

# International Capital Market Association

## European **Repo** Market Survey

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This report has been compiled by Richard Comotto, Senior Visiting Fellow, ICMA Centre at Reading University.

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# Executive Summary

In December 2016, the European Repo and Collateral Council (ERCC) of the International Capital Market Association (ICMA) conducted the 32<sup>nd</sup> 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 7, 2016. Replies were received from 65 offices of 62 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 65 institutions who participated in the latest survey was **EUR 5,656 billion**, compared with the EUR 5,379 billion in June 2016. This represents a year-on-year rise in the 'headline' number of the survey of 0.9%. The increase since the June survey was 5.2% but, using a constant sample of banks to eliminate the effect of changes in the survey sample, it is estimated that the market grew 0.8% year-on-year and 2.4% over the previous six months. The survey therefore suggests that the European repo market is still trending sideways, albeit with seasonal fluctuations which have been exacerbated by year-end market dislocation. After the survey date, there was an upsurge in demand to borrow core eurozone government bonds in order to collateralize client lending, cover short trading positions and as part of FX arbitrage trades against the US dollar. That demand could only be partially satisfied by the market, given the reluctance of dealers to take additional leverage and liquidity risk over the end-year and a lack of supply of High Quality Liquid Assets (HQLA) due to the ECB's quantitative easing programme.

## Trading analysis

Directly-negotiated repo continued the upward trend that has been observed since 2012 and was the main absorber of net funding, while tri-party repo remained the net provider. There was a drop in the share of business reported by the principal automatic repo trading systems (ATS) operating in Europe, including the share of anonymous CCP-cleared trading, although the absolute value of electronic trading grew. The shift to direct trading may have reflected market demand for repos over longer terms and against scarce collateral. Such transactions often require the flexibility of direct negotiation, rather than simple execution on automatic trading systems, and are usually transacted with non-dealer counterparties who do not have access to ATS or CCP.

## Geographical analysis

There was a jump in the share of cross-border business with counterparties in non-eurozone countries (likely to be based in London), which was largely reflected in a sharp fall in anonymous (ie CCP-cleared) trading. And this cross-border business with markets outside the eurozone switched to becoming a net destination of funding, suggesting that the market was primarily driven towards the year-end by demand to borrow securities.

## Clearing and settlement analysis

The share of tri-party repo increased significantly to 12%, even though the value of outstanding business reported directly by tri-party agents was little changed, suggesting that the financing needs of intermediaries were in part satisfied by exploiting the ability and willingness of tri-party cash lenders to accept assets as collateral not classified as HQLA or classified as Level 2 HQLA but still regarded as sufficiently creditworthy. There was increased use in tri-party of sub-national bonds and equity.

The strong demand for HQLA may have drained such collateral out of GC financing systems into the wider market where they were trading special, leading to a drop in the share of GC financing in the survey.

## Cash currency analysis

The share of the US dollar expanded significantly in the survey and in directly-reported tri-party repo, reflecting the same strong end-year demand for dollars that gave rise to exceptional FX arbitrage opportunities.

## **Collateral analysis**

The share of government bonds within the pool of EU-originated fixed-income collateral reported in the survey exceeded the high level reached in June, driven mainly by French and German government securities but also Belgian and Dutch government securities. However, the use of most core Eurozone government bonds decreased in tri-party repo, probably because of the better repo rates available in other segments of the repo market.

## **Contract analysis**

The share of repurchase transactions (classic repo) rebounded.

## **Maturity analysis**

The share of short-dated transactions fell back, as is usual at year-end. The longer average term reflected a surge in repos with one to three months remaining to maturity, which is the preferred period for borrowing HQLA to meet regulatory liquidity requirements. Moreover, the direction of net financing reversed between June and December, with cash flowing from transactions with more than one week remaining to maturity into shorter-term transactions, suggesting the market was being driven primarily by the desire to borrow securities for longer term in order to meet regulatory liquidity ratios. Forward repos continue to be buoyant, which may reflect firms and customers anticipating year-end shortages of cash and collateral by trading in advance.

## **Rate analysis**

Floating-rate repo increased its share of the survey. This type of repo is mainly associated with the French market, so the growth in floating-rate repo may be associated with the increase in repos of French government bonds. The reason may have been year-end activity by French insurance companies.

## **Concentration analysis**

There was an increase in the concentration of business, perhaps because of the driving role of some G-SIFIs. However, concentration continues to remain low.

## **Product analysis**

The share of securities lending conducted on repo desks increased modestly.

# Chapter 1: The Survey

On December 7, 2016, the European Repo and Collateral Council (ERCC) of the International Capital Market Association (ICMA) conducted the 32nd 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 7, 2016.

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 65 offices of 62 financial groups. This is two fewer respondents than in the June 2016 survey. Five institutions dropped out of the survey, two rejoined and one joined for the first time.

47 of the participants were headquartered across 16 European countries, including Norway and Switzerland, as well as in China (1), Japan (4) and North America (9). 24 respondents were foreign affiliates, most of which were located in the UK. 47 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). 43 participants were based across 11 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 7, 2017.

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](http://www.icmagroup.org/surveys/repo/participate).

Questions about the survey should be sent by e-mail to [reposurvey@icmagroup.org](mailto:reposurvey@icmagroup.org).

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

## Chapter 2: Analysis Of Survey Results

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](http://www.icmagroup.org).

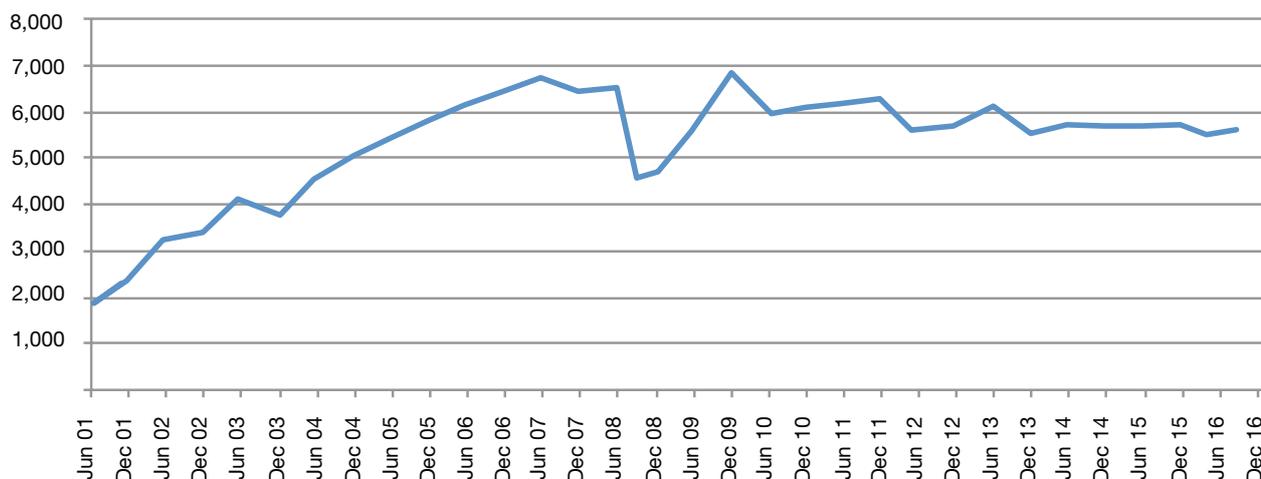
### Total repo business (Q1)

The total value, at close of business on December 7, 2016, of repos and reverse repos outstanding on the books of the 65 institutions which participated in the latest survey was **EUR 5,656.2 billion**, a rise in the headline number of 0.9% year-on-year and 5.2% since June.

**Table 2.1 – Total repo business from 2001 to 2016**

survey	total	repo	reverse repo
2016 December	5,656	48.1%	51.9%
2016 June	5,379	48.0%	52.0%
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%

**Figure 2.1 – Total survey size (EUR billion)**



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.

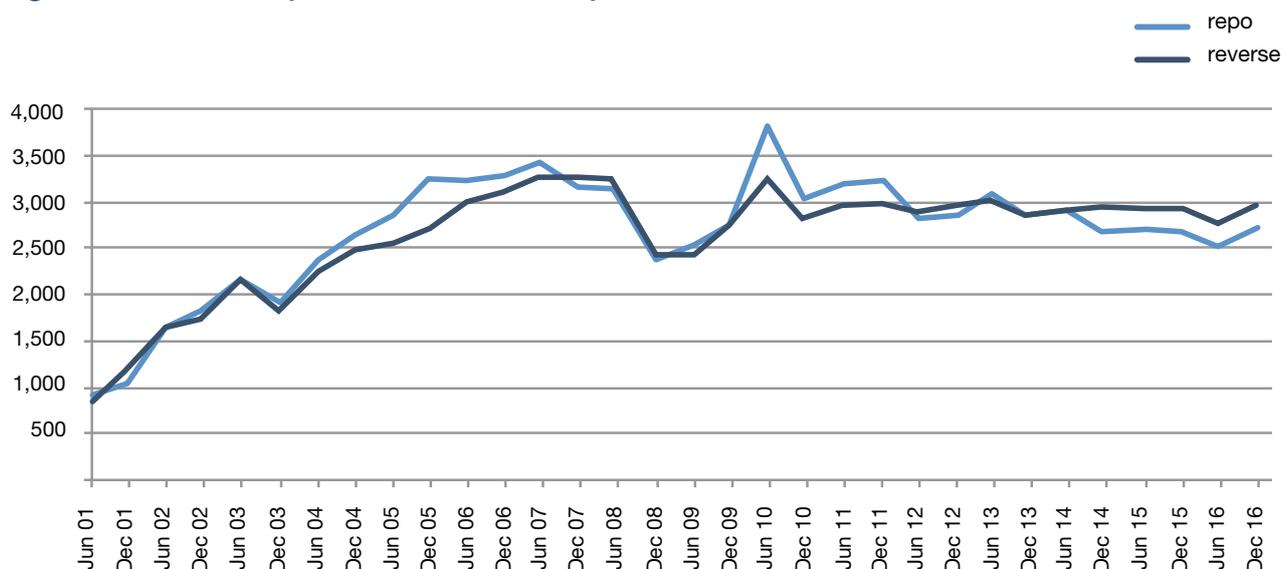
Nor does the survey measure the value of repos transacted with central banks as part of official monetary policy operations, which continue to be very substantial.

In order to accurately 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 65 institutions in the present survey, 62 have participated in all of the last three surveys. Overall, the aggregate value of outstanding repos and reverse repos transacted by those 62 institutions grew by 0.8% year-on-year and by 2.4% between the December and June 2016 surveys. The change for the 63 institutions which participated in at least the last two surveys was +2.4%.

The repo books of 34 of the 65 institutions in the latest survey contracted or did not change (compared to 30 out of 67 repo books in the June 2016 survey). The unweighted mean percentage change fell back to +6.6% from +8.1% but the median percentage change increased to +0.7% from +0.2%. This means that the distribution of percentages changes retained a positive skew. It therefore continued to be the case that the institutions which increased their repo books did so by more than those who decreased. In fact, much of the increase in the survey can be attributed to three large participants. The survey sample remained a net lender to the rest of the market.

Figure 2.2 – Total repo versus reverse repo business



## Trading analysis (Q1.1)

Table 2.2 – Trading analysis

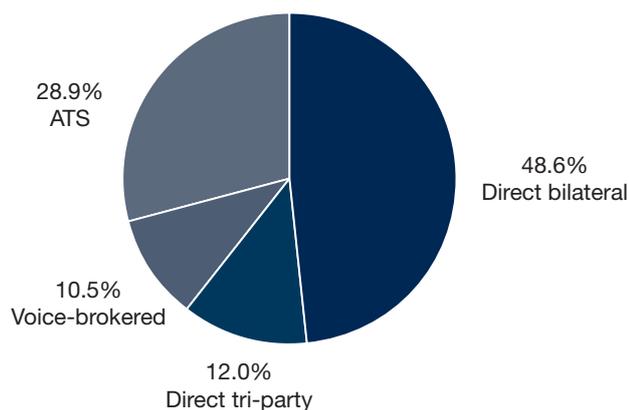
	December 2016		June 2016		December 2015	
	users	share	users	share	users	share
<b>direct</b>	65	60.6%	67	55.9%	67	65
<i>of which tri-party</i>	44	12.0%	41	10.0%	41	40
<b>voice-brokers</b>	48	10.5%	50	11.1%	50	53
<b>ATS</b>	51	28.9%	51	33.0%	51	52

The uptrend in the share of directly-negotiated repo observed since 2012, which was interrupted in December 2015 by a jump in the share of electronically-trade business, continued between June and December 2016. This was at the expense of electronic business transacted over automatic repo trading systems (ATS), which fell back sharply to 28.9% from 33.0%. However, the absolute level of business reported by the principal ATS operating in Europe grew by 3.5% to reach EUR 1,004 billion from EUR 970 billion in June. Tri-party repo recovered to 12% from 10% in June and continues to be the source of net funding for other segments of the repo market

Table 2.3 – Numbers of participants reporting particular types of business

	Dec-16	Jun-16	Dec-15	Jun-15	Dec-14	Jun-14
<b>ATS</b>	51	51	53	52	53	51
<b>anonymous ATS</b>	42	47	46	45	49	44
<b>voice-brokers</b>	48	50	56	53	53	55
<b>tri-party repos</b>	44	41	43	40	43	44
<b>total</b>	65	67	72	65	67	65

Figure 2.3 - Trading analysis



## Geographical analysis (Q1.1)

Table 2.4 – Geographical analysis

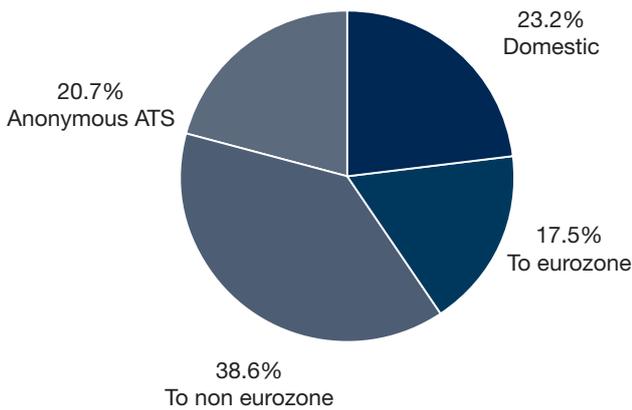
	December 2016		June 2016		December 2015	
	share	users	share	users	share	users
domestic	23.2%		23.1%		24.5%	
cross-border to (other) eurozone	17.5%		18.2%		18.7%	
cross-border to (other) non-eurozone	38.6%		33.8%		33.2%	
anonymous	20.7%	42	24.9%	47	23.6%	46

**Cross-border** business with counterparties in non-eurozone countries jumped to 38.6% from 33.8%, mirrored largely in a sharp fall in **anonymous** (ie CCP-cleared) trading to 20.7% from 24.9% in June. This change was also seen in business reported directly by ATS, tri-party agents and voice-brokers (respectively, 46.6% from 44.5%, 43.9% from 41.4% and 58.0% from 51.8%). Cross-border business with markets outside the eurozone also switched to becoming a net destination for funding in December. The share of anonymous trading on ATS reached a new historic high of 99.1% of all electronic trading.

Table 2.5 – Geographical comparisons in December 2016 (June 2016)

	main survey	ATS	tri-party	WMBA
domestic	23.2% (23.1%)	32.4% (32.0%)	33.2% (35.2%)	28.5% (34.3%)
cross-border	56.1% (52.0%)	67.6% (68.0%)	66.8% (64.8%)	71.5% (65.7%)
anonymous	20.7% (24.9%)			

**Figure 2.4 - Geographical analysis**



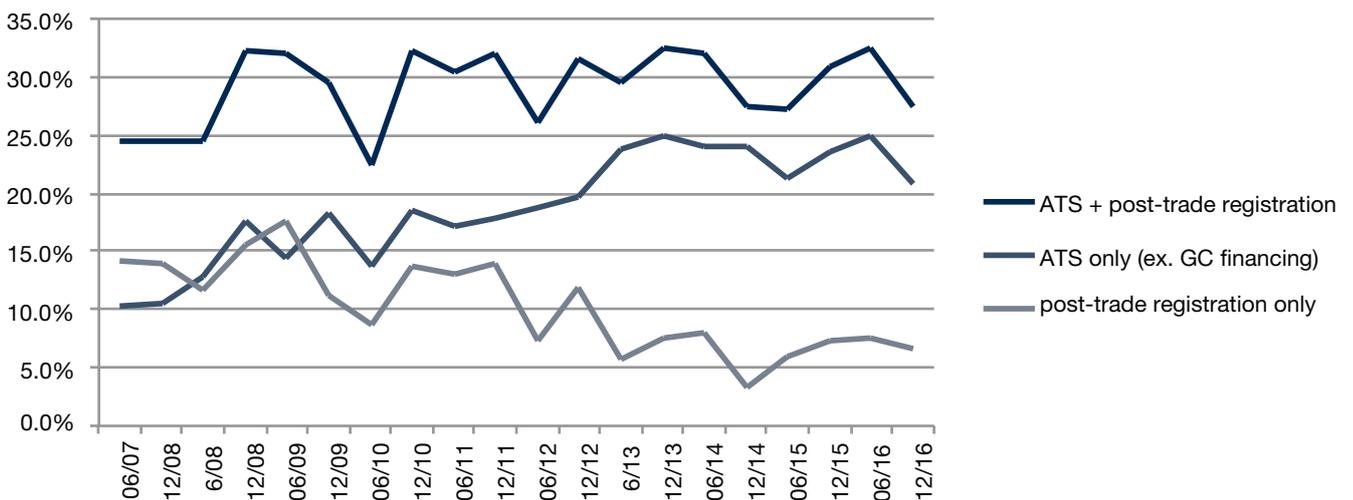
**Clearing and settlement analysis (Q1.2 and Q1.8)**

The share of **tri-party repo** rebounded to 12.0% from 10.0%. However, 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) was steady at EUR 659.0 billion compared to EUR 655.8 billion in June.

GC financing (mainly through Eurex Repo's Euro GC Pooling facility but also LCH.Clearnet's EuroGC Plus) dropped sharply to 1.8% from 3.5% in the survey and to 6.1% from 10.0% of directly-reported electronic business. It also fell back to 15.2% of directly-reported tri-party repo from 19.1%. The absolute value of outstanding GC financing reported in the survey was EUR 103.0 billion compared with EUR 184.7 billion, a fall of 44.2%.

The share of transactions negotiated directly or via voice-brokers that were subsequently registered with a CCP also fell back, to 6.7% from 7.5%.

**Figure 2.5 – Evolution of business cleared across CCPs**



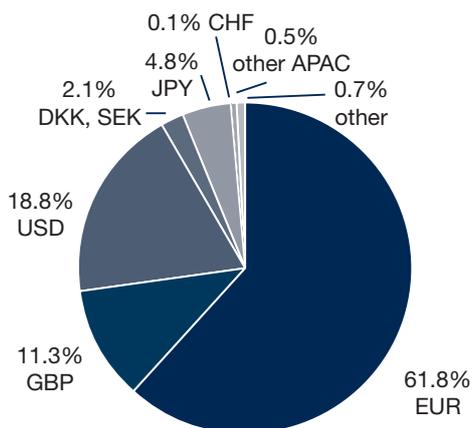
## Cash currency analysis (Q1.3 and Q1.4)

Table 2.6 – Cash currency analysis

	December 2016	June 2016	December 2015
EUR	61.8%	61.3%	63.2%
GBP	11.3%	11.6%	12.4%
USD	18.8%	17.1%	16.0%
DKK, SEK	2.1%	2.6%	2.4%
JPY	4.8%	5.2%	5.0%
CHF	0.1%	0.0%	0.1%
other APAC	0.5%	0.5%	
etc	0.7%	1.6%	0.9%
cross-currency	1.8%	1.5%	2.6%

The biggest change in the currency composition of the survey was the jump in the share of the **US dollar** to 18.8% from 17.1%. It also increased significantly in tri-party repo, to 39.2% from 32.6%. Voice-brokers, on the other hand, saw a jump in Japanese yen business from 3.2% to 6.9%. The share of euro rose in tri-party repo to 51.6% from 44.1% but fell back in voice-brokered transactions to 61.3% from 65.9%.

Figure 2.6 - Currency analysis



**Table 2.7 – Currency comparison in December 2016**

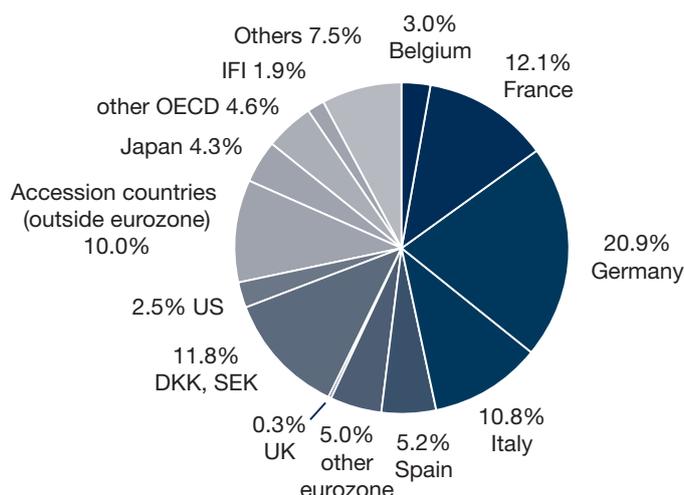
	main survey	ATS	tri-party	WMBA
EUR	61.8%	94.5%	51.6%	61.3%
GBP	11.3%	4.6%	5.8%	19.3%
USD	18.8%	0.8%	39.2%	10.4%
DKK, SEK	2.1%	0.0%	0.8%	1.1%
JPY	4.8%		1.8%	6.9%
CHF	0.1%	0.0%	0.2%	0.1%
other APAC	0.5%		0.0%	0.0%
etc	0.7%	0.0%	0.7%	0.8%
cross-currency	1.8%		11.9%	

### Collateral analysis (Q1.9)

**Table 2.8 – Collateral analysis**

	December 2016	June 2016	December 2015
Germany	20.9%	20.3%	20.1%
Italy	10.8%	10.4%	9.6%
France	12.1%	10.9%	10.8%
Belgium	3.0%	2.7%	3.0%
Spain	5.2%	5.9%	6.9%
other eurozone	5.0%	4.9%	6.1%
UK	11.8%	12.1%	12.9%
DKK, SEK	2.5%	3.3%	2.9%
international financial institutions	1.9%	1.6%	1.7%
US Treasuries	7.9%	6.6%	5.1%
other US	2.2%	1.5%	1.0%
former Accession countries	0.3%	0.5%	0.2%
Japan government	2.8%	4.7%	3.2%
other Japan	1.5%		1.6%
other OECD ex APAC	4.1%	3.7%	5.5%
other APAC OECD	0.5%	0.5%	
eurobonds	1.7%	2.6%	
other fixed income	5.5%	6.0%	9.0%
equity	0.3%	0.1%	0.1%

**Figure 2.7 - Collateral analysis (main survey)**



The share of all **government bonds** within the pool of EU-originated fixed-income collateral reported in the survey, which had climbed sharply to 85.8% in June, increased further to 86.5% (EU bonds in total accounted for 71.7% of the survey). This change was driven mainly by French and German government securities (respectively, to 11.1% from 10.1% and 18.8% from 17.8%) but also Belgian and Dutch government securities (2.3% from 2.0% and 2.1% from 1.8%). US Treasuries increased their share to 7.9% from 6.6% and bonds issued by international financial institutions rose to 1.9% from 1.6%. However, the share of Japanese government bonds (JGB) fell to 2.8% from 4.2%. However, the share of euro-denominated government bonds in tri-party repo, as reported directly by tri-party agents, fell back to 28.1% from 36.6% (driven by reductions in the use of Austrian, Finnish, French and German government bonds but also Italian government bonds). In total, tri-party use of core Eurozone government bonds fell to 16.4% from 25.3%. There was increased use reported by tri-party agents of sub-national bonds (to 14.8% from 12.5%) and equity (to 14.1% from 7.3%). On the other hand, tri-party agents reported increased use of Belgian, Dutch and Spanish government bonds, as well as UK gilts and US Treasuries.

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

	December 2016	June 2016	December 2015
AAA	22.2%	31.4%	29.8%
AA	25.5%	31.6%	28.8%
A	9.0%	9.7%	9.5%
BBB	14.0%	18.8%	13.3%
below BBB-	3.6%	4.8%	4.5%
A1/P1	1.4%	1.9%	3.2%
A2/P2	0.4%	0.3%	0.6%
Non-Prime	0.0%	0.0%	0.4%
unrated	22.2%	1.6%	10.0%

Figure 2.8 - Collateral analysis (tri-party) by credit rating

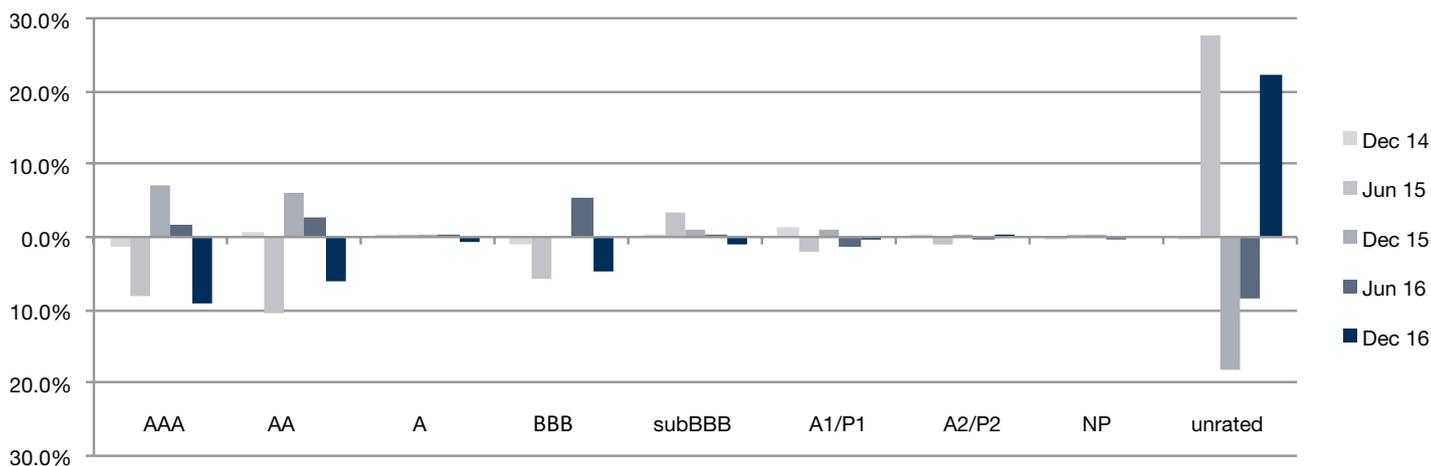
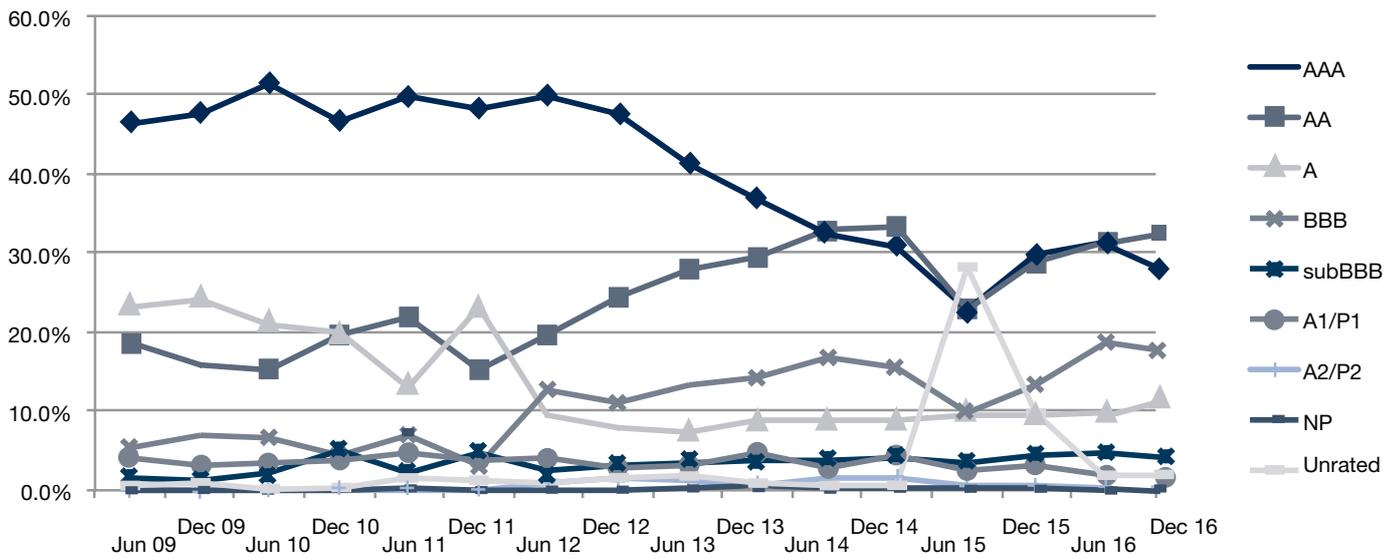


Table 2.10 – Tri-party repo collateral analysed by type of asset

	December 2016	June 2016	December 2015
government securities	42.0%	47.4%	46.9%
public agencies / sub-national governments	14.8%	12.5%	11.9%
supranational agencies	0.9%	2.6%	2.8%
corporate bonds	16.3%	16.0%	15.0%
covered bonds	8.5%	10.5%	10.0%
residential mortgage-backed	1.1%	1.3%	2.0%
commercial mortgage-backed	0.0%	0.2%	0.2%
other asset-backed	0.7%	0.8%	0.9%
CDO, CLN, CLO, etc	0.4%	0.3%	0.6%
convertible bonds	0.9%	0.8%	0.4%
equity	14.1%	7.3%	7.8%
other	0.2%	0.3%	1.6%

Figure 2.9 – Historic collateral analysis (tri-party agents) by credit rating



The ratings data from the tri-party agents need to be treated with caution due to a reporting change by one of the agents

Figure 2.10 - Collateral analysis (tri-party agents) by type of asset

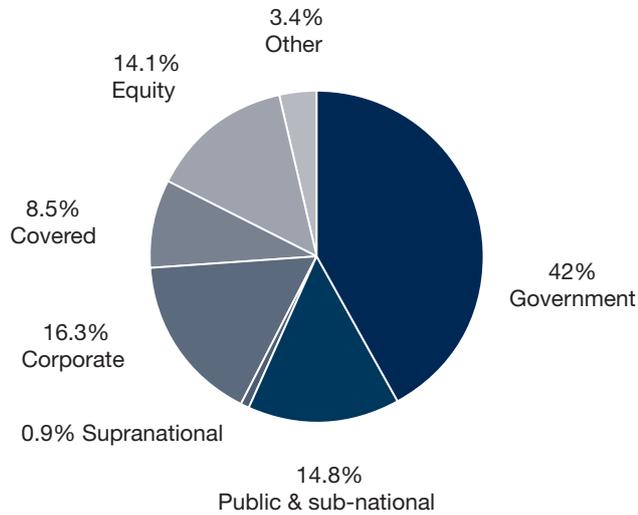


Figure 2.11 – Historic collateral analysis (tri-party agents) by type of asset

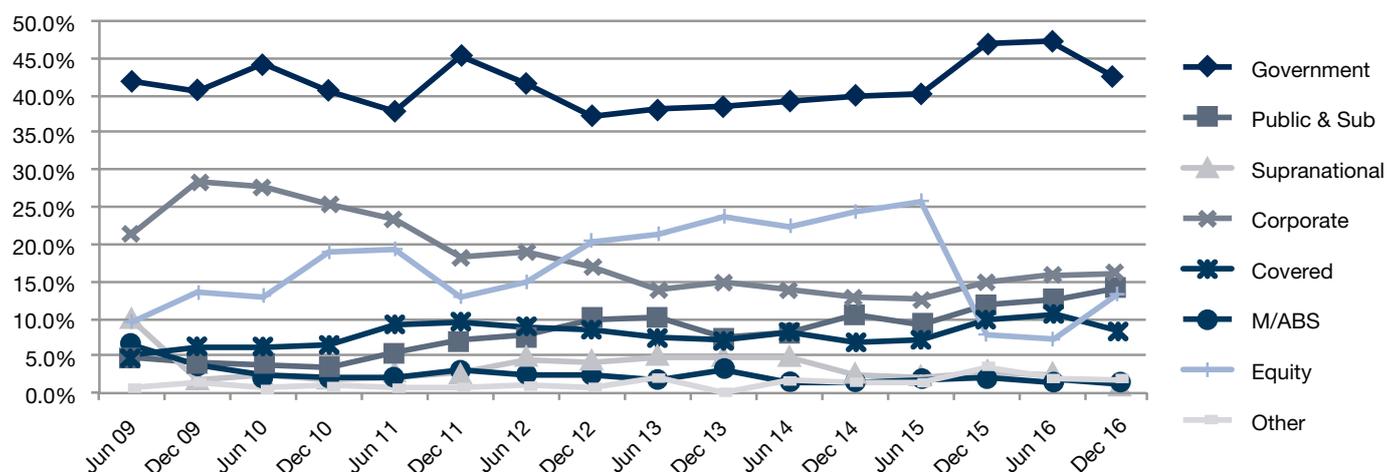


Table 2.11 – Tri-party repo collateral haircuts analysed by type of asset

(weighted average haircuts)	December 2016	June 2016	December 2015
government securities	2.5%	2.6%	2.6%
public agencies / sub-national governments	2.5%	2.7%	2.7%
supranational agencies	2.5%	2.3%	4.4%
corporate bonds (financial)	7.9%	6.1%	6.6%
corporate bonds (non-financial)			
covered bonds	4.6%	3.7%	4.9%
residential mortgage-backed	6.9%	5.6%	10.1%
commercial mortgage-backed			
other asset-backed	4.9%	4.8%	5.7%
CDO, CLN, CLO, etc	3.2%	4.9%	5.6%
convertible bonds	11.1%	11.0%	8.9%
equity	6.9%	7.1%	6.9%
other	3.7%	5.0%	7.5%

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

## Contract analysis (Q1.5)

Figure 2.12 - Contract analysis

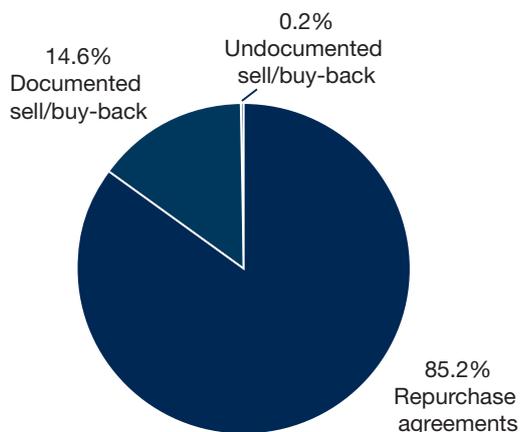


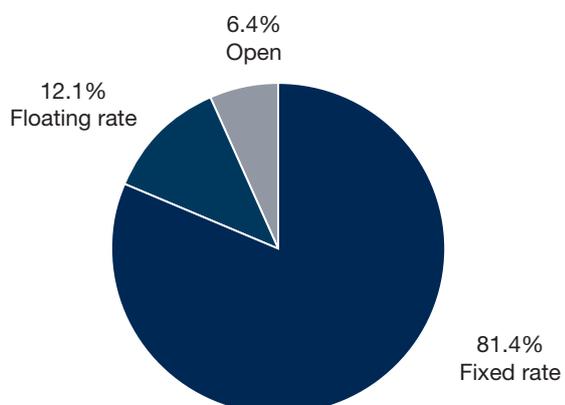
Table 2.12 – Contract comparison in December 2016 (June 2016)

	main survey	ATS	tri-party
repurchase agreements	85.2% (82.6%)	57.8% (57.9%)	100.0%
documented sell/buy-backs	14.6% (15.5%)	42.2% (42.1%)	
undocumented sell/buy-backs	0.2% (1.9%)		

There was a shift out of sell/buy-backs into repurchase transactions (classic repo), which now account for 85.2% compared to 82.6% in June.

## Repo rate analysis (Q1.6)

Figure 2.13 - Repo rate analysis



**Table 2.13 – Repo rate comparison in December 2016 (June 2016)**

	main survey	ATS	tri-party
fixed rate	81.4% (82.5%)	86.5% (87.1%)	21.5% (23.6%)
floating rate	12.1% (10.8%)	13.5% (12.9%)	0.1% (0.2%)
open	6.4% (6.7%)		78.3% (76.2%)

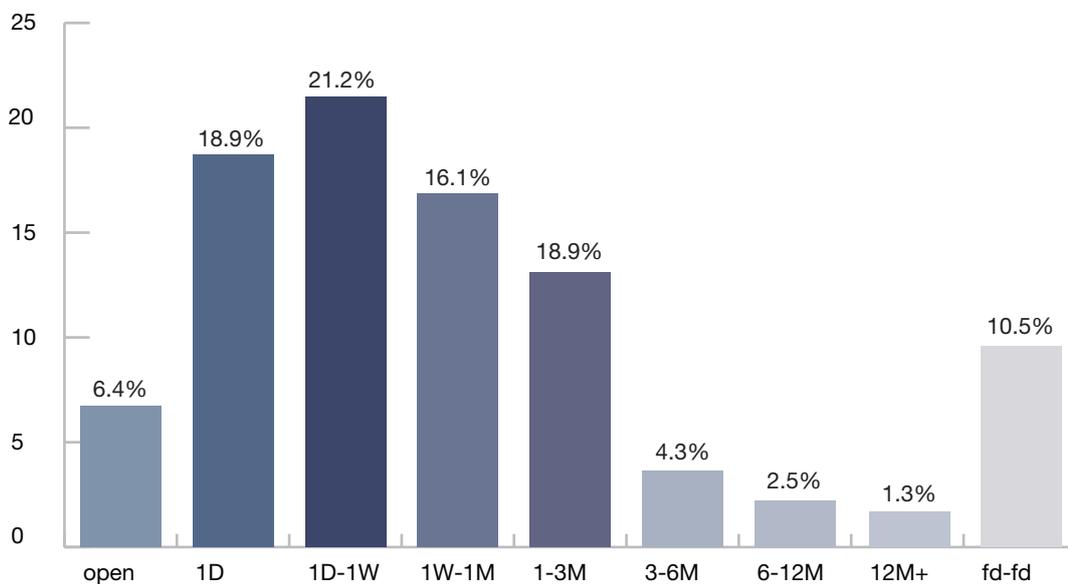
Floating-rate repo increased its share to 12.1% from 10.8%. This type of repo is mainly associated with the French market, so the change may be associated with the increase in repos of French government bonds. The reason may be year-end activity by French insurance companies.

## Maturity analysis (Q1.7)

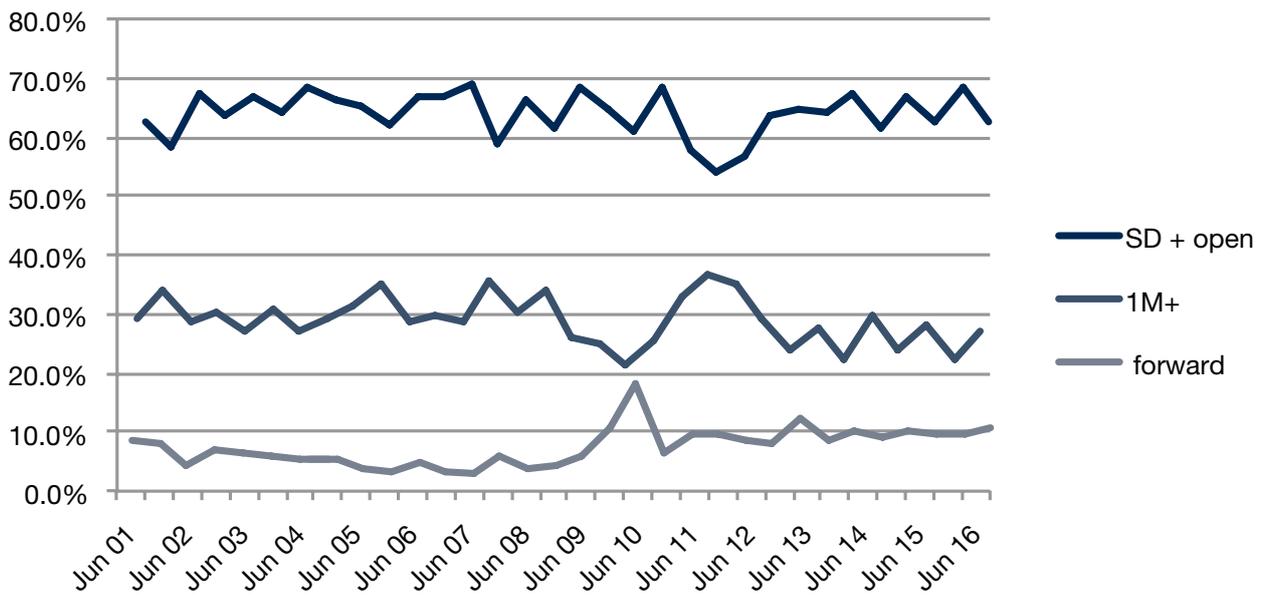
**Table 2.14 – Maturity analysis**

	December 2016	June 2016	December 2015
open	6.4%	7.3%	5.7%
1 day	18.9%	21.6%	23.5%
2 days to 1 week	21.2%	22.4%	18.9%
1 week to 1 month	16.1%	17.2%	14.3%
>1 month to 3 months	18.9%	13.1%	18.9%
>3 months to 6 months	4.3%	4.5%	4.7%
>6 months to 12 months	2.5%	2.7%	2.8%
>12 months	1.3%	1.4%	1.7%
forward-start	10.5%	9.8%	9.6%

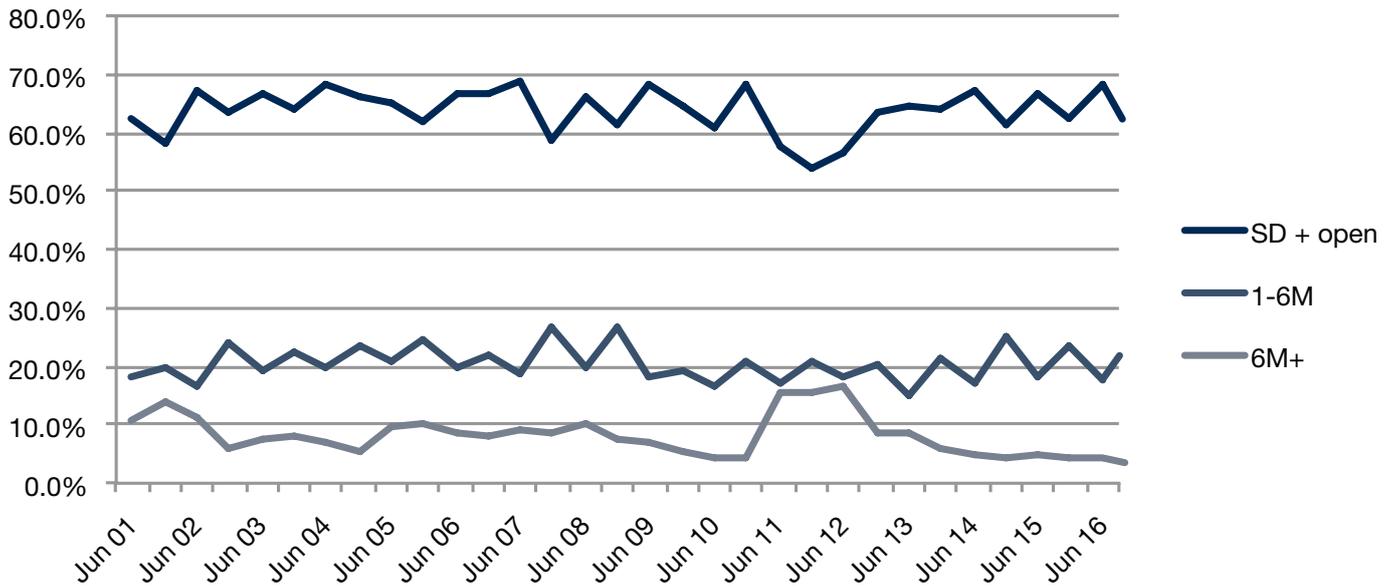
**Figure 2.14 – Maturity analysis (main survey)**



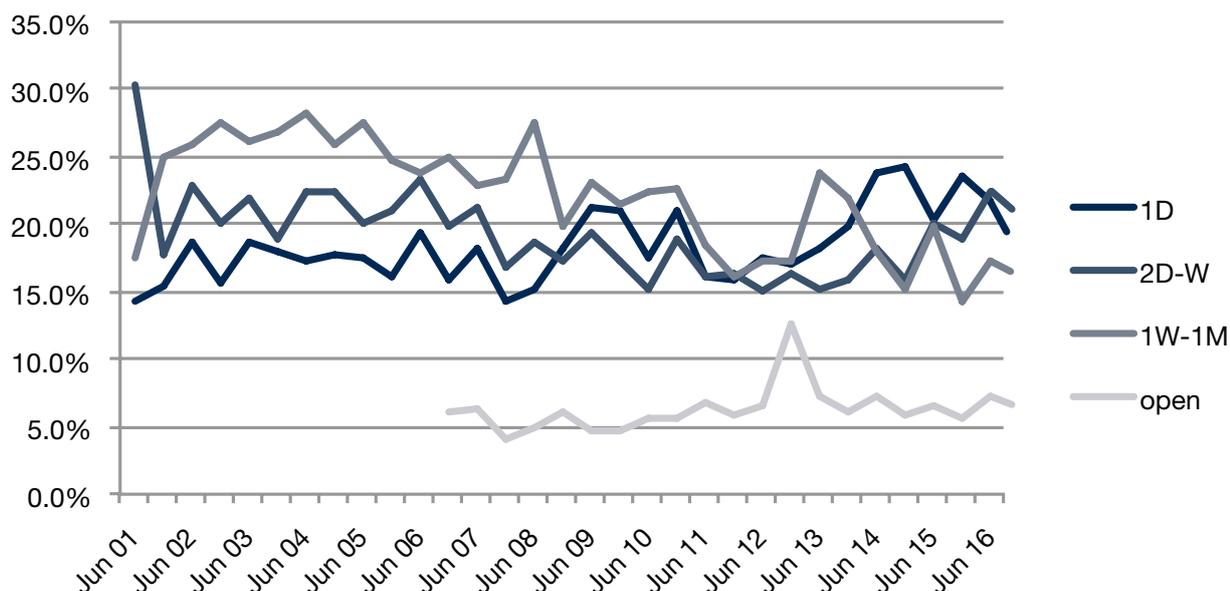
**Figure 2.15 – Historic maturity analysis: short dates, longer terms & forwards (main survey)**



**Figure 2.16 – Historic maturity analysis: non-forward terms (main survey)**

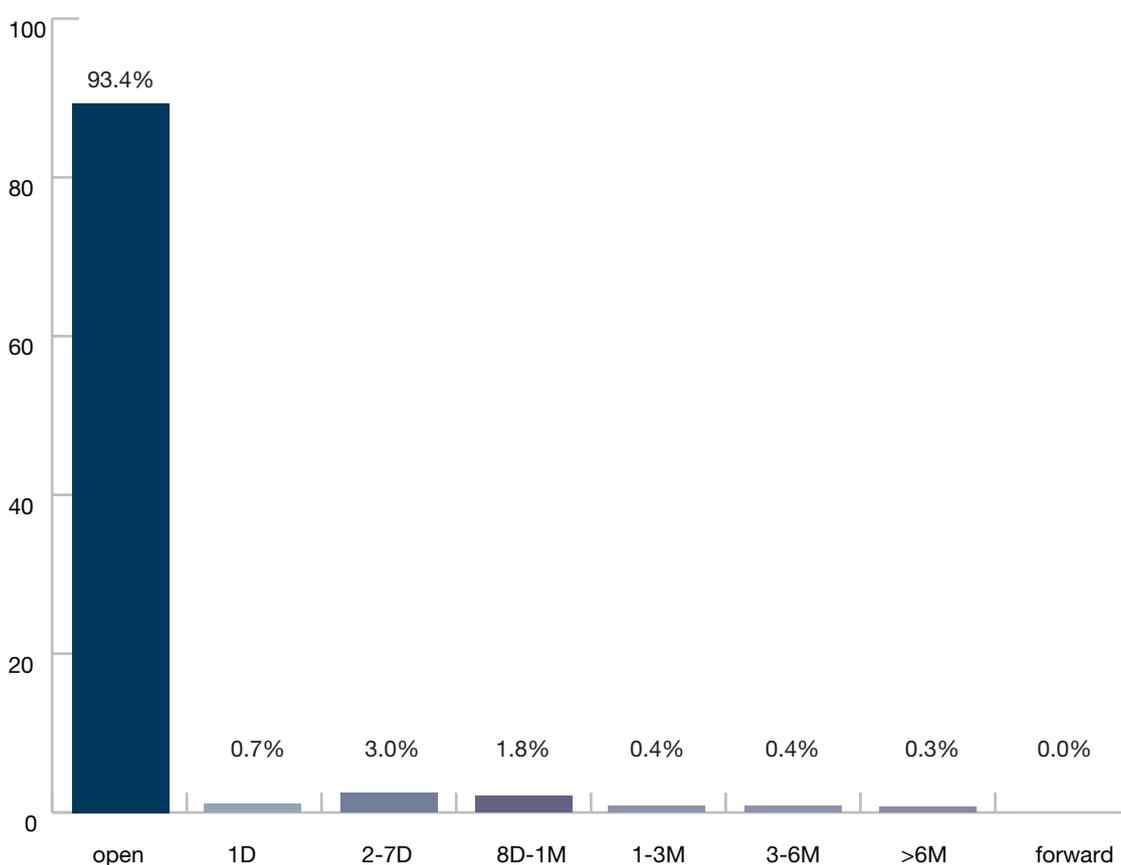


**Figure 2.17 – Historic maturity analysis: breakdown of short dates plus open (main survey)**

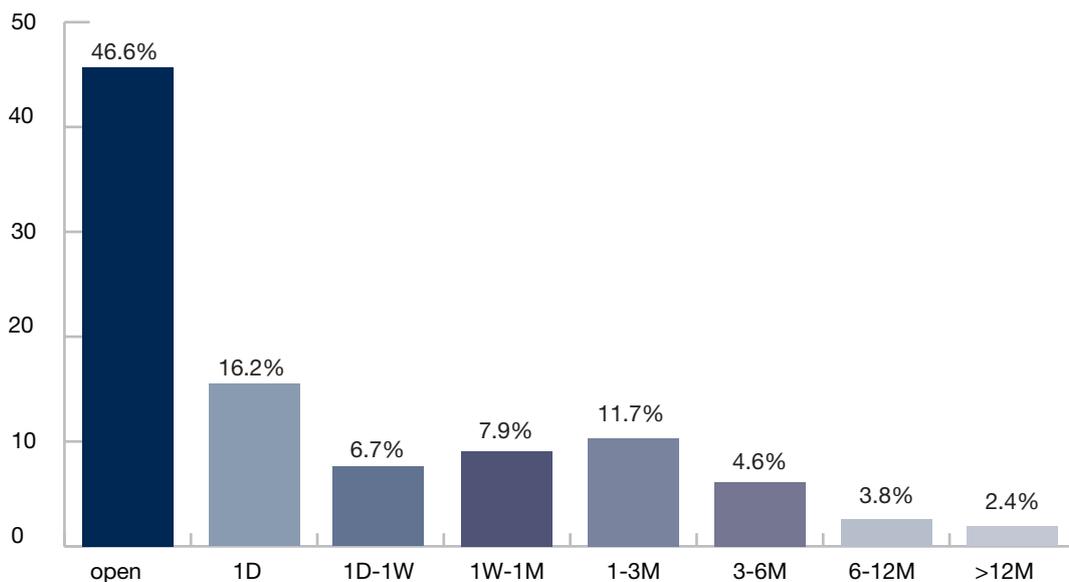


The share of short-dated transactions (one month or less remaining to maturity) fell back to 56.2% from 68.5% in a movement typical of the year-end. The weighted average term to maturity lengthened to the range 23-57 days from 22-53 days (the lower end of the range assumes that all transactions have the minimum term in each maturity band: the upper end assumes the maximum term). The longer average term reflected a surge in repos with one to three months remaining to maturity, which increased to 18.9% from 13.1%, at the expense of all other non-forward time periods. Moreover, between June and December, there was a reversal in the direction of net financing, with cash flowing from transactions with more than one week remaining to maturity to shorter-term transactions (ie longer-term assets and short-term liabilities). There was also a lengthening of maturities in electronic and voice-brokered trading, although mainly within the range between one week and one month. Forward repos continue to be buoyant, rising to 10.5% from 9.8%. They continue to account for the bulk of the directly-reported business of London voice-brokers (52.2%).

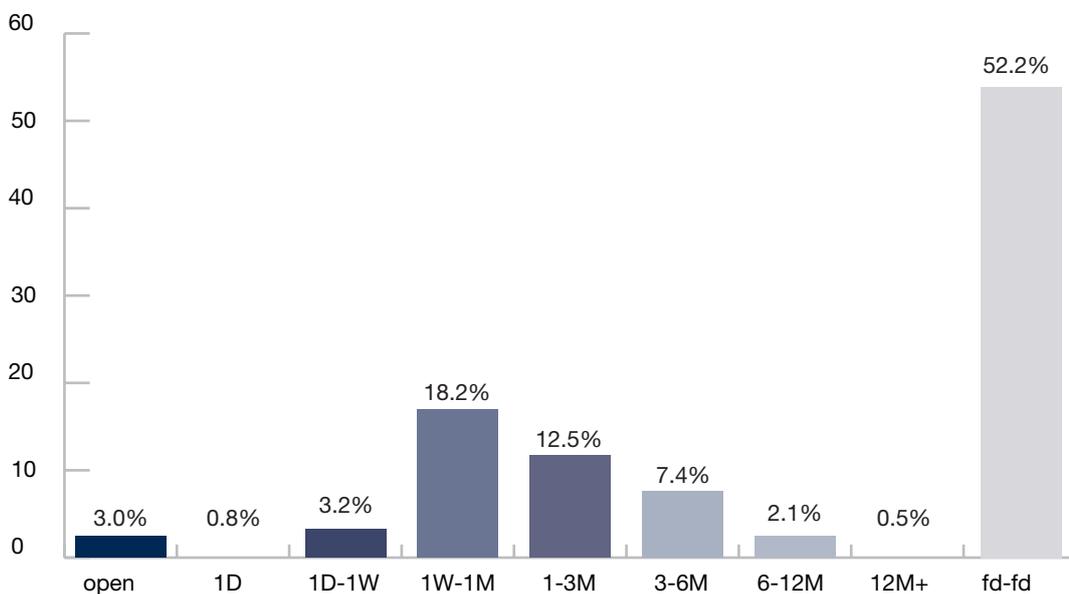
**Figure 2.18 – Maturity analysis (ATS)**



**Figure 2.19 – Maturity analysis (tri-party)**



**Figure 2.20 – Maturity analysis (voice-brokers)**



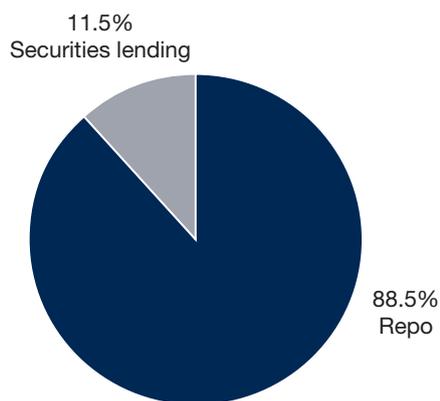
**Table 12.15 – Maturity comparison in December 2016 (June 2016)**

	main survey	ATS	tri-party	WMBA
open	6.4% (7.3%)		46.6% (48.8%)	3.0% (0.0%)
1 day	18.9% (21.6%)	93.4% (94.6%)	16.2% (15.0%)	0.8% (0.0%)
2 days to 1 week	21.2% (22.4%)	0.7% (0.6%)	6.7% (6.9%)	3.2% (0.7%)
1 week to 1 month	16.1% (17.2%)	3.0% (2.4%)	7.9% (8.1%)	18.2% (12.4%)
>1 month to 3 months	18.9% (13.1%)	1.8% (1.3%)	11.7% (11.4%)	12.5% (16.5%)
>3 months to 6 months	4.3% (4.5%)	0.4% (0.5%)	4.6% (4.3%)	7.4% (4.0%)
>6 months to 12 months	2.5% (2.7%)	0.3% (0.4%)	3.8% (3.2%)	2.1% (2.4%)
>12 months	1.3% (1.4%)	0.1% (0.1%)	2.4% (2.1%)	0.5% (0.0%)
forward-start	10.5% (9.8%)	0.3% (0.2%)		52.2% (60.6%)

## Product analysis (Q2)

The share of securities lending conducted on repo desks was slightly higher at 11.5% compared to 10.8% in June.

**Figure 2.21 - Product analysis**

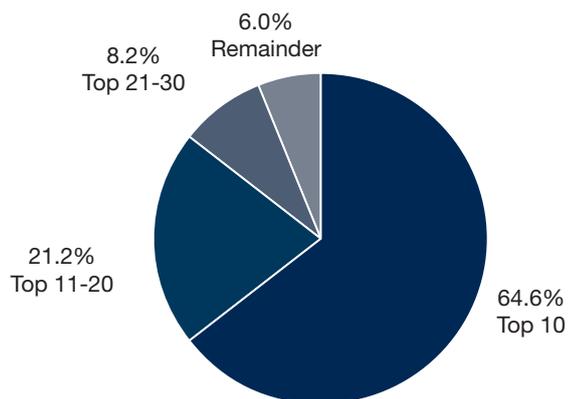


## Concentration analysis

**Table 2.16 – Concentration analysis**

	December 2016	June 2016	December 2015
top 10	64.6%	61.2%	54.5%
top 20	85.8%	84.4%	78.5%
top 30	94.0%	92.7%	89.2%
other	6.0%	7.3%	10.8%

**Figure 2.22 - Concentration analysis**



The concentration of the survey sample increased sharply again. This was also reflected in another increase in the Herfindahl Index<sup>1</sup>. However, the degree of concentration remains low.

**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
June 2016	0.050	67
December 2016	0.056	65

<sup>1</sup> 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

The survey shows that the European repo market is still trending sideways, albeit with seasonal fluctuations. The flat trend may be balancing conflicting forces. On the one hand, many market-users, particularly traditional liquidity-providers, have been structurally deleveraging in response to their own increased risk aversion and regulatory pressure to reduce leverage and increase liquidity buffers. On the other hand, there is evidence of a migration into the repo market by banks and non-banks who have traditionally relied on unsecured money markets. At this stage, it is difficult to divine how the change in the composition of the repo market will affect its long-term behavior.

However, there are signs of short-term issues. Thus, after the survey date, there was an upsurge in demand as the year-end approached to borrow core eurozone government bonds in order to collateralize customer deposits, cover short trading positions (including basis trades against futures) and implement FX arbitrage trades against the US dollar (the strong year-end demand for dollars was reflected in a jump in the FX swap basis). The usual seasonal fluctuations were exacerbated by the reluctance of intermediaries to take additional risk over the year-end because of regulatory constraints. In addition to such capacity issues, there appears to have been a shortage in the supply of securities which has been created by the ECB's quantitative easing programme. This shortage has not been much relieved by the Eurosystem's securities lending arrangements. The survey provides some evidence of the early build-up of the pressures which came to a head at year-end.

Cross-border business with counterparties in non-eurozone countries jumped between June and December. The principal non-eurozone market is London, which is home to the global investment banks that are at the core of the European repo market. The fact that these markets became a destination for net funding in December means that they were the net source of the securities which the market was seeking to borrow.

The main counterpart to the increase in the share of cross-border business with counterparties outside the eurozone was a sharp fall in the share of anonymous (ie CCP-cleared) trading. There was also a reduction in the share of electronic trading (much of which is centrally cleared) which was mirrored in a shift to directly-negotiated trading. But note that electronic trading, including that which is centrally cleared by CCP, continued to grow in absolute size: they were outpaced by the surge in trading in other segments of the repo market. The increased share of directly-negotiated trading probably reflect market demand for repos against special collateral and over longer terms (that latter evidenced by an increase in repos between one and three months, which is the preferred period for borrowing securities to meet liquidity ratios). Such transactions typically require the flexibility possible in direct negotiation, rather than simple execution on automatic trading systems (ATS). And the counterparties in such transactions tend to be non-bank financial institutions, who do not have access to ATS or CCP. Customer transactions would have become more important as balance sheet and liquidity constraints started to becoming binding on intermediaries, as they will have prioritised their more profitable customer franchises over low-margin business with other intermediaries.

Demand for high quality liquid assets (HQLA) seems to have driven further growth in the already large share of government bonds in the survey and in tri-party repo. In particular, the share of French and German government securities increased but also Belgian and Dutch government securities, as well as US Treasuries and bonds issued by international financial institutions.

The shortage of HQLA appears to have been reflected in a decline in GC financing, which is a purely cash-driven repo market. Intermediaries will have been reluctant to have HQLA automatically allocated from their holdings by GC financing systems to collateralize transactions at a GC repo rate (typically close to the ECB deposit rate) when such securities could be repoed out directly at much lower special rates.

The pressure on the supply of HQLA may also be supporting the high levels of forward repos, which may be used by firms and customers, where possible, to anticipate year-end shortages of cash and collateral by trading in advance

The share of tri-party repo reached a recent high in December. However, 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) grew only modestly. Firms in the survey may have increased their use of tri-party repo to satisfy financing needs in a market short of the HQLA being demanded as collateral by exploiting the ability and willingness of tri-party cash lenders to accept assets as collateral not classified as HQLA Level 1 but still regarded as sufficiently creditworthy by cash investors (eg equity and sub-national bonds).

## 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/](http://icmacentre.wordpress.com/) and is author of the ICMA's 'Repo FAQs' and the ICMA/ERC '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.

# Appendix A: Survey Guidance Notes

The following extract is based on the Guidance Notes issued to participants in conjunction with the survey that took place on Wednesday, December 7, 2016.

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 7, 2016, 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 varieties of repos, ie repurchase transactions (classic repos and pensions livrées) and sell/buy-backs (e.g. simultaneous and PCT). 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 7, 2016*. 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 8, 2016. You should include all *open repos and reverse repos* that have been rolled over from Wednesday, December 7, 2016, to a later date and all *forward-forward repos and reverse repos* that are still outstanding at close on Wednesday, December 7, 2016.
- 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 7, 2016, even if their purchase dates are later. An unavoidable consequence of using the transaction date is that tom/next and spot/next transactions that are rolled over will be counted more than once, eg a tom/next repo transacted on the day before the survey date and rolled over on the survey date will feature twice.
- 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.
- l) In the case of equity repo, for synthetic structures, please give the value of the cash payment.
- m) You should include *intra-group* transactions between different legal entities or between foreign branches and the parent company.

## 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 used by voice-brokers) or automated systems such as Bloomberg. 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, LCH-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.
- 1.5 "Repurchase transactions" (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 transactions are characterised by the immediate payment by the buyer to the seller of a compensatory or manufactured payment upon receipt by the buyer of a coupon or other income on the collateral held by the buyer. If a coupon or other income is paid on collateral during the term of a sell/buy-back, the buyer does not make an immediate compensatory or manufactured payment to the seller, but reinvests the income until the repurchase date of the sell/buy-back and deducts the resulting amount (including reinvestment income) from the repurchase price that would otherwise be 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, 2000 or 2011), periodic adjustments to the relative amounts of collateral or cash - which, for a repurchase transaction, would be performed by margin maintenance transfers or payments - are made by adjustment or re-pricing. All open repos are likely to be repurchase transactions.
- 1.6 "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 (1.8.3). Open repos could be regarded as floating-rate, given that rates may be updated, but this tends to be irregular, so open repos 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 7, 2016, with a repurchase date on Thursday, December 8, 2016;
  - overnight, tom/next, spot/next and corporate/next contracts transacted on Wednesday, December 7, 2016.
- (1.7.1.2) 2–7 days – this means:
- all contracts transacted prior to Wednesday, December 7, 2016, with a repurchase date on Friday, December 9, 2016, or any day thereafter up to and including Wednesday, December 14, 2016;
  - contracts transacted on Wednesday, December 7, 2016, with an original repurchase date on Friday, December 9, 2016, or any day thereafter up to and including Wednesday, December 14, 2016 (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 7, 2016, with a repurchase date on Thursday, December 15, 2016, or any day thereafter up to and including Monday, January 9, 2017;
  - contracts transacted on Wednesday, December 7, 2016, with an original repurchase date on Thursday, December 15, 2016, or any day thereafter up to and including Monday, January 9, 2017 (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 7, 2016, with a repurchase date on Tuesday,

January 10, 2017, or any day thereafter up to and including Tuesday, March 7, 2017;

- contracts transacted on Wednesday, December 7, 2016, with an original repurchase date on Tuesday, January 10, 2017, or any day thereafter up to and including Tuesday, March 7, 2017 (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 7, 2016, with a repurchase date on Wednesday, March 8, 2017, or any day thereafter up to and including Wednesday, June 7, 2017;
- contracts transacted on Wednesday, December 7, 2016, with an original repurchase date on Wednesday, March 8, 2017, or any day thereafter up to and including Wednesday, June 7, 2017 (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 7, 2016, with a repurchase date on Thursday, June 8, 2017, or any day thereafter up to and including Thursday, December 7, 2017;
- contracts transacted on Wednesday, December 7, 2016, with an original repurchase date on Thursday, June 8, 2017, or any day thereafter up to and including Thursday, December 7, 2017 (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 7, 2016, with a repurchase date on Friday, December 7, 2017, or any day thereafter;
- contracts transacted on Wednesday, December 7, 2016, with an original repurchase date on or after Friday, December 7, 2017 (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, forward-forward repos are defined for the purposes of this survey as contracts with a purchase date of Monday, December 12, 2016, 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, June 9, 2016). 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 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.

In addition, please confirm whether the transactions recorded in (1.1.3.4) --- GC financing or pooling systems such as Eurex Euro GC Pooling and LCH-Clearnet's €GC Plus --- include your tri-party repo business.

1.9 "Eurobonds" (also known as "international bonds") are defined as securities held outside national central securities depositories (CSD), usually in an ICSD such as Clearstream or Euroclear, or a custodian bank; typically with the ISIN prefix XS; often issued in a currency foreign to the place of issuance; and sold cross-border to investors outside the domestic market of the place of issuance. Eurobonds should be recorded in (1.9.30-33), except for those issues by "official international financial institutions", which should be recorded in (1.9.20). Eurobond does not mean a bond denominated in euros.

(1.9.20) "Official international financial institutions, including multilateral development banks" include:

African Development Bank (AfDB)

Asian Development Bank (AsDB)

Bank for International Settlements (BIS)

Caribbean Development Bank (CDB)

Central American Bank for Economic Integration (CABEI)

Corporacion 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)

(1.9.21) "US Treasury" includes bills, notes and bonds, including floating-rate notes, issued by the US central government but not securities guaranteed by that government, such as Agency securities.

(1.9.23) "Japanese government" includes bills, notes and bonds issued by the Japanese central government but not securities guaranteed by that government.

(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.

(1.9.34) "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](mailto:reposurvey@icmagroup.org) or contact one of the following members of the ERCC Steering Committee:

### ***German speakers***

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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

List of respondents	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10	Jun-11	Dec-11	Jun-12	Dec-12	Jun-13	Dec-13	Jun-14	Dec-14	Jun-15	Dec-15	Jun-16	Dec-16
ABN Amro Bank	x	x	x	x	x					x	x	x	x	x	x	x	x	x		
Allgemeine Hypothekbank Rheinboden																				
Allied Irish Banks	x	x	x	x	x	x	x				x	x	x	x	x	x	x	x	x	x
Alpha Bank																				
Arab Banking Corporation (Italy)																				
AXA Bank Europe	x	x			x		x	x		x	x	x	x	x	x	x	x	x	x	x
Banc Sabadell											x	x	x	x	x	x	x	x	x	x
Banca Cassa di Risparmio di Asti																				
Banca d'Intermediazione Mobiliare (IMI)														x	x	x	x	x	x	x
Banca Monte dei Paschi di Siena	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Banco BPI														x	x	x	x	x	x	x
Banco Nazional del Lavoro																				
Banco Pastor																				
Banco Popular Espanol																				
Banco Santander	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Banco Urquijo																				
Bank Austria (also known as UniCredit Bank Austria)	x	x		x		x								x		x	x	x	x	x
Bank fuer Arbeit und Wirtschaft und Oesterreichische Postsparkasse (Bawag)	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
Bank od Aland																				
Bank of America (merged to become Bank of America Merrill Lynch)	x																			
Bank of Cyprus, Greece																				
Bank of Ireland	x	x	x	x			x	x	x			x	x	x	x	x	x	x	x	x
Bank Przemyslowo-Handlowy SA	x	x		x			x		x	x	x	x								
Landesbank Berlin	x	x	x	x	x	x	x	x	x	x	x	x								
Banque de Luxembourg	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Banque et Caisse d'Epargne de l'Etat	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Barclays Capital	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Bayerische Landesbank	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
BBVA	x	x	x	x	x	x	x	x	x			x		x	x	x	x	x	x	x
BHF-Bank	x	x	x	x	x	x	x	x			x	x	x							
BHF-Bank International	x	x	x	x	x	x	x	x	x	x	x	x								
BNP Paribas	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Bundesrepublik Deutschland Finanzagentur	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

List of respondents	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10	Jun-11	Dec-11	Jun-12	Dec-12	Jun-13	Dec-13	Jun-14	Dec-14	Jun-15	Dec-15	Jun-16	Dec-16	
BW-Bank																					
Caixa Bank										x	x	x	x	x	x	x	x	x	x	x	x
Caixa d'Estalvis de Catalunya	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x	x			
Caixa Geral de Depositos																					
Bankia SA (formerly Caja de Ahorros y Monte de Piedad de Madrid (Caja Madrid))	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
CA-CIB (formerly Calyon)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Capitalia																					
NATIXIS Zweigniederlassung Deutschland	x	x	x	x																	
Citigroup Global Markets Ltd	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Commerzbank	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Canadian Imperial Bank of Commerce and Credit (CIBC)							x	x		x	x	x	x	x	x	x	x	x			x
Confederación Española de Cajas de Ahorros (CECA)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Credito Valtellinese																					
Croatian National Bank																					
Credit Suisse Securities (Europe) Ltd	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Danske Bank	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Daiwa Securities SMBC Europe	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Dekabank Deutsche Girozentrale												x	x	x	x	x	x	x	x	x	x
Delta Lloyd Securities																					
DNB Bank ASA																			x	x	x
DePfa ACS	x	x																			
DePfa Bank																					
Deutsche Bank	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Deutsche Postbank	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Belfius Bank (formerly Dexia)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Banque Internationale Luxembourg (formerly Dexia BIL)		x																			x
Dexia Kommunal Bank Deutschland	x	x	x	x	x	x	x		x		x	x									
Dresdner Bank	x	x	x	x																	
DZ Bank	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
EFG Eurobank Ergasias	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x			x	x	x
Egnatia Bank																					
Erste Bank der Oesterreichischen Sparkassen	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Euroclear Bank	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Eurohypo																					
Hypothekenbank Frankfurt International (formerly Eurohypo Europäische Hypothekenbank)	x	x	x	x	x	x	x	x	x	x	x	x	x	x							

List of respondents	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10	Jun-11	Dec-11	Jun-12	Dec-12	Jun-13	Dec-13	Jun-14	Dec-14	Jun-15	Dec-15	Jun-16	Dec-16	
European Investment Bank																					
Fortis Bank	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
General Bank of Greece																					
Goldman Sachs	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Halifax Bank of Scotland																					
HSBC		x		x	x	x															
HSBC Athens							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
HSBC France	x	x	x	x	x	x															
HSH Nordbank																			x		
Bayerische Hypo-und-Vereinsbank	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ICBC Standard Bank																			x	x	x
IIB Bank																					
ING Bank	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
ING Belgium																					
Intesa SanPaolo		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Jefferies International Ltd										x		x	x	x	x	x	x	x	x	x	x
JP Morgan	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Jyske Bank																x					
KBC	x	x	x		x		x	x			x	x	x	x	x	x	x	x	x	x	x
KfW	x	x	x						x	x		x	x	x	x	x	x	x	x	x	x
Kingdom of Belgium Federal Public Service Debt Agency	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Landesbank Baden-Württemberg, Stuttgart	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Landesbank Hessen-Thüringen-Girozentrale (Helaba)	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Landesbank Rheinland Pfalz	x																				
Landesbank Sachsen Girozentrale	x																				
Lehman Brothers	x	x	x																		
Macquarie Bank									x	x	x	x	x	x	x	x	x	x	x	x	
Maple Bank																					
Bank of America Merrill Lynch	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Mitsubishi Securities International				x	x	x	x	x	x	x	x	x	x		x	x	x	x			x
Mizuho International	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
Morgan Stanley	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Natexis Banques Populaires																					
National Australia Bank																			x		
National Bank of Greece	x			x	x															x	x
Newedge										x		x	x								
Nomura International	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Norddeutsche Landesbank Girozentrale	x	x	x	x									x	x	x	x	x	x	x	x	x
Nordea Markets	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	

<b>List of respondents</b>	<b>Jun-07</b>	<b>Dec-07</b>	<b>Jun-08</b>	<b>Dec-08</b>	<b>Jun-09</b>	<b>Dec-09</b>	<b>Jun-10</b>	<b>Dec-10</b>	<b>Jun-11</b>	<b>Dec-11</b>	<b>Jun-12</b>	<b>Dec-12</b>	<b>Jun-13</b>	<b>Dec-13</b>	<b>Jun-14</b>	<b>Dec-14</b>	<b>Jun-15</b>	<b>Dec-15</b>	<b>Jun-16</b>	<b>Dec-16</b>	
Norinchukin Bank	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Nova Ljubljanska Banka d.d.	x	x			x	x		x	x	x	x	x	x	x		x		x	x	x	
Omega Bank																					
Piraeus Bank																			x	x	x
Rabobank	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Royal Bank of Canada										x		x			x	x	x	x	x	x	x
NatWest Markets (formerly Royal Bank of Scotland)	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
RBI	x			x	x	x	x			x		x									
Sal. Oppenheim Jr.	x																				
Sampo Bank																					
SEB																					
Société Générale	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Toronto Dominion Bank														x	x		x	x	x	x	x
UBS	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Ulster Bank																					
UniCredit/Bayerische Hypo-un-Vereinsbank Milano Branch	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
UniCredito Italiano Bank (Ireland)																					
Vereins und Westbank																					
Westdeutsche Immobilien Bank																					
Westdeutsche Landesbank Girozentrale	x	x	x		x					x											
Zagrabacka Banka	x																				
entry	8	3	1	6	7	2	5	3	5	10	5	9	8	4	2	4	0	7	1	2	
exit	6	11	8	6	7	5	6	3	4	4	7	0	2	2	4	2	2	0	6	3	
	76	68	61	61	61	58	57	57	58	64	62	71	65	67	65	67	65	72	67	65	

## Appendix C: Summary Of Survey Results

	Dec-12	Dec-13	Dec-14	Dec-15	Jun-16	Dec-16
<b>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)</b>	<b>5,611</b>	<b>5,499</b>	<b>5,500</b>	<b>5,608</b>	<b>5,373</b>	<b>5,656</b>
<b>Of the amounts given in response to question (1) above:</b>						
<b>1.1 How much was transacted:</b>						
<b>direct</b> with counterparties						
• in the <b>same country</b> as you	14.0%	15.5%	14.7%	14.2%	13.9%	13.7%
• cross-border in (other) <b>eurozone countries</b>	11.7%	12.5%	11.3%	12.3%	11.9%	11.6%
• cross-border in <b>non-eurozone countries</b>	25.3%	25.2%	28.9%	28.4%	30.1%	35.4%
through <b>voice-brokers</b>						
• in the <b>same country</b> as you	9.4%	7.5%	6.3%	5.3%	5.2%	5.5%
• cross-border in (other) <b>eurozone countries</b>	3.6%	3.5%	3.5%	3.0%	3.1%	3.0%
• cross-border in <b>non-eurozone countries</b>	3.3%	4.1%	3.8%	3.4%	2.8%	2.0%
on <b>ATs</b> with counterparties						
• in the <b>same country</b> as you	6.3%	3.1%	3.7%	5.0%	4.0%	4.1%
• cross-border in (other) <b>eurozone countries</b>	3.7%	2.0%	2.3%	3.3%	3.2%	2.8%
• cross border-border in <b>non-eurozone countries</b>	3.0%	1.6%	1.4%	1.4%	0.9%	1.3%
• anonymously across a GC financing system		4.2%	5.6%	4.0%	3.5%	1.8%
• anonymously across a central clearing counterparty but not GC financing	19.8%	20.6%	18.5%	19.6%	21.4%	18.9%
• total through a central clearing counterparty	31.7%	30.9%	27.4%	31.0%	32.4%	27.4%
<b>1.2 How much of the cash is denominated in:</b>						
• EUR	61.40%	66.3%	63.60%	63.2%	61.3%	61.8%
• GBP	13.3%	10.2%	10.9%	12.4%	11.6%	11.3%
• USD	17.3%	14.8%	15.1%	16.0%	17.1%	18.8%
• SEK, DKK	2.1%	2.5%	2.9%	2.4%	2.6%	2.1%
• JPY	4.5%	4.9%	6.3%	5.0%	5.2%	4.8%
• CHF	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%

	Dec-12	Dec-13	Dec-14	Dec-15	Jun-16	Dec-16
• other Asian and Pacific currencies					0.5%	0.5%
• other currencies	1.3%	1.3%	1.1%	0.9%	1.6%	0.7%
<b>1.3 How much is cross-currency?</b>	2.10%	0.9%	2.10%	2.6%	1.5%	1.8%
<b>1.4 How much is:</b>						
• classic repo	87.20%	86.0%	85.00%	83.9%	82.6%	85.2%
• documented sell/buy-backs	10.8%	12.4%	12.9%	15.6%	15.5%	14.6%
• undocumented sell/buy-backs	2.0%	1.6%	2.1%	0.6%	1.9%	0.2%
<b>1.5 How much is:</b>						
• fixed rate	74.70%	78.8%	84.50%	83.8%	82.5%	81.4%
• floating rate	7.8%	8.6%	9.6%	10.6%	10.8%	12.1%
• open	17.4%	12.6%	5.9%	5.6%	6.7%	6.4%
<b>1.6 How much fixed and floating rate repo is (1.6.1) for value before (survey date) and has a remaining term to maturity of:</b>						
• 1 day	17.00%	19.9%	24.30%	23.5%	21.6%	18.9%
• 2 - 7days	16.3%	15.8%	15.9%	18.9%	22.4%	21.2%
• more than 7 days but no more than 1 month	17.2%	22.0%	15.1%	14.3%	17.2%	16.1%
• more than 1 month but no more than 3 months	16.0%	16.6%	19.0%	18.9%	13.1%	18.9%
• more than 3 months but no more than 6 months	4.1%	4.6%	5.9%	4.7%	4.5%	4.3%
• more than 6 months	2.9%	3.1%	3.1%	2.8%	2.7%	2.5%
• more than 12 months	5.9%	3.1%	1.5%	1.7%	1.4%	1.3%
• forward-forward repos	7.8%	8.8%	9.3%	9.6%	9.8%	10.5%
• open	12.7%	6.2%	5.9%	5.7%	7.3%	6.4%
<b>1.7 How much is tri-party repo:</b>	12.6%	4.7%	2.6%	5.8%	10.0%	12.0%
• for fixed terms to maturity	91.9%	95.1%	97.4%	94.2%	91.1%	76.5%
• on an open basis	9.50%	9.9%	10.50%	11.0%	9.2%	6.9%
GCF						16.7%
<b>1.8 How much is against collateral issued in:</b>						
Austria						
• by the central government	0.90%	1.0%	0.90%	0.8%	0.7%	0.8%
• by other issuers	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%

	<b>Dec-12</b>	<b>Dec-13</b>	<b>Dec-14</b>	<b>Dec-15</b>	<b>Jun-16</b>	<b>Dec-16</b>
Belgium						
• by the central government	2.70%	2.2%	2.10%	2.0%	2.0%	2.3%
• by other issuers	0.8%	0.7%	0.7%	0.9%	0.7%	0.7%
Denmark						
• by the central government	0.40%	0.5%	0.50%	0.4%	0.3%	0.3%
• by other issuers	0.6%	0.7%	1.1%	1.0%	0.9%	0.5%
Finland						
• by the central government	0.60%	0.5%	0.50%	0.4%	0.5%	0.3%
• by other issuers	0.1%	0.0%	0.0%	0.1%	0.1%	0.0%
France						
• by the central government	9.60%	10.0%	9.30%	9.3%	10.1%	11.1%
• by other issuers	1.5%	1.4%	1.3%	1.6%	0.8%	1.0%
Germany						
• by the central government	16.70%	17.3%	15.40%	16.5%	17.8%	18.8%
• pfandbrief	1.5%	0.4%	0.8%	0.7%	0.2%	0.7%
• by other issuers	3.8%	4.2%	3.0%	2.9%	2.3%	1.4%
Greece						
• by the central government	0.10%	0.0%	0.10%	0.0%	0.1%	0.1%
• by other issuers	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Ireland						
• by the central government	0.10%	0.5%	0.40%	0.3%	0.3%	0.2%
• by other issuers	0.1%	0.2%	0.4%	0.9%	0.3%	0.1%
Italy						
• by the central government	8.30%	8.7%	9.80%	8.4%	10.0%	10.4%
• by other issuers	0.4%	0.5%	0.6%	1.3%	0.4%	0.4%
Luxembourg						
• by the central government	0.10%	0.1%	0.10%	0.0%	0.0%	0.0%
• by other issuers	0.9%	1.2%	1.2%	0.3%	0.3%	0.3%
Netherlands						
• by the central government	2.60%	2.5%	1.70%	1.8%	1.8%	2.1%
• by other issuers	0.9%	0.7%	0.6%	0.6%	0.5%	0.4%
Portugal						
• by the central government	0.20%	0.2%	0.40%	0.5%	0.5%	0.4%
• by other issuers	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%
Spain						
• by the central government	4.20%	4.6%	5.60%	4.9%	5.0%	4.1%
• by other issuers	0.7%	0.6%	0.9%	2.0%	0.8%	1.1%

	Dec-12	Dec-13	Dec-14	Dec-15	Jun-16	Dec-16
Sweden						
• by the central government	0.80%	0.9%	0.80%	0.9%	1.1%	0.9%
• by other issuers	0.7%	0.8%	0.8%	0.7%	1.0%	0.9%
UK						
• by the central government	12.40%	9.8%	10.00%	10.6%	10.5%	10.0%
• by other issuers	1.8%	1.6%	1.5%	2.3%	1.6%	1.8%
US Treasury	2.6%	2.8%	3.6%	5.1%	6.6%	7.9%
US other issuers				1.0%	1.5%	2.2%
US but settled across EOC/CS						
<b>other countries</b>						
Bulgaria						
• by the central government	0.0%	0.0%	0.0%			
• by other issuers	0.0%	0.0%	0.0%			
Cyprus						
• by the central government	0.0%	0.0%	0.0%			
• by other issuers	0.00%	0.0%	0.00%			
Czech Republic						
• by the central government	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
• by other issuers	0.00%	0.0%	0.00%	0.0%	0.0%	0.0%
Estonia						
• by the central government	0.0%	0.0%	0.0%			
• by other issuers	0.00%	0.0%	0.00%			
Hungary						
• by the central government	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%
• by other issuers	0.00%	0.0%	0.00%	0.0%	0.0%	0.0%
Latvia						
• by the central government	0.0%	0.0%	0.0%			
• by other issuers	0.00%	0.0%	0.00%			
Lithuania						
• by the central government	0.0%	0.0%	0.0%			
• by other issuers	0.00%	0.0%	0.00%			
Malta						
• by the central government	0.0%	0.0%	0.0%			
• by other issuers	0.00%	0.0%	0.00%			
Poland						
• by the central government	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%
• by other issuers	0.00%	0.0%	0.00%	0.0%	0.0%	0.0%

	Dec-12	Dec-13	Dec-14	Dec-15	Jun-16	Dec-16
Romania						
• by the central government	0.0%	0.0%	0.0%			
• by other issuers	0.00%	0.00%	0.00%			
Slovak Republic						
• by the central government	0.0%	0.0%	0.0%			
• by other issuers	0.00%	0.00%	0.00%			
Slovenia						
• by the central government	0.0%	0.0%	0.0%			
• by other issuers	0.00%	0.10%	0.00%			
other EU members by central government				0.2%	0.2%	0.1%
other EU members by other issuers				0.1%	0.1%	0.0%
by official international financial institutions	1.4%	2.7%	2.2%	2.1%	1.6%	1.9%
Japan	3.20%	4.60%	8.60%			
• Japanese government				3.2%	4.2%	2.8%
• other Japanese issuers				1.6%	0.5%	1.5%
other Asian & Pacific OECD countries in the form of fixed income securities, except Eurobonds					0.5%	0.5%
other OECD countries in the form of fixed income securities, except Eurobonds					3.7%	4.1%
other OECD	12.7%	10.3%	6.5%	5.5%		
non-OECD EMEA	0.7%	0.6%	0.6%	0.6%	0.5%	0.6%
non-OECD Asian & Pacific	0.8%	0.4%	0.7%	0.6%	0.5%	0.4%
non-OECD Latin America	0.5%	0.5%	0.6%	0.7%	0.6%	0.5%
Eurobonds issued by European entities					1.2%	1.1%
Eurobonds issued by US entities					0.8%	0.1%
Eurobonds issued by Asian & Pacific entities					0.2%	0.3%
Eurobonds issued by other entities					0.4%	0.3%
equity	0.5%	0.3%	0.1%	0.1%	0.1%	0.3%
collateral of unknown origin or type	4.0%	2.5%	2.7%	2.4%	2.4%	1.6%
collateral in tri-party which cannot be attributed to a country or issuer		2.6%	3.5%	4.8%	3.6%	2.4%

	Dec-12	Dec-13	Dec-14	Dec-15	Jun-16	Dec-16
<b>Q2 What is the total value of securities loaned and borrowed by your repo desk: to/from counterparties</b>						
in the <b>same country</b> as you						
• in fixed income	40.8%	38.8%	38.3%	35.7%	28.2%	24.7%
• in equity	0.8%	1.1%	0.7%	0.4%	0.3%	0.5%
• cross-border in (other) <b>eurozone</b> countries						
• in fixed income	16.1%	23.8%	21.7%	35.0%	36.0%	34.8%
• in equity	1.2%	2.3%	1.1%	1.2%	2.6%	1.5%
• cross-border in <b>non-eurozone</b> countries						
• in fixed income	39.5%	32.3%	38.0%	26.9%	32.4%	37.5%
• in equity	1.6%	1.8%	0.3%	0.7%	0.5%	1.1%
for which the term to maturity is						
<b>fixed</b>	54.50%	54.7%	58.6%	66.7%	56.1%	62.9%
<b>open</b>	45.50%	45.30%	41.40%	33.3%	43.9%	37.1%

## Appendix D: The ICMA European Repo And Collateral 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 ERCC is available on [www.icmagroup.org](http://www.icmagroup.org).



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