

# Perspectives from the eye of the storm

## The current state and future evolution of the European repo market

An initiative of the ICMA European Repo Council

November 2015



This paper is provided for information purposes only and should not be relied upon as legal, financial, or other professional advice. While the information contained herein is taken from sources believed to be reliable, ICMA does not represent or warrant that it is accurate or complete and neither ICMA nor its employees shall have any liability arising from or relating to the use of this publication or its contents.

© International Capital Market Association (ICMA), Zurich, 2015. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means without permission from ICMA.

Contact: [RegulatoryPolicy@icmagroup.org](mailto:RegulatoryPolicy@icmagroup.org)

Author: Andy Hill

### **Acknowledgments**

The author would like to thank Godfried De Vidts, Chair of the European Repo Council, and David Hiscock, of ICMA, for their guidance and support in conducting this study and the writing of this report. On behalf of ICMA, he would further like to thank the firms who provided data used in this report, in particular BrokerTec, Eurex Repo, and MTS. Finally, special thanks must go to all the firms and individuals who generously participated in this study. Without their generous time and input this report would not exist.

### **Participants included relevant experts from a number of firms playing an active role in the European repo market:**

APG Asset Management; Aviva; Bank of America Merrill Lynch; Bank of New York Mellon; Barclays Capital Securities; BCEE Luxembourg; Belfius Bank & Insurance; BlackRock; BNP Paribas; BondLend; BrokerTec; Citigroup Global Markets; Brevan Howard; Citadel; Commerzbank AG; Daiwa Capital Markets; Danske Bank; Deutsche Bank AG; DZ Bank AG; Euroclear; Eurex Repo; European Bank for Reconstruction and Development; Goldman Sachs International; HSBC; ICAP; Intesa Sanpaolo; JP Morgan Securities; KBC Bank; LCH Clearnet Ltd; LCH Clearnet SA; Mizuho International; Morgan Stanley & Co. International; MTS; Nomura International; PGGM Investments Amsterdam; Société Générale SA; State Street; State Street Global Advisors; tpRepo; Tradeweb; Tullet Prebon; Swiss Re; UBS; UniCredit Bank AG. One participant firm requested that they not be named.

### **The ICMA European Repo Council**

The ICMA European Repo Council (ERC) is the industry representative body that fashions consensus solutions to emerging, practical issues in a rapidly evolving marketplace, consolidating and codifying best market practice. The ERC is also responsible for promoting the wider use of repo in Europe by providing information and education. ICMA is an active force in standardizing repo documentation, and sponsors the Global Master Repurchase Agreement (GMRA), which is the most predominantly used master agreement for repo transactions in cross border markets.

## Executive Summary

### *Introduction*

- The repo market plays a vital and central role in the modern financial ecosystem: facilitating secured lending, supporting bond and derivatives market liquidity, sourcing and mobilizing collateral, and transmitting monetary policy. Repo market liquidity and efficiency is provided by bank repo desks that act as market-makers for repo and collateral.
- There is a growing concern that the combined first and second degree cumulative impacts of the various prudential and market regulations, along with extraordinary monetary policy, could be negatively impacting 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.
- The study is a qualitative assessment of the current state and future evolution of the European repo market. It is based on a series of semi-structured 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 - all active in the European repo market.

### *Perspectives: the findings of the study*

- The interviews suggest that nothing is transforming and reshaping the structure and dynamics of the repo market more than Basel III. Each of its four components – Risk Capital Requirements, Leverage Ratio, Liquidity Coverage Ratio, and Net Stable Funding Ratio – impact the repo market in different, yet cumulative ways, significantly adding to the cost of capital required to run a repo trading book.
- The Leverage Ratio (with the Supplementary Leverage Ratio for larger US banks), where it is being applied, is having the most profound impact on the repo market, to the point where repo is becoming unprofitable as a traded product.
- Repo market volumes and pricing in the European repo market do not appear to reflect the increased cost of capital required to trade repo. This is partly explained by the fact that many banks have yet to adopt the Leverage Ratio, while there are also inconsistencies in the way it is applied, absorbed, or reported. It also becomes clear that many banks now provide repo liquidity to preferred clients as a loss-leader to support other, more profitable businesses and services.
- Most banks have restructured their repo business models or are in the process of doing so. Key trends include de-risking, deleveraging, transformation from a profit-centre to a cost-centre, reducing head-count, and the merging of repo desks with other funding functions to create centralized liquidity and collateral management hubs.
- As banks adapt to the new capital and liquidity requirements, and refocus their business models to take less risk while optimizing returns on scarce balance sheet, so their relationship with their

clients is also being recalibrated. As banks focus more on their own capital and liquidity requirements, ahead of their clients' financing needs, so this is driving closer, more symbiotic bank-client interactions in the search for mutual funding solutions.

- As regulation creates new challenges for both sell-side and buy-side firms, and reshapes the traditional repo market-making model, so stakeholders are trying to adapt and innovate both to meet those challenges and to exploit potential new opportunities. Most innovations relate to balance sheet optimization, and creating more netting capabilities. Others are being driven by the need for improved liquidity and collateral management. Meanwhile, for a market that has historically been slow to embrace technology, electronic solutions and improved automation are also being discussed. However, some feel that the current regulatory climate is not conducive to market innovations, and there is even talk of a 'culture of fear'.
- ECB monetary policy since the 2007-08 crisis, in the forms of its repo operations, interest rate cuts, and, more recently, its Public Sector Purchasing Programme, have produced two significant outcomes: excess bank reserves and negative interest rates. Both of these have potential dampening effects on repo activity. A potential third outcome is a reduction in the stock of high quality collateral. While this has not proved to be an issue so far, there is concern of future fractures in the market, particularly given the widely expected increase in the size and speed of the purchases programme.
- There is a high degree of concern related to the possible market impacts of tabled future regulatory initiatives, in particular Net Stable Funding Ratio, CSDR mandatory buy-ins, and the provision under BRRD for resolution stays. There is a broad sense that regulators do not fully appreciate how the repo market operates, and that this is apparent in a number of regulatory initiatives, both directly and indirectly related to the repo market. However, most consternation is being driven by the cumulative onus and cost of implementation, as well as the potential risks of unintended adverse outcomes. Furthermore, the uncertainty being brought about by regulation is making business planning extremely challenging.

### *The future of the market*

- While predicting the future evolution of the European market is difficult, since it is predicated on too many unknowns arising from both regulation and monetary policy, there are a number of consensus views. These include an expected reduction in the size of the market, an increase in the diversity of participants, a general widening of bid-ask spreads, and the ongoing merging of banks' funding and collateral management functions.
- The overriding concern among market participants is that in future, although they expect the repo market to continue in some form, it may be unable to function as effectively and efficiently as it has in the past in providing liquidity and collateral fluidity to the financial system, with potential negative consequences both for markets and the broader global economy.

## Perspectives from the eye of the storm

### The current state and future evolution of the European repo market

<b>Contents</b>		<b>Page</b>
<i>Disclaimer, Acknowledgements, Participants, ICMA ERC</i>		2
<b>Executive summary</b>		<b>3</b>
<b>Introduction</b>		<b>6</b>
The role of the repo market		6
The repo market since 2008		6
Why this paper?		8
Scope and methodology		8
<b>Perspectives</b>		<b>10</b>
Chapter 1	The game changer: the impacts of Basel III and CRD IV/R	10
Chapter 2	Changing business models	21
Chapter 3	Evolving bank-client ‘partnerships’	25
Chapter 4	Adaptation and innovation	27
Chapter 5	Monetary policy	33
Chapter 6	The risks arising from future regulation	36
Chapter 7	The future of the European repo market	40
<b>Conclusion</b>		<b>42</b>
<i>Glossary of acronyms used in this report</i>		43
<i>About the author</i>		44
<b>Annexes</b>		<b>45</b>
Annex i	Terms of Reference for the study	46
Annex ii	What is a repo?	47
Annex iii	A glossary of types of repo transaction	49
Annex iv	A glossary of regulation impacting the European repo market	51

## Introduction

*“People think that the rules of the game have changed. The rules haven’t changed; it’s the entire game that has changed.”*

- *Repo Trader*

### The role of the repo market

The repo market plays a vital and central role in the modern financial ecosystem, facilitating a number of critical functions and interacting with a variety of different financial markets. Since its early development in the 1970s and 1980s as a means to provide secured short-term funding as a less risky, and so more accessible, alternative to the unsecured deposit market, the repo markets of developed economies have grown significantly, not only in size, but also in terms of sophistication and relative importance. Beyond providing a means for secured short-term borrowing and lending, the repo markets are essential for funding the market-making books of broker-dealers for both sovereign and corporate debt, and so play a key role in underpinning secondary market liquidity for global bond markets. Similarly, repo markets are the glue that binds many derivatives with underlying cash securities, in particular exchange traded bond futures and options. Liquid and efficient derivatives markets are relied upon by both financial and corporate institutions to hedge and disseminate their interest rate exposures. Often overlooked, the repo market is also where collateral is priced, sourced, and mobilized, allowing a whole range of financial and corporate institutions to meet the margining requirements that increasingly underpin today’s financial markets. Finally, the repo market is the primary channel through which central banks target bank reserves and transmit monetary policy.

It soon becomes clear that the ability for the repo market to function efficiently and effectively is essential for the overall health of the capital markets through which governments and corporates raise funding and whereby investors and savers can earn returns and capital growth. In many ways, the repo market represents the foundation stone of the financial system that facilitates investment, employment, productivity, and economic growth. To interfere with the repo market is to tamper with the DNA of modern-day capital markets.

### The repo market since 2008

In the wake of the 2007-08 financial crisis, global financial markets have been transformed by a flood of macro prudential and market based financial regulation, all designed to improve the stability of both the banking system and financial markets, and to ensure that a similar crisis cannot happen again. Much of this impacts repo markets, not least Basel III and its requirements for banks to hold more capital and improved liquidity buffers, and which is still in the process of being implemented. Meanwhile, a host of other regulatory initiatives, many particular to Europe, are in the final design stages, with implementation due in the next few years, while yet further regulation continues to be proposed and

discussed, both at the global and European level. Again, much, if not all, of this will have a direct or indirect impact on the European repo market.

At the same time, European monetary policy is also in unprecedented and uncharted waters. Following the commitment to unlimited liquidity provision through its MROs and LTROs,<sup>1</sup> and a move to cut the central bank Deposit Rate<sup>2</sup> to below zero percent, the ECB has embarked on its Public Sector Purchasing Programme (PSPP), effectively 'quantitative easing'.<sup>3</sup> These combined policies have flooded the banking system with excess reserves, taken repo and other money market rates into negative territory, and are now creating concerns of a potential shortage of high quality repo-able collateral.

Despite the valid intentions, and acknowledgeable essentialness, of both the regulatory and monetary forces buffeting the European financial markets, it has become increasingly clear that the repo market is very much in the eye of both storms and is undergoing transformation that is perhaps more radical than at any time in its history. These forces are changing the way banks manage their repo books, the pricing and liquidity they provide to their clients, how investors are able to interact with the repo market, the nature of trades that are being executed, and the way in which collateral is priced and mobilized. Furthermore, much of this transformation has only just begun.

While much of the effective restructuring of the repo market can be justifiable, and even desirable for, many regulators and market users alike, there is a growing concern that the combined first and second degree cumulative impacts of the various prudential and market regulations, along with extraordinary monetary policy, could be negatively impacting 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.

As was made clear in the 2007-08 crisis, the robustness of the European repo market and its ability to continue to function under extreme pressure was critical for the continued operation of the European banking system and financial markets,<sup>4</sup> not least at a time when the unsecured lending markets froze. The primary worry is whether a radically restructured repo market would be able to operate in the same way in a future stressed environment, and what would be the broader economic implications if it were not.

---

<sup>1</sup> The Main Refinancing Operations (MROs) are the ECB's weekly scheduled repo operation and the main tool for liquidity management. The Long Term Refinancing Operations (LTROs) are less frequent term repo operations. Prior to 2008, the longest LTRO available was three months. Since then the ECB has introduced six-month, 12-month, and 36-month LTROs.

<sup>2</sup> The Deposit Rate is the rate of interest that the ECB pays on the excess reserves deposited by banks and other eligible credit institutions. At the time of writing, this has been at -0.20% since September 2014.

<sup>3</sup> In March 2015 the ECB began a purchasing program of public and private sector securities, with a monthly target of €60 billion worth of securities, being executed primarily through the respective member national central banks (NCBs).

<sup>4</sup> See: Papadia F (2013), 'The future of the European Repo Market'. Also: Mancini L et al (2015), 'The Euro Interbank Repo Market'

**The bank 'matched-book'**

The market-making service that repo desks provide and the value this brings with respect to both repo market liquidity and collateral fluidity is often overlooked. Were repo desks simply standing between counterparty-A and counterparty-B, and taking a spread, their role and value could be questionable. But this is rarely the case. Repo desks are usually required to provide pricing to a whole range of clients, with different funding and investment requirements, in a raft of different securities and credits, whenever they require it. Accordingly, their trading books (somewhat confusingly known as the 'matched-book'<sup>5</sup>) are invariably a complex portfolio of assorted repos and reverses (or loans and borrows), in a multitude of securities, covering a whole range of periods, and imbedded with interest-rate and credit risk, which the repo trader must carefully manage. It is this liquidity and pricing provided by repo desks that give them their value, and which ensures functioning and liquid markets for secured lending and collateral, as well as enhancing liquidity in the broader capital markets.

**Why this paper?**

This paper sets out to capture a snapshot of where the European repo market is today, the challenges being faced by the various market stakeholders, the likely adjustments that will still need to be made, and the expected future evolution of the market, along with the potential risks as well as opportunities. It is not intended to be a policy paper, but rather it is presented as an observation of how the market is adapting and transforming in the wake of change to both regulation and monetary policy in Europe, from the perspectives of those most closely involved in the market, and who are central to its continued development.

However, the perspectives represented in the study do question some of the regulation as it impacts the repo market, and, in some instances, are openly critical of regulatory intent, the quality of the regulation itself, or both. This is not surprising, as what becomes clear is that the transformation that the European repo market is experiencing is dramatic, and, some would argue, even traumatic. To add to the concerns of those at the eye of storm, it would seem as if we have much further to go, creating even deeper uncertainty and potential for increased risks. It is fair to say that we are not yet at a point where we can readily identify where market misgivings are unwarranted nor where the regulation has gotten it wrong. That will only become apparent in the fullness of time.

**Scope and methodology**

This study is largely qualitative, and is intended to present perspectives on the current state and future evolution of the European repo market from those who provide, operate in, and support that market. It is based on a series of semi-structured interviews with numerous key market stakeholders that took

---

<sup>5</sup> One possible explanation for this extremely confusing name might be the fact that to 'balance their book', the repo trader needs to ensure that every long position is funded, while every short position is borrowed, at least for that day. So, on an 'overnight' basis, one could argue that the funding book is indeed 'matched'. In turn, this ensures settlement efficiency and risk mitigations.



place between June and September of 2015. These included banks and broker-dealers (representing a range of 'nationalities', as well as sizes), buy-side users of the market (both leveraged and 'real money'), inter-dealer brokers, electronic platform providers, triparty agents, central clearing counterparties, and agency lenders.

In total, 45 interviews were conducted, covering 47 entities, and involving more than 60 individual participants. In terms of stakeholder composition, this equates to: 21 banks and broker-dealers; 11 fund managers; two agency lenders; six trading platforms; two inter-dealer brokers; three central clearing counterparties; and two triparty agents.

The interviews were designed to last for between half-an-hour and an hour, as determined by the interviewees. The majority were held in person, with a number being conducted by phone or video conference, and, in one case, via email. The interviews were semi-structured in the sense that participants were encouraged to lead the discussion as much as possible, and to talk about the issues that they felt were most important or pertinent to them in terms of market evolution, challenges, and opportunities. While there were a number of key themes of interest on which the interviewer tried to focus (these can be found in the study Terms of Reference in Annex i), allowing the participants the freedom to lead the discussion also helped to uncover new and unanticipated areas of interest and relevance. Interviewees were also afforded complete anonymity, which helped to encourage a greater degree of candor.

As much as possible, the report seeks to present the various perspectives expressed by participants in a balanced and representative way. While the paper attempts to aggregate and synthesize most of the views and feedback, it also tries to highlight some of the more unique or nuanced considerations shared. Accordingly, it is intended to be a fair and unbiased representation of the people who trade, use, and support the European repo market.

#### **The role and functions of the repo market**

- Providing a market for secured lending and borrowing.
- Providing the funding required to support market-making in fixed income securities, and so facilitating liquidity in secondary sovereign and corporate bond markets.
- Providing the connection between underlying securities and derivatives, so ensuring efficient hedging markets.
- Providing the primary means to source, price, and mobilize collateral through the system, which is essential for underpinning financial market stability.
- Providing the means through which central banks manage reserves and transmit monetary policy.

## Perspectives

### Chapter 1: The game changer: the impacts of Basel III and CRD IV/R

*“The bottom line is that Basel III has made repo, as a traded product, far less profitable.”*

- Repo Trader

Nothing is transforming and reshaping the structure and dynamics of the repo market more than Basel III.<sup>6</sup> Each of its four components – Risk Capital Requirements, Leverage Ratio, Liquid Coverage Ratio, and Net Stable Funding Ratio – impact the repo market in different, yet cumulative ways, significantly adding to the cost of capital required to run a repo book. What also becomes clear from the interviews is that the application of the Basel III capital and liquidity requirements varies across jurisdictions and institutions, both in terms of timing and, to a degree, interpretation. To a notable extent, this has created an uneven playing field for competing banks and their clients, although, all are impacted and, in time, it is expected that any inequalities will be evened out. Of the four key metrics, the two that seem to be taking the most toll on the market, at least for now, are the Leverage Ratio and the Liquidity Coverage Ratio.

*“The market keeps talking about regulation and unintended consequences. I don’t believe that. There are no unintended consequences. The people who wrote Basel knew exactly what they were trying to achieve.”*

- Repo Trader

#### Leverage Ratio

*“What’s changed? Two words: leverage ratio.”*

- Repo Trader

The Leverage Ratio specifies a 3% non-risk-weighted ratio for all balance sheet assets, including securities financing transaction (SFTs). The US Dodd-Frank regulation further introduces a 3% supplementary leverage ratio (SLR) for US GSIBs (globally systemically important banks), effectively taking the leverage ratio to 5-6% of balance sheet assets.<sup>7</sup> While this was designed to be a ‘back-stop’ for the more general Risk Capital Ratio (see below), applied to risk-weighted assets, for repo it is the primary constraint on activity. This is because repo tends to be high volume, low margin business, mostly in highly rated securities (mainly government bonds). The Leverage Ratio is designed to limit balance sheet intensive activity, and is agnostic to the risk weighting of the underlying assets (German government bonds are treated the same as subprime mortgage loans). Applying the Leverage Ratio (and in particular the SLR in the case of the larger US banks) suddenly makes repo a very expensive product indeed.

---

<sup>6</sup> In the EU this is being implemented under the Capital Requirements Directive (IV) and Regulation

<sup>7</sup> This is to be followed by an eventual stressed SLR minimum under CCAR (Comprehensive Capital Analysis and Review).

What the interviews reveal is that the LR/SLR requirements are not yet being applied uniformly across all banks and jurisdictions, and not necessarily in the same way. The US banks seem to have taken the requirements on board earliest, and in most cases have already been subject to SLR for a number of years. UK banks have more recently adopted the analogous requirement, while continental European banks and Asian banks seem to be only recently beginning to apply the metric, or will in the very near future.

Furthermore, not all banks are subject to the same LR limit. While the US imposes a 5-6% SLR, non-US banks are subject to a 3% ratio. However, as a number of respondents explained, not only do different jurisdictions apply a higher threshold, but there is also a tendency for banks to over-comply. Hence, UK banks are generally conforming to a 5% ratio, and the European banks that are already adopting the Leverage Ratio are targeting around 4%. With concerns about credit ratings and wanting to stand out positively amongst ones peer group, the sense is that the trend for over-compliance will only continue. As one respondent bank further explained, operating across several jurisdictions also leads to over-compliance, not only for Leverage Ratio, but also with respect to the whole range of regulatory requirements.

What became clear through the interviews is that when the Leverage Ratio is applied to a repo book, the cost of capital required to support on-balance-sheet repo activity increases dramatically. A number of respondents suggested that the effective break-even rate for a repo after Leverage Ratio is in the region of 40-45bp.<sup>8</sup> One respondent bank estimated their overall cost of transacting a repo, including other Basel measures, to be in the region of 70-75bp<sup>9</sup>. In other words, based on current market pricing, an on-balance sheet repo is deeply unprofitable.

So why are repo market bid-ask spreads not noticeably wider, and liquidity, or at least reported outstandings, not significantly lower? There appear to be a number of reasons. The first is the possibility for 'netting': that is, the ability to offset different repo transactions so that they reduce the net balance sheet weighting to zero. As discussed further on in this report, netting<sup>10</sup> has become a critical consideration for transacting repos. To that extent, Leverage Ratio is impacting pricing, with banks quoting very different prices for trades that can be netted and those that cannot; although in many cases this would seem to be more of a binomial impact, with a price for nettable trades and no price for non-nettable trades.

---

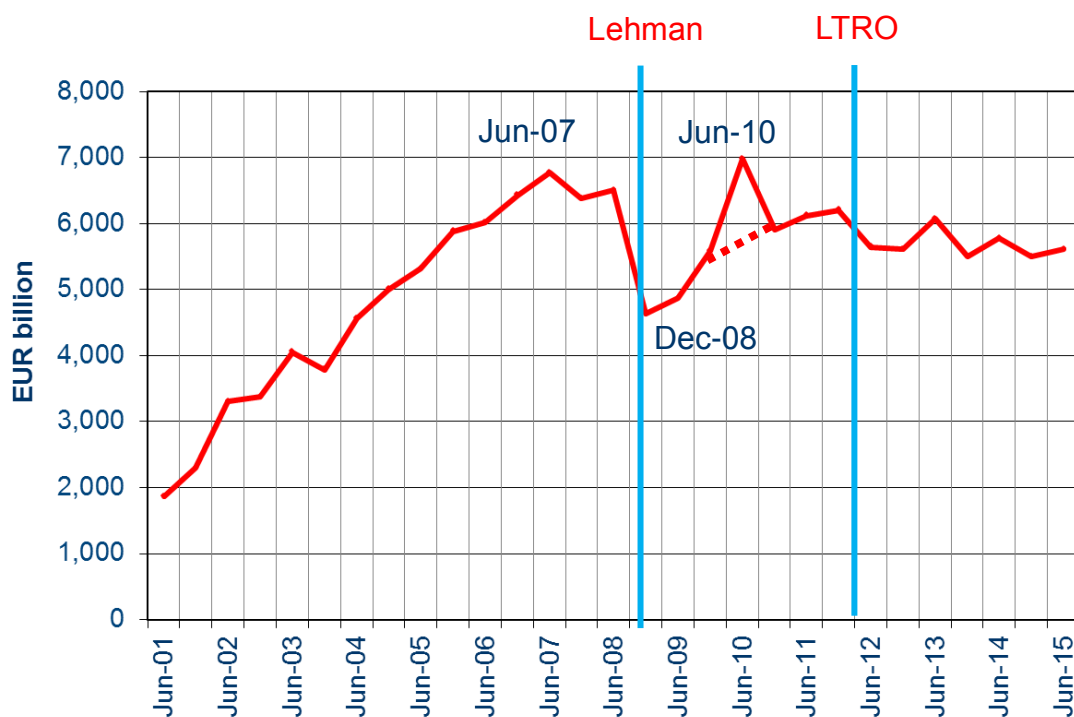
<sup>8</sup> A basis point ('bp) is one-hundredth of a percentage point (0.01%). Repos, like other money market products, are traded on yield, quoted in terms of basis points. Generally, particularly in a very compressed interest rate environment, 40-45bp would be considered relatively very high compared to a typical bid-ask spread for a repo. Historically, for short-dated liquid repo markets, typical bid-ask spreads would be less than 5bp, and possibly only 1-2bp.

<sup>9</sup> It is important to note that these costs (which were reported anecdotally) are based on a number of factors, including the underlying bank's business model and overall cost of capital, and is likely to vary between different institutions.

<sup>10</sup> The Basel III Leverage Ratio allows limited scope for netting repos against reverse-repos. The offsetting cash proceeds of the respective transactions can be netted where the transactions are with the same counterparty, have the same end-date, and settle in the same settlement system.

The drive for netting is having a number of noticeable impacts on the market. Firstly, this increases the appeal of central clearing counterparties (CCPs), which creates more netting opportunities. Secondly, term trades are seeing more standardized end-dates, which, again, increase the potential for netting opportunities. Similarly, traditional open-trades<sup>11</sup> are being replaced with 'breakable' term trades. Trading collateral-versus-collateral also becomes more appealing, given that these attract an off-balance sheet treatment, as opposed to outright collateral-versus-cash, which is a direct balance sheet hit. These and other trading trends are discussed in more detail in Chapter 4. But essentially, to be able to make a positive return on capital when trading repo requires minimizing net balance sheet usage while maximizing gross balance sheet usage, and so increasing the trading book's gross-to-net balance sheet ratio.

**Figure 1: The size of the European repo market**



Source: The ICMA European Repo Market Survey, Number 29, September 2015

*The chart shows the estimated size of repo outstandings as measured by reported outstanding reverse repo positions. The market has been holding steady around the €5.5 trillion level.*

<sup>11</sup> An 'open trade' is a repo trade with no specified end date, and which will effectively continue to roll indefinitely until either counterparty elects to close the trade. In essence, an open trade is nothing more than a rolling overnight trade, however, this is not how they are recognized under the Leverage Ratio, and thus they cannot be netted.

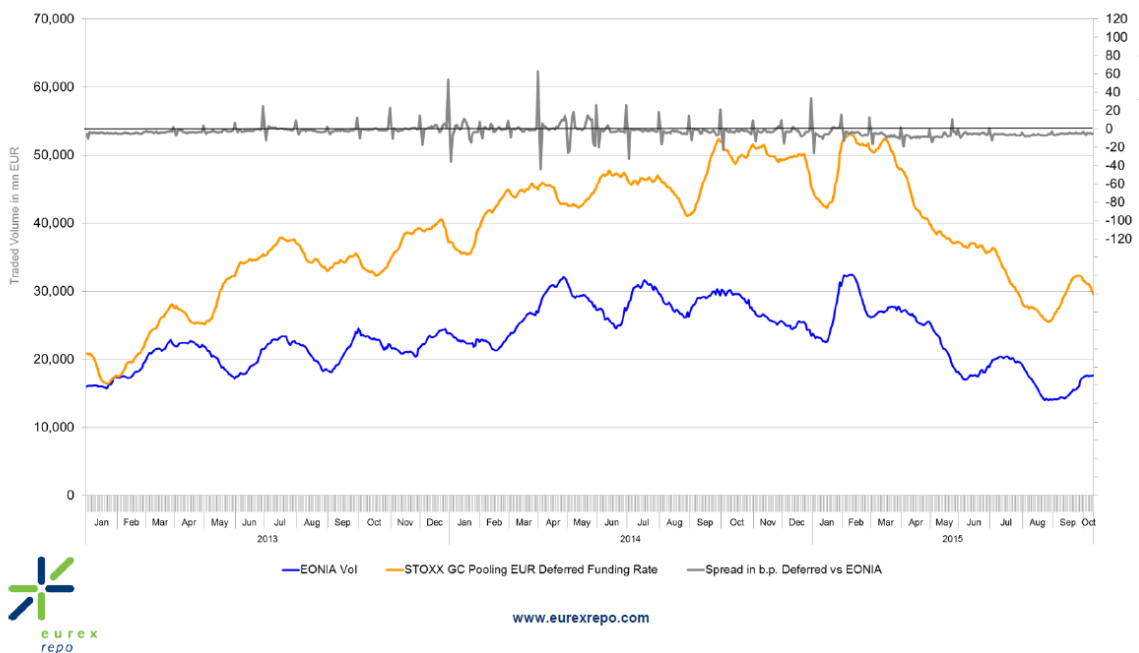
*“Once everybody moves to average daily reporting, expect volumes to plummet.”*

- Repo Trader

A second key consideration for pricing and liquidity is *when* banks report for their Leverage Ratio requirements. While some banks (notably US and UK banks) are required to apply daily averaging for their reporting, many banks only apply monthly averaging. This affords the possibility of trading repo on net balance sheet between reporting dates, while significantly reducing activity (to the point of closing their books) over reporting dates. This also helps to explain the increase in repo rate volatility and sharp reduction in liquidity observed over month and quarter ends. This also helps to explain the increase in repo rate volatility and sharp reduction in liquidity observed over month and quarter ends. As some respondents noted, if and when all banks move to daily average reporting this will help to smooth out the month-end and quarter-end price aberrations; however, it will also mean that overall repo market activity will have to reduce significantly from current levels.

**Figure 2: Month-end and quarter-end effects on repo rates and liquidity**

**STOXX GC Pooling EUR Deferred Funding Rate**



Source: Eurex Repo

*The chart shows the month-end and quarter-end effects on repo rates for Eurex GC Pooling, (overnight, tom-next, and spot-next), as well as repo and eonia volumes. It can be seen that the repo-eonia rate spread becomes highly volatile at month-end, and in particular quarter-end, while volumes decrease. The chart further illustrates an overall decline in volumes over 2015 (however this is offset by increased term activity).*

A third and important reason why repo prices have remained relatively competitive can be attributed to the fact that many banks are not yet complying with the Leverage Ratio, and for some this has been an opportunity to try to expand market share as other banks reduce their activity in line with their balance sheet constraints. As one respondent pointed out, when they hear of clients trading away with competitors at aggressive prices, there is no way they can be pricing-in Leverage Ratio. Some Asian, as well as some banks from one large EU member state, are frequently cited as opportunistically ‘cornering’ much of the repo market, or ‘picking up the slack’ where other banks have retrenched. However, as also noted, this cannot be sustainable as they, too, will soon start complying with the Leverage Ratio requirements. As one interviewee phrased it, “they may still be making hay, but the sun isn’t going to be shining for too much longer.”

A fourth consideration is how banks apply their balance sheet costs, and whether this is at the individual trade level, and so a direct cost to the repo trading book, or whether it is absorbed at the divisional or even institutional level, and so a cost spread across the bank’s various trading activities or businesses. This can make a significant difference, since current market bid-ask spreads, for trades that cannot be netted, will almost certainly result in sustained trading losses. Being able to spread capital costs across other businesses and activities helps to subsidize current repo activity and pricing. What becomes apparent from the interviews is that some banks are applying true capital costs at the repo trading book level, while others are not, creating an uneven playing field. However, virtually all banks said that they were at the very least *aware* of their capital costs, even if they were not being directly applied at the transaction level, and that this was accordingly part of their pricing and trading decision process.

Finally, even where repo trades are creating losses, banks continue to provide repo liquidity to preferred clients. Many banks now take a holistic view of their clients’ overall profitability provided through non-repo activity, such as outright bond market flows, derivatives execution, or clearing services, and allocate repo liquidity (in terms of an explicit amount of balance sheet and competitive pricing) based on that overall value of the client to the bank (known colloquially as the client’s ‘wallet’). As one respondent explained, this process is becoming systematic, with frequent and very granular analysis of the value of client relationships to the bank, and a formulaic and dynamic approach to awarding ‘sheet’ (i.e. balance sheet for repo financing) based on this. Where the client is not generating enough overall revenues for the bank to justify the level of repo liquidity they require, a conversation will follow, and where there is no commercial justification, liquidity will be pulled. While not all banks employ such a systematic or scientific approach, it becomes clear that this rationalization for awarding repo liquidity to their clients is being applied by all banks. One interviewee framed it as the ‘commoditization’ of balance sheet, as that is what repo traders are effectively pricing and trading. And yet again, this is another case of other markets and businesses subsidizing repo market liquidity and pricing.

*“A market characterized by backwardation cannot be a healthy market.”*

- *Repo Broker*

It also becomes apparent that relatively tight pricing is not in itself a sign of market liquidity. As one interdealer broker noted, the prices on their screen have never been tighter. He explained how a few years ago one could post a 5bp spread for, say, the current German ten-year bund in three-months,<sup>12</sup> and you could be confident of it trading relatively quickly. These days, you could show that same market as a choice-price<sup>13</sup> and it could stay on the screen for a week without trading. The reason for this can be attributed to Leverage Ratio and the cost of trading. However, one repo trader did question the suggestion of tighter term prices, noting that it was an absence of term prices that was the bigger problem, rather than a lack of prices being traded on. Another broker bemoaned the number of 'backwardated'<sup>14</sup> prices they post, that still do not trade, again due to the cost of balance sheet. Linked to this is the loss of interbank market liquidity that was created via 'put-throughs'. Where two counterparties traded bilaterally, but did not have repo lines for each other, or one counterparty's credit line was full with the other counterparty, a third party, who had enough credit line availability for both counterparties, would stand between them taking a spread (usually 5 to 10bp). This effectively meant that trades did not get 'stuck', and trading counterparties could pay to utilize spare capacity in another counterparty's credit lines. Post Leverage Ratio, this is no longer possible, and so persistent backwardated markets are becoming part of the new normal.

Another observation made by a number of banks, as well as brokers and trading platforms, is that term repo activity related to exchange traded futures markets has reduced dramatically, again as a direct result of the increased capital costs of the Leverage Ratio. Historically, sovereign bond market-makers, arbitrageurs, as well as repo desks, would look for trading opportunities between exchange traded futures markets and the underlying deliverable bonds, in particular the cheapest-to-deliver bond (or 'CTD'), which would usually require taking a term repo position in the relevant bond that spanned the futures delivery date. Post Leverage Ratio, term 'deliverable' repo markets would seem to be a novelty, even for something as widely traded as the 10-year Bund contract. On a positive note, one respondent explained that despite the absence of term deliverable repo liquidity, this had not yet appeared to affect the basis<sup>15</sup> between futures contracts and the underlying cash bond market; something they closely

---

<sup>12</sup> A repo with a three-month fixed term

<sup>13</sup> A 'choice-price' is a market with the same bid and offer price, and so no bid-ask spread. Effectively, a counterparty could react to the price by either selling (hitting it) or buying (lifting it).

<sup>14</sup> Backwardation (or a 'backwardated' price) is where the offer price is lower than the bid price. Effectively, a counterparty could react to the price by simultaneously lifting the offer and hitting the bid, and 'realize' the spread between them in the form of a profit.

<sup>15</sup> The CTD (cheapest to deliver) 'gross basis' is the (duration - or 'conversion factor' – adjusted) difference in price between a bond futures contract and the cheapest to deliver bond eligible for delivery into that contract (less an allowance for the value of the 'optionality' of the contract that reflects the probability of a CTD switch). That difference implies a repo rate (the 'implied repo rate'), which should, theoretically, correspond to the market repo rate to the contract delivery date. Where the implied rate and market rate deviate, arbitrageurs and other traders will take corresponding positions in the futures, CTD cash bond, and repo, to monetize that differential. This also ensures a close relationship between the price of the futures contract and the underlying market. The concern is that where the repo market ceases to function efficiently, it may result in significant and sustained divergence between the futures price and the underlying market, which in turn would reduce the efficiency and increase the cost (and risk) of hedging bond positions for traders and investors. Accordingly, CTD basis volatility becomes a good proxy for repo market efficiency.

monitor as an indicative ‘health check’ for the ability of the repo market still to function relatively effectively. However, another trader felt that the lack of term markets for futures deliverables was leading to increased over-night volatility in the repo for the CTD.

While the Leverage Ratio is clearly effecting a dramatic impact on the European repo market in terms of many banks’ ability to provide repo liquidity, and will soon hit many more banks, it is not the only element of Basel III that is driving up the cost of capital for repo trading. The Liquidity Coverage Ratio and Risk Capital Requirements also appear to be exerting a significant impact, with the introduction of the Net Stable Funding Ratio still to come.

### Liquidity Coverage Ratio

*“Before pricing any trade you now have to ask yourself, ‘how will this impact my LCR?’”*  
- Repo Trader

The Liquidity Coverage Ratio (LCR) requires banks to hold sufficient buffers of high quality liquid assets (HQLA) to cover their projected net cash outflows (on a stressed basis) for a 30-day period. From a repo perspective, this makes short-term funding (under 30 days) less attractive (since this increases the ‘outflow’ denominator), while increasing the appeal of holding high-grade liquid assets (which increases the HQLA nominator). Not surprisingly, the market impact appears to be a demand for longer-term funding structures, such as ‘evergreens’ or ‘extendables’, as well as demand for term reverses in HQLA. These two forces also appear to be driving the ‘collateral upgrade trade’, where banks are looking to repo on a long-term basis lower quality assets, such as equities or corporate bonds, against reversing high-grade sovereign bonds that meet their HQLA criteria. Such collateral-versus-collateral trades are also efficient from a Leverage Ratio perspective (since they can be netted).

Similar to Leverage Ratio, it becomes apparent from the interviews that, in general, the US banks were among the first to increase their liquidity buffers, reducing their reliance on short-term repo funding and pushing the average term weighting of their reverse repo books beyond 30 days, almost in direct response to the 2007-08 crisis. Meanwhile, LCR has become the dominant business-changing metric for European banks far more recently.

LCR is also impacting the interbank market, in the sense that, for the most part, banks are pretty much the same way round: looking to repo-out low-grade assets and reverse-in HQLA. To create these term funding structures, banks are looking to clients (usually asset managers) who are happy to switch their HQLA sovereign bond holdings against lower quality assets (usually in the form of triparty) for term maturities (or via rolling term structures such as ‘evergreens’) for a pick-up in spread.<sup>16</sup> This also appears

---

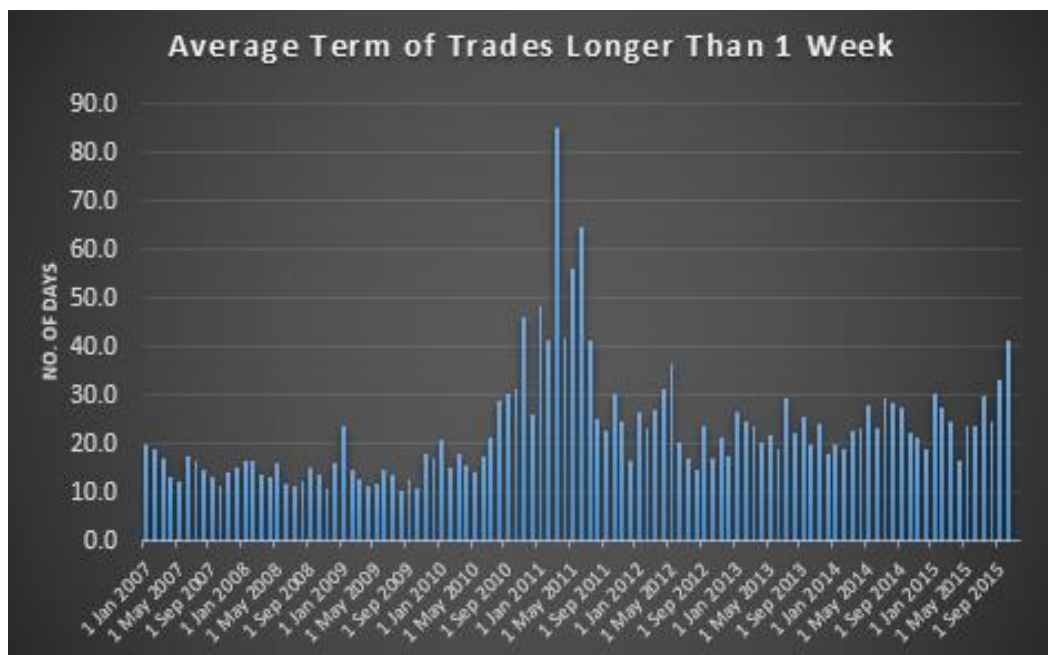
<sup>16</sup> The lender of high quality assets will repo (or lend) these at a low repo rate (their cost) while reversing (or borrowing) low quality assets at a high repo rate (their return), effectively receiving the differential repo rate. Where these transactions are structured as securities lending transactions, rather than repo transactions, the differential is effectively expressed in the form of a fee.



to be a boon business for agency lenders. However, where opportunities for interbank trading do appear is a result of the different applications of what qualifies as HQLA by various national authorities. For instance, a US bank based in London may not be able to count Italian sovereign bonds as part of its HQLA, whereas a local Italian bank could. This provides the opportunity for ‘collateral upgrades’ between the two banks, with the US bank repo-ing its Italian government bonds to the Italian bank, which in turn repos back its German government bonds, and the Italian bank taking a spread. Apparently, such business with Italian and Spanish banks, switching German, French, or Dutch government bonds for their respective government bonds, has become relatively commonplace.

Another impact of LCR is the relative unattractiveness (and effective cost) for banks of borrowing money for short-term periods, including via repo. As with the Leverage Ratio, for banks reporting their LCR on a daily average basis, this is a general constraint, while for banks working on monthly average reporting basis (which takes a month-end snapshot, rather than a daily snapshot), this becomes a significant problem over reporting dates. A number of European bank respondents explained how they literally have to turn away short-term funding (and, largely, close their repo books) over statement dates, as receiving cash, even for one day, would impact their LCR. This is also highlighted as a particular bane of cash-long clients who often struggle to place cash in the repo market at month-ends or quarter-ends. Similar to Leverage Ratio reporting, it also helps explain the increases in rate volatility and sharp falls in market liquidity over these dates.

**Figure 3: Trends in longer term repos (BrokerTec)**



Source: BrokerTec

*The chart illustrates a steady increase in the average term of transactions executed on BrokerTec.*

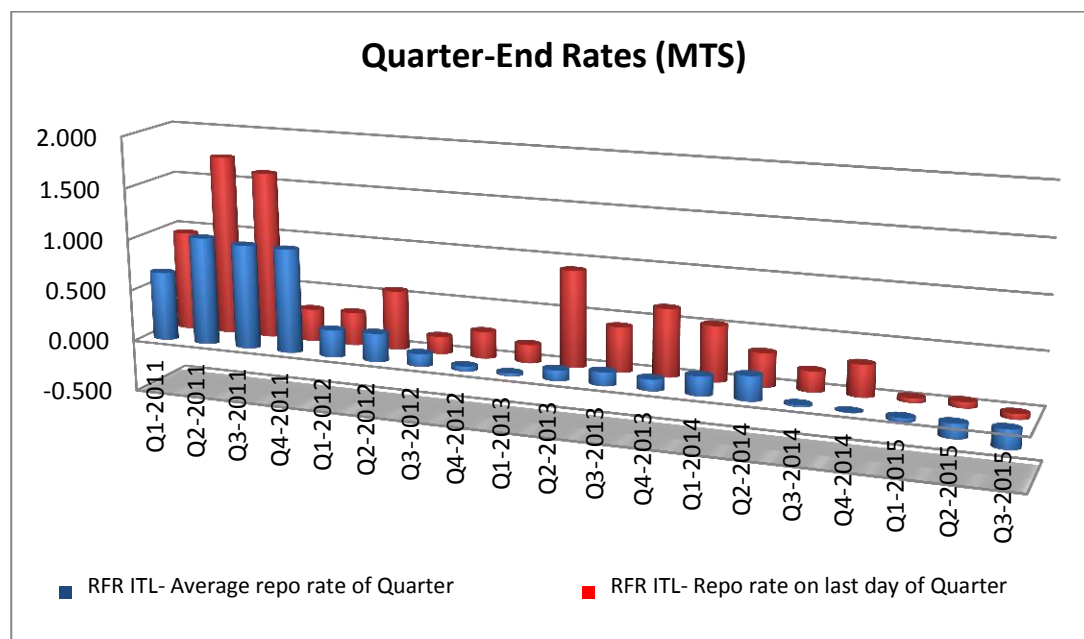
*“Nobody wants short-term funding anymore. You can’t give it away.”*

- *Fund Manager*

### Risk Capital Requirements

The main, and initial, component of Basel III requires banks to hold a minimum ratio of common equity relative to the value of its risk weighted assets (RWA).<sup>17</sup> From a repo perspective, the RWA calculations become critical, as these apply to both asset exposure (the underlying securities in a repo transaction), as well as the counterparty exposure. Whether applying the standardized model for RWA calculations, or banks’ own internalized models (with the RWA calculations determined by internal risk committees), this increases the cost of capital applied to a repo transaction for lower rated assets, as well as for lower rated counterparties. It becomes clear from the various interviews that banks’ RWA models can vary quite considerably, particularly where they are transacting in assets, or with counterparties, from outside of their ‘normal’ jurisdiction. So called ‘wrong-way risk’ (e.g. reversing Portuguese government bonds from a Portuguese bank) can weigh particularly heavily, even when the counterparty might be a central bank (an important consideration in light of national central bank sovereign bond lending programs).

**Figure 4: Quarter-end rate dislocations in the Italian repo market (MTS)**



Source: MTS

*The chart shows how in the Italian repo market, repo rates ‘spike’ at quarter-end, reflecting a decrease in market liquidity.*

<sup>17</sup> This will increase from 2019 with the requirement for a ‘mandatory conservation buffer’ of common equity.

In many ways, RWA capital requirements work in the opposite direction to the Leverage Ratio. While the Leverage Ratio does not distinguish between the highest rated sovereign bonds and an unrated CLO in terms of the related capital hit, so making higher-return trading in lower credit securities more attractive, RWA capital requirements make holding lower quality assets far more capital intensive. In other words, while the Leverage Ratio disproportionately penalizes repo activity in higher quality assets, RWA capital requirements discourage repo activity in lower quality assets.

Another important consideration that was highlighted is that internal RWA models also adjust for the 'liquidity scoring' of assets. While the general underlying assumption is that higher quality assets, receive a lower capital charge, where these assets become less liquid, their RWA weightings will increase. This could affect certain classes of HQLA, including German Bunds, particularly as underlying bond market liquidity becomes further impeded by regulation as well as monetary policy.

### **Net Stable Funding Ratio**

*"Once NSFR comes in, then it's game over. We can all go home."*

- Repo Trader

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.<sup>18</sup> While LCR measures banks' liquidity on a forward-looking one-month basis, the NSFR measures liquidity on a forward-looking one-year basis. This will have a far more significant impact on the repo market since it is calibrated to incentivize banks to reduce reliance on short-term funding and to move into longer-term (over one-year maturity) funding products. Banks will be forced to allocate a proportion of long term funding against sub-one-year reverse repo financing with financial institutions (and as much as 50% in the case of sub-six-month funding), while receiving no benefit from offsetting these transactions with matching repos. The resulting increase in the cost of offering short-term repo funding is likely to see a drive toward longer-dated funding structures for financial clients, as well as an incentive to source short-term funding from non-financial corporate clients.

*"NSFR will be a problem. We are hoping that it will be absorbed at the bank level, not the desk level, so that we can stay in business."*

- Repo Trader

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. However, it is clear that it will make short-dated reverses of securities from non-bank financials significantly more expensive. This is

---

<sup>18</sup> A number of banks suggested that they will implement NSFR earlier than this, and some will begin estimating the potential impacts on their businesses as early as 2016.

not only likely to challenge the ability of hedge funds to source repo funding, but as a number of interviewees commented, it could also make short-covering (and hence short-selling) for trading books economically unviable.

While the regulation seems to have the intent of moving banks away from reliance upon short-term funding by financial institutions, and making them more reliant on longer-term funding from corporate entities, numerous respondents highlighted the inherent challenges in actualizing this. Firstly, while more corporate treasuries are becoming involved in the repo market, there are still not nearly enough to meet the demand for non-financial funding that NSFR will create. Secondly, corporate treasury cash balances tend to be volatile, and, accordingly, are often invested only in very short-term funding transactions, and on a sporadic basis. 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 flakey 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.

## Chapter 2: Changing business models

*“The desks that react to the new environment the quickest, and take the pain up front, will be the ones that survive.”*

- *Repo Trader*

The most consistent and powerful message from the interviews is that the European repo market is changing dramatically, and with it, so are banks' repo businesses. The key consistent trends can be summarized as: (i) de-risking and deleveraging; (ii) the transformation from profit-centre to cost-centre; and (iii) the combining of collateral and liquidity management functions. One interesting observation was that virtually every bank interviewed felt that they had been pro-active in remodeling their businesses, pre-empting regulatory and structural change, and keeping one-step ahead of their peer group.

### *De-risking and deleveraging*

What every interview confirms is that since the crisis banks have significantly reduced the amount of balance sheet committed to the repo product. Of the banks that were happy to put numbers on the scale of their balance sheet retrenchment, the range is 60% to 80% of net balance sheet. Some of this shrinkage has been facilitated through balance sheet optimization (primarily in the form of netting), and so a key trend has also been for repo desks to increase their gross-to-net balance sheet ratios (one major bank indicated that they target a ratio of 5:1). Much of this deleveraging has been in response to (or in anticipation of) Basel III measures, in particular the Leverage Ratio (see previous section), and, by most accounts, is set to continue.

With deleveraging has also come de-risking. As a number of interviewees explained, repo is no longer the optimal product for representing interest rate views, due to the now poor return on capital and the unreliability of market liquidity. The Volcker Rule has also played a role in the de-risking, but according to one respondent, even though it is still possible to hold risk positions related to client flows, the risk-return no longer makes it worthwhile. Specials trading also seems to have reduced significantly, and to a large extent reflects declining activity in the underlying cash bond markets, as well as a reduction in proprietary relative value and arbitrage trading.

### *From profit to cost*

Perhaps one of the most striking changes for repo businesses has been the significant decline in their profitability. Historically, for many banks, the repo desk was often one of the most profitable trading desks within its fixed income division, generating steady revenues through facilitating client flow and managing the related interest rate risk that they would take into the matched-book. As the cost of capital required to run a matched-book has increased, so the opportunities for repo desks to generate positive trading revenues has decreased substantially. For many banks, this has made them far more selective in the prices and liquidity they provide, and the positions and risk they take, as well as an

emphasis on balance sheet optimization, in order to ensure that they can still produce a reasonable profit. For others, particularly those banks that are absorbing true capital costs at the trading book level (see previous section), providing repo liquidity to their client base is very much a loss-leading strategy, and more a service provided in return for clients' more profitable business.

While some banks continue to find opportunities to generate revenues through their repo trading, and others treat it as a subsidized client service, many, if not all, are refocusing on the role the repo desk plays in managing the banks' funding, liquidity buffers, and collateral optimization. In other words, rather than being stand-alone trading desks, repo desks are very much being redefined as an internalized funding utility. Rather than generating trading profits, the emphasis is switching to funding the banks' other trading activities, meeting LCR requirements, and optimizing collateral management to meet margin requirements. The challenge, as one respondent pointed out, is how for traders and desks to be recognized for the services they provide and to monetize the value they add.

*"I think everybody is learning how to do more with less."*

- *Repo Trader*

### *Staffing*

The question of staffing on repo desks was raised in a number of interviews, not least since one of the key observations over the past year or so has been large-scale attrition of repo traders, including some prominent heads of desk and highly experienced market veterans. While many thought that losing experience and talent was unhealthy for the market as a whole, there were varying views on the skill-sets that the modern repo trader should have, which possibly reflect the diversity of business models across the market.

One view put forward by a number of respondents was that traditional traders, with the ability to make prices and manage risk, were becoming less relevant in the evolving repo market. Pricing was being driven more by banks' funding and liquidity requirements, rather than by value, and desks were no longer assuming meaningful risk. Many commented that a good understanding of the regulatory landscape and the implications for potential market impacts of various regulatory initiatives was becoming essential. Although a number of heads of desk bemoaned the fact that they now spend virtually all of their time off the desk, focused on regulatory implementation and compliance, rather than focusing on market development or trading opportunities.

Some respondents talked about the growing importance of the repo sales function, particularly as the market becomes more reliant on developing key bank-client funding partnerships. As symbiotic relationships and finding mutual 'funding solutions' become more important than pricing, so knowledgeable and experienced sales people become more critical to the repo business.

However, some felt that trading skills were still relatively critical, even in a less-traded market, as the ability to identify and price value was becoming equally critical in a market where collateral optimization

was becoming increasingly important. Furthermore, at some point in the future, interest rates could 'return', in which case somebody on the desk who had the experience and memory of managing interest rate risk could be helpful.

But one common trend expected to continue is the ongoing attrition of senior personnel, with fewer, less experienced staff doing more. As one head of desk explained, in the current climate the easiest ways to improve your return on equity is to cut costs; and if repo desks are not showing a profit, then expensive repo traders are considered to be a cost.

#### *A centralized liquidity and collateral management hub*

Another universal theme is the centralization and conglomeration of banks' various liquidity and collateral management functions, bringing ever closer repo trading, equity finance, securities lending, treasury, and margining (or 'CSA trading'<sup>19</sup> teams). It no longer makes economic or commercial sense to maintain different funding silos across various businesses, particularly as they compete for scarce and expensive balance sheet, while, similarly, bringing together the institution's different collateral pools allows for greater optimization for both funding and margin management. Furthermore, combining these different units creates synergies in terms of internal expertise, client relationships, and product innovation.

The degree to which these different business units are being brought together varies from bank to bank, and depends largely on their size, and business model; although some interviewees did suggest that a degree of internal territoriality can still be a barrier to achieving full integration. While some banks are creating truly centralized, single-stop desks for all fixed income and equity liquidity and collateral management, even rebranding their repo desks to reflect better their more diverse functions, others retain their separate functions but work ever more closely. Again, this is a trend that is widely expected to continue, driven by the two forces of optimization and rationalization.

*"Some banks are LCR poor, and some clients are LCR rich: that creates a trading opportunity."*

*- Repo Trader*

#### *Developing the franchise*

Despite the increasing challenge of providing matched-book liquidity and pricing to clients, particularly where this is being subsidized by other businesses, many banks seem to be looking to rely less on interbank activity and more on key client relationships. One repo desk stated that their explicit goal was eventually to reach a point where they traded exclusively with the franchise and avoided transacting in

---

<sup>19</sup> Credit Support Annex (CSA) trading is essentially the management and optimization of the bank's, and clients', margining requirements to support derivatives and other trading activities.

the interbank market altogether. A general observation was that banks are largely 'the same way' in terms of meeting their funding, collateral, and liquidity needs, and accordingly, beyond very short-dated position squaring, there was little incentive for, or advantage from, trading with each other. Thus, client business is likely to remain an important part of the repo market ecosystem, at least to the extent that clients can help banks to meet their liquidity and collateral requirements.



### Chapter 3: Evolving bank-client ‘partnerships’

*“These days, trading is driven a lot less by price and a lot more by matching axes.”*

- *Fund Manager*

As banks adapt to the new capital and liquidity requirements, and refocus their business models to take less risk while optimizing returns on scarce balance sheet, so their relationship with their clients is also being recalibrated. Traditionally, buy-side firms with cash to invest, or securities to fund or lend, could go to one or several of their bank broker-dealers and the repo desk would provide them with a firm quote to match their specific requirement. Any variance between quotes would be minimal, and often banks would compete to win the trade. As a number of buy-side respondents confirmed, this is no longer the case. In fact, if a client has to check five or more banks for a quote, they are no longer looking for the best quote, rather they are looking for *a* quote. In the new market regime, where taking repo positions onto balance sheet can be crippling, it is not even a question of adjusting levels. Instead, pricing to clients is becoming more binomial, with banks showing a price where it works for them, and no price when it does not. In other words, it is more about balance sheet availability than price.

*“It used to be that to miss a trade you would just back your price up by one or two basis points, and it would be enough to avoid trading without upsetting the client. These days you can’t risk that. Even if you back it up by 10 or 20 basis points, or more, there is still a chance you could get hit.”*

- *Repo Trader*

More often than not, however, it would seem that the age-old ‘request for quote’ model of the repo market has been replaced by a negotiation. “You have to be flexible,” explained one fund manager, “you can no longer expect to get a quote for your exact dates or needs.” The pattern that emerges from both buy-side and sell-side interviews is that executing repo is becoming far more driven by the ability to match axes<sup>20</sup>. A client who is looking to fund a €100 million Bund position for one-month may struggle to get a quote, but a bank with which it has an existing repo exposure may show them a bid for 27 days where it can create a netting opportunity. Or another bank might show a bid for part of the position for 35 days to help their LCR. Alternatively, another bank could offer competitive funding, but only if the client was willing to take collateral in return, rather than cash. As one fund manager explained, as much as your own funding requirements, you also have to understand the banks’ requirements and try to find a mutually beneficial solution. A number of sell-side interviewees described the repo desk-client relationships as becoming more like ‘partnerships’. One commented that this symbiosis was undoubtedly an intended outcome of the regulation.

*“We used to have ten banks on our list and thought it was too many. Now it’s not enough.”*

- *Fund Manager*

---

<sup>20</sup> An ‘axe’ is a particular trading interest that a market-maker or investor may have, that could relate to its own position or exposure, or to a client order.

While the new environment may be creating greater funding cooperation and flexibility between banks and clients, it also appears to be driving the buy-side to increase their number of bank counterparts. The uncertainty of whether they can obtain a price for a specific requirement, particularly where it crosses a reporting date (such as month-end or quarter-end) is adding to funding risk. As one fund manager explained, it used to be that once you had a position on with a particular bank you could be relatively certain of rolling it at maturity: but not anymore. Now, buy-side firms have to be prepared to switch their funding from bank to bank, and to start the discussion long in advance, particularly where it crosses critical dates, such as year-end.

In terms of pricing, all buy-side firms interviewed felt that they were not being disadvantaged, and that while liquidity was becoming an issue, the levels where they were trading did not yet seem to reflect the increasing cost of banks' capital. Most seemed to recognize that this was largely a function of their 'Tier 1' status amongst many of their banks, and understood that the liquidity and pricing they were currently being afforded was off the back of the broader business and revenue they provide their banks. One fund manager, however, questioned for how long this would remain sustainable, and thought that eventually pricing would need to adjust.

The biggest concern for buy-side firms was very much how future regulation would impact their ability to transact with banks and their access to repo liquidity. This is particularly problematic for firms that rely on some degree of leverage through the repo market. These are already aware that a number of European, Asian, and other banks have filled the liquidity gap left by the US and UK banks as they deleveraged over the past few years, but that this was not sustainable, and that they, too, would soon be subject to the same balance sheet constraints. Interestingly, none of the respondents had yet discussed the potential impacts of NSFR with their main banks, and so appears to be off the radar of many buy-side firms.

For those that do not rely on the repo market, but rather utilize it as an ancillary business, particularly to extract additional value through lending their securities holdings, regulation is more of an annoyance than a concern. The suggestion here was that if regulatory requirements, such as additional reporting, became administratively burdensome and expensive, they will be forced to reassess whether there is any value in retaining their repo and lending activities. As one fund manager succinctly put it, "we don't have to lend our securities."

## Chapter 4: Adaptation and innovation

*“Compared to other markets, evolution in the repo market has been glacial”.*

- *Infrastructure Provider*

As regulation throws out new challenges for both sell-side and buy-side firms, and reshapes the traditional matched-book market model, so stakeholders are trying to adapt and innovate both to meet those challenges and to exploit potential new opportunities. Not surprisingly, most innovations relate to balance sheet optimization, and creating more netting capabilities. Others are being driven by the need for improved liquidity and collateral management, particularly with the pressures of LCR and RWA requirements. Meanwhile, for a market that has historically been slow to embrace technology, electronic solutions and improved automation are also being discussed.

### *Balance sheet optimization*

As discussed, the ability to net has become the primary requisite of any repo trading model. Buy-side firms that rely on the repo market for funding already know that the difference between getting a price or not could depend on their ability to be both a borrower and lender of bonds (and then to the same date). For relative value funds trading bonds against bonds, usually, this does not present a major problem.<sup>21</sup> But for funds trading bonds versus derivatives, or funding outright positions, they may have to lean hard on their bank relationships to get liquidity.

One solution reported by some banks involves creating netting opportunities through short-term securities. For example, where a fund is shorting a ten-year Bund against the futures contract (‘selling the basis’) and requires three-month funding, the fund could simultaneously purchase a German T-bill (‘Bubill’) with a maturity greater than three-months, enabling its bank to offer funding for both the short Bund and long Bubill position as a nettable package. While this creates a small additional cost for the fund, it may be the only way to facilitate the original basis trade that they wish to execute.

Variations on this solution are becoming more commonplace, particularly for bilateral non-centrally cleared trades, where netting opportunities through the normal course of business are less readily available. In fact, the suggestion from a number of respondents is that the European repo market is very much moving away from a collateral-versus-cash market and more toward a collateral-versus-collateral market. It would also seem that more of these transactions are being executed as single securities lending transactions,<sup>22</sup> rather than as two separate repo trades.

---

<sup>21</sup> Although any significant cash mismatch from duration weightings can still influence pricing due to the capital cost of the non-nettable element of the trade.

<sup>22</sup> With the GMSLA (Global Master Securities Lending Agreement) as the legal structure of the transaction, rather than under a GMRA (Global Master Repurchase Agreement).

Standardized 'break-dates' are becoming a common feature for term repo transactions, which usually correspond with the IMM contract dates.<sup>23</sup> By trying to standardize term repo transactions, this creates greater opportunity for netting possibilities (since matching end-dates is one of the key criteria for netting under the Leverage Ratio. While the use of IMM 'break-dates' is nothing new in the European repo market, there were some suggestions that further innovation related to increasing the scope for nettable end-dates was under discussion.

Another balance sheet optimization solution utilized by a number of respondents is a Total Rate of Return Swap (TRORS), which provides the same economics of a repo transaction but transfers the underlying assets off balance sheet, although use of these structures as an alternative to repos does not seem particularly widespread.

### *Central clearing*

Crucial to creating netting opportunities are central clearing counterparties (CCPs). The ability to transact many, if not most, trades with the same entity increases the possibility, and probability, of offsetting trades, particularly for banks that are equally transacting repos and reverses. The interviews with a number of desks suggest that the netting opportunities provided by CCPs are becoming far more important, despite being at a time when concerns over the robustness of the CCP risk-model, as well as the significant costs in terms of margining relative to bilateral risk-management models, are being questioned. "It's a bit of a push-pull dynamic", stated one repo trader, "and pull is winning."

A suggestion posed by a couple of respondents was the possibility to net repo positions between CCPs. While this would not necessarily work where the different national CCPs are settling in different domestic settlement systems, the settlement element required for balance sheet netting should be resolved following the completion of the TARGET2-Securities initiative. However, how this degree of interoperability between different CCPs could work in practice is unlikely to be straightforward.

Some of the more animated discussions related to CCPs were around the potential (and some would argue inevitable) broadening of scope to include buy-side members. Despite initial resistance from the bank community (who constitute the existing membership of European repo CCPs), there seems to be a thawing in their position, again being driven by the possibility for creating more netting opportunities with their clients, even if it means that those clients are suddenly opened to a larger pool of potential counterparties. However, 'client-clearing' is not as straight forward as it seems.

Firstly, there is the question of how this fits in with the CCP risk-model and the structure of the CCP default fund. Not all existing members would necessarily wish to be part of the same CCP with many potential new members. One idea being mooted as a possible solution, and already in existence, is the concept of 'member sponsorship', where a member bank effectively clears through the CCP on behalf of

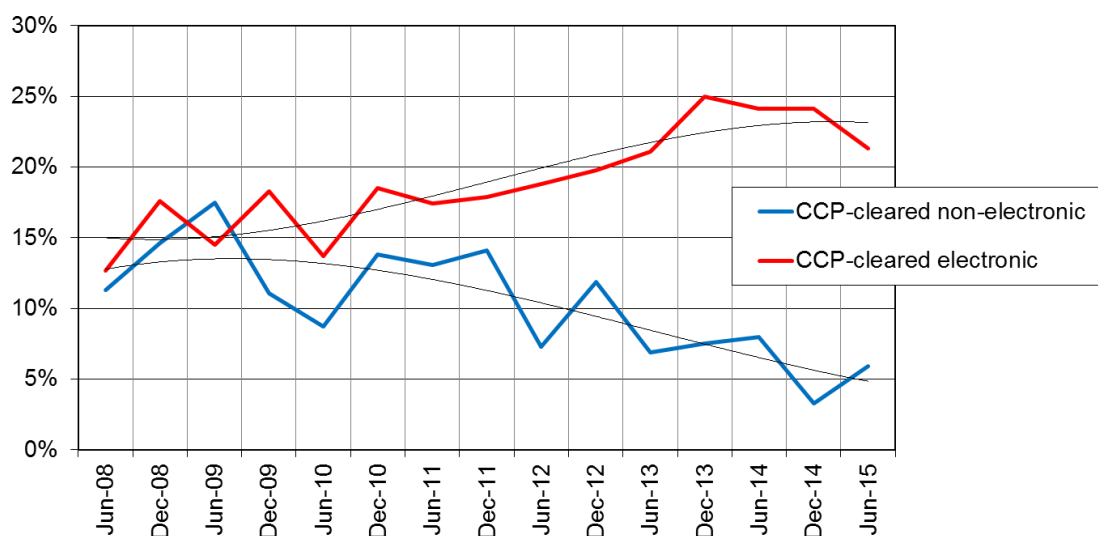
---

<sup>23</sup> The International Monetary Market (IMM) dates used are those that correspond to the exchange traded 3 month interest rate futures, such as Eurodollars and Euribor. These correspond to the 20<sup>th</sup> (or first business day after) of March, June, September, and December.

its client, in a model not dissimilar to that of prime brokerage. However, interviews with the buy-side firms suggest that the client view is mixed on central clearing. Perhaps unsurprisingly, those that utilize leverage as part of their business model, and so rely on repo funding, are more interested. Real money funds seem indifferent. In fact, with the suggestion that it may cost more to transact in the form of the high CCP initial margin requirements, they quickly dismiss it as an option. As one fund manager queried, why, when he is used to asking for haircuts<sup>24</sup>, would he sign-up to start paying them?

Another proposed solution being discussed by CCPs is for buy-side providers of cash (so pure repo investors) to be able to become members without the requirement for initial margin. This seems to have broader acceptance amongst both the bank and client constituents, although it is not expected to happen in the very near future. However, as one fund manager predicted, wide scale client-clearing for repo was only a matter of time, as both the buy-side and sell-side will eventually have no choice.

**Figure 5: Trends in CCP cleared repo trading (% of total outstandings)**



Source: The ICMA European Repo Market Survey, Number 29, September 2015

*The chart suggests that despite an overall upward trend in CCP-cleared trades executed electronically, as a percentage of overall outstandings, this has declined slightly in the past 18 months, while negotiated (non-electronic) CCP-cleared trading has increased.*

<sup>24</sup> A haircut is a form of initial margin required in some repo transactions by counterparties who are of a higher credit quality than the counterparty with whom they are transacting. The haircut is effectively a difference in value between the initial repo proceeds and the value of the underlying collateral. This ensures that the better quality counterparty is over-collateralized, either in terms of cash or in terms of securities.

### *Triparty and funding solutions*

Triparty seems to be a key area of focus for innovation. While triparty is a significant portion of the US repo market, it has never experienced the same growth in Europe,<sup>25</sup> and has traditionally provided a means for banks to fund their lower rated securities. Since the ability to fund unlimited amounts of lower rated sovereign bonds through ECB repos, triparty seems to have become primarily a vehicle for funding lower grade corporate bonds and equities, particularly through collateral upgrade structures such as evergreens. As discussed in Chapter 1, such structures are becoming a key repo product for banks in order to meet their funding and liquidity requirements. As noted by an agency lender, with the introduction of NSFR, and a requirement for even longer-term funding, these types of transactions are likely to become even more important.

However, a number of initiatives are being undertaken to develop and standardize the triparty product. The intention is that by producing standardized, interoperable baskets, these will become eminently more tradable, be far more liquid than existing triparty structures, and so have far more appeal, particularly to non-bank cash investors. Such baskets also lend themselves to platform trading, with the benefits of price transparency and automated trade processing. Furthermore, this also allows for the ability to design baskets that could be used to meet LCR requirements, meeting another recognized market need.

One possible barrier to entry, particularly for buy-side firms, is the legal framework necessary for transacting repo with multiple counterparties, and the administrative work and due diligence required to negotiate and sign numerous bilateral GMRA contracts with potential counterparties. However, potential solutions to this are being marketed by two of the larger triparty agents. One is based on the current market standard GMRA, but allows cash investors (triparty takers) to mandate the agent to set-up the GMRA with collateral providers on their behalf, so reducing the burden of due diligence. The other is an alternative master agreement, covering multiple counterparties. However, these alternative arrangements are also not without potential challenges.

The feedback from some banks, and even some of the buy-side firms, is that while standardized triparty baskets are certainly welcomed, there is still a need for bespoke, negotiated baskets that meet specific client credit requirements. UCITS regulation<sup>26</sup> creates further complications around concentration limits for underlying issuers in triparty baskets, which has meant that many buy-side investors are forced to trade bilaterally, with very specific GC requirements, rather than being able to use triparty. A further potential issue could lie with the central contractual agreements. While they possibly present ease of access to the market, many counterparties still have strict internal legal requirements related to trading contracts, and so prefer to negotiate contracts bilaterally, even if this appears far from efficient.

---

<sup>25</sup> According to the ICMA semi-annual Repo Surveys, it has remained steady at around 10% of the overall European repo market for a number of years.

<sup>26</sup> DIRECTIVE 2014/91/EU on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS) as regards depositary functions, remuneration policies and sanctions.

“There is a need to innovate and to open up the repo community; it can’t just be for the banks.”

- *Repo Broker*

### *Electronification and (dis)intermediation*

As pointed out by a number of the trading platforms interviewed, since the introduction of interbank screen trading in the early 2000s, the European repo market has seen little progress in terms of technological advancement. The most recent initiative has been in the credit repo space, and is an adaptation of age-old securities lending technology. Furthermore, while the vast bulk of short-dated GC and specifics are executed between banks via the four main platforms<sup>27</sup>, longer-term trades remain very much bilaterally negotiated (or, less frequently, negotiated and transacted via a voice broker). Also, electronic trading remains very much the domain of the banks, with limited scope for buy-side participation. Not surprisingly, those that provide trading platforms, or intermediation services, are looking to change this.

The main challenge for the ‘electronification’ of repo market, however, is that unlike most financial markets it is difficult to standardize, as repo is inherently a negotiated product, with different considerations around dates (start and end), underlying collateral or specific securities, as well as counterparty credit concerns (including the possibility for haircuts). In the post-Basel III environment, as discussed, the repo product is becoming ever more negotiable and bespoke, with even less scope for standardization. To a large extent, regulation is forcing the repo market ‘off screen’.

The solutions discussed by the various platform providers and intermediaries seem to build on two accepted truths about the future of repo market intermediation: non-banks have to be part of the equation, and the platforms need to offer greater levels of flexibility and interaction. Creating ‘bank-to-client’ or ‘all-to-all’ platform protocols for repo is far more challenging than that for cash bonds or even swaps. Credit lines and legal agreements need to be established between all counterparties hoping to trade with each other, which can be far more onerous than for other types of transaction.<sup>28</sup> As previously discussed, client-clearing and less onerous legal processes would seem the obvious solutions, but both have their challenges. Meanwhile greater levels of platform sophistication will be required to support the ever more negotiable nature of the market. Some of the ideas suggested included collateral-versus-collateral capabilities, ‘chat rooms’ to support bilateral negotiations, as well as hybrid models that combine both on-screen functionality and voice agency.

A number of banks, too, recognize that their businesses need to become more automated, particularly with respect to the trades they execute with their clients. As operational costs continue to increase, not least in the wake of multiple proposed reporting requirements, the ability to automate and streamline

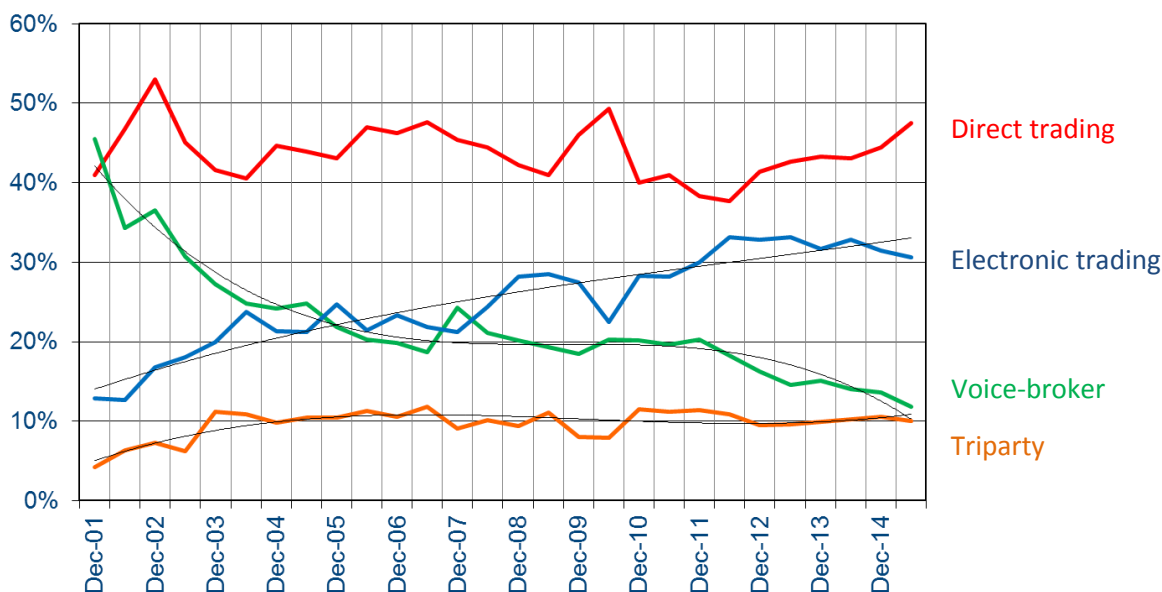
---

<sup>27</sup> tpRepo, BrokerTec, Eurex, and MTS

<sup>28</sup> It is often overlooked that unlike swaps, or other derivatives, repos entail principal risk, not just variation risk.

the trade process, from negotiation to execution to settlement, will become ever more pressing, and could become a differentiating factor in the repo service banks provide<sup>29</sup>.

**Figure 6: Analysis of the different forms of repo trading (% of total outstandings)**



Source: The ICMA European Repo Market Survey, Number 29, September 2015

*The chart clearly illustrates the increase in direct trading between counterparties, at the expense of electronic trading and voice-brokering. Meanwhile, triparty, as a percentage of overall market outstandings, remains relatively constant.*

#### *Disincentives to innovation*

While many of the interviews focused on possible innovations and creative ways to adapt to the new environment, it became clear that there was also a strong degree of reluctance to innovate among some interviewees. As one respondent explained, there is often very little upside. You can spend weeks, or even months, jumping through hoops with your compliance department to try to structure a new transaction type, or enter a new market, only to realize that the corresponding degree of scrutiny makes the risk-return of trying anything new unattractive. Another interviewee suggested that the current regulatory environment was hardly conducive to market innovation, whilst similarly another spoke of a 'culture of fear' that had been precipitated by regulation.

<sup>29</sup> Although not widely discussed in the interviews, the ICMA ERC Operations Group is currently leading a market-wide initiative to standardize matching and affirmation fields for repo and other SFTs to support compliance with the various transaction reporting initiatives, as well as CSDR.



## Chapter 5: Monetary policy

*“It’s a difficult conversation trying to explain to your client that they are going to pay you to borrow their money.”*

- *Repo Trader*

ECB monetary policy since the 2007-08 crisis, in the forms of its repo operations (MROs and LTROs), interest rate cuts, and, more recently, its Public Sector Purchasing Programme, have produced two significant impacts for the European repo market: excess bank reserves and negative interest rates. A potential third impact is a reduction in the stock of HQLA.

### *Cash is trash*

The most consistent complaint from the interviews is the double-edged sword of unlimited liquidity provided by the ECB. While this has undoubtedly been critical for improving the general funding of the banking sector, it has also created a dampening effect on the repo market. As excess reserves continue to rise, so market repo rates have fallen to the Deposit Rate (currently -0.20%). Furthermore, the narrow corridor between the Deposit Rate and the official Repo Rate (just 25bp) is also identified as limiting the potential profitability of providing repo market liquidity. A number of interviewees were keen to stress the importance of differentiating between *central bank liquidity* (in the sense of pumping money into the system) and *market liquidity* (which is the ability to find readily executable bids and offers). Often, excess monetary liquidity can be detrimental to market liquidity.

It was explained that the main issue with market rates trading close or flat to the Deposit Rate is that cash investors with access to the ECB become indifferent between investing in the repo market and placing their money with the central bank. One respondent suggested that once the repo rate reached -0.16%, after transaction costs it made more sense to give your cash to the ECB at -0.20%. A number of interviewees also explained that when market rates first moved into negative territory, clients were reluctant to accept negative quotes for repo, although it is now becoming more acceptable as the ‘new normal’. In some instances, moving down the credit curve to take lower grade collateral can produce better, and even positive, returns. However, spread compression has made GC differentials between European sovereign bonds virtually nonexistent, at least in short-dates, leaving low grade corporates as the best hope of earning anything above 0%.

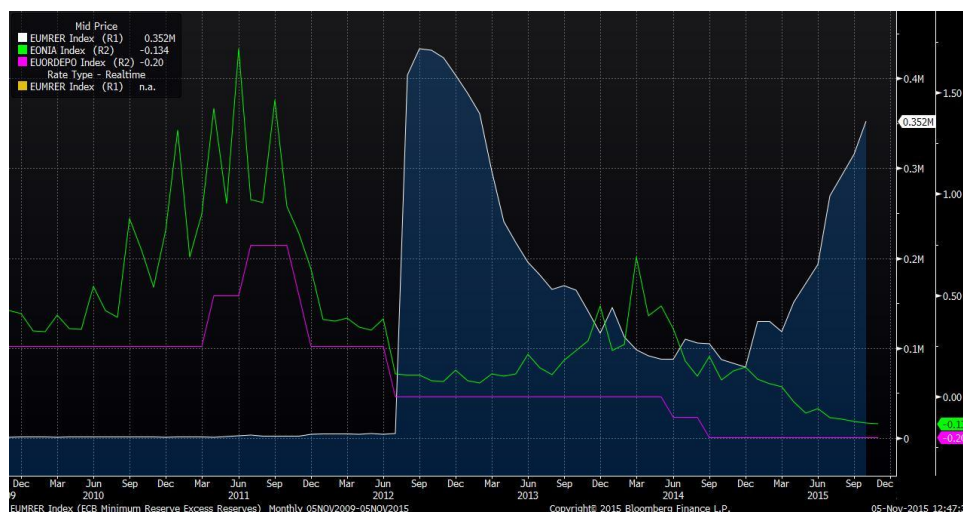
### *QE vs. HQLA*

A hotly discussed topic in a number of interviews was the ECB PSPP, which began in March 2015, and so was only into its first three-to-six months at the time of the interviews. Prior to the start of the program, there was a fear that this could result in a squeeze in HQLA, particularly for German government bonds. Apparently, this even led to some term repo demand, and a rare uptick in specials trading, following the initial announcement in January. However, the general conclusion, even from the later interviews, was that the program so far had caused little notable disruption to the repo market, nor an obvious shortage

in HQLA. A sharp bond market sell-off during the early stages of the interviews (which took a number of German government bond yields back above the Deposit Rate, and so eligible for PSPP purchases) also seemed to relieve some initial anxiety. Some respondents were even keen to point out that they had not needed to resort to the ECB lending program, although this was also roundly criticized by a number of banks for its decentralized and unharmonized structure, something that many felt could become a problem at a future date.

While there was little concern related to the PSPP at this stage, a number of respondents did express some apprehension about the potential impacts further into the program, and as more purchases were made. The generally accepted view is that the program will most likely need to be extended, possibly significantly, with more and faster purchases. In this instance, there might be implications related to HQLA, and which could cause repo market fractures, particularly for German government bonds. An inadequate lending program (which also relies on the posting of like-for-like for bonds, and so does nothing to prevent the reduction in the overall stock of HQLA), is not expected to provide much help. Two interviewees felt that there would no longer be a functioning German GC market by the end of the program. However, a more sanguine view presented by some was that this might help revive the specials market, which would not necessarily be such a bad thing.

**Figure 7: The effect of excess reserves**



Source: Bloomberg

*The chart shows how as excess reserves increase (due to the LTRO facilities and more recently the PSPP), so the overnight rate (EONIA) converges with the Deposit Rate floor.*

*Papering over the cracks*

Another common viewpoint is that central bank monetary policy is helping to soften the blow of regulatory impacts on the repo market, in particular the Basel measures. The ECB has effectively become the lender and borrower of first resort, ballooning its balance sheet, while commercial banks de-lever theirs. There is concern as to whether the repo market could continue to function and fulfill its various roles effectively if the ECB were to withdraw unlimited liquidity. Although, as a number of respondents noted, we are unlikely to find out anytime soon.

## Chapter 6: The risks arising from future regulation

*“We have to accept that there is no longer any confidence in the banks, so we have to trust in the regulator. But if the regulator gets it wrong, what then? Who will there be left to rely on?”*

- *Repo Trader*

Not surprisingly, most, if not all, of the interviews were dominated by discussions around regulation. It is fair to say that while opinions varied, and despite widespread recognition that better banking and markets regulation was a necessary, and even welcomed eventuality, there is not a great deal of confidence in the regulatory community’s appreciation of the repo market. The overarching view of respondents seems to be that authorities and regulators design policies and initiatives with little or no understanding of how the regulation will impact repo and securities financing markets. In the case where regulators are designing regulation specifically for the repo market, this only seems to solidify the view that the product and market is widely misunderstood. Based on many of the interviews, if regulators do understand how repo markets work, they would appear to be doing an unconvincing job of proving it.

A number of respondents were quick to mention the provision under CSD-Regulation that made illegal forward-starting repo transactions on trading platforms as an example of the disconnect between regulators and the repo market. However, most of the discussions related to ‘in flight’ regulations, which are soon to hit the repo market, often in ways that are difficult to anticipate. Some of the most cited regulatory initiatives, and the related concerns are listed below.

### *NSFR*

Of all the upcoming regulatory initiatives cited by respondents as the one most likely ‘to keep them awake at night’, nothing came close to NSFR. As highlighted in Chapter 1, the whole Basel III package has transformed the repo market beyond recognition. While many banks, particularly European, are only just beginning to grapple with the ramifications of the Leverage Ratio, others are already anticipating the next installment, the Net Stable Funding Ratio. In many ways, it is perhaps even less repo-friendly than the Leverage Ratio, particularly as it is not only calibrated to the term and underlying collateral of the trade, but also to the class of counterparty. Furthermore, as previously explained, the real difficulty with NSFR is trying to understand how this interplays with the other tenets of Basel III. Many banks view it as the ‘repo market destroyer’, while others see it as just another significant cost of capital that will either need to be absorbed or passed on to the franchise. However, as a number of interviewees commented, for buy-side firms that rely on leverage, in particular hedge funds, as well as those that provide that leverage, such as banks’ prime brokerage businesses, NSFR poses a very real existential threat.

*CSDR mandatory buy-ins*

*“I’m fascinated by mandatory buy-ins; not so much due to the market impacts, but more the intellectual challenge. I’m not claiming to be the smartest guy on the street, but the more I look at the level 1 text, the more impossible I think it is to implement. There’s a part of me that can’t wait to see how they try to do it.”*

*- Repo Trader*

The highly controversial provision under CSDR that mandates a buy-in process in the event of settlement fails is of particular concern to banks running active matched-books. As a number of respondents pointed out, whilst the regulation is likely to prove far more detrimental to bond market liquidity, particularly for corporate and emerging market debt, it creates a level of practicably unmanageable risk for a repo book, which will entail matching start and end legs of transactions that may or may not be in scope of buy-ins. As one senior repo trader explained, it adds another layer of unnecessary complication and unquantifiable risk in a market where you are already wondering whether you want to be in it or not.

One agency lender, while acknowledging the wider issue with mandatory buy-ins, did see a possible silver-lining in the sense that this could increase demand for borrowing securities. Even where counterparties are selling long positions, the risk of a buy-in alone may justify them ‘double-covering’ through the repo or securities lending market, or even ‘triple-covering’ where they are forced to sell short. However, he also noted that the flip-side would be that under the regulation, lending securities became more risky due to the provision for cash compensation.<sup>30</sup>

The fact that the regulation appears to be flawed is also cited in several interviews as another question mark over the credibility of the regulatory process. It seems to be well recognized amongst the repo market community that part of the regulation is a drafting error that the regulators refuse to address.<sup>31</sup> In many respects, it would appear to be this lack of flexibility, and even accountability, on the part of the regulators that frustrate respondents most, more than any error itself, and which is viewed as symptomatic of a fundamental weakness in the broader regulatory process.

*“I keep thinking that as a market we’ve failed. With every bit of new regulation it becomes more evident that we’ve done a lousy job of explaining to regulators what a repo is and why the repo market exists.”*

*- Repo Trader*

---

<sup>30</sup> Under the regulation, where a buy-in fails, it is resolved through cash compensation. This creates a risk for lenders of securities. Where the borrower is unable to return the securities, there is a possibility that the lending counterparty will be forced to receive cash compensation instead of being able to wait for, or force delivery of, the securities. One could argue that this creates more risk for the failed-to counterparty than for the failing counterparty.

<sup>31</sup> Article 7(6) of CSDR specifies the terms for the payment of the differential between the buy-in price and the original transaction. In the event that the buy-in price is lower than the original price, it dictates that the payment of the differential is made in the opposite direction to how normal buy-ins work. If enforced, this would create a bizarre market asymmetry that would discourage offer-side liquidity from market-makers and encourage market abuse by opportunistic counterparties. Despite this anomaly being flagged to the regulatory authorities on numerous occasions, it has never been addressed, and has so far been ‘avoided’ in the draft Level 2 technical standards.

### *SFT-Regulation and reporting initiatives*

While the EU's SFT Regulation does not seem to create significant concerns in terms of market impact, many respondents, particularly on the sell-side, worried more about the sheer administrative burden and the high degree of granular detail required to be reported. A common complaint was the regulation's lack of focus and its inability to identify what specific forms of systemic risk it hopes to monitor. Furthermore, a number of respondents referred to similar concurrent repo reporting regimes being introduced by the ECB, the Bank of England, and the FSB, with the worry being that these initiatives might not be sufficiently joined-up, or could require different reporting fields or data, so compounding the administrative burden and the required investment to comply with the requirements. A more general consideration, raised by a number of respondents, was that the likelihood seemed to be that the regulators were requesting so much data that they may be unable to see the wood for the trees. Ultimately, the un-usability of such vast quantities of information will only obfuscate the intent (and so point) of the regulation, while creating yet another layer of cost to transacting repo that will ultimately be passed on to the end user with no obvious benefit.

### *BRRD resolution stay*

The Bank Resolution and Recovery Directive (BRRD) aims to provide a harmonized framework for the orderly resolution of banks and investment firms in member states. Amongst other things, the BRRD enables resolution authorities to suspend temporarily termination rights, imposing stays which would override certain provisions of relevant financial contracts, including the GMRA. This was flagged by a number of respondents as yet another additional risk to transacting repo as a result of regulation.

While the objective of the resolution stay is broadly understood to be a good thing, the primary concern raised relates to the associated ability of the authorities to suspend payment and delivery obligations, including margin payments. This creates a dilemma for repo counterparties of the stayed entity, as they would suddenly be exposed to market risk (which is likely to run against them under most scenarios) with the added uncertainty of whether to hedge or trade out of their underlying exposure. Further misgivings relate to possible variations in the treatment of the stay under different jurisdictions, as well as with CCPs, and so creating asymmetric risks between counterparties that become difficult to manage.

### *MiFID II/R*

While the trading platforms seem very aware of the implications of MiFID II/R for repo trade reporting and transparency obligations, there appears to be less awareness among buy-side and sell-side firms as to the possible requirements of the regulation, and which could relate to their repo activity (including best execution obligations, as well as potential transparency and reporting requirements for OTC activity).<sup>32</sup> The few sell-side respondents who were switched on to the regulation cited it as another

---

<sup>32</sup> It would seem that there is still a high degree of ambiguity around some of the possible requirements of MiFID II/R as they relate to SFTs, and which will require further clarification before implementation.

example of regulation failing to understand the repo market or how it works, and yet more unnecessary administrative burden and cost for the market.

*“My biggest concern about future regulation is when will it stop? Without knowing that, how can anybody plan for the future? You are just adapting from one regulation to the next with no long term vision or strategy.”*

- *Repo Trader*

#### *Lack of certainty*

While many respondents focused on key pieces of regulation that concerned them most, it was more the general, cumulative regulatory onus that seemed to cause the most consternation. The common perspective was that the many regulations are trying to achieve a number of different outcomes, often with little regard for, or understanding of, securities financing markets, and that the aggregate result was making repo businesses ever less viable. Ultimately, it would appear to be the sheer scale of regulation, and the number of different initiatives, that are creating the most problems. Respondents conceded that it was becoming impossible to track every piece of regulation and to predict every possible outcome (intended or otherwise) for the repo market, and that often they were playing catch-up, or waiting for the next surprise. A number of heads of desk lamented that regulation was creating more uncertainty, and that accordingly business planning was becoming a guessing game. In response to the question *what will the market look like three years from now*, one interviewee broke into laughter, remarking that not even the regulators knew that.

*“So long as there is economic growth, no matter how small, the cost of regulation can be justified by the regulators as a price worth paying. So, as a market, we just have to accept it and get on with it. Life goes on.”*

- *Platform provider*

## Chapter 7: The future of the European repo market

*“At some point every bank is going to take a long, hard look at their fixed income businesses and ask themselves, ‘is it worth it?’”.*

- *Repo Trader*

By far the most challenging question put to the respondents was their vision of the market two-to-three years from now. As virtually all interviewees explained, any predictions are subject to too many significant unknowns. Firstly, there is the uncertainty related to regulation. Not only is it difficult to anticipate the full cumulative impacts of regulations that are already in flight, but there is the risk of yet more, unpredictable regulatory initiatives. Secondly, it is becoming increasingly impossible to predict the turning point in the European interest rate cycle, not least as rate cuts and quantitative easing look set to deepen and accelerate. As one respondent suggested, it could be at least three years before we see positive rates again in Europe.

However, there were a number of recurring predictions for the ‘future of the European repo market’, that paint a relatively vivid picture of what, perhaps, we can reasonably expect:

*The market will be a lot smaller*

As more banks comply with the Leverage Ratio, universal adoption of average daily reporting for Basel III, and the introduction of NSFR, along with other high cost regulatory initiatives, the consensus view is that repo volumes and outstandings will decrease significantly from where they are today. The inevitable further contraction in secondary bond market trading will also provide a downward drag on repo activity, although the two go hand-in-hand.

*There will be more buy-side participants*

It is broadly expected that the market will see more buy-side entrants, particularly cash rich corporate treasuries. In many ways the repo market will be a much broader and more diverse environment than today, despite being considerably smaller. It is widely anticipated that client-clearing solutions will have been established, allowing for more netting opportunities and all-to-all trading. However, it is also expected that there will be fewer hedge fund participants, while many banks, including some of the larger bulge bracket houses, may dramatically reduce their involvement in the market.

*The market will become even more sophisticated*

Despite the drive for market standardization behind much of the regulation, this is having the opposite effect on the repo market, making it increasingly more heterogeneous and bespoke. Accordingly, the market will need to derive new custom-made solutions that optimize balance sheet, funding, liquidity, and collateral needs across a diverse range of banks and other participants. Technology will play an important role, as greater automation for pre and post-trade processes becomes necessary, but so will talented repo ‘traders’ and collateral managers. There will just be fewer of them.



*Repo will become a lot more expensive*

It is broadly felt that the current market bid-ask spreads are unsustainable, and at some point in the near future will need to reflect better the true cost of capital required to transact repo. Other regulations that add to the cost and risk of transacting, such as SFTR and CSDR, will also need to be priced into the spread, as it becomes more difficult to absorb costs at the bank level, or to cross-subsidize businesses.

*Liquidity and collateral management functions will continue to merge*

As reduced market activity and the costs of regulation continue to squeeze banks' margins, so they will continue to strive to cut costs and drive efficiencies across the business units they decide to keep. This will put continued pressure on repo desks, treasuries, equity finance and securities lending desks, as well as collateral management teams, to move ever closer together, eventually becoming one and the same.

And the two big unknowns:

*A pause in regulation will restore optimism*

A number of respondents feel that once we reach 2018-19, and most of the in-flight regulatory initiatives have landed, we will finally know what the cumulative impacts are, intended or otherwise, which participants are still standing, and the ways in which the market can still function. At this point, banks, along with their repo and other liquidity and collateral functions, will have been restructured, businesses pared down to the bone, and all will be operating at minimum cost. From this position, with the uncertainty that regulation creates diminished, they can look to refocus and rebuild their businesses.

Or

*The withdrawal of central bank liquidity will reveal the cracks in the market*

Once the ECB ends quantitative easing, raises rates, and withdraws unlimited liquidity, the funding markets will no longer be on life support and will need to function by themselves. The true costs of Basel III capital and liquidity measures will finally be weighing on the market, as will the diminished capacity of banks to provide repo market intermediation and liquidity. This will not only further diminish liquidity in government and corporate bond markets, and so increase volatility and costs for both investors and issuers, but it will also inhibit the ability of collateral to move through the system, causing stress points and fractures in a financial system predicated on the smooth and efficient flow of collateral.

## Conclusion

*“The repo market isn’t going away. It might look very different, but it will still be around.”*

*- Infrastructure Provider*

This study confirms that the European repo market is undergoing a transformation on an unprecedented scale, driven primarily by banking and market regulation, in particular Basel III. As a direct consequence of the Leverage Ratio, as well as other capital and liquidity measures, repo, as an on-balance sheet product, is becoming expensive to the point where it is no longer tradable. A raft of other regulatory initiatives, such as BRRD, SFTR, CSDR, and MiFIR, all contain elements that add yet another layer of risk and cost to repo transactions. Cumulatively, the overall impact is difficult to predict, and remains to be seen. Meanwhile, central bank monetary policy is creating another set of pressures and challenges to the way in which the repo market functions.

As these combined forces reach landfall, so the market is rapidly reinventing itself. Banks, the traditional creators and providers of repo market liquidity, are paring down their businesses, deleveraging, de-risking, and refocusing on their own capital and liquidity requirements ahead of the needs of their client base. Repo liquidity is now afforded on the basis of banks’ own commitments, or as a loss-leader to support more profitable businesses and revenue streams. Effectively, repo businesses are being transformed from profitable trading desks into liquidity and collateral management utilities.

As the regulatory storm gains more traction, so the need to design new market structures and ways of transacting business become more pressing. Balance sheet efficiency will be critical for the product’s survival, and innovative solutions will need to be found to optimize netting opportunities, involving not only the banks, but also their clients, infrastructure providers, and intermediaries. Automation and efficiencies in pre and post-trade processes will become ever more important, as will the human element in developing more symbiotic bank-client funding relationships and solutions.

While the repo market looks set to contract, perhaps significantly, and for liquidity and pricing to adjust to reflect better the growing costs of transacting repo, the critical role that the repo market plays and the functions it performs will remain very much in demand: facilitating secured lending, supporting bond and derivative market liquidity, sourcing and mobilizing collateral, and transmitting monetary policy. Repo will therefore remain at the core of the financial and capital market system, which in turn serves the real economy. The extent to which the repo market can continue to do this, efficiently and effectively, will remain to be seen.

The resounding view of all the participants who took part in this study is that the repo market will still be around for some time to come. How it will look after the storm remains to be seen. But it is safe to assume that it will be a very different market to the one we have known. The fear, however, is that it may no longer be able to function as well as previously, particularly when most needed.

### Glossary of acronyms used in this report

bp	Basis Point (one-hundredth of a percentage point)
BRRD	Bank Resolution and Recovery Directive
CCAR	Comprehensive Capital Analysis and Review
CCP	Central Counterparty Clearing House
CLO	Collateralized Loan Obligation
CRD IV	Capital Requirements Directive (IV)
CRR	Capital Requirements Regulation
CSA	Credit Support Annex
CSD	Central Securities Depository
CSDR	CSD-Regulation
CTD	Cheapest To Deliver
DR	Deposit Rate
ECB	European Central Bank
EONIA	Euro Overnight Index Average
ERC	European Repo Council
EU	European Union
GC	General Collateral
GMRA	Global Master Repurchase Agreement
GMSLA	Global Master Securities Lending Agreement
GSIB	Globally Systemically Important Bank
HQLA	High Quality Liquid Asset
ICMA	International Capital Market Association
IMM	International Monetary Market
LCR	Liquidity Coverage Ratio
LR	Leverage Ratio
LTRO	Long Term Refinancing Operation
MiFID II	Markets in Financial Instruments Directive (II)
MiFIR	Markets in Financial Instruments Regulation
MRO	Main Refinancing Operation
NSFR	Net Stable Funding Ratio
PSPP	Public Sector Purchasing Programme
QE	Quantitative Easing
RWA	Risk Weighted Asset
SFT	Securities Financing Transaction
SFTR	SFT-Regulation
SLR	Supplementary Leverage Ratio
SONIA	Sterling Overnight Index Average
TRORS	Total Rate of Return Swap
UCITS	Undertakings for Collective Investment in Transferable Securities

**About the author**

**Andy Hill** is a Director in ICMA's Market Practice and Regulatory Policy group. For seventeen years he has been a repo and money-market trader, and for ten years he was an Executive Director at Goldman Sachs. He has also worked as a consultant in the Aid and Development sector, primarily based in Cambodia, and previously served on the Board of the Cambodian NGO Education Partnership in Phnom Penh while under a Goldman Sachs Public Service Fellowship. He holds a BSc (Hons) in Business Studies from Cass Business School and an MSc in Poverty Reduction and Development Management from the University of Birmingham.

Email: [andy.hill@icmagroup.org](mailto:andy.hill@icmagroup.org)

## Annexes

		<b><i>Page</i></b>
Annex i	Terms of Reference for the study	46
Annex ii	What is a repo?	47
Annex iii	A glossary of types of repo transaction	49
Annex iv	A glossary of regulation impacting the European repo market	51

## **Annex i: Terms of Reference for the study**

### **Study Overview**

A qualitative study and resulting report on the current state and likely evolution of the European repo market, in the same mould as ICMA's 2014 report on the state of the European corporate bond secondary market. As with the corporate bond market study, the repo market study is intended to advance the discourse around repo and collateral markets, not least in the context of ongoing regulatory impetuses.

### **Scope & Methodology**

The study will focus on a series of semi-structured interviews with key users and providers of repo markets, as well as related infrastructure providers.

These will include:

- ❖ Broker-dealers
- ❖ Buy-side users of repo (real-money and leveraged)
- ❖ Voice brokers
- ❖ Electronic platforms
- ❖ CCPs
- ❖ Triparty agents
- ❖ Agency lenders

The key questions will include:

- How is regulation impacting repo trading?
- How is monetary policy impacting repo trading?
- How are repo businesses and operating models evolving?
- How are desks changing with respect to risk appetite, product diversity, hedging capabilities, and staffing profiles?
- How is the client base, and the ways in which desks interact with clients, changing?
- How is the role of repo desks evolving with respect to collateral and liquidity management?
- What are the perceived challenges for the repo market and repo desks over the next few years?
- What are the potential opportunities for repo desks and repo market users, as well as infrastructure and other liquidity providers, in the new market environment?

### **Quantitative Analysis**

While primarily qualitative, the study will also draw on (and compliment) trends and analysis from the ICMA European Repo Market Survey, as well as utilizing any other relevant publically or privately sourced data and analysis.

## Annex ii: What is a repo?

Repo is a generic name for both *repurchase agreements* and *sell/buy-backs*.\*

In a repo, one party sells an asset (usually fixed-income securities) to another party at one price at the start of the transaction and commits to repurchase the fungible assets from the second party at a different price at a future date or (in the case of an *open repo*) on demand.\*\* If the seller defaults during the life of the repo, the buyer (as the new owner) can sell the asset to a third party to offset his loss. The asset therefore acts as collateral and mitigates the credit risk that the buyer has on the seller.

Although assets are sold outright at the start of a repo, the commitment of the seller to buy back the fungible assets in the future means that the buyer has only temporary use of those assets, while the seller has only temporary use of the cash proceeds of the sale. Thus, although repo is structured legally as a sale and repurchase of securities, it behaves economically like a collateralised loan or secured deposit (and the principal use of repo is in fact the borrowing and lending of cash).

The difference between the price paid by the buyer at the start of a repo and the price he receives at the end is his return on the cash that he is effectively lending to the seller. In repurchase agreements, this return is quoted as a percentage per annum rate and is called the *repo rate*. Although not legally correct, the return is usually referred to as *repo interest*.

An example of a repo is illustrated below.



The buyer in a repo is often described as doing a reverse repo (ie buying, then selling).

A repo not only mitigates the buyer's credit risk. Provided the assets being used as collateral are liquid, the buyer should be able to refinance himself at any time during the life of a repo by selling or repoing

the assets to a third party (he would, of course, subsequently have to buy the collateral back in order to return it to his repo counterparty at the end of the repo). This right of use therefore mitigates the liquidity risk that the buyer takes by lending to the seller. Because lending through a repo exposes the buyer to lower credit and liquidity risks, repo rates should be lower than unsecured money market rates.

*\* Repos are sometimes known as 'sale-and-repurchase agreements'. In some markets, the name 'repo' can be taken to imply repurchase agreements only and not sell/buy-backs. Repurchase agreements are also known as 'classic repo'. Repo, along with securities lending, is a type of 'securities financing transaction' (SFT).*

*\*\* In the Global Master Repurchase Agreement (GMRA), fungible assets are described as 'equivalent' assets. Fungible or equivalent, which means an asset that is economically but not necessarily legally identical (usually the same bond issue but not the same part of the issue).*



### **Annex iii: A glossary of types of repo transaction**

#### **Term repo**

A term repo is a repo transaction with a defined start and end date, and so a fixed maturity. Most repo transactions would be defined as a term repo, including very short-term one-day repos (such as overnight, tom-next, and spot-next). However, when referring to term repos, market participants often in fact mean 'longer term' repos, which are generally interpreted to mean one-month maturities or longer. Repo interest is usually paid on the predetermined end date of the transaction.

#### **Open repo**

Open repos do not have a fixed term. They have a defined start date, but no defined end date. Once initiated, the trade will remain open until either of the counterparties elects to close the trade (normally with one day's notice). Repo interest is usually paid on the closing date of the trade.

#### **Callable repo**

A callable repo is a fixed term repo, with a defined start and end date, but where either counterparty has the right to elect early termination of the repo (usually with one day's notice). In many respects, a callable repo is very similar to an open repo.

#### **Fixed rate repo**

A fixed rate repo is a transaction where the two counterparties agree an explicit repo rate for the trade. In the case of a term trade, this rate will accrue over the life of the trade, with interest paid on the end date. For open trades, the repo rate can be renegotiated by either counterparty at any time during the life of the trade, and any new rate agreed will become applicable from that point on (usually from the next day).

#### **Floating rate repo**

A floating rate repo is a transaction where the two counterparties agree to a repo rate that is expressed as a spread to a reference rate, usually a published overnight index such as EONIA or SONIA. The interest is usually averaged over the life of the trade (rather than compounded) and paid on the end date.

#### **General Collateral trade**

A General Collateral (or GC) trade is where the underlying security meets a certain asset or credit requirement, but within the confines of that requirement, could be any bond allocated by the repo-ing counterparty. An example could be 'German government GC', in which case the collateral allocated by the repo-ing counterparty could be any German government bond(s). The collateral allocated to the trade is usually not determined until after the trade is executed, but in most cases on the same day and within an agreed timeframe (often one hour). Some GC trades also allow for one or more 'right of substitution', which allows the repo-er to substitute the underlying collateral at any point during the life of the trade, so long as it meets the same criteria of the original trade. GC trades are comparable to other money market investments, such as T-bills, and generally the market rates are similar.

#### **Specific or specials trade**

A specific trade is one where the underlying security is specified. This is usually driven by the need to borrow a particular security by the reverse repo-er, often to cover a short position. Since there is less optionality compared to a GC trade (only one specific security can be delivered), repo rates for specific bonds tend to trade at a premium (so a lower rate) to GC. Where demand to borrow a specific bond is

particularly high, the bond is said to be 'on special'. The premium for specials can be quite high, and so trade significantly lower than the prevailing GC rate.

**Triparty repo**

Triparty repo is a transaction for which post-trade processing (collateral selection, payment and settlement, custody and management during the life of the transaction) is outsourced by the counterparties to a third-party agent. Because a triparty agent is just an agent, use of a triparty service does not change the relationship between the counterparties, as the agent does not participate in the risk of transactions. If one of the parties defaults, the impact still falls entirely on the other party.

**Collateral upgrade**

A collateral upgrade trade (sometimes referred to as 'collateral transformation') is nothing more than the simultaneous reverse of high-grade assets and the repo of relatively lower grade assets. Symmetrically, the counterparty taking the other side of the trade is effectively executing a collateral downgrade trade. The counterparty receiving the 'upgrade' pays the counterparty receiving the 'downgrade' in the form of a spread differential between the two effective GC rates.

**Evergreen**

Also known as 'extendables', an evergreen transaction is a repo with a fixed maturity that, unless either counterparty elects otherwise within a certain timeframe, automatically roll (or extend) to a further future end date. Should either counterparty elect not to roll the trade at any point, then the trade will end on the last set end date. Evergreens do not provide certainty of funding beyond the last set end date, however they do provide operational efficiency with respect to rolling (or extending) that funding.

## **Annex iv: A glossary of regulation impacting the European repo market**

### Capital and liquidity requirements

#### **Basel III Leverage Ratio and Supplementary Leverage Ratio**

In 2010, the Basel III capital regime introduced risk-based metrics such as the Tier 1 common ratio, which prompted banks to reduce balance sheet assets that carried the largest risk-weightings. The subsequent introduction of leverage-based metrics was intended to provide a back-stop for the risk-based capital metrics, however, in the case of repo, this acts as the binding constraint on activity. Basel III specifies a 3% non-risk-weighted leverage ratio for all balance sheet assets. The US Dodd-Frank regulation introduces a 3% supplementary leverage ratio (SLR) for US GSIBs (globally systemically important banks), effectively taking the leverage ratio to 6% of balance sheet assets, as well an eventual stressed SLR minimum under CCAR (Comprehensive Capital Analysis and Review). These leverage constraints work in the opposite way to risk-based capital metrics by encouraging the reduction of the lowest-risk, lowest-return assets. For most banks this will primarily impact their repo business, which tends to be a low-risk, low-return client utility, but balance sheet intensive.

#### **Basel III Liquidity Coverage Ratio**

LCR is driving up the demand for HQLA (high quality liquid assets) held by banks for periods greater than 30 days, while making short-term funding (including deposits) and lower quality assets less attractive. As markets become more volatile, this has a countercyclical impact whereby the demand for HQLA, both outright and on term repo, is likely to increase, while holders of HQLA will 'hoard' these assets and become less willing to lend.

#### **Basel III Net Stable Funding Ratio**

While LCR measures banks' liquidity on a forward looking one month basis, the NSFR measures liquidity on a forward looking one year basis. This will have a far more significant impact on the repo market since it is calibrated to incentivize banks to reduce reliance on short-term funding and to move into longer-term (> 1year) funding products. Banks will be forced to allocate a proportion of long term funding against sub-1 year reverse repo financing with financial institutions (and as much as 50% in the case of sub-6 month funding), while receiving no benefit from offsetting these transactions with matching repos. The resulting increase in the cost of offering short-term repo funding is likely to see a drive toward longer-dated funding structures for financial clients, as well as an incentive to source short-term funding from non-financial corporate clients.

#### **Basel III RWA calculations**

While Basel III increases the ratio of Tier 1 capital relative to on-balance sheet risk-weighted assets, there is increasing focus on banks' calculation of RWAs in their IRB (internal ratings-based) internal models. Accordingly, many banks' RWA calculations, as determined by their internal risk committees,

will be extra-sensitive to any increase in volatility or decrease in liquidity for certain assets, including HQLA. Already this is impacting the risk appetite of banks for holding certain lower credit asset classes on their balance sheet, and, should liquidity deteriorate for higher rated, HQLA, this could also lead to reduced appetite, or at the very least increased hair-cut and margin requirements, for these assets.

### Market regulation and infrastructure changes

#### **Central clearing**

As central clearing becomes more prominent for derivatives and repo, CCPs are having to manage ever increasing pools of cash posted as IM (initial – or independent - margin), and are turning to the repo market to place this, which in turn is increasing the demand for better quality assets on repo. Conversely, asset managers are having to repo securities to raise cash to meet their IM obligations to CCPs.

From a repo perspective, it should be remembered that central clearing creates a very different counterparty risk profile to derivatives clearing, in that it generates principal risk and not merely variation risk. Thus the credit risk considerations of centrally clearing repos are significantly different to those of derivatives clearing, which should be borne in mind if mandatory clearing for repo is to be considered.

#### **CSA margin requirements**

As certain securities and asset classes become less liquid and more volatile, so their liquidity ratings reduce, threatening their margin (independent amount and variation margin) eligibility under CSAs (Credit Support Annexes). The effective outcome of this is that as the need for eligible collateral increases, the available supply correspondingly decreases.

#### **CSD-Regulation: settlement discipline**

The CSDR mandatory buy-in regime will bring into scope the near-leg of SFTs, other than for open or very short-dated transactions. Given the unquantifiable costs of a buy-in, relative to the very small returns from lending securities, this is expected to deter term lending of securities (in contradiction to the objectives of Basel III). Conversely, fixed income market-makers seeking to hedge their increased buy-in risks will drive increased demand for term reverse repo. Effectively, this regulation will bifurcate the European repo markets between short-dated and term, with very different demand and supply profiles. The significant decrease in bond market liquidity already witnessed as a result of current regulation will have further negative implications for repo market liquidity.

Meanwhile, both cash penalties and mandatory buy-ins are likely to prove to be high risk, high cost disincentives to many marginal lenders of collateral, such as asset managers and corporates.

## **Bank Resolution and Recovery Directive**

The Bank Resolution and Recovery Directive (BRRD) aims to provide a harmonized framework for the orderly resolution of banks and investment firms in member states. Amongst other things, the BRRD enables resolution authorities to temporarily suspend termination rights, imposing stays which would override certain provisions of relevant financial contracts, including the GMRA. Under the direction of the FSB, ISDA published the ISDA Resolution Stay Protocol in November 2014. The primary aim of the FSB was to have 18 systemically important banks adhere to the protocol in relation to their swap agreements. The authorities have requested an extension of the ISDA Resolution Stay Protocol to repo and securities lending master agreements. This would mean that in the event of a counterparty going into resolution, counterparties would be unable to close out their SFT exposures for 48 hours. This will create a funding risk as the principle payment will be impacted, but also significant and arguably unquantifiable market risk.

## **Volcker Rule**

Dodd-Frank regulation prohibits proprietary trading by banks and their affiliates. This creates a potential gray area where bank positioning related to market-making (including pre-positioning) could be viewed as proprietary trading, and which could lead to banks avoiding taking market-making related positions. This could equally apply to the mismatched exposures typically taken onto repo trading books ('matched books') as a matter of course through providing funding liquidity to clients. In Europe, the proposed Fundamental Review of the Trading Book (FRTB) looks to separate the bank book from the trading book, while other related structural reform proposals include the prohibition of proprietary trading.

## **MiFID II/R**

Not only will trading venues be in scope of pre- and post-trade transparency obligations for SFTs, but it may be that systematic internalizers in the underlying securities will also be subject to transparency requirements. Also unclear is whether these transparency obligations relate to the repo rate being quoted, or the cash price that is assigned to the collateral. This creates further practical challenges in the case of general collateral trades or triparty transactions, where the underlying collateral is unknown until after the transaction.

Best execution obligations will also apply to SFTs, creating more onerous reporting. And while the regulation specifically exempts SFTs from the transaction reporting obligations, where they are already covered by SFTR or EMIR, this could potentially still leave transactions that are explicitly exempted under those regulations, such as SFTs transacted with central banks, in scope.

## SFT specific regulation

### **Securities Financing Transaction Regulation**

While the market welcomes the introduction of a transaction reporting initiative for SFTs, there are concerns that the vast and granular reporting details likely to be required under SFTR will put an excessive administrative burden on market participants, while being too data heavy to provide regulators with the level of visibility and clarity that they require. Duplicative reporting or parallel SFT reporting initiatives such as those of the FSB and ECB could increase the administrative burden (and related costs) for the market unless a well-balanced and co-ordinated effort is made by the authorities at large. In particular smaller non-bank and corporate participants may be deterred from lending securities to avoid such excessive costs.

### **Collateral re-use**

Regulatory concerns over collateral re-use, and particularly the lack of distinction between re-hypothecation and the use of assets under title transfer collateral agreements (TTCAs), are misplaced and could hamper collateral velocity at a time when the demand for collateral is increasing. Any requirement to track collateral 're-use' under the various reporting initiatives would negate the fungibility of assets and could require the segregation of individual transactions.

### **Mandatory haircuts**

Haircuts are a form of initial margin for bilateral SFTs, and so an additional cost of funding to the counterparty being haircut. Furthermore, haircuts are determined based on assessments of both counterparty and underlying asset risk, which is part of a holistic assessment based on many variable factors as well as overall counterparty exposure. Other than adding yet another cost to transacting SFTs, it is difficult to see what added benefit mandatory minimum haircuts provide from a macro-prudential risk perspective for regulated entities. Mandatory haircuts for SFTs are currently being proposed by the FSB.

## Taxes and levies

### **Financial Transaction Tax**

As widely discussed, and previously experienced in Sweden, a financial transaction tax on financial market activity is a death knell for market efficiency, liquidity, and activity. Furthermore, the proposal to apply a flat levy on SFTs would also have a disproportionate impact depending on term, and would result in effectively making short-dated repos economically unviable as reported in an ICMA study (the original FFT proposal would mean that the additional cost of transacting an overnight repo would be 87% annualized).

## **Bank Levies**

Bank levies that specifically target banks' balance sheets, such as that imposed by the UK Treasury, are another indiscriminate cost for balance sheet-intensive, low-margin activities such as repo.

## Monetary policy

### **Quantitative easing**

While the ECB's Quantitative Easing program is adding liquidity into the money markets, it is simultaneously reducing the stock of HQLA. The ECB has committed to making available for repo securities purchased through the program; however, this is not centralized and is largely managed by the individual NCBs, which have their own lending programs or agreements. In some instances, the NCBs are only making bonds available through only one of the ICSDs auto-borrow facility, which is more an overnight fails mitigation facility than a dedicated lending facility. This lack of standardized and centralized facility will disadvantage certain participants who do not have direct access to the various individual NCBs, as well as creating possible liquidity dislocations between the various sovereign debt markets. Furthermore, even where there is the scope for individual bonds to be lent back into the market, this is only on a bond-versus-bond, like-for-like basis, so will still decrease the overall stock of available HQLA. A wider "ECB eligible" collateral framework may therefore be appropriate.

### **Deposit rate vs repo market**

As the excess liquidity in the system has increased, so the GC rate for repo has dropped to the Deposit Rate floor. Close to this point, banks become indifferent to placing excess reserves in the repo market or putting them on deposit with the ECB, which again reduces repo market activity and collateral velocity.