% ASF), as opposed to with central banks, banks, other financials and retail & small business customers (all 0% ASF) – it is important to consider that a perverse incentive of this is the encouragement it gives for banks to repo their lower quality collateral to corporates, who are least well placed to manage taking on such risks;
2. < 6 months (which are the most typical) there is a strong incentive to transact reverse repos with central banks (0% RSF) or with banks and other financials (10%/15% RSF), as opposed to with Sovereigns, PSEs, non-financial corporates and retail & small business customers (all 50% RSF);
3. ≥ 6 months and <1 year repos with central banks, banks, other financials and retail & small business customers (all 50% ASF) are significantly incentivised compared to shorter term repos with these same counterparty types (all 0% ASF);
4. ≥ 6 months and <1 year reverse repos with central banks or with banks and other financials (all 50% RSF) are significantly dis-incentivised compared to shorter term repos with these same counterparty types (0% RSF, central banks, or 10%/15% RSF);
5. ≥ 1 year there is an incentive to transact reverse repos with Sovereigns, PSEs, non-financial corporates and retail & small business customers (all 65%/85% RSF), as opposed to with central banks, banks and other financials (all 100% RSF).

The competitive dynamic, as firms chase opportunities to transact with favoured counterparties, will lead to some degree of imbalance in the market. This will not just be because of the discrimination by favoured counterparty type but also because not all firms will in fact be acting under the same constraints. There are a number of reasons why this will be so. One such reason is timing, since not all firms will in fact be impacted by the NSFR in the same way at the same moment in time. It is an inevitable feature of implementing global standards that firms which fall under different regulatory constructs will face similar, but not identical, implementing requirements at different points in time. Within the EU the use of the CRR as the vehicle for implementing NSFR will help with this, since it is a directly applicable EU Regulation which will affect all applicable EEA banks and investment firms from whichever date is specified in the relevant CRR amendment. But this does not rule out the possibility that individual EU Member States implement rules or regulations beyond CRR, including different effective dates; and third country firms will quite likely not be impacted at the same time, their situation depending upon when their own lead local regulators (e.g. US, Japan, etc.) act.

Another important timing consideration stems from the fact that the market is dynamic and responds ahead of time, particularly when it comes to the fulfilment of known future requirements. So whilst the NSFR may be stated to apply as a binding requirement from the start of 2018 there will be a number of reasons why firms will act to be compliant before this time. An important part of this is market driven, with firms reacting to pressure from their own shareholders, in part responsive to competitive pressure from the action of other firms, to ensure that they have taken the necessary steps to comply well before the actual compliance deadline is reached. Of course to some extent this is simply prudent behaviour, as it would be rash, an indeed practically impossible, to wait up until the deadline applies and then need to try and effect significant changes overnight. But this also leads supervisors to pressurise firms to move to compliance at an early stage. Such action will be seen as a sign of a well-managed firm, whilst any sign of ill-preparedness will be seen as a sign of management deficiency. In consequence the official deadline for implementation is effectively moved forwards, yet the extent of these impacts will vary across countries with some firms thus finding themselves pressed to act sooner than others.

Another issue impacting the level playing field is structural, with not all banks subject to NSFR being organised in the same way. Different corporate structures may have a very significant effect, especially if not all regulatory authorities adopt consistent approaches regarding the application of the NSFR at group, as opposed to individual entity, level. This challenge is recognised in the text of the Basel NSFR, which says “The NSFR should be applied to all internationally active banks on a consolidated basis, but may be used for other banks and on any subset of entities of internationally active banks as well to ensure greater consistency and a level playing field between domestic and cross-border banks.” This also highlights another point relevant from the EU perspective, where the CRR is applicable to all EEA banks and investment firms rather than just those which are large and internationally active. Furthermore, different banking models will also create significant structural differences. In particular, those banks which hold a large amount of cash arising from stable retail deposits or operational deposits will, whilst still needing to fulfil applicable ASF requirements, benefit from the low RSF for such assets.

Much uncertainty also surrounds another vital factor which will significantly skew the playing field for some. From the regulatory perspective the NSFR applies to a firm (or group) as a whole, so the first and foremost challenge is to comply with this requirement. Assuming that this can be achieved without cutting out repo and collateral activities in so doing, the key question is what happens next in the determination of which business strategy to follow. In order to optimise the value of a firm it is necessary to assess the contribution made by different lines of business and this frequently involves the allocation of costs across business lines.

Assuming that firms chose to push down any incremental costs stemming from NSFR compliance to business, or even desk, level it is likely that many existing repo and collateral activities may look relatively less economic than other business activities. The upshot of this would then likely be to rebalance activity away from repo and collateral in order to try and boost aggregate returns. This potentially leads to very different outcomes compared to any firms which decide that they should centrally absorb, as an unallocated element of corporate overheads, any net incremental costs stemming from NSFR compliance. Nevertheless, even in case such an unallocated corporate overhead approach is pursued it is likely that over time there will be pressure on such firms to try and reduce such unallocated costs, which may well still lead to the same process of business model adjustment in pursuit of increased shareholder value.

Mitigating NSFR impacts in the context of repos and collateral:

Given that it effectively achieves full elimination of RSF for the assets involved, the availability of netting is one essential way to potentially mitigate the impact of NSFR. Paragraph 33 of the BCBS NSFR text states that “Securities financing transactions with a single counterparty may be measured net when calculating the NSFR, provided that the netting conditions set out in Paragraph 33(i) of the Basel III leverage ratio framework and disclosure requirements document are met.” In the BCBS leverage framework these netting conditions are stated as follows “cash payables and cash receivables in SFTs with the same counterparty may be measured net if all the following criteria are met:

- (a) Transactions have the same explicit final settlement date;
- (b) The right to set off the amount owed to the counterparty with the amount owed by the counterparty is legally enforceable both currently in the normal course of business and in the event of: (i) default; (ii) insolvency; and (iii) bankruptcy; and
- (c) The counterparties intend to settle net, settle simultaneously, or the transactions are subject to a settlement mechanism that results in the functional equivalent of net settlement, that is, the cash flows of the transactions are equivalent, in effect, to a single net amount on the settlement date. To achieve such equivalence, both transactions are settled through the same settlement system and the settlement arrangements are supported by cash and/or intraday credit facilities intended to ensure that settlement of both transactions will occur by the end of the business day and the linkages to collateral flows do not result in the unwinding of net cash settlement.

These conditions describe a minimal approach to allowable netting, being focussed on the actual offset of physical cash settlements. This is the opposite end of the spectrum from the counterparty portfolio default netting which is supported under the provisions of the Global Master Repurchase Agreement (GMRA), together with its suite of applicable legal opinions, and similarly under other master agreements such as the Global Master Securities Lending Agreement (GMSLA). So it is helpful that the BCBS NSFR rules (and the BCBS leverage ratio framework) provide for SFT netting, but the extent of this mitigating factor is quite limited; and it would be quite conceivable to recalibrate these regimes by altering the decision regarding how much netting should be permitted.

Additionally, the BCBS NSFR provides, in paragraph 45, that for interdependent items, national supervisors have discretion in limited circumstances to adjust RSF and ASF factors so that they are both 0%. This is then an alternative provision under which the same effect as netting can be achieved, but the conditionality is strict. It may only apply where “asset and liability items, on the basis of contractual arrangements, are interdependent such that the liability cannot fall due while the asset remains on the balance sheet, the principal payment flows from the asset cannot be used for something other than repaying the liability, and the liability cannot be used to fund other assets.” Much discussion has taken place about different types of transaction which might be construed to come within the purview of this provision, such as short client facilitation, but it seems likely that there is little scope for flexible interpretation of paragraph 45’s conditionality. As such, it may be that negligible relief for repo and collateral related activities will be possible in this context, but this still warrants some more consideration.

As with the consideration of netting in mitigating the impact of the BCBS leverage ratio framework, this may force increased focus on the structure of repo and collateral contracts. In particular, equivalent economic outcomes may be achievable – using off balance sheet collateral versus collateral exchanges, as opposed to cash versus collateral, or by way of synthetic structures, such as total return swaps – at the same time as more favourable regulatory outcomes are achieved.

NSFR impacts relating to collateral used in the context of derivatives:

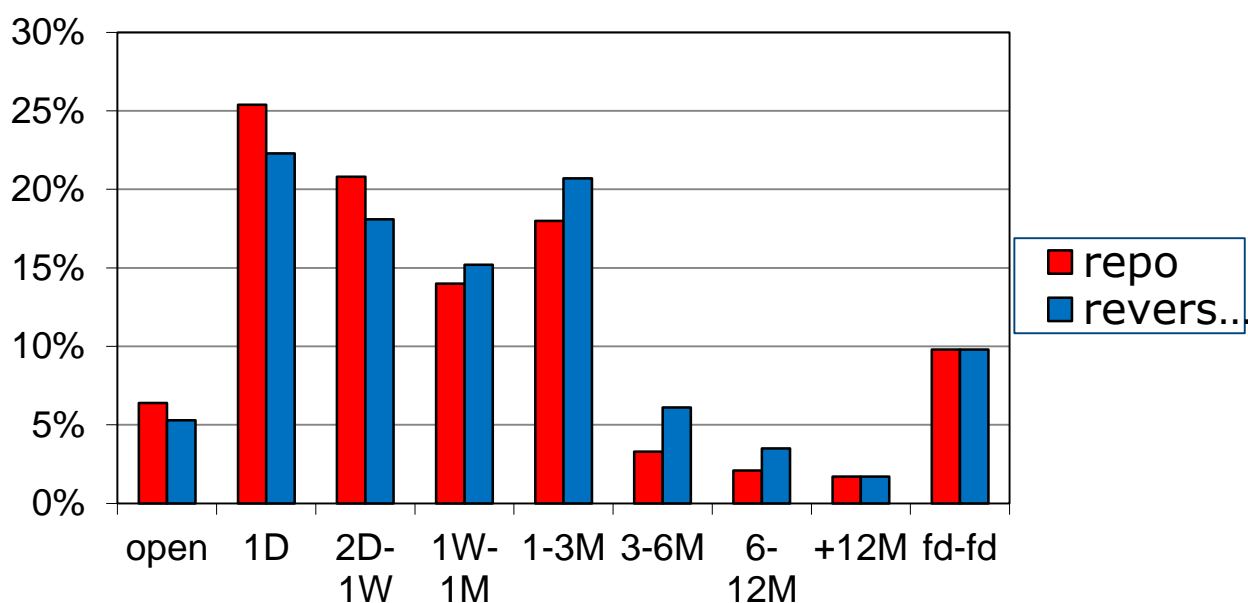
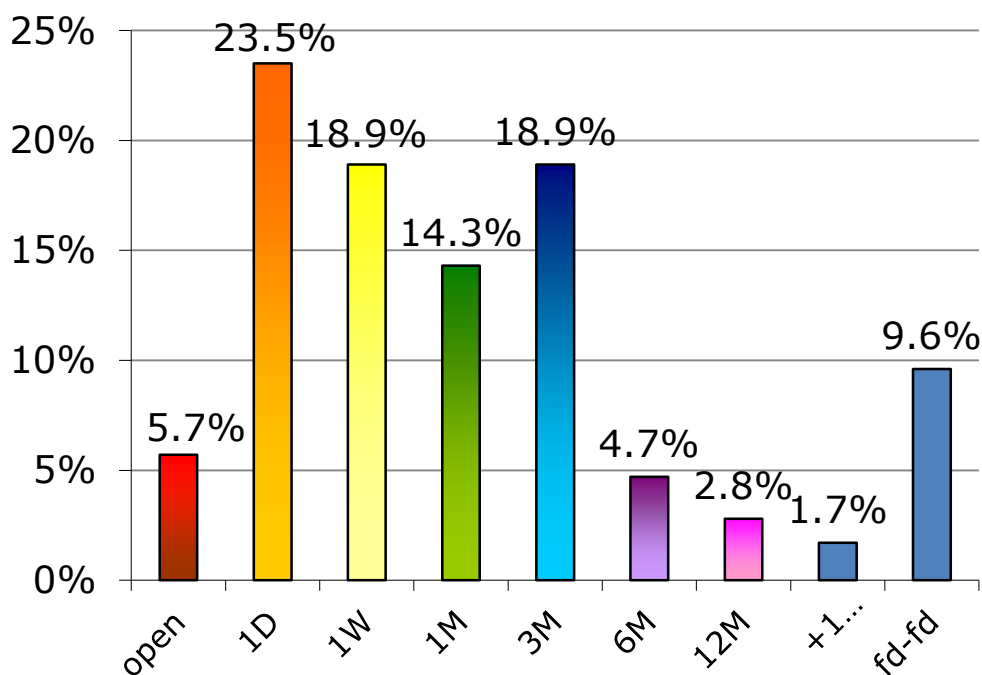
Under the NSFR, as adopted by the BCBS, gross variation margin posted will trigger 20% RSF. This will quite clearly generate repercussions within collateral markets, in terms of availability and/or cost. Furthermore, akin to the asymmetries described earlier in this paper, there will also be significant effects arising from asymmetry in the collateral treatment stemming from variation margin posted or received. For instance, the NSFR limits fundable collateral to cash collateral that is also nettable under the Basel leverage ratio conditions. Therefore, HQLA received as derivatives margin will not generate ASF whereas HQLA posted as derivatives margin does trigger RSF. Since the NSFR levels, and therefore the funding requirements, of firms will vary significantly depending on the collateral management strategy used these asymmetries are expected to meaningfully impact behaviours. The following table illustrates a range of outcomes associated with different collateral management approaches:

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Derivative NPV	€1,000mm	€1,000mm	€1,000mm	€1,000mm
Collateral	1,000mm EUR cash	1,000mm EUR cash	1,000mm HQLAs	1,000mm HQLAs
Use of Collateral	Invest in €1,000mm HQLAs	Reverse in €1,000mm HQLAs	Leave HQLAs unencumbered	Repo HQLAs for cash with a financial cpty for <6 months
Implied RSF	5%	10%	100%	100%
Balance Sheet Treatment	<ul style="list-style-type: none"> ■ Derivative receivable on B/S: 0 ■ HQLAs Firm Inventory on B/S: 1,000mm 	<ul style="list-style-type: none"> ■ Derivative receivable on B/S: 0 ■ Reverse repo agreement (with a financial cpty) on B/S: 1,000mm 	<ul style="list-style-type: none"> ■ Derivative receivable on B/S: 1,000mm ■ Unencumbered HQLAs off B/S: 1,000mm 	<ul style="list-style-type: none"> ■ Derivative receivable on B/S: 1,000mm ■ Cash on B/S: 1,000mm ■ Repo agreement on B/S: 1,000mm

Analysis of the maturity profile of the European repo market:

The ICMA European repo market survey is performed every six months, providing analysis of the repo business outstanding at the survey date. The 30th such survey was published on 11 February 2016 and is available at <http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/short-term-markets/Repo-Markets/repo/latest/>

Amongst other details, the survey reveals the maturity profile of the European repo market, which can clearly be seen from the following depictions of the latest data to be predominantly six months or less.



The essential need for collateral fluidity:

Whilst numerous studies have attempted to estimate whether there is an adequate supply of collateral to meet these rising demands or whether there might be a shortfall, inevitably nobody actually has the exact answer. Yet with the supply of safe assets dwindling at the same time as demand for them is rising, it is plainly essential that high-quality collateral be managed as a scarce resource. The ICMA ERCC considers that the aggregate amount of collateral is likely to prove large enough to meet the demands, but sees the risk of suffering from more localised demand-supply imbalances. These will arise in case it is not possible to ensure that the right amount of the right type of collateral is available at the right time, in the right place to meet applicable requirements.

Given this, the ICMA ERCC has already done much over the last couple of years to emphasise the importance of collateral fluidity, which allows collateral to move around the system to meet varying demand requirements across the financial markets landscape. Concretely, at the beginning of 2012, ICMA convened the Collateral Initiatives Coordination Forum (“CICF”), which was conceived as a joint trade associations’ body, in order to facilitate appropriate coordination across the private sector of all collateral-related initiatives. Whilst it has not proved easy to maintain the impetus for such a broad ranging body to act, this CICF initiative did lead to the production of the CICF’s [Collateral Fluidity White Paper](#), which was published on 7 November 2012.

A further ICMA ERCC paper, [Collateral is the new cash: the systemic risks of inhibiting collateral fluidity](#), was published on 3 April 2014. This describes the increasing importance of collateral and calls for regulators to consider the impact of financial regulation on the movement of collateral, highlighting the potential risks of inhibiting collateral fluidity. The paper explains why it is that achieving an adequate degree of collateral fluidity requires the simultaneous existence of robust and efficient settlements infrastructure (the “plumbing”), as well as bank funding desks that are able to source, price, manage, and mobilise collateral (the collateral “pump”).

Yet in the European markets both these elements evidence significant need for improvement. Notwithstanding the efforts made over many years, currently most visible in the process of transition to the use of T2S by many of the EU’s CSDs, the European market settlements infrastructure remains subject to many inefficiencies associated with its historic evolution in individual EU Member States. The ICMA ERCC is closely involved in work to address this, albeit that the European Commission has shockingly failed to fully involve the ERCC in its latest infrastructure review effort, being conducted by the newly formulated European Post-Trade Forum (“EPTF”). At the same time, the ICMA ERCC’s November 2015 study into the state of the repo market (see next page) records growing concern that the cumulative impact of various prudential and market regulations, along with extraordinary monetary policy, could be affecting the ability of the European repo market to function efficiently and effectively. Uncoordinated measures by public authorities are radically altering the short term secured financing market, degrading the performance of the pump, which may even compromise the success of regulatory measures such as EMIR which depend on the fluidity and availability of collateral.

Cumulative effect on repos and collateral when adding NSFR to other requirements:

In November 2015, the ICMA ERCC launched a study "[Perspectives from the eye of the storm: the current state and future evolution of the European repo market](#)", which looks at how the repo market in Europe is changing in response to regulatory pressures. This study is a qualitative assessment of the current state and future evolution of the European repo market, based on interviews with a wide range of market participants and stakeholders, including bank repo desks, fund managers, inter-dealer brokers, electronic trading platform providers, agency lenders and triparty agents. The study records growing concern that the cumulative impact of various prudential and market regulations, along with extraordinary monetary policy, could be affecting the ability of the European repo market to function efficiently and effectively. This could, in turn, have wider repercussions for the broader capital markets and so for the real economy.

In chapter 1 of the study, regarding the various BCBS rules, there is a section specifically regarding NSFR, which starts with the following quote from a repo trader "Once NSFR comes in, then it's game over. We can all go home." It then goes on to report that "Of the four tenets of Basel III, none seems to cause as much consternation and existential angst in the interviews as much as the prospect of the implementation of the Net Stable Funding Ratio (NSFR) before 2018."

Whilst commenting on the expected impacts of NSFR, the study notes that "The potential implications for short-term funding markets are difficult to estimate, particularly as every bank's funding structure and counterparty make-up will be different." And then, following some further reflections on NSFR impacts, this section of the study closes with the following sentences: "As one repo desk manager explained, the irony of NSFR is that it will make banks less reliant on the relatively stable and predictable funding provided by financial institutions, and more dependent on relatively flaky non-financial funding flows. However, what seems to cause the most disquiet among interviewees is the uncertainty of how NSFR will interplay with the other tenets of Basel III, not least the Leverage Ratio, and to what extent perseverance with matched-book trading will remain a commercially viable option."

A further important complication is that there is an ongoing effort to introduce bank structural reform, leading to some greater degree of separation of trading type activities from banking (loan and deposit) type activities. This process is progressing in the UK, and several other EU Member States (including Belgium, France and Germany) as well as other countries, including the United States, have already enacted, or are in the process of enacting, structural reforms for their respective banking sectors, especially to address concerns related to the largest and most complex financial institutions. Responsive to this, on 29 January 2014, the European Commission proposed an EU Regulation on structural measures improving the resilience of EU credit institutions, which is still being debated by the co-legislators. Linked to NSFR, the concern is that these structural reforms will lead to significant extra funding requirements in relation to trading activities which get moved to entities separate from currently co-existing banking activities.

Appendix:

ICMA ERCC Background

Since the early 1990's, the [International Capital Market Association](#) (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) was established by the ICMA in December 1999, to represent the cross-border repo market in Europe and has become the industry representative body that has fashioned consensus solutions to the emerging, practical issues in a rapidly evolving marketplace, consolidating and codifying best market practice.

Consistent with the fact that it is repo desks which can increasingly be equally considered to be collateral desks, it has been the ICMA ERC which has served to guide the ICMA's work on collateral, providing support to its broader efforts and driving many of the ICMA's specific collateral related initiatives. Thus, just as repo and collateral are intimately related in the market, so the ICMA ERC and the ICMA's work on collateral are also intimately related. In recognition of these intimate relationships, with effect from 4 December 2015, the ICMA ERC has been renamed as the ICMA ERCC, the "[European Repo and Collateral Council](#)".

The ICMA ERCC also plays a significant role in nurturing the development of the repo market and supporting its wider use in Europe, particularly among banks, by providing education and market information. The ICMA [bi-annual survey of the European repo market](#) has become established over more than a decade as the only authoritative indicator of market size and structure and the dominant trends.

ICMA is an active force in the standardisation of repo documentation. [The GMRA](#) is the most predominantly used standard master agreement for repo transactions in the cross border repo market.

[Membership of the ERCC](#) is open to ICMA members who transact repo and associated collateral business in Europe. The ICMA ERCC currently has about 90 members, comprising the vast majority of firms actively involved in this market.