

International Capital Market Association European Repo Market Survey

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Executive Summary

In December 2015, the European Repo and Collateral Council (ERCC) of the International Capital Market Association (ICMA) conducted the 30th in its series of semi-annual surveys of the repo market in Europe. The latest survey asked a sample of financial institutions in Europe for the value and breakdown of their repo contracts that were still outstanding at close of business on December 9, 2015. Replies were received from a record 72 offices of 68 financial groups, mainly banks. Returns were also made directly by the principal automatic repo trading systems (ATS) and tri-party repo agents in Europe, as well as by the London-based Wholesale Market Brokers' Association (WMBA).

Total repo business

The total value of the repo contracts outstanding on the books of the 72 institutions who participated in the latest survey was **EUR 5,608 billion**, compared with the EUR 5,612 billion in June 2015. This represents almost no increase in the 'headline' number of the survey (-0.1%). Using a constant sample of banks to eliminate the effect of changes in the survey sample, it is estimated that the market contracted over the previous six months by 1.4%, although the year-on-year change was +3.1%. This confirmed the recent gradual downtrend. The latest decline in activity reflected in part a contraction in repo books by G-SIFI, which are the banks most intensely impacted by new regulation. On the other hand, non-EU banks provided an expansionary impetus. The trend decline in activity was accentuated by a seasonal fall in market size that would appear to reflect the impact of end-year reporting for regulatory and tax purposes. End-year effects now include charges to support the resolution funds introduced last year under the EU Banking Recovery and Resolution Directive. However, the survey may have avoided the full impact of end-year factors as it took place on December 8.

Trading analysis

While electronic trading increased its share of the survey, directly-reported data declined slightly in absolute size. However, anonymous (ie CCP-cleared) electronic trading increased both its share of the survey and its absolute size, confirming the trend towards central clearing.

GC financing decreased in absolute size and as a share of directly-reported electronic repo but held an almost unchanged share of the survey.

Geographical analysis

Cross-border business fell back, particularly with eurozone counterparties, largely due to a sharp increase in CCP-cleared trading but also a recovery, against the trend, in domestic business. The recovery in the share of domestic business is more likely to reflect increased activity in London between or with global banks rather than a change in the trend towards the centralization of domestic activity around large banks acting as cross-border intermediaries.

Clearing and settlement analysis

The share of tri-party repo recovered to 11% from 10% but some of this increase may have been due to improvements in reporting by several banks.

The outstanding value of tri-party repo reported directly by the major tri-party agents in Europe (ie all tri-party business, not just that by the institutions in the survey) dropped sharply and substantially. However, this was largely due to a fundamental correction in reporting by one of the tri-party agents, who previously been including some securities lending and borrowing transactions. The correction seems to have had knock-on effects on the reported composition of other tri-party business, so care is needed in interpreting these data.

Cash currency analysis

There were no significant changes in the currency composition of business, other than an increase in sterling repo.

Collateral analysis

The share of all government bonds within the pool of EU-originated fixed-income collateral reported in the survey recovered. This change was driven by German and UK government securities. It remains difficult to unravel the net impact of quantitative easing by European central banks.

Executive Summary

For the first time, participants were asked to identify Japanese and US government bonds. Japanese government bonds accounted for 3.2% of total collateral and US Treasuries for 5.1%. However, the initial figures in any series need to be treated with caution, as it takes time for all participants to respond to new questions. The eventual figures could therefore well be higher.

Contract analysis

Sell/buy-backs took a larger share of the survey, probably reflecting increased activity by Spanish banks. On the other hand, there was a decline in the share of sell/buy-backs in directly-reported electronic trading but this was due to the faster growth of repurchase agreements rather than an absolute decline in sell/buy-backs.

Maturity analysis

There were the usual seasonal fluctuations in maturities, as banks sought to lock in term funding over the year-end. The share of short-dated transactions fell back and transactions with one to six months remaining to maturity increased. However, an increase in one-day positions helped the weighted average term to maturity to remain almost unchanged at 25-60 days.

Concentration analysis

There was a decrease in the concentration of business in the top 10 survey respondents, which continues to remain low.

Product analysis

The share of securities lending conducted on repo desks rose again.

CHAPTER 1: THE SURVEY

On December 9, 2015, the European Repo and Collateral Council (ERCC) of the International Capital Market Association (ICMA) conducted the 30th in its series of semi-annual surveys of the repo market in Europe.

The survey was managed and the results analysed on behalf of ICMA by the author, at the ICMA Centre at Reading University in England, under the guidance of the ERCC Steering Committee ("ERCC Committee").

1.1 What the survey asked

The survey asked financial institutions operating in a number of European financial centres for the value of the cash side of repo and reverse repo contracts still outstanding at close of business on Wednesday, December 9, 2015.

The questionnaire also asked these institutions to analyse their business in terms of the currency, the type of counterparty, contract and repo rate, the remaining term to maturity, the method of settlement and the origin of the collateral. In addition, institutions were asked about securities lending and borrowing conducted on their repo desks.

The detailed results of the survey are set out in Appendix C. An extract of the accompanying Guidance Notes is reproduced in Appendix A

Separate returns were made directly by the principal automatic repo trading systems (ATS) and tri-party repo agents in Europe, and an aggregate return was made directly by the London-based Wholesale Market Brokers' Association (WMBA).

1.2 The response to the survey

The latest survey was completed by 72 offices of 68 financial groups. This is seven more respondents than in the June 2015 survey. Four institutions re-joined and there were three new participants.

54 of the participants were headquartered across 14 European countries, including Norway and Switzerland, as well as in Australia (2), China (1), Japan (5) and North America (10). 26 respondents were foreign affiliates, most of which were located in the UK. 51 participants were based across 14 of the 28 member states of the EU (there were no institutions in the survey from Finland and Sweden, and only one from a former Accession State). 46 participants were based across 12 of the 19 countries of the eurozone.

Many institutions provided data for their entire European repo business. Others provided separate returns for one or more (but not necessarily all) of their European offices. A list of the institutions that have participated in the ICMA's repo surveys is contained in Appendix B.

1.3 The next survey

The next survey is scheduled to take place at close of business on Wednesday, June 8, 2016.

Any financial institution wishing to participate in the next survey will be able to download copies of the questionnaire and accompanying Guidance Notes from ICMA's web site. The latest forms will be published shortly before the next survey at the following website: **www.icmagroup.org/surveys/repo/participate**.

Questions about the survey should be sent by e-mail to reposurvey@icmagroup.org.

Institutions who participate in a survey receive, in confidence, a list of their rankings in the various categories of the survey.

The aggregate results of the latest two surveys and of the surveys in each June in the four previous years (2011-2015) are set out in Appendix C. The full results of all previous surveys can be found at **www.icmagroup.org**.

Total repo business (Q1)

The total value, at close of business on December 9, 2015, of repos and reverse repos outstanding on the books of the 72 institutions which participated in the latest survey was **EUR 5,607.7 billion**, virtually the same level as in June 2015 (-0.1%). This is much higher than the crisis trough of EUR 4,633 billion in December 2008 but much lower than the pre-crisis peak of EUR 6,775 billion in June 2007.

Table 2.1 - Total repo business from 2001 to 2015

survey	total	repo	reverse repo
2015 December	5,608	47.5%	52.5%
2015 June	5,612	48.0%	52.0%
2014 December	5,500	48.8%	51.2%
2014 June	5,782	48.6%	51.4%
2013 December	5,499	49.2%	50.8%
2013 June	6,076	49.8%	50.2%
2012 December	5,611	49.1%	51.9%
2012 June	5,647	48.7%	51.3%
2011 December	6,204	50.3%	49.7%
2011 June	6,124	50.7%	49.3%
2010 December	5,908	51.0%	49.0%
2010 June	6,979	53.5%	46.5%
2009 December	5,582	50.0%	50.0%
2009 June	4,868	52.2%	47.8%
2008 December	4,633	49.9%	50.1%
2008 June	6,504	48.8%	51.2%
2007 December	6,382	49.4%	50.6%
2007 June	6,775	50.8%	49.2%
2006 December	6,430	50.7%	49.3%
2006 June	6,019	51.7%	48.3%
2005 December	5,883	54.6%	45.4%
2005 June	5,319	52.4%	47.6%
2004 December	5,000	50.1%	49.9%
2004 June	4,561	50.6%	49.4%
2003 December	3,788	51.3%	48.7%
2003 June	4,050	50.0%	50.0%
2002 December	3,377	51.0%	49.0%
2002 June	3,305	50.0%	50.0%
2001 December	2,298	50.4% 49.6%	
2001 June	1,863	49.6%	50.4%

It is important to remember that the survey measures the value of outstanding transactions at close of business on the survey date. Measuring the **stock** of transactions at one date, rather than the **flow** between two dates, permits deeper analysis but is difficult to reconcile with the flow numbers published by some other sources. As the survey is a 'snapshot' of the market, it can miss peaks and troughs in business between survey dates, especially of very short-term transactions.

In addition, the values measured by the survey are gross figures, which mean that they have not been adjusted for the double counting of the same transactions between pairs of survey participants. However, a study (see the report of the December 2012 survey) suggested that the problem of double-counting was not very significant.

Nor does the survey measure the value of repos transacted with central banks as part of official monetary policy operations, which continue to be very substantial.

Although the 'headline' total of the survey decreased by just 0.1% compared to June 2015, it increased by 2.0% year-on-year. However, in order to gauge the growth of the European repo market (or at least that segment represented by the institutions who have participated in the survey), it is not valid to simply compare headline numbers. Some of the changes will represent the entry and exit of institutions into and out of the survey, mergers between banks and the reorganization of repo books within banks. To overcome the problem caused by changes in the sample of survey participants, comparisons are made of the aggregate outstanding contracts reported by a sub-sample of institutions which have participated continuously in several surveys.

Out of the 72 institutions in the present survey, 65 have participated in all of the last three surveys. Overall, the aggregate value of outstanding repos and reverse repos transacted by those 65 institutions shrank by 1.4% between the December and June 2015 surveys, but increased by 3.1% year-on-year.

Despite the overall decrease in the headline number, the repo books of only 31 of the 72 institutions in the survey contracted or did not change, compared to 35 out of 65 repo books in the June 2015 survey. The fact that a minority of participants contracted by more than the majority expanded is reflected in an unweighted mean of the percentage changes in repo books of -1.0% but a median of +1.4%. The standard deviation is about EUR 21 billion. The most extreme reduction in size was EUR 100 billion and the most extreme increase was EUR 61 billion.

The overall decline in the size of the survey was driven mainly by a reduction in repo (cash borrowing), rather than reverse repo (cash lending). The outstanding value of repo has been lower than that of reverse repo since June 2012 and has tended to decline at a faster rate since December 2013. Repo accounted for a record low of 47.5% of the headline total of the latest survey.

Significant among those participants reducing their repo books were G-SIFI (global systemically important financial institutions), which are the banks most intensely impacted by new regulation. There were 24 G-SIFI in the constant sample of 65 banks (including 4 affiliates) out of 29 G-SIFI in total. Nine of the G-SIFI in the constant sample accounted for reductions totaling EUR 285 billion of the gross decrease in repo books, while the other 15 accounted for EUR 160 billion of the gross increase (so the combined contribution of G-SIFI to the total net reduction of EUR 75 billion in the size of the repo books of the constant sample was EUR 125 billion).

The repo books of survey participants headquartered or owned by institutions outside Europe expanded overall (by some EUR 136 billion). They accounted for EUR 161 billion of the gross increase but only EUR 25 billion of the gross decrease in repo books. Within Europe, the repo books of most Spanish banks increased (possibly reflected in further growth in the share of Spanish collateral) but among participants headquartered in other EU countries the picture was mixed.

Survey participants operating in the UK (including foreign-owned institutions) accounted for EUR 14 billion of the overall decrease in the repo books of the constant sample but a sizable share of both gross reductions in repo books (EUR 175 billion) and gross expansions (EUR 189 billion).

The decrease in overall outstanding repo activity measured by the survey suggests a downward trend in the size of the

European repo market, with seasonal (albeit diminishing) fluctuations, since at least 2012. The seasonal fall in market size in the December survey would appear to reflect the impact of end-year reporting for regulatory and tax purposes. End-year effects now include charges to support the resolution funds introduced last year under the EU Banking Recovery and Resolution Directive.

Trading analysis (Q1.1) Table 2.2 – Trading analysis

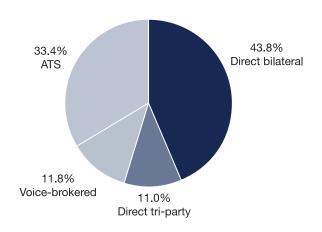
	December 2015		June 2015		December 2014	
	share	users	share	users	share	share
direct	54.8%	72	57.5%	65	54.9%	67
of which tri-party	11.0%	43	10.0%	40	10.5%	43
voice-brokers	11.8%	56	11.8%	53	13.6%	53
ATS	33.4%	53	30.6%	52	31.5%	53

The uptrend in the share of **directly-negotiated** repo observed since 2012 was interrupted in December 2015, principally by a jump in the share of electronically-trade business to 33.4%. However, the absolute level of business reported by the principal automatic repo trading systems (ATS) operating in Europe showed a small decline to EUR 1,038 billion.

Table 2.3 - Numbers of participants reporting particular types of business

	Dec-15	Jun-15	Dec-14	Jun-14	Dec-13	Jun-13
ATS	53	52	53	51	52	53
anonymous ATS	46	45	49	44	47	45
voice-brokers	56	53	53	55	52	53
tri-party repo	43	40	43	44	41	37
total	72	65	67	65	67	65

Figure 2.1 - Counterparty analysis



Geographical analysis (Q1.1)

Table 2.4 - Geographical analysis

	December 2015		June 2015		December 2014	
	share	users	share	users	share	users
domestic	24.5%		23.4%		24.6%	
cross-border to (other) eurozone	18.7%		21.2%		17.2%	
cross-border to (other) non-eurozone	33.2%		34.1%		34.1%	
anonymous	23.6%	46	21.3%	45	24.1%	49

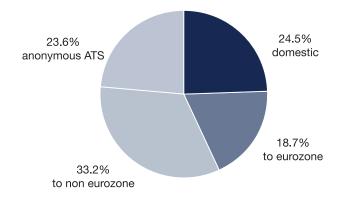
Cross-border business fell back, particularly with eurozone counterparties, largely due to a sharp increase in **anonymous** (ie CCP-cleared) trading but also a recovery, against the trend, in **domestic** business. Some of the fall in cross-border business with eurozone counterparties may be a reaction to the peak reached in June 2015. The growth in CCP-cleared repo was confirmed by data reported directly by ATS, which showed the share of anonymous trading bouncing back to its historic high of 97.9% of all electronic trading. It also grew in absolute terms by 4.4% to EUR 1,016 billion. Post-trade reporting of directly-negotiated and voice-brokered trades to CCPs continued to expand, touching 7.4% from 5.9%, which meant that the share of all CCP-cleared transactions (including the 23.6% that was electronically traded) jumped to 31.0% from 27.2%.

Directly-reported data from ATS showed a shift to domestic business (to 32.4% from 28.9%) but similar data from voice-brokers and tri-party agents showed the reverse: a shift from domestic business (respectively, 35.1% from 37.0% and 36.9% from 38.8%), However, like the survey data, there was a shift to transactions involving non-eurozone parties on at least one side of the transaction. In the case of voice-brokers, transactions between two non-eurozone parties jumped to 19.6% from 11.4% (while the share of other cross-border business dropped to 45.2% from 51.7%). Tri-party repo involving at least one non-eurozone counterparty increased share to 46.4% from 41.7%.

Table 2.5 – Geographical comparisons in December 2015 (June 2015)

	main survey	ATS	tri-party	WMBA
domestic	24.5% (23.4%)	32.4% (28.9%)	36.9% (38.8%)	35.1% (37.0%)
cross-border	51.9% (55.3%)	67.5% (71.1%)	63.0% (61.2%)	64.8% (63.0%)
anonymous	23.6% (21.3%)			

Figure 2.2 - Geographical analysis



Clearing and settlement analysis (Q1.2 and Q1.8)

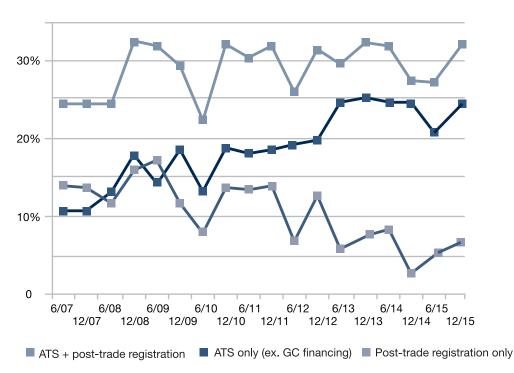
The share of **tri-party** repo recovered to 11.0% from 10.0% but some of this increase may have been due to improvements in reporting by several banks.

The outstanding value of tri-party repo reported directly by the major tri-party agents in Europe (ie all tri-party business, not just by the institutions in the survey) dropped sharply to EUR 850.6 billion from EUR 1,376.0 billion. However, this was largely due to a correction in reporting (of the order of EUR 400 billion) by one of the tri-party agents, who previously been including some securities lending and borrowing transactions. The correction to the total value of tri-party repo business is probably reflected in the sharp drop in the reported share of equity collateral to 7.8% from 25.6%, as most equity collateral is used in securities lending and borrowing rather than repo. The correction may also have reduced the share of open transactions to 43.2% from 58.8% and shifted the distribution of ratings from the unrated category (to 10.0% from 28.2%) to AAA-A (68.1% from 55.0%). In view of the correction, it is difficult to interpret the latest changes with any confidence.

The sample of institutions in the survey remained net borrowers from tri-party counterparties (73% of reported tri-party business was in repo but only 27% in reverse repo) although net borrowing through tri-party repo fell slightly to EUR 310 billion from EUR 323 billion, consistent with the overall switch to higher net lending. In gross terms, tri-party repo funded 17.4% of repo books in the survey (up from 16.4%) and took 5.3% of funds lent through reverse repo (up from 4.1%).

GC financing (mainly through Eurex Repo's Euro GC Pooling facility) dropped to EUR 129 billion from EUR 151 billion, falling to 12.4% from 14.3% of directly-reported electronic repo but increasing to 14.7% from 13.6% of directly-reported tri-party repo. GC financing represented an almost unchanged 4.0% of the outstanding business reported in the survey. It was 3.7% of total repo and 4.1% of total reverse repo, compared with 4.2% and 4.0% in June 2015. This switch to net lending from net borrowing through GC financing is consistent with the overall switch to higher net lending. The absolute value of outstanding GC financing reported in the survey was EUR 218.4 billion, 70% higher than the directly-reported total but the difference is due to double-counting (where two survey participants are counterparties to the same transaction).

Figure 2.3 - Evolution of business cleared across CCP



Cash currency analysis (Q1.3 and Q1.4)

Table 2.6 - Cash currency analysis

	December 2015	June 2015	December 2014
EUR	63.2%	63.4%	63.6%
GBP	12.4%	11.3%	10.9%
USD	16.0%	16.4%	15.1%
DKK, SEK	2.4%	2.4%	2.9%
JPY	5.0%	5.3%	6.3%
CHF	0.1%	0.1%	0.1%
etc	0.9%	1.1%	1.1%
cross-currency	2.6%	2.6%	2.1%

The share of the **euro** in the survey remained steady but increased in directly-reported electronic trading (to 95.4% from 93.5%).

Sterling took an increased share of the survey, directly-reported electronic trading (4.1% from 3.7%) and tri-party repo (4.5% from 3.2%).

The share of the **US dollar** retreated in the survey, as well as in directly-reported electronic trading (to 0.4% from 1.4%), tri-party repo (to 19.1% from 19.4%) and voice-brokered business (to 11.4% from 13.2%).

The share of the **Japanese yen** reversed direction in the latest survey, as well as in voice-brokered business (to 2.5% from 4.1%).

Figure 2.4 - Currency analysis

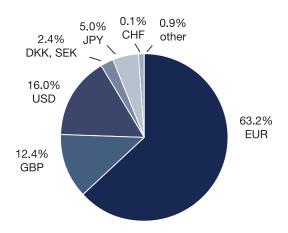


Table 2.7 - Currency comparison in December 2015

(main survey	ATS	tri-party	WMBA
EUR	63.2%	95.4%	74.1%	57.6%
GBP	12.4%	4.1%	4.5%	23.1%
USD	16.0%	0.4%	19.1%	11.4%
DKK, SEK	2.4%	0.0%	0.1%	1.5%
JPY	5.0%		0.9%	2.8%
CHF	0.1%	0.0%	0.2%	2.4%
etc	0.9%	0.1%	1.2%	1.2%
cross-currency	2.6%		16.1%	

Collateral analysis (Q1.9)

Table 2.8 - Collateral analysis

	December 2015	June 2015	December 2014
Germany	20.1%	19.4%	19.1%
Italy	9.6%	9.7%	10.5%
France	10.8%	11.3%	10.5%
Belgium	3.0%	3.2%	2.8%
Spain	6.9%	6.4%	6.5%
other eurozone	6.1%	6.2%	6.5%
UK	12.9%	12.1%	11.5%
DKK, SEK	2.9%	2.9%	3.3%
international financial institutions	1.7%	2.1%	2.2%
US	6.1%	4.6%	2.6%
former Accession countries	0.2%	0.4%	0.4%
Japan	4.9%	4.8%	4.8%
other OECD	5.5%	8.4%	11.2%
other fixed income	9.0%	7.8%	8.2%
equity	0.1%	0.7%	0.1%

3.0% 9.0% Belgium 10.8% Others 1.7% IFI France 5.5% Other **OECD** 4.9% Japan 0.2% Accession 20.1% countries (outside Germany Eurozone) 6.1% US

2.9% DKK,SEK

12.9%

UK

Figure 2.5 - Collateral analysis (main survey)

The share of all **government bonds** within the pool of EU-originated fixed-income collateral reported in the survey recovered to 78.6% from 77.0% (EU bonds in total accounted for 72.6% of the survey). This change was driven by German and UK government securities (respectively, to 16.5% from 14.8% and to 10.6% from 9.7%). It remains difficult to see the net impact of quantitative easing by European central banks.

6.1%

Other

Eurozone

6.9%

Spain

9.6%

Italy

In the latest survey, participants were asked to split their reporting of Japanese and US collateral between government bonds and other collateral. **Japanese** government bonds accounted for 3.2% of the survey and **US** Treasuries for 5.1%. The overall share of **US** collateral increased again, to 6.1% from 4.6%, but the share of **other OECD** collateral fell back to 5.5% from to 8.4%.

Data reported directly by ATS showed little significant change in the collateral composition of electronic trading.

In directly-reported **tri-party repo** business, there was a significant jump in the absolute amount of UK government bonds, as well as of US and Japanese collateral.

Table 2.9 - Tri-party repo collateral analysed by credit rating

	December 2015	June 2015	December 2014
AAA	29.8%	22.8%	30.9%
AA	28.8%	22.8%	33.4%
Α	9.5%	9.4%	9.0%
BBB	13.3%	9.9%	15.6%
below BBB-	4.5%	3.5%	4.2%
A1/P1	3.2%	2.4%	4.4%
A2/P2	0.6%	0.5%	1.6%
Non-Prime	0.4%	0.4%	0.3%
unrated	10.0%	28.2%	0.5%

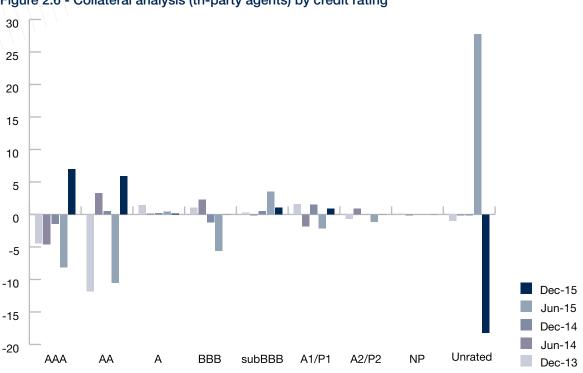


Figure 2.6 - Collateral analysis (tri-party agents) by credit rating

As explained earlier, the improvement in the ratings of collateral directly reported by tri-party agents may reflect a reduction in the share of equity following a reporting correction. However, excluding the agent concerned, there does appear to have been an underlying increase in AAA and A-rated collateral.

Table 2.10 - Tri-party repo collateral analysed by type of asset

	December 2015	June 2015	December 2014
government securities	46.9%	40.3%	40.0%
public agencies / sub- national governments	11.9%	9.2%	10.5%
supranational agencies	2.8%	2.0%	2.3%
corporate bonds	15.0%	12.7%	12.9%
covered bonds	10.0%	7.1%	6.9%
residential mortgage- backed	2.0%	1.5%	1.2%
commercial mortgage- backed	0.2%	0.2%	0.2%
other asset-backed	0.9%	0.6%	0.8%
CDO, CLN, CLO, etc	0.6%	0.3%	0.2%
convertible bonds	0.4%	0.1%	0.1%
equity	7.8%	25.6%	24.5%
other	1.6%	0.5%	0.6%

Figure 2.7 - Historic collateral analysis (tri-party agents) by credit rating

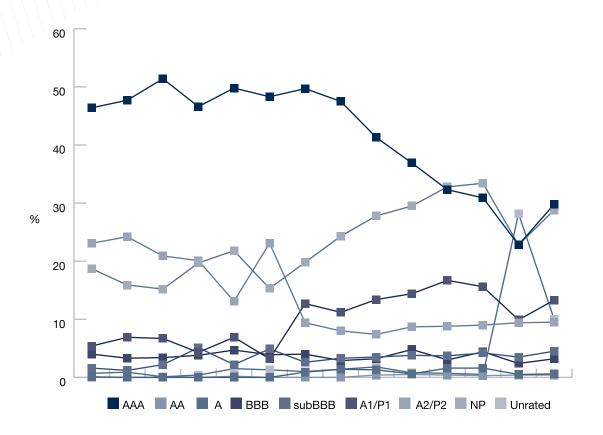
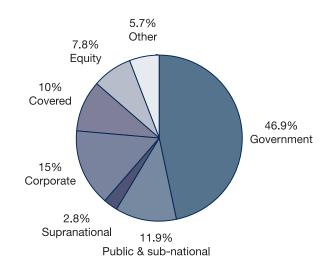


Figure 2.8 - Collateral analysis (tri-party agents) by type of asset



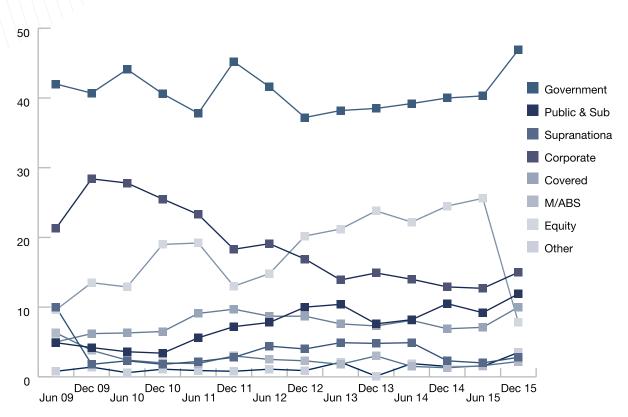


Figure 2.9 - Historic collateral analysis (tri-party agents) by type of asset

Table 2.11 - Tri-party repo collateral haircuts analysed by type of asset

(weighted average haircuts)	December 2015	June 2015	December 2014
government securities	2.6%	2.5%	2.4%
public agencies / sub- national governments	2.7%	2.3%	2.4%
supranational agencies	4.4%	4.2%	4.2%
corporate bonds (financial)			6.4%
corporate bonds (non-financial)	6.6%	6.6%	6.3%
covered bonds	4.9%	4.3%	4.7%
residential mortgage-backed			11.8%
commercial mortgage-backed	10.1%	11.2%	8.1%
other asset-backed	5.7%	5.9%	8.4%
CDO, CLN, CLO, etc	5.6%	7.0%	8.2%
convertible bonds	8.9%	11.7%	15.2%
equity	6.9%	6.0%	6.2%
other	7.5%	8.4%	7.6%

Haircut data remain difficult to interpret given the heterogeneity of securities within each category.

Contract analysis (Q1.5)

Figure 2.10 - Contract analysis

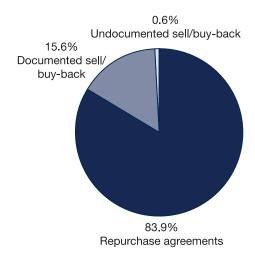


Table 2.12 - Contract comparison in December 2015 (June 2015)

	main survey	ATS	tri-party
repurchase agreements	83.9% (84.0%)	56.3% (50.2%)	100.0%
documented sell/buy- backs	15.6% (15.0%)	43.7% (49.8%)	
undocumented sell/buy- backs	0.6% (1.0%)		

Sell/buy-backs took a larger share of the survey, probably reflecting increased activity by Spanish banks, but there was a decline in the share of sell/buy-backs in directly-reported electronic trading. However this was likely due to the faster growth of electronically-traded repurchase agreements rather than an absolute decline in sell/buy-backs. It seems to be reflected in a fall in the share of Spanish collateral in electronic trading (in contrast to the overall increase in the use of Spanish collateral in the survey and the expansion of the repo books of Spanish banks).

Repo rate analysis (Q1.6) Figure 2.11 - Repo rate analysis

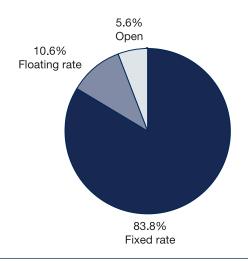


Table 2.13 - Repo rate comparison in December 2015 (June 2015)

/ / '	main survey	ATS	tri-party
fixed rate	83.8% (81.9%)	85.5% (87.1%)	18.3% (17.5%)
floating rate	10.6% (11.5%)	14.5% (12.9%)	0.2% (0.0%)
open	5.6% (6.5%)		81.5% (82.4%)

Maturity analysis (Q1.7)

Table 2.14 - Maturity analysis

	December 2015	June 2015	December 2014
open	5.7%	6.5%	5.9%
1 day	23.5%	20.2%	24.3%
2 days to 1 week	18.9%	20.1%	15.9%
1 week to 1 month	14.3%	19.9%	15.1%
>1 month to 3 months	18.9%	13.0%	19.0%
>3 months to 6 months	4.7%	5.3%	5.9%
>6 months to 12 months	2.8%	3.6%	3.1%
>12 months	1.7%	1.4%	1.5%
forward-start	9.6%	10.0%	9.3%

Figure 2.12 - Maturity analysis (main survey)

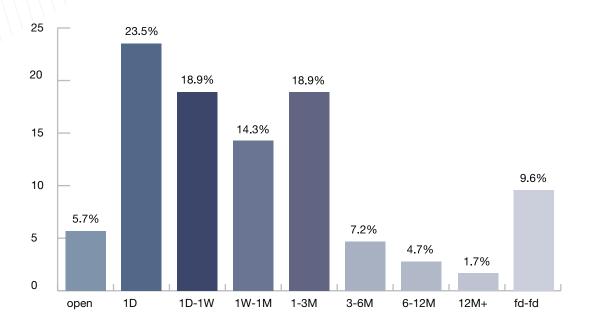
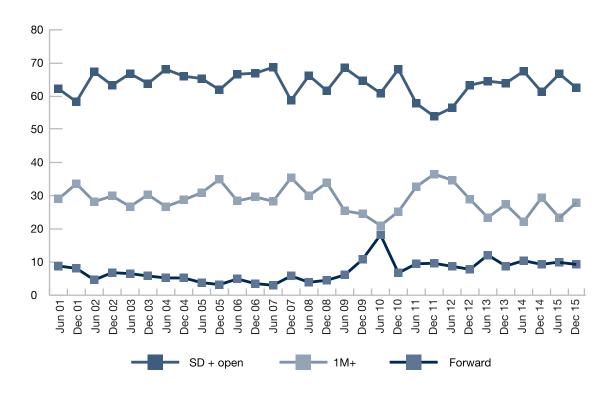


Figure 2.13 - Maturity analysis: short dates, longer terms & forwards (main survey)



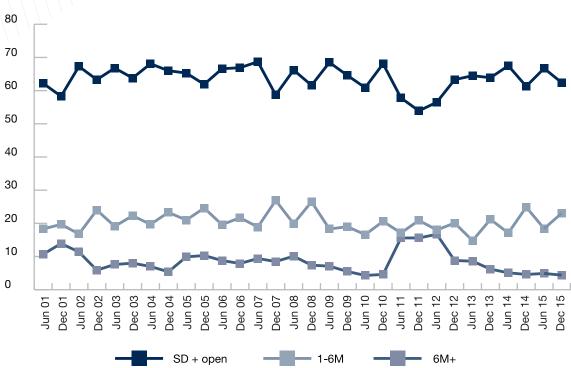
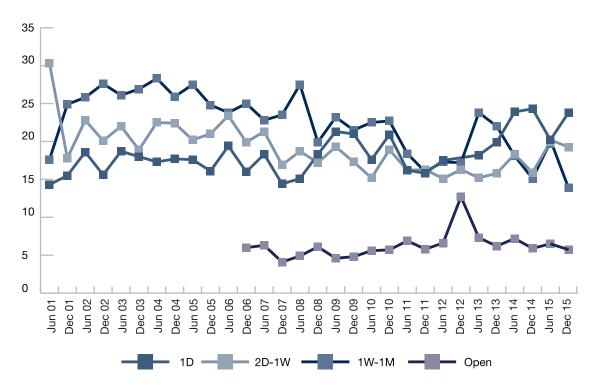


Figure 2.14 - Maturity analysis: non-forward terms (main survey)

Figure 2.15 - Maturity analysis: breakdown of short dates plus open (main survey)



There were the usual seasonal fluctuations in maturities, as banks sought to lock in term funding over the year-end. The share of short-dated transactions fell back to 56.7% from 60.2%, and transactions with one to six months remaining to maturity

increased to 23.6% from 18.3%. The reduction in short dates disguised a sharp recovery in transactions with only one day remaining to maturity, which was also seen in directly-reported electronic and tri-party business (respectively, to 85.7% from 82.8% and to 17.2% from 11.2%). Increased one-day positions helped the weighted average term to maturity to remain almost unchanged at 25-60 days, compared with 25-59 days in June 2015 (the lower end of the range assumes that all transactions have the minimum term in each maturity band: the upper end assumes the maximum term).

Figure 2.16 – Maturity analysis (ATS)

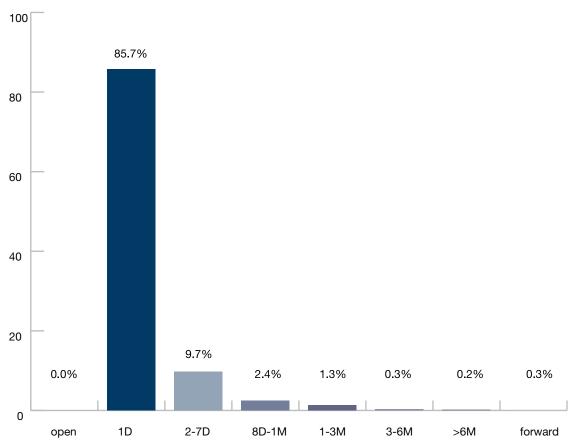


Figure 2.17 - Maturity analysis (tri-party agents)

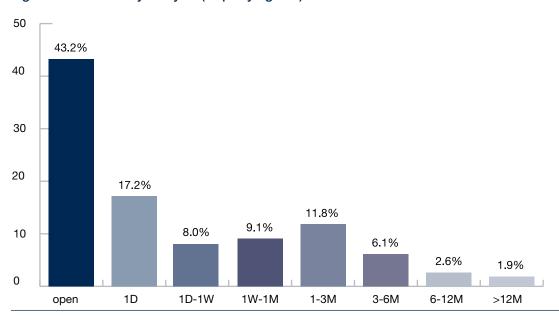


Figure 2.18 - Maturity analysis (voice-brokers)

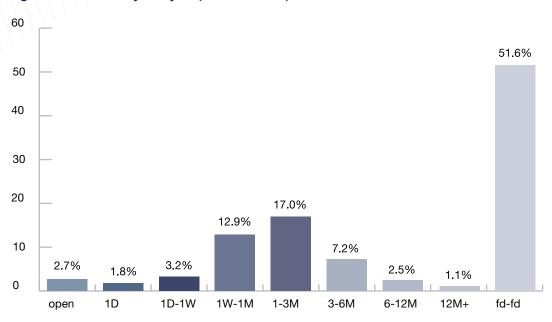


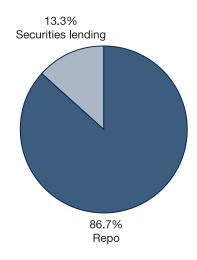
Table 12.15 - Maturity comparison in December 2015

	main survey	ATS	tri-party	WMBA
open	5.7%		43.2% (58.8%)	2.7% (1.7%)
1 day	23.5%	85.7% (82.8%)	17.2% (11.2%)	1.8% (1.5%)
2 days to 1 week	18.9%	9.7% (8.9%)	8.0% (4.5%)	3.2% (5.8%)
1 week to 1 month	14.3%	2.4% (4.1%)	9.1% (6.0%)	12.9% (12.0%)
>1 month to 3 months	18.9%	1.3% (2.4%)	11.8% (11.0%)	17.0% (17.2%)
>3 months to 6 months	4.7%	0.3% (1.0%)	6.1% (4.5%)	7.2% (4.3%)
>6 months to 12 months	2.8%	0.2% (0.6%)	2.6% (2.3%)	2.5% (5.1%)
>12 months	1.7%	0.0% (0.1%)	1.9% (1.8%)	1.1% (0.8%)
forward-start	9.6%	0.3% (0.2%)		51.6% (51.5%)

Product analysis (Q2)

The share of securities lending conducted on repo desks rose again, to 13.3% from 12.0%.

Figure 2.19 - Product analysis

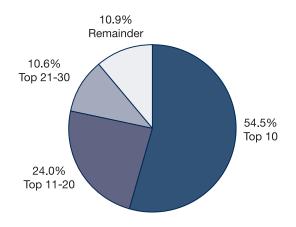


Concentration analysis

Table 2.16 - Concentration analysis

	December 2015	June 2015	December 2014
top 10	54.5%	57.0%	56.0%
top 20	78.5%	79.8%	80.6%
top 30	89.2%	90.9%	91.2%
other	10.8%	9.1%	8.8%

Figure 2.20 - Concentration analysis



Although the apparent degree of concentration of repo business appears high, this does not mean that the largest institutions have commensurate market power. A better measure of market concentration - often used in competition analyses - is the Herfindahl Index.¹ This index shows market concentration falling since 2011.

Table 2.17 - Herfindahl Index

	index	numbers in survey
December 2003	0.045	76
June 2004	0.040	81
December 2004	0.047	76
June 2005	0.043	81
December 2005	0.043	80
June 2006	0.042	79
December 2006	0.050	74
June 2007	0.041	76
December 2007	0.040	68
June 2008	0.044	61
December 2008	0.049	61
June 2009	0.051	61
December 2009	0.065	58
June 2010	0.105	57
December 2010	0.064	57
June 2011	0.074	58
December 2011	0.065	64
June 2012	0.062	62
December 2012	0.054	71
June 2013	0.046	65
December 2013	0.046	67
June 2014	0.046	65
December 2014	0.043	67
June 2015	0.044	65
December 2015	0.041	72

¹ The Herfindahl Index is the sum of the squares of market shares divided by the square of the sum of market shares. The higher the index, the lower the degree of competition. If the index is higher, the more a single institution has a dominant market share and/or the more insignificant the market shares of all the other survey participants. A market in which several institutions have very large market shares can therefore have a relatively low index

CHAPTER 3: CONCLUSION

Activity in the European repo market continues to trend slowly downwards, subject to largely seasonal fluctuations about that trend (which also affect maturities). The unexpected growth seen in the previous survey, which seems to have been driven by opportunistic behavior by a few major banks, looks more than ever like an aberration. In the latest survey, some major banks, particularly G-SIFI, appear to be driving much of the contraction.

It is possible that the downtrend in the European repo market may be decelerating. Other things remaining equal, the post-crisis shrinkage in the market may be bottoming out. The impact of new regulation, to which the downtrend is widely attributed, may be abating, given that banks have been implementing new rules ahead of the official schedules. Most major banks already conform to the new liquidity and leverage regulations. However, there is some uncertainty still about the precise impact of the Net Stable Funding Ratio (NSFR).

The size of repo activity measured by the survey may have declined even further by the end of December (the survey was on 8 December). There was an apparent shortage of high quality collateral at year-end, which was reflected in a sharp drop in the repo rate for German government securities to below -70bp. This was widely attributed to a coincidence of end-year factors, including the Leverage Ratio (which is calculated quarterly) and the imposition of new charges on banks' liabilities to finance the resolution funds. There was also the backdrop of collateral absorption by the ECB's Public Sector Purchase Programme, although the effects are difficult to unravel (on the one hand, collateral is being lent back to the market and the share of government bond collateral in the pool of EU collateral increased in the survey: on the other hand, the survey does not measure the prices of collateral and it took place early in December).

The difficulty in predicting the future evolution of the European repo market is compounded by the different points from which European banks have started, in contrast to banks in the more mature US repo market. And while new liquidity and leverage regulations have reduced repo activity from its pre-crisis highs, an underlying shift from unsecured markets which predated the crisis has accelerated, in part, due to other new regulations, such as the mandatory collateralization of OTC derivatives. The broad secular movement into collateralized transactions is bringing in banks which had previously seen no imperative to adopt repo, as well as new types of participant, particularly non-bank financial institutions. The survey has also shown the expansionary role being played by non-European banks, some of them new entrants to the European market.

One of the fundamental market responses to new regulation and heightened risk aversion has been increasing use of central counterparties (CCP), particularly via electronic trading systems but also through post-trade registration of directly-negotiated and voice-brokered repos. CCP offer multilateral netting and the preferential regulatory treatment of counterparty credit risk. The latest survey confirms the long-term upward trend in CCP-cleared repo.

The recovery in the share of domestic business is more likely to reflect increased activity in London between or with global banks rather than a change in the trend towards the centralization of domestic activity around large banks acting as cross-border intermediaries.

Another response to new regulation may also be evident in the further increase in the overall net lending position of the survey sample, largely as a result of a continued reduction in gross repo positions.

The latest survey has suffered a glitch in reporting in the form of a correction to the size of tri-party repos reported directly by tri-party agents. A considerable share of tri-party repos turned out to be securities lending. The correction has disrupted the tri-party repo series. It also demonstrates the challenge, when collecting data in large quantities, of interpreting that data into the categories required by the survey, which may not have been needed for management of the underlying business and were not therefore historically used for proprietary analysis. Such challenges require time and much investment to overcome.

The broad range of changes seen in repo books between surveys also argues for caution in interpreting short-term changes in banks' activity.

For the first time, participants were asked to identify Japanese and US government bonds. Japanese government bonds accounted for 3.2% of total collateral and US Treasuries for 5.1%. However, the initial figures in any series need to be treated with caution, as it takes time for all participants to respond to new questions. The eventual figures could therefore well be higher.

ABOUT THE AUTHOR

This report was compiled by Richard Comotto, who is a Senior Visiting Fellow at the ICMA Centre at the University of Reading in England, where he is responsible for the FX and money markets module of the Centre's postgraduate finance programme. He is also Course Director of the ICMA Professional Repo Market Course conducted in Europe and Asia in co-operation with the ACI and AFME/ASIFMA, and of the ICMA-ISLA GMRA-GMSLA Workshop.

The author acts as an independent consultant providing research, advice and training on the international money, securities and derivatives markets to professional market associations, government agencies, regulatory authorities, international financial institutions, banks, brokers and financial information services. This includes advising technical assistance missions by the IMF and World Bank to build repo markets in emerging economies.

The author has written a number of books and articles on a range of financial topics, including the foreign exchange and money markets, swaps and electronic trading systems. He takes particular interest in the impact of electronic trading systems on the bond and repo markets. Following the financial crisis, he has been advising the ICMA's European Repo Council on regulatory initiatives and has produced a series of papers: in July 2010, a 'White paper on the operation of the European repo market, the role of short-selling, the problem of settlement failures and the need for reform of the market infrastructure'; in September 2011, 'Interconnectivity of central and commercial bank money in the clearing and settlement of the European repo market'; in February 2012, 'Haircuts and Initial Margins in the Repo Market'; in March 2012, 'Shadow Banking and Repo'; and in 'Collateral damage: the impact of the Financial Transaction Tax on the European repo market' in April 2013. He writes on repo market topics on the ICMA Centre blog at **icmacentre.wordpress.com/** and is author of the ICMA's 'Repo FAQs' and the ICMAVERC 'Guide to Best Practice in the European Repo Market'.

The author served for ten years at the Bank of England, within its Foreign Exchange Division and on secondment to the International Monetary Fund in Washington DC.

The following extract is based on the Guidance Notes issued to participants in conjunction with the survey that took place on Wednesday, December 9, 2015.

The data required by this survey are: the total value of the repos and reverse repos booked by your repo desk that are still outstanding at close of business on Wednesday, December 9, 2015, and various breakdowns of these amounts.

Branches of your bank in other countries in Europe may be asked to complete separate returns. If your repo transactions are booked at another branch, please forward the survey form to that branch. If branches of your bank in other countries run their own repo books, please copy the survey form to these branches, so that they can also participate in the survey. Please feel free to copy the survey form to other banks, if you discover that they have not received it directly.

Guidance Notes General guidance

- a) Please fill in as much of the form as possible. For each question that you answer, you will receive back your ranking in that category.
- b) If your institution does not transact a certain type of repo business, please enter 'N/A' in the relevant fields. On the other hand, if your institution does that type of business but is not providing the data requested by the survey, please do not enter anything into the relevant field. If your institution does that type of business but has no transactions outstanding, please enter zero into the relevant field.
- c) You only need to give figures to the *nearest million*. However, if you give figures with *decimal points*, please use full stops as the symbols for the decimal points, *not* commas. For *nil* returns, please use zeros, *not* dashes or text.
- d) Please do not re-format the survey form, ie change its lay-out, and do not leave formulae in the cells of the underlying spreadsheet.
- e) Include all repurchase agreements (classic repos), sell/buy-backs and similar types of transaction (e.g. pensions livrées). There is a separate question (see question 2) on securities lending and borrowing transactions (including securities lending and borrowing against cash collateral).
- f) Exclude repo transactions undertaken with central banks as part of their official money market operations. Other repo transactions with central banks, e.g. as part of their reserve management operations, should be included.
- g) Give the value of the *cash* which is due to be repaid on all repo and reverse repo contracts (*not* the market value or nominal value of the collateral) that are still *outstanding* at *close of business on Wednesday, December 9, 2015*. This means the value of transactions at their repurchase prices.
- h) "Outstanding" means repos and reverse repos with a repurchase date, or which will roll over, on or after Thursday, December 10, 2015. You should include all *open repos and reverse repos* that have been rolled over from Wednesday, December 9, 2015, to a later date and all *forward-forward repos and reverse repos* that are still outstanding at close on Wednesday, December 9, 2015.
- i) Give separate totals for (a) repos plus sell/buy-backs and (b) reverse repos plus buy/sell-backs.
- j) The survey seeks to measure the value of repos and reverse repos on a transaction date basis, rather than a purchase date basis. This means that you should include all repo and reverse repo contracts that have been agreed **before** close of business on Wednesday, December 9, 2015, even if their purchase dates are later.
- k) Give *gross* figures, i.e. do *not* net opposite transactions with the same counterparty. If this is not possible, please indicate that your figures are net.
- I) In the case of equity repo, for synthetic structures, please give the value of the cash payment.

Guidance on specific questions in the survey form

- 1.1 Transactions (1.1.1) direct with counterparties or (1.1.2) through voice-brokers should exclude all repos transacted over an ATS (see below). These should be recorded under (1.1.3).
- (1.1.2) Transactions through voice-brokers should be broken down in terms of the location of the counterparties, rather than the location of the voice-brokers.
- (1.1.3) "ATSs" are automatic trading systems (e.g. BrokerTec, Eurex Repo and MTS, but not voice-assisted electronic systems such as e-speed and GFInet). Transactions through voice-assisted systems should be included in (1.1.2). Anonymous transactions through an ATS with a central counterparty (e.g. CC&G, LIFFE-Clearnet, MEFF and Eurex Clearing) should be recorded in (1.1.3.4) and (1.1.3.5). GC financing systems in (1.1.3.4) are those ATS that are connected to a CCP and a tri-party repo service. Examples include Eurex Euro GC Pooling and LCH-Clearnet's €GC Plus basket traded on Brokertec and MTS. They do not include GC basket trading on ATS. This activity may be cleared across a CCP but does not involve a tri-party service, and should be recorded in (1.1.3.5).
- 1.2 This item includes all the transactions recorded in (1.1.3) **plus** any transactions executed directly with counterparties and via voice-brokers which are then registered with and cleared through a central counterparty.
- "Repurchase agreements" (also known as "classic repos") include transactions documented under the Global Master Repurchase Agreement (GMRA) 1995, the Global Master Repurchase Agreement (GMRA) 2000 or the Global Master Repurchase Agreement (GMRA) 2011 without reference to the Buy/Sell-Back Annexes, and transactions documented under other master agreements. "Sell/buy-backs" are therefore taken to include all transactions that are not documented. Repurchase agreements include pensions livrées. Repurchase agreements are characterised by the immediate payment by the buyer to the seller of a manufactured or substitute payment upon receipt by the buyer of a coupon on the collateral held by the buyer. If a coupon is paid on collateral during the term of a sell/buy-back, the buyer does not make an immediate manufactured or substitute payment to the seller, but reinvests the coupon until the repurchase date of the sell/buy-back and deducts the manufactured or substitute payment (plus reinvestment income) from the repurchase price due to be received from the seller. Sell/buy-backs may be quoted in terms of a forward price rather than a repo rate. Where sell/buy-backs are documented (e.g. under the Buy/Sell-Back Annexes to the GMRA 1995, GMRA 2000 or GMRA 2011), periodic adjustments to the relative amounts of collateral or cash which, for a repurchase agreement, would be performed by margin maintenance transfers or payments are likely to be made by early termination and adjustment or re-pricing. All open repos are likely to be repurchase agreements.
- Open repos are defined for the purposes of this survey as contracts that have no fixed repurchase date when negotiated but are terminable on demand by either counterparty. This item should be equal to item (1.6.3). Open repos should, in theory, be floating-rate, but in practice are often re-fixed irregularly, so are being treated separately from floating-rate repo (1.6.2).
- 1.7 This section asks for the *remaining* term to maturity (not the original term to maturity) of repos to be broken down as follows:
 - (1.7.1.1) 1 day this means:
 - all contracts transacted prior to Wednesday, December 9, 2015, with a repurchase date on Thursday, December 10, 2015;
 - overnight, tom/next, spot/next and corporate/next contracts transacted on Wednesday, December 9, 2015.
 - (1.7.1.2) 2–7 days this means:
 - all contracts transacted prior to Wednesday, December 9, 2015, with a repurchase date on Friday, June 11, 2015, or any day thereafter up to and including Wednesday, June 16, 2015;
 - contracts transacted on Wednesday, December 9, 2015, with an original repurchase date on Friday, June 11, 2015, or any day thereafter up to and including Wednesday, June 16, 2015 (irrespective of the purchase date, which will vary).

- (1.7.1.3) More than 7 days but no more than 1 month this means:
 - all contracts transacted prior to Wednesday, December 9, 2015, with a repurchase date on Thursday, December 17, 2015, or any day thereafter up to and including Monday, January 11, 2016;
 - contracts transacted on Wednesday, December 9, 2015, with an original repurchase date on Thursday, December 17, 2015, or any day thereafter up to and including Monday, January 11, 2016 (irrespective of the purchase date, which will vary).
- (1.7.1.4) More than 1 month but no more than 3 months this means:
 - all contracts transacted prior to Wednesday, December 9, 2015, with a repurchase date on Tuesday, January 12, 2015, or any day thereafter up to and including Wednesday, March 9, 2016;
 - contracts transacted on Wednesday, December 9, 2015, with an original repurchase date on Tuesday, January 12, 2015, or any day thereafter up to and including Wednesday, March 9, 2016 (irrespective of the purchase date, which will vary).
- (1.7.1.5) More than 3 months but no more than 6 months this means:
 - all contracts transacted prior to Wednesday, December 9, 2015, with a repurchase date on Thursday, March 10, 2016, or any day thereafter up to and including Thursday, June 9, 2016;
 - contracts transacted on Wednesday, December 9, 2015, with an original repurchase date on Thursday, March 10, 2016, or any day thereafter up to and including Thursday, June 9, 2016 (irrespective of the purchase date, which will vary).
- (1.7.1.6) More than 6 months but no more than 12 months this means;
 - all contracts transacted prior to Wednesday, December 9, 2015, with a repurchase date on Friday, June 10, 2016, or any day thereafter up to and including Friday, December 9, 2016;
 - contracts transacted on Wednesday, December 9, 2015, with an original repurchase date on Friday, June 10, 2016, or any day thereafter up to and including Friday, December 9, 2016 (irrespective of the purchase date, which will vary).
- (1.7.1.7) More than 12 months this means;
 - all contracts transacted prior to Wednesday, December 9, 2015, with a repurchase date on Monday, December 12, 2016, or any day thereafter;
 - contracts transacted on Wednesday, December 9, 2015, with an original repurchase date on or after Monday, December 12, 2016 (irrespective of the purchase date, which will vary).
- (1.7.2) For repos against collateral that includes a transferable security regulated under the EU MiFID and that have been executed on a MiFIR-regulated trading venue, and where a firm is following the ICMA recommendation to anticipate the T+2 settlement deadline to be imposed in 2016 under the EU CSD Regulation (CSDR), forward-forward repos are defined for the purposes of this survey as contracts with a purchase date of Monday, December 14, 2015, or later. There is therefore an overlap with corporate/next transactions. If the latter cannot be identified separately, it is accepted that they will be recorded as forward-forward repos. It does not matter than many repos may actually be traded for T+1 (ie a purchase date of Thursday, December 10). For repos transacted in the OTC market or against collateral not regulated under MiFID, the definition of forward-forward may be different.
- (1.7.3) Open repos in this field should equal open repos in item (1.6.3).

- 1.8 Please confirm whether the transactions recorded in the various questions in (1.6 and 1.7) include your tri-party repo business. Some institutions do not consolidate their tri-party repo transactions with their direct or voice-brokered business because of delays in receiving reports from tri-party agents or the complexity of their tri-party business.
- 1.9 Eurobonds should be included as fixed income securities issued "by other issuers" in the countries in which the bonds are issued. This will typically be Luxembourg (1.9.10) and the UK (1.9.15). Equity collateral should be recorded in (1.9.29).
 - (1.9.20) "Official international financial institutions, including multilateral development banks" include:

African Development Bank (AfDB)

Asian Development Bank (AsDB)

Caribbean Development Bank (CDB)

Central American Bank for Economic Integration (CABEI)

Corporación Andina de Fomento (CAF)

East African Development Bank (EADB)

European Bank for Reconstruction and Development (EBRD)

European Commission (EC)/European Financial Stability Mechanism (EFSM)

European Financial Stability Facility (EFSF)

European Investment Bank (EIB)

European Stabilisation Mechanism (ESM)

Inter-American Development Bank Group (IADB)

International Fund for Agricultural Development (IFAD)

Islamic Development Bank (IDB)

Nordic Development Fund (NDF)

Nordic Investment Bank (NIB)

OPEC Fund for International Development (OPEC Fund)

West African Development Bank (BOAD)

World Bank Group (IBRD and IFC)

- (1.9.22) Eurodollar and US dollar global bonds should be treated as bonds issued "by other issuers" in the countries in which the bonds were issued. This will typically be Luxembourg (1.9.10) and the UK (1.9.15).
- (1.9.25) "Other OECD countries" are Australia, Canada, Chile, Iceland, Israel, Korea, Mexico, New Zealand, Norway, Switzerland and Turkey.
- (1.9.26) "Other non-OECD European, Middle Eastern & African countries" should exclude any EU countries.
- (1.9.29) "Equity" includes ordinary shares, preference shares and equity-linked debt such as convertible bonds.

- 2 "Total value of securities loaned and borrowed by your repo desk" includes the lending and borrowing of securities with either cash or securities collateral. Exclude any securities lending and borrowing done by desks other than your repo desk. If your repo desk does not do any securities lending and borrowing, this line will be a nil return.
- 3 "Active" means about once a week or more often.

For further help and information

If, having read the Guidance Notes, you have any further queries, please e-mail the ICMA Centre at **reposurvey@icmagroup.org** or contact one of the following members of the ERCC Steering Committee:

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This survey is being conducted by the ICMA Centre, University of Reading, UK, at the request of ICMA's European Repo and Collateral Council (ERCC).

APPENDIX B: SURVEY PARTICIPANTS

The participants in previous repo surveys are listed below. Company names provided here are as supplied by those involved in producing the survey. Names of ICMA member firms may not, therefore, precisely reflect the manner in which they are published in ICMA's Members' Register.

List of respondents	Jun- 06	Dec-	Jun- 07	Dec-	Jun- 08	Dec-	Jun- 09	Dec-	Jun-	Dec-	Jun- 11	Dec-	Jun- 12	Dec-	Jun-	Dec-	Jun- 14	Dec-	Jun- 15	Dec-
ABN Amro Bank	×	×	X	X	×	X	×					×	×	X	×	×	×	×	X	X
Allied Irish Banks	×	×	×	×	×	X	×	X	×				×	X	×	×	×	×	X	×
AXA Bank Europe	Х	Х	X	X			X		×	Х		X	X	Х	X	×	×	Х	X	X
Banc Sabadell													×	X	×	×	×	Х	X	×
Banca d'Intermediazione Mobiliare (IMI)																×	×	Х	×	×
Banca Monte dei Paschi di Siena	×	×	×	×	×	×	×	×	×	×	Х	×	×	×	×	×	×	×	×	×
Banco BPI																Х	×	Х	X	×
Banco Nazional del Lavoro	×																			
Banco Santander	×	×	×	Х	×	Х	×	Х	×	×	Х	×	×	Х	×	Х	×	×	Х	×
Bank Austria (also known as UniCredit Bank Austria)	×	×	Х	Х		х		х								х		Х	х	Х
Bank fuer Arbeit und Wirtschaft und Oesterreichische Postsparkasse (Bawag)	×	×	X	Х	Х	Х	X	Х	X	×	Х	X	Х	Х		×	Х	×	Х	X
Bank of America (merged to become Bank of America Merrill Lynch)	×	×	х																	
Bank of Ireland	Х	Х	Х	Х	X	Х			X	Х	Х			Х	X	х	×	Х	Х	Х
Bank Przemyslowo-Handlowy SA	Х	Х	Х	Х		Х			×		Х	×	×	Х						
Landesbank Berlin	×	Х	Х	Х	×	Х	×	Х	×	Х	Х	×	×	Х						
Banque de Luxembourg	Х	Х	×	×	×	X	Х	X	×	×	X	Х	×	X	×	х	×	Х	X	×
Banque et Caisse d'Epargne de l'Etat	Х	Х	×	×	×	Х	Х	X	×	×	X	Х	×	Х	×	х	×	Х	X	×
Barclays Capital	X	×	×	×	×	×	×	×	×	×	Х	×	×	×	×	Х	×	×	×	×
Bayerische Landesbank	×	×	Х	X	×	Х	×	X	×	Х	Х	×	×	Х	×	×	×	Х	X	X
BBVA	×	×	×	×	×	×	×	×	×	×	×	×		×		×	×	×	×	×
BHF-Bank	×	×	X	X	×	X	×	X	×	X	X		×	X	×	×				
BHF-Bank International	×		X	X	×	Х	×	X	×	X	Х	×	×	Х						
BNP Paribas	×	×	×		×	X	×	Х	×	X	X	×	×	X	X	×	×	×	Х	X
Bundesrepublik Deutschland Finanzagentur	×	×	X	X	×	Х		Х	Х	X	X	X	X	X	X	X	X	X	X	X
Caixa Bank												Х	×	X	×	х	×	Х	X	×
Caixa d'Estalvis de Catalunya			×	×	×	X	Х	X		×	X	Х	×	X	×	х	×		X	×
Bankia SA (formerly Caja de Ahorros y Monte de Piedad de Madrid (Caja Madrid))	X	×	х	X	X	X	X	Х	Х	Х	Х	X	X	X	X	X	X	X	X	X
CA-CIB (formerly Calyon)	Х	Х	X	×	Х	×	Х	Х	Х	×	×	Х	Х	×	Х	×	Х	Х	Х	×
Capitalia	Х																			
NATIXIS Zweigniederlassung Deutschland	Х		Х	×	Х	×														
Citigroup Global Markets Ltd	Х	Х	×	×	Х	×	Х	Х	Х	×	×	Х	Х	×	Х	×	Х	Х	Х	×
Commerzbank	×	×	×	Х	×	Х	×	Х	×	×	Х	×	×	Х	×	×	×	×	Х	×

APPENDIX B: SURVEY PARTICIPANTS

List of respondents	Jun- 06	Dec-	Jun- 07	Dec- 07	Jun- 08	Dec- 08	Jun- 09	Dec-	Jun-	Dec-	Jun- 11	Dec-	Jun- 12	Dec-	Jun- 13	Dec-	Jun- 14	Dec-	Jun- 15	Dec-
Canadian Imperial Bank of Commerce and Credit (CIBC)									Х	х		×	×	х	Х	×	×	×	Х	×
Confederación Española de Cajas de Ahorros (CECA)	×	×	Х	Х	Х	Х	Х	X	Х	Х	Х	Х	Х	Х	Х	Х	х	X	×	×
Credit Suisse Securities (Europe) Ltd	×	×	Х	Х	×	Х	X	X	X	Х	Х	Х	Х	Х	Х	×	X	X	×	Х
Danske Bank			Х	X	×	Х	X	Х	X	X	Х	X	Х	Х	Х	×	×	×	×	Х
Daiwa Securities SMBC Europe	Х	×	Х	X	×	Х	X	Х	X	Х	Х	Х	Х	Х	Х	×	×	X	×	Х
Dekabank Deutsche Girozentrale														Х	Х	×	×	×	×	Х
Den Norkse Bank																				Х
DePfa ACS	×	Х	Х	X																
Deutsche Bank	×	×	X	Х	×	Х	X	×	X	Х	Х	×	Х	Х	Х	×	×	×	×	×
Deutsche Postbank	×	×	X	×	×	Х	X	X	X	Х	Х	X	Х	Х	Х	×	×	×	×	×
Belfius Bank (formerly Dexia)	×	×	X	Х	×	Х	×	×	×	Х	Х	Х	Х	Х	Х	×	×	×	×	×
Dexia BIL	×	×		×																
Dexia Kommunal Bank Deutschland	Х	×	Х	Х	×	Х	X	Х	Х		Х		Х	Х						
Dresdner Bank	×	×	×	×	×	×														
DZ Bank	×	×	×	×	×	×	×	×	×	×	Х	×	×	×	×	×	×	×	×	×
EFG Eurobank Ergasias	×	Х	X	×	×	X	×	×		×	Х	×	×	X	X	×	×	×		Х
Erste Bank der Oesterreichischen Sparkassen	×	×	Х	х	х	Х	Х	Х	Х	Х	Х	х	х	Х	Х	х	×	Х	Х	X
Euroclear Bank	Х	×	×	×	×	X	×	×	×	×	X	×	×	X	×	×	×	×	×	Х
Eurohypo	×	×																		
Hypothekenbank Frankfurt International (formerly Eurohypo Europäische Hypothekenbank)		×	Х	Х	Х	Х	х	Х	х	Х	Х	Х	Х	Х	Х	Х	х			
Fortis Bank	×	×	×	×	×	×	×	×	×	×	Х	×	×	×	×	×	×	×	×	×
Goldman Sachs	X	×	×	×	×	×	×	×	×	×	X	×	×	×	×	×	×	×	×	×
Halifax Bank of Scotland	Х																			
HSBC				×		×	×	×	×	×	Х	×	×	×	×	×	×	×	×	×
HSBC France	×	×	X	×	×	×	X	×												
HSH Nordbank																				×
Bayerische Hypo-und-Vereinsbank	×	×	×	×	×	×	×	×	×	×	Х	×	×	Х	×	×	×	×	×	×
ICBC Standard Bank																				Х
ING Bank	Х	×	×	×	×	×	×	×		×	Х	×	×	×	×	×	×	×	×	×
ING Belgium	X	×																		
Intesa SanPaolo	Х	Х		Х	Х	Х	X	Х	X	×	Х	Х	Х	Х	×	Х	Х	×	Х	Х
Jefferies International Ltd												Х		Х	×	Х	Х	×	Х	×
JP Morgan	Х	Х	×	Х	Х	Х	×	Х	X	×	Х	Х	Х	Х	×	Х	Х	×	Х	Х
Jyske Bank																		×		
KBC	Х	Х	×	Х	Х		X		X	×			Х	Х	×	Х	Х	×	Х	×
KfW	×	Х	Х	×	Х						Х	×		Х	X	Х	×	×	×	Х

APPENDIX B: SURVEY PARTICIPANTS

List of respondents	Jun- 06	Dec- 06	Jun- 07	Dec- 07	Jun- 08	Dec- 08	Jun- 09	Dec- 09	Jun- 10	Dec-	Jun- 11	Dec- 11	Jun- 12	Dec- 12	Jun- 13	Dec- 13	Jun- 14	Dec-	Jun- 15	Dec- 15
Kingdom of Belgium Federal Public Service Debt Agency	X	×	х	×	×	х	×	×	×	×	х	×	×	х	×	×	Х	×	х	×
Landesbank Baden-Württemberg, Stuttgart	X	Х	Х	X	×	Х	X	Х	X	X	Х	Х	Х	Х	Х	Х	Х	X	Х	×
Landesbank Hessen-Thüringen - Girozentrale (Helaba)	х	X	х	х	х		х	х	Х	Х	х	х	х	х	Х	х	Х	Х	х	×
Landesbank Rheinland Pfalz	X	Х	Х																	
Landesbank Sachsen Girozentrale	Х	Х	Х																	
Lehman Brothers	X	Х	Х	X	×															
Macquarie Bank											Х	Х	X	Х	Х	Х	×	Х	Х	Х
Bank of America Merrill Lynch	X		Х	X	Х	Х	X	Х	Х	Х	Х	Х	X	Х	Х	Х	×	Х	Х	Х
Mitsubishi Securities International						Х	Х	×	X	Х	Х	Х	Х	Х	Х		×	Х	Х	
Mizuho International	X	×	Х	×	×	Х	X	×	X	Х	Х	Х		Х	Х	×	×	Х	Х	×
Morgan Stanley	Х	×	×	×	×	×	×	×	×	×	Х	×	×	×	×	Х	×	×	Х	×
National Australia Bank																				×
National Bank of Greece	X	×	×			×	×													
Newedge												X		X	X					
Nomura International	X	X	X	×	X	X	×	×	X	X	X	X	×	X	X	Х	×	X	X	Х
Norddeutsche Landesbank Girozentrale	X	×	Х	×	×	X									X	Х	×	×	Х	Х
Nordea Markets	X	X	X	×	X	X	×	×	X	X	X	X	×	X	X	Х	Х	X	X	
Norinchukin Bank	X	×	×				×	×	×	×	×	×	×	×	×	Х	×	×	×	×
Nova Ljubljanska Banka d.d.			X	×			×	×		×	Х	X	×	X	X	Х		×		×
Piraeus Bank																				×
Rabobank	X	×	Х	×	×	X	×	×	×	×	Х	X	×	Х	X	Х	×	×	Х	Х
Royal Bank of Canada												×		×			×	×	×	×
Royal Bank of Scotland	X	×	Х	×	×		Х	×	X	Х	Х	Х	Х	Х	Х	×	×	Х	Х	×
RBI	Х	×	×			×	×	×	×			×		×						
Sal. Oppenheim Jr.			×																	
Sampo Bank		×																		
Société Générale	X	×	×	×	×	×	×	×	×	×	×	×	×	×	×	Х	×	×	×	×
Toronto Dominion Bank															×	×		×	×	×
UBS	Х	×	×	×	×	×	×	×	×	×	×	×	×	X	×	Х	×	×	×	×
Ulster Bank		×																		
UniCredit/Bayerische Hypo-un- Vereinsbank Milano Branch	×	Х	Х	х	х	Х	Х	Х	Х	Х	Х	х	х	Х	Х	×	Х	Х	х	×
Westdeutsche Landesbank Girozentrale	X	Х	X	X	×		X				X									
Zagrabacka Banka	X		X																	
-																				
entry	5	3	8	3	1	6	7	2	5	3	5	10	5	9	8	4	2	4	0	6
exit	6	8	6	11	8	6	7	5	6	3	4	4	7	0	2	2	4	2	2	1
	79	74	76	68	61	61	61	58	57	57	58	64	62	71	65	67	65	67	65	70

	Dec 11	Dec 12	Dec 13	Dec 14	Jun 15	Dec 15
Q1 What are the total gross values of cash due to be repaid by you and repaid to you on repo transactions maturing after survey date? (figures in EUR billions)	6,127	5,611	5,499	5,500	5,612	5,608
Of the amounts given in response to question (1) above:						
1.1 How much was transacted:						
direct with counterparties						
• in the same country as you	16.3%	14.0%	15.5%	14.7%	14.2%	14.2%
• cross-border in (other) eurozone countries	10.6%	11.7%	12.5%	11.3%	13.8%	12.3%
• cross-border in non-eurozone countries	22.8%	25.3%	25.2%	28.9%	29.6%	28.4%
through voice-brokers						
• in the same country as you	11.9%	9.4%	7.5%	6.3%	5.1%	5.3%
• cross-border in (other) eurozone countries	4.0%	3.6%	3.5%	3.5%	3.2%	3.0%
• cross-border in non-eurozone countries	4.4%	3.3%	4.1%	3.8%	3.5%	3.4%
on ATSs with counterparties						
• in the same country as you	5.7%	6.3%	3.1%	3.7%	4.1%	5.0%
• cross-border in (other) eurozone countries	3.2%	3.7%	2.0%	2.3%	4.2%	3.3%
• cross border-border in non-eurozone countries	3.2%	3.0%	1.6%	1.4%	1.0%	1.4%
anonymously across a GC financing system			4.2%	5.6%	4.1%	4.0%
anonymously across a central clearing counterparty but not GC financing	17.9%	19.8%	20.6%	18.5%	17.2%	19.6%
1.2 Total through a central clearing counterparty	32.0%	31.7%	30.9%	27.4%	27.2%	31.0%
1.3 How much of the cash is denominated in:						
• EUR	59.8%	61.4%	66.3%	63.6%	63.4%	63.2%
• GBP	11.5%	13.3%	10.2%	10.9%	11.3%	12.4%
• USD	17.1%	17.3%	14.8%	15.1%	16.4%	16.0%
• SEK, DKK	2.0%	2.1%	2.5%	2.9%	2.4%	2.4%
• JPY	7.0%	4.5%	4.9%	6.3%	5.3%	5.0%
• CHF	1.5%	0.1%	0.1%	0.1%	0.1%	0.1%
• other currencies	1.0%	1.3%	1.3%	1.1%	1.1%	0.9%

	Dec 11	Dec 12	Dec 13	Dec 14	Jun 15	Dec 15
1.4 How much is cross-currency?	3.0%	2.1%	0.9%	2.1%	2.6%	2.6%
1.5 How much is:						
• classic repo	87.0%	87.2%	86.0%	85.0%	84.0%	83.9%
documented sell/buy-backs	9.7%	10.8%	12.4%	12.9%	15.0%	15.6%
undocumented sell/buy-backs	3.3%	2.0%	1.6%	2.1%	1.0%	0.6%
1.6 How much is:						
• fixed rate	84.2%	74.7%	78.8%	84.5%	81.9%	83.8%
• floating rate	9.7%	7.8%	8.6%	9.6%	11.5%	10.6%
• open	6.0%	17.4%	12.6%	5.9%	6.5%	5.6%
1.7 How much repo is for value before (survey date)and has a remaining term to maturity of:						
• 1 day	15.8%	17.0%	19.9%	24.3%	20.2%	23.5%
• 2 - 7days	16.3%	16.3%	15.8%	15.9%	20.1%	18.9%
• more than 7 days but no more than 1 month	16.0%	17.2%	22.0%	15.1%	19.9%	14.3%
more than 1 month but no more than 3 months	16.5%	16.0%	16.6%	19.0%	13.0%	18.9%
more than 3 months but no more than 6 months	4.3%	4.1%	4.6%	5.9%	5.3%	4.7%
• more than 6 months	2.9%	2.9%	3.1%	3.1%	3.6%	2.8%
• more than 12 months	12.7%	5.9%	3.1%	1.5%	1.4%	1.7%
forward-forward repos	9.6%	7.8%	8.8%	9.3%	10.0%	9.6%
• open	5.8%	12.7%	6.2%	5.9%	6.5%	5.7%
1.8 How much is tri-party repo:	11.4%	9.5%	9.9%	10.5%	9.3%	11.0%
• for fixed terms to maturity	87.7%	91.9%	95.1%	97.4%	99.2%	94.2%
• on an open basis	12.3%	12.6%	4.7%	2.6%	8.2%	5.8%
1.9 How much is against collateral issued in:						
Austria						
by the central government	1.4%	0.9%	1.0%	0.9%	0.9%	0.8%
• by other issuers	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

	Dec 11	Dec 12	Dec 13	Dec 14	Jun 15	Dec 15
Belgium						
by the central government	3.2%	2.7%	2.2%	2.1%	2.2%	2.0%
• by other issuers	0.9%	0.8%	0.7%	0.7%	1.1%	0.9%
Denmark						
by the central government	0.5%	0.4%	0.5%	0.5%	0.5%	0.4%
• by other issuers	0.4%	0.6%	0.7%	1.1%	0.9%	1.0%
Finland						
by the central government	0.6%	0.6%	0.5%	0.5%	0.5%	0.4%
• by other issuers	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%
France						
by the central government	8.1%	9.6%	10.0%	9.3%	9.4%	9.3%
• by other issuers	1.6%	1.5%	1.4%	1.3%	1.9%	1.6%
Germany						
by the central government	15.4%	16.7%	17.3%	15.4%	14.8%	16.5%
• pfandbrief	1.0%	1.5%	0.4%	0.8%	0.6%	0.7%
• by other issuers	4.4%	3.8%	4.2%	3.0%	3.9%	2.9%
Greece						
by the central government	0.2%	0.1%	0.0%	0.1%	0.0%	0.0%
• by other issuers	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Ireland						
by the central government	0.2%	0.1%	0.5%	0.4%	0.4%	0.3%
• by other issuers	0.1%	0.1%	0.2%	0.4%	0.5%	0.9%
Italy						
by the central government	6.4%	8.3%	8.7%	9.8%	8.6%	8.4%
• by other issuers	0.6%	0.4%	0.5%	0.6%	1.1%	1.3%
Luxembourg						
by the central government	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%
• by other issuers	0.6%	0.9%	1.2%	1.2%	0.4%	0.3%
Netherlands						
by the central government	2.9%	2.6%	2.5%	1.7%	1.7%	1.8%
by other issuers	0.9%	0.9%	0.7%	0.6%	0.8%	0.6%

	Dec 11	Dec 12	Dec 13	Dec 14	Jun 15	Dec 15
Portugal						
by the central government	0.3%	0.2%	0.2%	0.4%	0.5%	0.5%
• by other issuers	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%
Spain						
by the central government	5.3%	4.2%	4.6%	5.6%	4.7%	4.9%
• by other issuers	1.4%	0.7%	0.6%	0.9%	1.7%	2.0%
Sweden						
by the central government	0.7%	0.8%	0.9%	0.8%	0.8%	0.9%
• by other issuers	0.7%	0.7%	0.8%	0.8%	0.7%	0.7%
UK						
by the central government	10.6%	12.4%	9.8%	10.0%	9.7%	10.6%
• by other issuers	1.9%	1.8%	1.6%	1.5%	2.4%	2.3%
US						
US Treasury						5.1%
Other US issuers						1.0%
US but settled across EOC/CS	3.1%	2.6%	2.8%	3.6%	4.6%	
other countries						
Bulgaria						
by the central government	0.0%	0.0%	0.0%	0.0%	0.1%	
• by other issuers	0.0%	0.0%	0.0%	0.0%	0.0%	
Cyprus						
by the central government	0.0%	0.0%	0.0%	0.0%	0.0%	
• by other issuers	0.0%	0.0%	0.0%	0.0%	0.0%	
Czech Republic						
by the central government	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
• by other issuers	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Estonia						
by the central government	0.0%	0.0%	0.0%	0.0%	0.0%	
• by other issuers	0.0%	0.0%	0.0%	0.0%	0.0%	
Hungary						
by the central government	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%
by other issuers	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

	Dec 11	Dec 12	Dec 13	Dec 14	Jun 15	Dec 15
Latvia						
by the central government	0.0%	0.0%	0.0%	0.0%	0.0%	
• by other issuers	0.0%	0.0%	0.0%	0.0%	0.0%	
Lithuania						
by the central government	0.0%	0.0%	0.0%	0.0%	0.0%	
• by other issuers	0.0%	0.0%	0.0%	0.0%	0.0%	
Malta						
by the central government	0.0%	0.0%	0.0%	0.0%	0.0%	
• by other issuers	0.0%	0.0%	0.0%	0.0%	0.0%	
Poland						
by the central government	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%
• by other issuers	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Romania						
by the central government	0.0%	0.0%	0.0%	0.0%	0.0%	
• by other issuers	0.0%	0.0%	0.0%	0.0%	0.0%	
Slovak Republic						
• by the central government	0.0%	0.0%	0.0%	0.0%	0.0%	
• by other issuers	0.0%	0.0%	0.0%	0.0%	0.0%	
Slovenia						
by the central government	0.0%	0.0%	0.0%	0.0%	0.0%	
• by other issuers	0.0%	0.0%	0.1%	0.0%	0.0%	
other EU members by the central government						0.2%
other EU members by other issuers in the form of fixed income securities						0.1%
by official international financial institutions		0.8%	2.2%	2.4%	2.2%	2.1%
Japan	5.2%	3.2%	4.6%	8.6%	4.8%	
Japanese government						3.2%
other Japanese issuers in the form of fixed income securities						1.6%
• other OECD	10.4%	12.7%	10.3%	6.5%	8.4%	5.5%

<u> </u>	Dec 11	Dec 12	Dec 13	Dec 14	Jun 15	Dec 15
• non-OECD EMEA	0.8%	0.7%	0.6%	0.6%	0.6%	0.6%
non-OECD Asian & Pacific	0.6%	0.8%	0.4%	0.7%	0.7%	0.6%
non-OECD Latin America	0.7%	0.5%	0.5%	0.6%	0.6%	0.7%
• equity	0.0%	0.5%	0.3%	0.1%	0.7%	0.1%
collateral of unknown origin or type	7.0%	4.0%	2.5%	2.7%	2.5%	2.4%
collateral in tri-party which cannot be attributed to a country or issuer			2.6%	3.5%	3.5%	4.8%

	Dec 11	Dec 12	Dec 13	Dec 14	Jun 15	Dec 15
Q2 What is the total value of securities loaned and borrowed by your repo desk: to/from counterparties						
in the same country as you	39.8%	40.8%	38.8%	38.3%	30.2%	35.7%
	1.8%	0.8%	1.1%	0.7%	2.3%	0.4%
• cross-border in (other) eurozone countries	20.2%	16.1%	23.8%	21.7%	32.5%	35.0%
	0.3%	1.2%	2.3%	1.1%	2.3%	1.2%
• cross-border in non-eurozone countries	35.8%	39.5%	32.3%	38.0%	27.1%	26.9%
	2.1%	1.6%	1.8%	0.3%	5.5%	0.7%
for which the term to maturity is						
• fixed	70.1%	54.5%	54.7%	58.6%	65.8%	66.7%
• open	29.9%	45.5%	45.3%	41.4%	34.2%	33.3%

APPENDIX D: THE ICMA EUROPEAN REPO COUNCIL

The ICMA European Repo and Collateral Council (ERCC) (formerly the ICMA European Repo Council) is the forum where the repo dealer community meets and forges consensus solutions to the practical problems of a rapidly evolving marketplace. In this role, it has been consolidating and codifying best market practice. The contact and dialogue that takes place at the ERCC underpins the strong sense of community and common interest that characterises the professional repo market in Europe.

The ERCC was established in December 1999 by the International Capital Market Association (ICMA, which was then called the International Securities Market Association or ISMA) as a body operating under ICMA auspices.

Membership of the ERCC is open to any ICMA member who has commenced, or has undertaken to commence, a dedicated repo activity, is willing to abide by the rules applicable to its and has sufficient professional expertise, financial standing and technical resources to meet its obligations as a member.

The ERCC meets twice a year (usually in February/March and September) at different financial centres across Europe. The Steering Committee now comprises 19 members elected annually and meets four times a year.

More information about the ERC is available on www.icmagroup.org