

# 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 June 2018, the European Repo and Collateral Council (ERCC) of the International Capital Market Association (ICMA) conducted the 35<sup>th</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 June 6, 2018. Replies were received from 62 offices of 59 financial groups, mainly banks. Returns were also made directly by the principal automatic repo trading systems (ATS) and tri-party repo agents in Europe.

## Total repo business

The total value of the repo contracts outstanding on the books of the 62 institutions who participated in the latest survey was **EUR 7,351 billion**, compared with the EUR 7,250 billion in December 2017. This represents an increase in the 'headline' number since the last survey of 1.4% and 13.9% year-on-year. Using a constant sample of banks, it is estimated that the market grew 0.8% since December and 25.8% year-on-year. This growth was broadly based across the survey sample.

## Trading analysis

The uptrend in the share of directly-negotiated repo observed since 2012 had been reversed by June 2018 due to sharp rebound in electronic business transacted over automatic repo trading systems (ATS), the share of which jumped to 28.0% from 24.5%.

## Geographical analysis

The share of cross-border business reported by market participants contracted as anonymous trading recovered to its highest level since June 2016 (20.2%), but some of this contraction might reflect a migration of such business to ATS, as the share of cross-border electronic repo with parties outside the eurozone (as reported directly and separately by ATS) jumped to 45.2% from 42.8% in December.

## Clearing and settlement analysis

The share of tri-party repo in the survey fell back sharply to a low of 6.0% from 8.6% in December.

## Cash currency analysis

The share of Danish and Swedish currencies dropped back very sharply to 1.9% from the record 5.9% reached in December. The share of the US dollar also declined. The main beneficiary was the euro, which achieved its highest share since June 2014.

## Collateral analysis

The share of government bonds within the pool of EU-originated fixed-income collateral reported by market participants was little changed at 85.2%. This change was driven mainly by fall backs in the shares of Swedish and UK government securities. In contrast, French government securities reached a record 14.1% from 12.2% and JGBs increased to 4.0% from 3.3%. The share of Italian government securities did not appear to have responded to concerns about heightened country risk evident since the last survey in wider yield spreads to core eurozone securities.

## Maturity analysis

The share of short-dated positions rose to 57.5% from 55.4%, driven largely by more repos with one day and between eight days and one month remaining to maturity. However, the weighted average term to maturity again barely changed. There was a sharp fall in repo with one to three months remaining to maturity. There was another large increase in the share of forwards.

## Conclusion

The healthy growth of the European repo market seen in the previous survey was sustained in the first half of 2018. It would appear that the market has more or less fully adapted to recent waves of new regulation and much of the business is returning to normal. This is most evident in the overall resurgence of electronic trading across automatic repo trading systems, particularly anonymous electronic business cleared across CCPs, which suggests a recovery in interdealer activity in contrast to the focus on the customer franchise that was indicated by previous surveys. Another factor behind the market's recovery may have been the reduction by the ECB of its Asset Purchase Programme (APP) announced in October with effect from January.

One segment of the market that has not returned to any sort of historical normality is tri-party repo. Its share of the survey sample fell to 6.0%.

Another key feature of the latest survey is the jump in forward repos. It may be the case that they are starting to be used once again for interest rate trading. The same driver may be behind at least some of the growth in floating-rate repos.

# Chapter 1: The Survey

On June 6, 2018, the European Repo and Collateral Council (ERCC) of the International Capital Market Association (ICMA) conducted the 35<sup>th</sup> 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, who is based 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, June 6, 2018.

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. Once again, there was no return made by the London-based European Venues and Intermediaries Association (EVIA), formerly the Wholesale Market Brokers' Association (WMBA), because of an insufficient number of respondents.

## 1.2 The response to the survey

The latest survey was completed by 62 offices of 59 financial groups. This is two less than in the December 2017 survey. Five participants dropped out of the survey but three rejoined.

49 of the participants were headquartered across 15 European countries, including Norway (1) and Switzerland (2), as well as in Australia (1), Japan (4) and North America (8). 21 respondents were foreign affiliates, most of which (18) were located in the UK. 45 participants were based across 13 of the 28 member states of the EU (there were no institutions in the survey from Finland, Sweden or the former Accession States). 40 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, December 6, 2018.

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 December in the four previous years (2011-2018) are set out in Appendix C. The full results of all previous surveys can be found at [www.icmagroup.org](http://www.icmagroup.org).

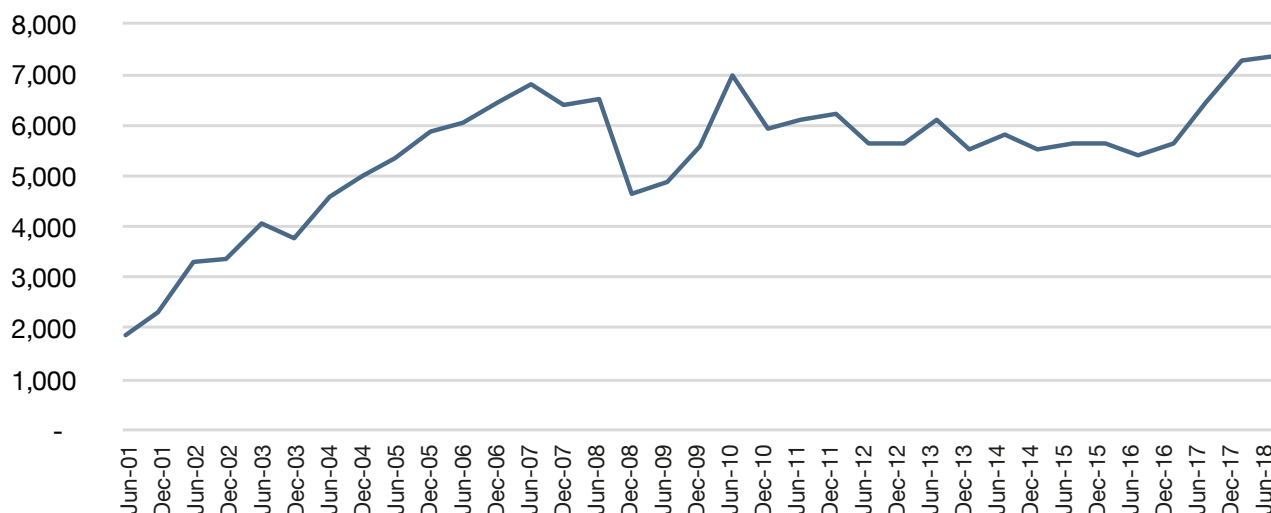
### Total repo business (Q1)

The total value, at close of business on June 6, 2018, of repos and reverse repos outstanding on the books of the 62 institutions which participated in the latest survey was a record **EUR 7,351.4 billion**, a rise in the headline number of 13.9% year-on-year and 1.4% since the December 2017 survey

**Table 2.1 – Total repo business from 2001 to 2018**

| survey        | total | repo  | reverse repo |
|---------------|-------|-------|--------------|
| 2018 June     | 7,351 | 48.7% | 51.3%        |
| 2017 December | 7,250 | 47.8% | 52.2%        |
| 2017 June     | 6,455 | 48.5% | 51.5%        |
| 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 business**



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 the latest survey, respondents were asked to report turnover since the last survey in December. Those who responded accounted for about 49% of total outstanding business. For this sub-sample, turnover over the intervening six months was about 15 times the outstanding volume at almost EUR 440 billion per day.

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.

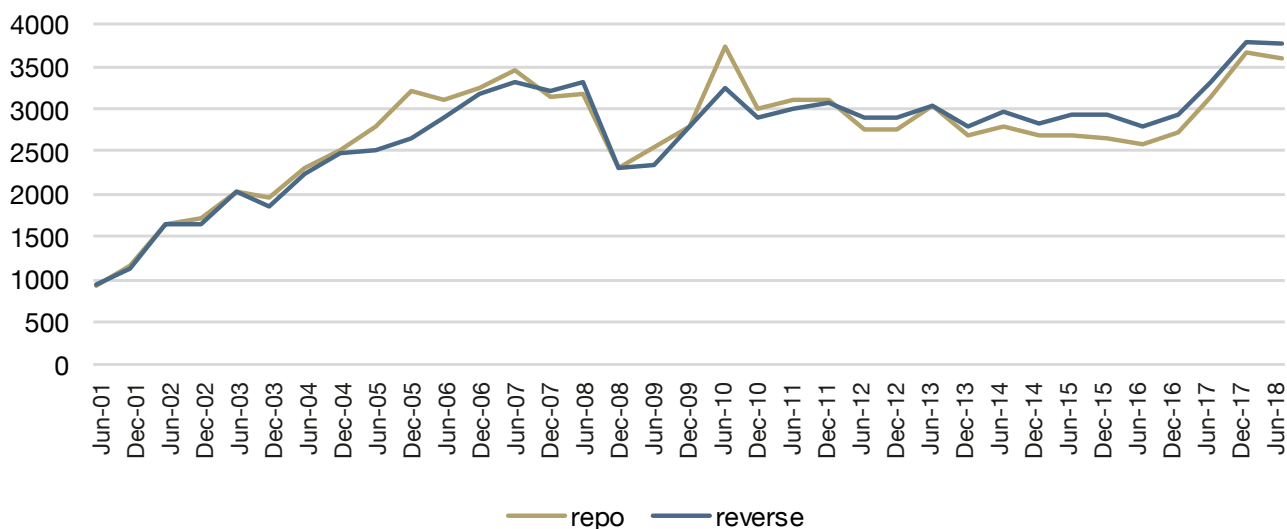
In order to accurately gauge the growth of the European repo market (or at least that segment represented by the institutions who have participated in the survey), it is not valid to simply compare headline numbers. Some of the changes will represent the entry and exit of institutions into and out of the survey, mergers between banks and the reorganization of repo books within banks. The latest survey has been affected by the return of a major participant and the arrival of a significant new participant. 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 62 institutions in the present survey, 57 have participated in all of the last three surveys. Overall, the aggregate value of outstanding repos and reverse repos transacted by that constant sample of these 57 institutions grew by 25.8% year-on-year and by 0.8% between the June 2018 and December 2017 surveys.

The growth since the last survey was reflected in the expansion of the repo books of 35 of the 62 institutions in the latest survey, compared with 34 out of 64 repo books which expanded in the December 2017 survey. The unweighted mean percentage change fell to +22.5% from +36.6% but the median percentage change increased to +8.7% from +0.2%. The position of the survey sample as a net lender to the rest of the market was reduced and was similar to the position in June 2017.



Figure 2.2 – Total repo versus reverse repo business



## Trading analysis (Q1.1)

Table 2.2 – Trading analysis

|                           | June 2018 |       | December 2017 |       | June 2017 |       |
|---------------------------|-----------|-------|---------------|-------|-----------|-------|
|                           | share     | users | share         | users | share     | users |
| <b>direct</b>             | 60.6%     | 62    | 63.3%         | 64    | 62.4%     | 64    |
| <i>of which tri-party</i> | 6.0%      | 43    | 8.6%          | 44    | 7.8%      | 43    |
| <b>voice-brokers</b>      | 11.4%     | 48    | 12.2%         | 46    | 11.0%     | 45    |
| <b>ATS</b>                | 28.0%     | 44    | 24.5%         | 44    | 26.6%     | 48    |

The uptrend in the share of **directly-negotiated** repo observed since 2012 had been reversed by June 2018 due to a sharp rebound in electronic business transacted over automatic repo trading systems (ATS). Moreover, the absolute size of the business reported directly by the principal ATS operating in Europe grew to EUR 1,216 from EUR 1,123 billion in December (+8.4%). However, once again, there were mixed fortunes among the ATS.

The share of tri-party repo in the survey fell back sharply to a low of 6.0% from 8.6% in December. Tri-party repo increased as a source of net funding for the rest of the repo market (76.1% of tri-party business by survey respondents was repo, ie cash borrowing, compared with 61.4% in December).

ATS (which is an interdealer market) continued to be used for net lending by the survey sample (53.6%).

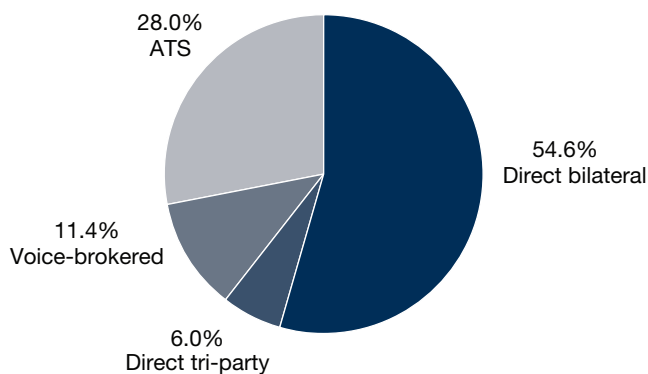
Direct business (which encompasses customers) was balanced between lending and borrowing.

Brokered repos was used for net lending.

Table 2.3 – Numbers of participants reporting particular types of business

|                        | Jun-18 | Dec-17 | Jun-17 | Dec-16 | Jun-16 | Dec-15 |
|------------------------|--------|--------|--------|--------|--------|--------|
| <b>ATS</b>             | 44     | 44     | 48     | 51     | 51     | 53     |
| <b>anonymous ATS</b>   | 40     | 40     | 42     | 42     | 47     | 46     |
| <b>voice-brokers</b>   | 48     | 46     | 45     | 48     | 50     | 56     |
| <b>tri-party repos</b> | 43     | 44     | 43     | 44     | 41     | 43     |
| <b>total</b>           | 62     | 64     | 64     | 65     | 67     | 72     |

Figure 2.3 - Trading analysis



## Geographical analysis (Q1.1)

Table 2.4 – Geographical analysis

|                                      | June 2018 |       | December 2017 |       | June 2017 |       |
|--------------------------------------|-----------|-------|---------------|-------|-----------|-------|
|                                      | share     | users | share         | users | share     | users |
| domestic                             | 25.5%     |       | 25.9%         |       | 23.7%     |       |
| cross-border to (other) eurozone     | 15.6%     |       | 16.5%         |       | 16.9%     |       |
| cross-border to (other) non-eurozone | 38.7%     |       | 40.5%         |       | 39.7%     |       |
| anonymous                            | 20.2%     | 40    | 17.1%         | 42    | 19.7%     | 42    |

The share of **cross-border** business reported by market participants contracted as anonymous trading recovered to its highest level since June 2016, but some of this contraction might reflect a migration of such business to ATS, as the share of electronic cross-border repo with parties outside the eurozone (as reported directly and separately by ATS) jumped to 45.2% from 42.8% in December.

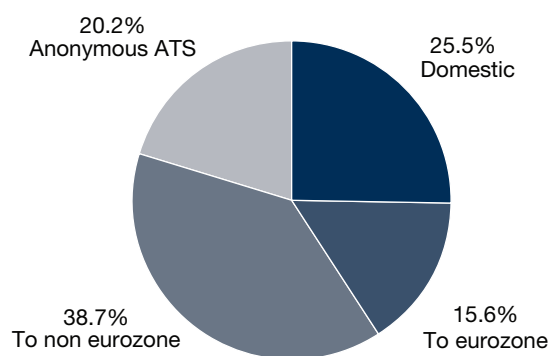
**Domestic** business by market participants declined modestly but retained most of the gains accrued in the second half of 2017. And there was a rebound in domestic business managed by tri-party agents (as reported directly and separately by the agents), largely at the expense of cross-border tri-party business with the non-eurozone.

The share of anonymous trading reported directly by ATS recovered to 96.8% from 95.3%, but was still below the all-time high of 99.3% in June 2017.

Table 2.5 – Geographical comparisons in June 2018 (December 2017)

|              | main survey   | ATS           | tri-party     |
|--------------|---------------|---------------|---------------|
| domestic     | 25.5% (25.9%) | 32.9% (32.6%) | 33.9% (29.3%) |
| cross-border | 54.3% (57.0%) | 67.1% (67.4%) | 66.1% (70.7%) |
| anonymous    | 20.2% (17.1%) |               |               |

**Figure 2.4 - Geographical analysis**



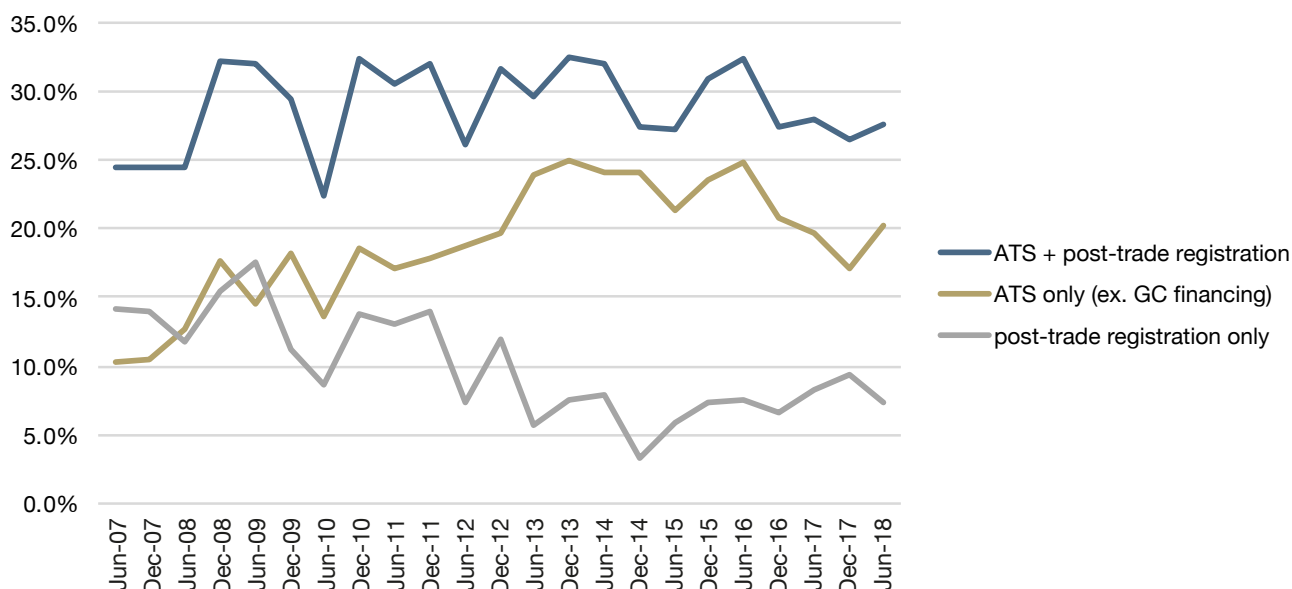
### Clearing and settlement analysis (Q1.2 and Q1.8)

The value of outstanding repo business managed by the five tri-party agents who contributed directly to the survey (compared to four in December) grew to EUR 660.4 billion from 635.9 billion.

The share of GC financing (mainly through Eurex Repo's Euro GC Pooling but also LCH's EuroGC Plus) was 1.0%, little changed from December. As a share of directly-reported electronic business, it dropped again, to 3.1% from 3.5% in December. The absolute value of outstanding GC financing reported directly by ATS declined to EUR 37.8 billion from EUR 39.0 billion.

The estimated share of transactions negotiated directly or via voice-brokers that were subsequently registered with a CCP retreated to 7.3% from 9.3%.

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



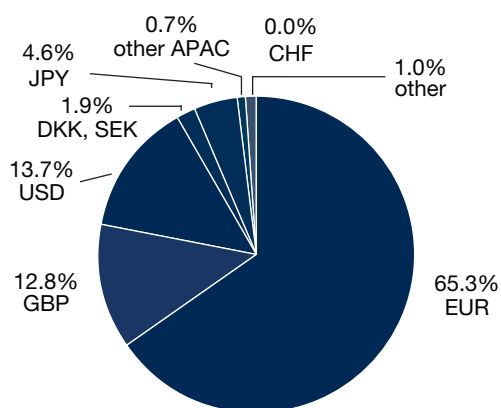
## Cash currency analysis (Q1.3 and Q1.4)

Table 2.6 – Cash currency analysis

|                | June 2018 | December 2017 | June 2017 |
|----------------|-----------|---------------|-----------|
| EUR            | 65.3%     | 60.9%         | 61.9%     |
| GBP            | 12.8%     | 12.3%         | 12.2%     |
| USD            | 13.7%     | 14.7%         | 16.9%     |
| DKK, SEK       | 1.9%      | 5.9%          | 2.7%      |
| JPY            | 4.6%      | 4.5%          | 4.5%      |
| CHF            | 0.0%      | 0.0%          | 0.0%      |
| other APAC     | 0.7%      | 0.4%          | 0.7%      |
| etc            | 1.0%      | 1.2%          | 1.0%      |
| cross-currency | 1.7%      | 1.4%          | 2.4%      |

The share of Danish and Swedish currencies dropped back very sharply to 1.9% from the record 5.9% reached in December (which may have been an anomaly). The share of the US dollar also declined. There is no evidence that this reflected the withdrawal of dollars from the international money market following the tax reforms introduced in the US in December. The main beneficiary was the euro, which reached its highest share since June 2014. Activity in the Japanese yen remained buoyant, supporting claims of a new wave of trading the dollar/yen basis and may also have reflected the positive impact of recent reforms in the domestic JGB repo market. The survey sample was a net cash borrower in US dollars and especially Swiss francs, and a net cash lender in euros, yen and other APAC currencies but especially in Danish krona, sterling and Swedish krona.

Figure 2.6 – Currency analysis



**Table 2.7 – Currency comparison in June 2018**

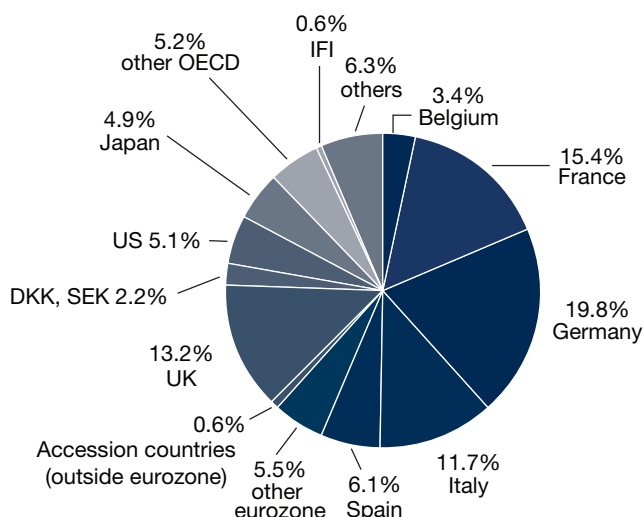
|                | main survey | ATS   | tri-party |
|----------------|-------------|-------|-----------|
| EUR            | 65.3%       | 93.0% | 48.8%     |
| GBP            | 12.8%       | 4.9%  | 6.0%      |
| USD            | 13.7%       | 0.8%  | 39.9%     |
| DKK, SEK       | 1.9%        |       | 0.9%      |
| JPY            | 4.6%        |       | 3.1%      |
| CHF            | 0.0%        | 1.3%  | 0.2%      |
| other APAC     | 0.7%        |       |           |
| etc            | 1.0%        |       | 0.2%      |
| cross-currency | 1.7%        |       | 0.9%      |

### Collateral analysis (Q1.9)

**Table 2.8 – Collateral analysis**

|                                      | June 2018 | December 2017 | June 2017 |
|--------------------------------------|-----------|---------------|-----------|
| Germany                              | 19.8%     | 19.6%         | 20.0%     |
| Italy                                | 11.7%     | 11.7%         | 12.0%     |
| France                               | 15.4%     | 13.2%         | 13.7%     |
| Belgium                              | 3.4%      | 3.0%          | 2.7%      |
| Spain                                | 6.1%      | 5.5%          | 5.0%      |
| other eurozone                       | 5.5%      | 4.2%          | 4.4%      |
| UK                                   | 13.2%     | 13.7%         | 13.5%     |
| DKK, SEK                             | 2.2%      | 6.3%          | 2.7%      |
| international financial institutions | 0.6%      | 1.0%          | 1.2%      |
| US Treasuries                        | 4.3%      | 4.6%          | 6.5%      |
| other US                             | 0.8%      | 1.2%          | 2.2%      |
| former Accession                     | 0.6%      | 0.4%          | 0.4%      |
| Japan government                     | 4.0%      | 3.3%          | 3.4%      |
| other Japan                          | 0.9%      | 1.1%          | 1.0%      |
| other OECD ex APAC                   | 5.2%      | 3.7%          | 4.3%      |
| other APAC OECD                      | 1.3%      | 0.8%          | 0.4%      |
| eurobonds                            | 1.8%      | 1.8%          | 1.8%      |
| other fixed income                   | 3.0%      | 3.4%          | 4.6%      |
| equity                               | 0.2%      | 0.2%          | 0.2%      |

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



The share of **government bonds** within the pool of EU-originated fixed-income collateral reported by market participants contracted slightly to 85.2% from 85.7%, well below the 13-year high of 87.6% reached in June 2017. This change was driven mainly by fall backs in the shares of Swedish and UK government securities (respectively, to 0.7% from 2.9% and to 11.1% from 12.1%). In contrast, French government securities reached a record 14.1% from 12.2% and JGBs increased to 4.0% from 3.3%. Smaller core Eurozone government securities also gained share (to 5.9% from 4.7%), as did Spanish government debt (to 4.4% from 4.0%). The share of Italian government securities did not appear to have responded to concerns about heightened country risk evident since the last survey in wider yield spreads to core eurozone securities.

ATS reported significant increases in the shares of French and Spanish government securities (to a record 16.4% from 14.9% and 8.6% from 7.8%, respectively). There were falls in the shares of German, Italian and UK governments securities (to 24.8% from 26.9%, 31.3% from 32.6% and 5.3% from 6.3%, respectively). The share of electronically-traded Italian government debt repo has fallen continuously since December 2015 and is now at the level last seen in December 2012.

In tri-party repo, there were declines in most European government securities and also in European eurobonds (6.1% from 12.8%) but expansion in the shares of US Treasuries (3.9% from 2.7%), JGBs (4.8% from 3.9%), emerging market Eurobonds (to 7.3% from 4.7%) and equity (to 3.5% from 0.8%). The total share of government securities in directly-reported tri-party repo continued to fall, touching 43.8% from 46.1%.

The survey sample were significant net lenders of Belgian and German government securities, UK non-government securities and other OECD securities, and net borrowers of Japanese, French, Italian and UK government securities. It was also a net borrower of collateral from APAC counterparties.

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

|            | June 2018 | December 2017 | June 2017 |
|------------|-----------|---------------|-----------|
| AAA        | 23.7%     | 23.2%         | 24.0%     |
| AA         | 24.7%     | 27.2%         | 27.3%     |
| A          | 11.5%     | 10.2%         | 9.6%      |
| BBB        | 13.7%     | 13.5%         | 12.5%     |
| below BBB- | 6.1%      | 6.0%          | 7.1%      |
| A1/P1      | 2.8%      | 2.9%          | 2.0%      |
| A2/P2      | 0.5%      | 0.5%          | 0.7%      |
| Non-Prime  | 0.0%      | 0.0%          | 0.0%      |
| unrated    | 17.0%     | 16.4%         | 16.8%     |

Figure 2.8 - Collateral analysis (tri-party agents) by change in credit rating (Dec 14 - June 18)

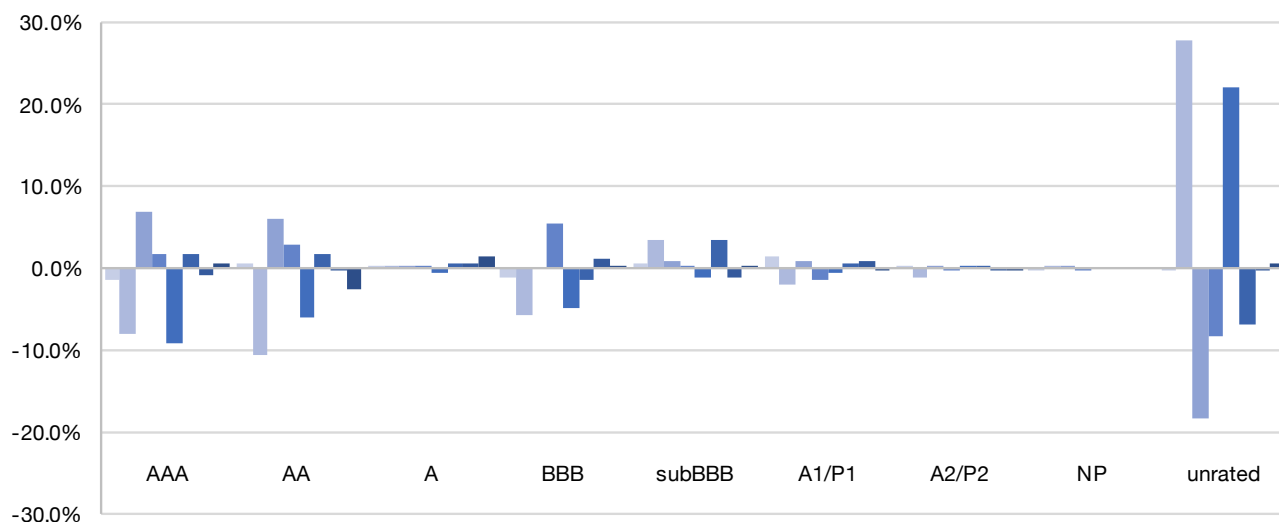


Table 2.10 – Tri-party repo collateral analysed by type of asset

|  | June 2018 | December 2017 | June 2017 |
|--|-----------|---------------|-----------|
| government securities                      | 43.8%     | 46.1%         | 47.7%     |
| public agencies / sub-national governments | 11.4%     | 11.0%         | 11.1%     |
| supranational agencies                     | 2.4%      | 2.8%          | 3.6%      |
| corporate bonds                            | 16.6%     | 17.6%         | 15.6%     |
| covered bonds                              | 6.7%      | 6.4%          | 5.9%      |
| residential mortgage-backed                | 1.3%      | 1.3%          | 1.0%      |
| commercial mortgage-backed                 | 0.1%      | 0.1%          | 0.1%      |
| other asset-backed                         | 0.9%      | 1.2%          | 0.9%      |
| CDO, CLN, CLO, etc                         | 1.0%      | 0.7%          | 0.4%      |
| convertible bonds                          | 1.5%      | 1.1%          | 1.1%      |
| equity                                     | 13.4%     | 11.1%         | 11.7%     |
| other                                      | 1.0%      | 0.5%          | 0.8%      |

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

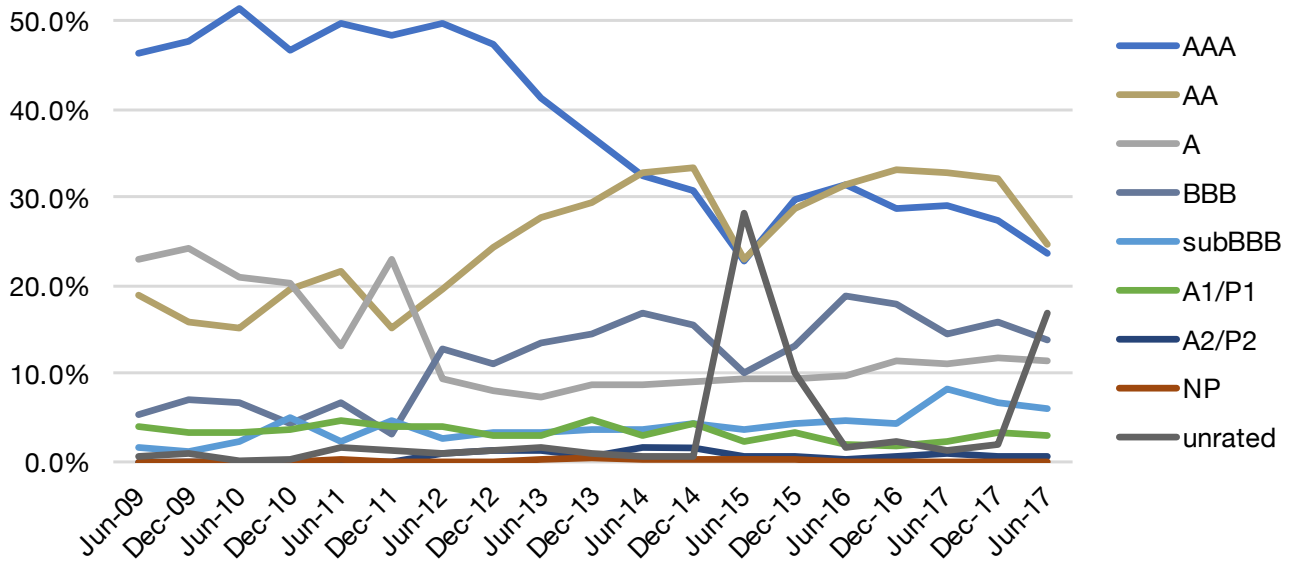


Figure 2.10 - Collateral analysis (tri-party agents) by type of asset

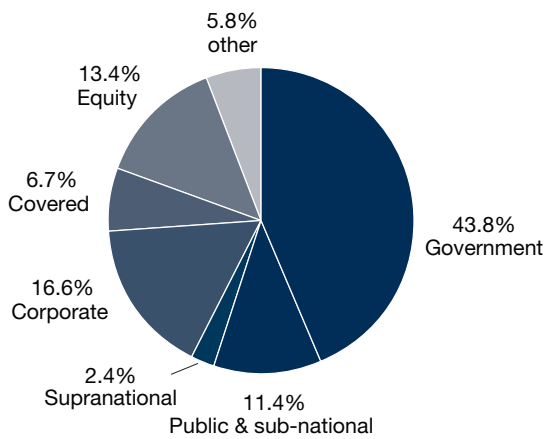




Figure 2.11 – Historic collateral analysis (tri-party agents) by type of asset

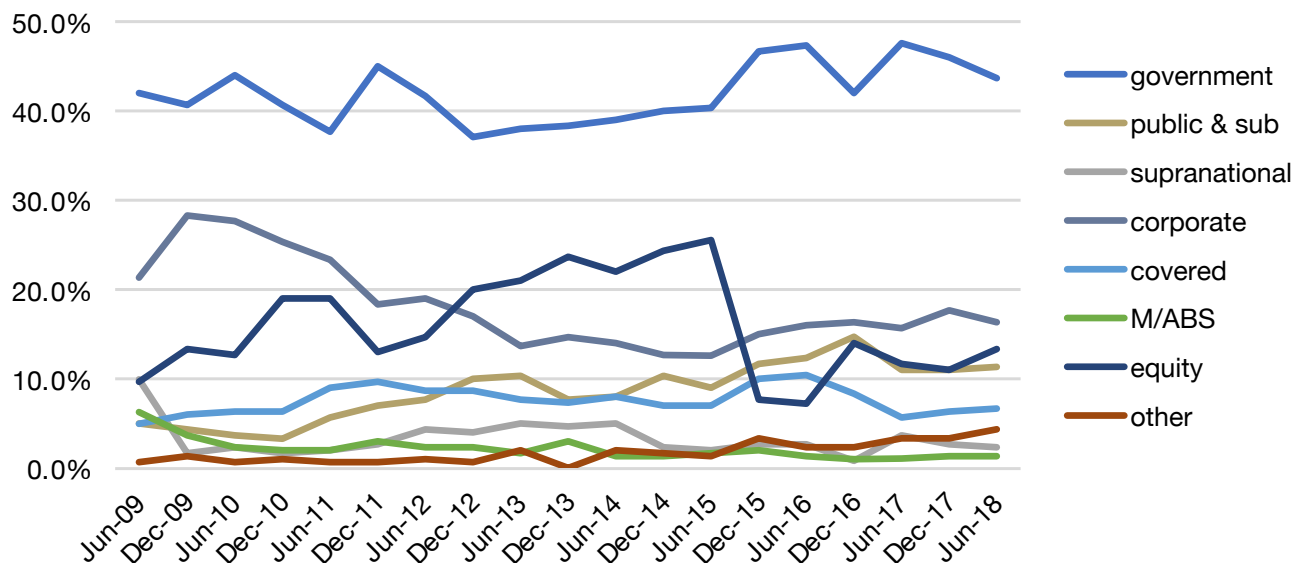


Table 2.11 – Tri-party repo collateral haircuts analysed by type of asset

| (weighted average haircuts)                | June 2018 | December 2017 | June 2017 |
|--|-----------|---------------|-----------|
| government securities                      | 2.7%      | 2.2%          | 2.4%      |
| public agencies / sub-national governments | 2.5%      | 2.3%          | 2.9%      |
| supranational agencies                     | 1.9%      | 2.9%          | 2.7%      |
| corporate bonds (financial)                | 6.1%      | 6.0%          | 6.4%      |
| corporate bonds (non-financial)            |           |               |           |
| covered bonds                              | 3.1%      | 3.3%          | 3.9%      |
| residential mortgage-backed                | 6.3%      | 4.5%          | 5.7%      |
| commercial mortgage-backed                 |           |               |           |
| other asset-backed                         | 3.9%      | 3.9%          | 5.0%      |
| CDO, CLN, CLO, etc                         | 4.1%      | 3.3%          | 5.4%      |
| convertible bonds                          | 8.5%      | 10.8%         | 8.9%      |
| equity                                     | 7.1%      | 6.8%          | 7.1%      |
| other                                      | 5.6%      | 5.1%          | 5.1%      |

## Contract analysis (Q1.5)

Figure 2.12 - Contract analysis

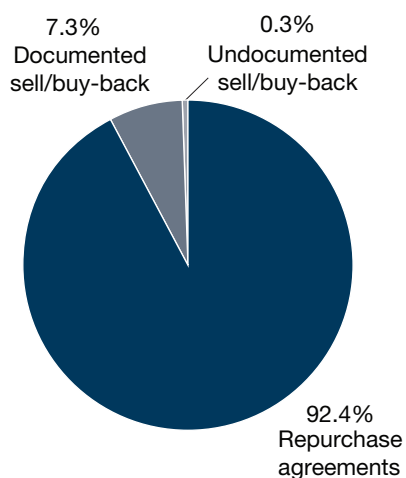


Table 2.12 – Contract comparison in June 2018 (December 2017)

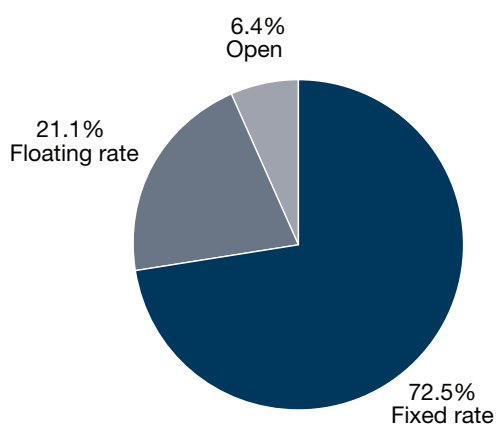
|                             | main survey   | ATS           | tri-party       |
|-----------------------------|---------------|---------------|-----------------|
| repurchase agreements       | 92.4% (86.0%) | 92.2% (64.0%) | 100.0% (100.0%) |
| documented sell/buy-backs   | 7.3% (13.8%)  | 7.8% (36.0%)  |                 |
| undocumented sell/buy-backs | 0.3% (0.2%)   |               |                 |

The switch by MTS from sell/buy-backs to repurchase transactions in July 2017 appears to have impacted the survey at last and repurchase transactions are now the overwhelmingly predominant form of repo.

## Repo rate analysis (Q1.6)

There was a jump in the share of floating-rate repos reported by market participants, which was reflected to a lesser extent in electronic repo but not tri-party. Some of this increase may be derived from the growth of repo against French government securities but probably also reflects interest rate expectations (although the survey sample was a net lender in floating-rate repo).

Figure 2.13 - Repo rate analysis



**Table 2.13 – Repo rate comparison in June 2018 (December 2017)**

|               | main survey   | ATS           | tri-party     |
|---------------|---------------|---------------|---------------|
| fixed rate    | 72.5% (80.6%) | 83.7% (85.3%) | 20.1% (21.9%) |
| floating rate | 21.1% (13.2%) | 16.3% (14.7%) | 6.8% (7.8%)   |
| open          | 6.4% (6.2%)   |               | 73.2% (70.3%) |

### Maturity analysis (Q1.7)

**Table 2.14 – Maturity analysis**

|                        | June 2018 | December 2017 | June 2017 |
|------------------------|-----------|---------------|-----------|
| open                   | 6.3%      | 7.8%          | 6.6%      |
| 1 day                  | 18.9%     | 16.9%         | 18.4%     |
| 2 days to 1 week       | 21.7%     | 22.6%         | 22.3%     |
| 1 week to 1 month      | 16.9%     | 15.9%         | 20.0%     |
| >1 month to 3 months   | 11.2%     | 16.3%         | 12.6%     |
| >3 months to 6 months  | 4.3%      | 4.4%          | 4.9%      |
| >6 months to 12 months | 3.3%      | 2.5%          | 3.2%      |
| >12 months             | 1.3%      | 1.5%          | 1.5%      |
| forward-start          | 16.1%     | 12.2%         | 10.5%     |

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

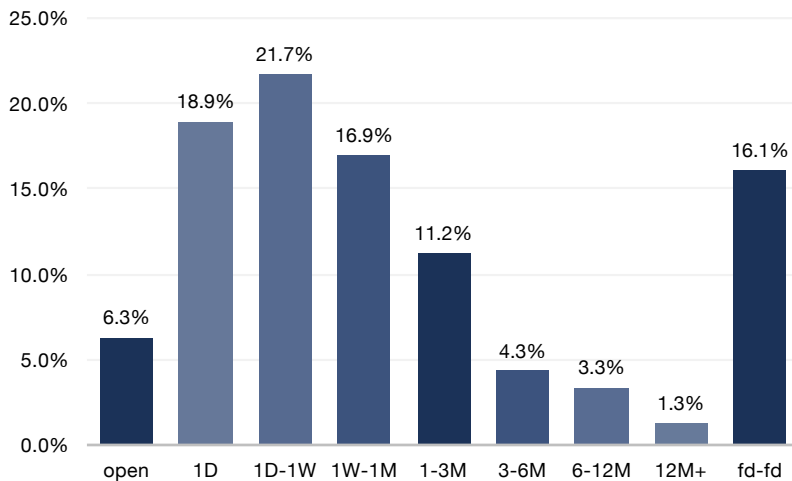


Figure 2.15 – Maturity analysis: short dates, longer terms & forwards (main survey)

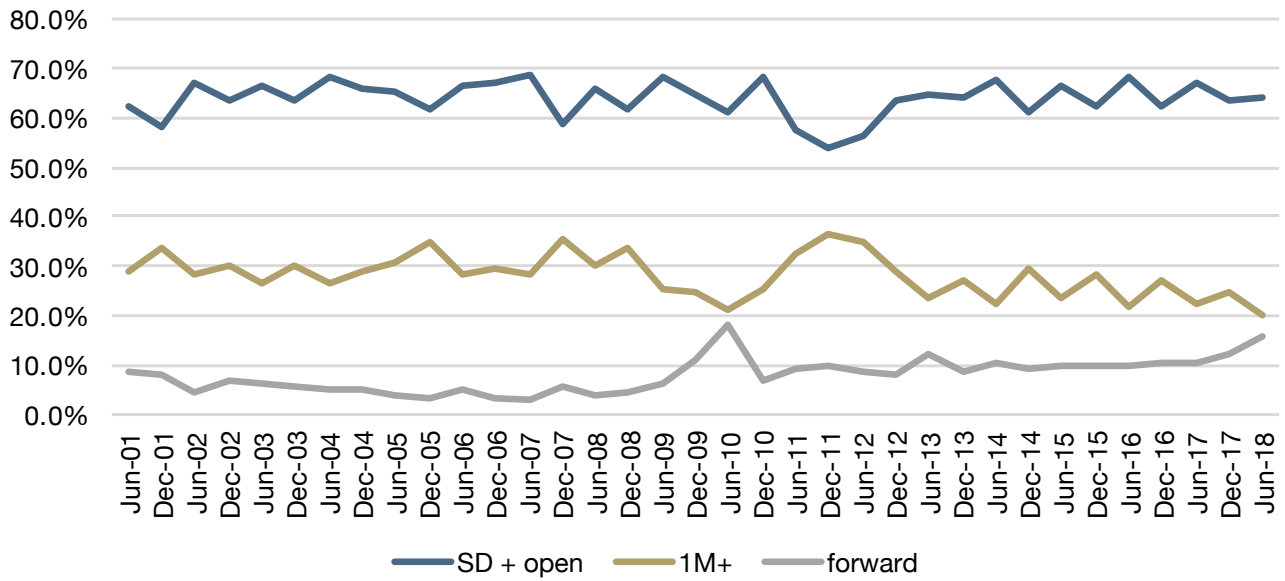
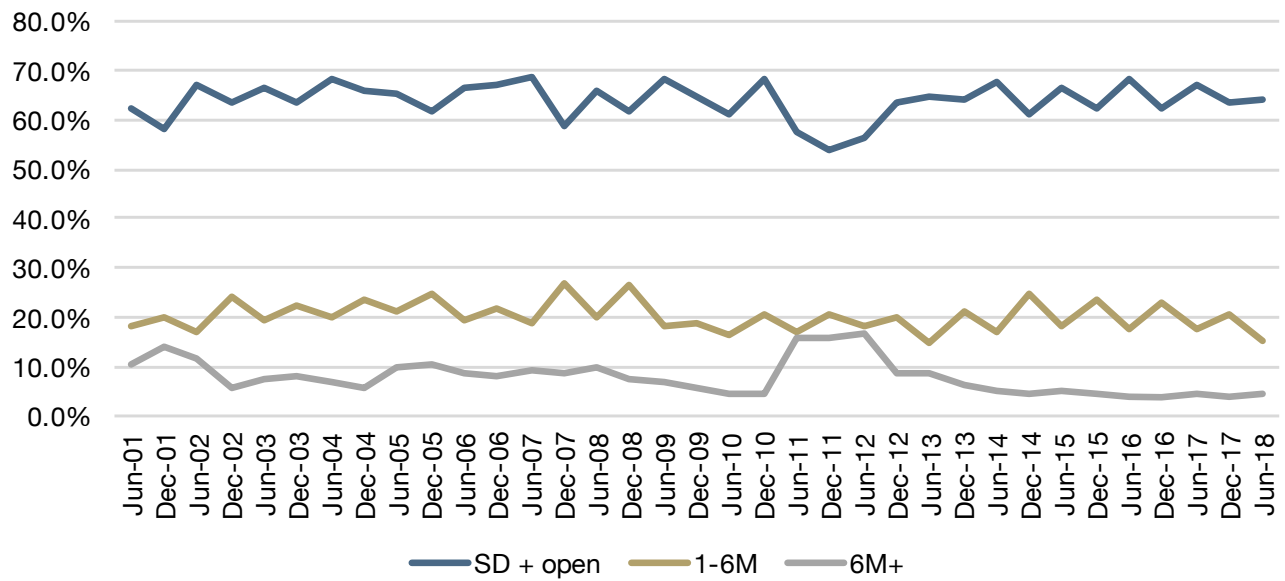
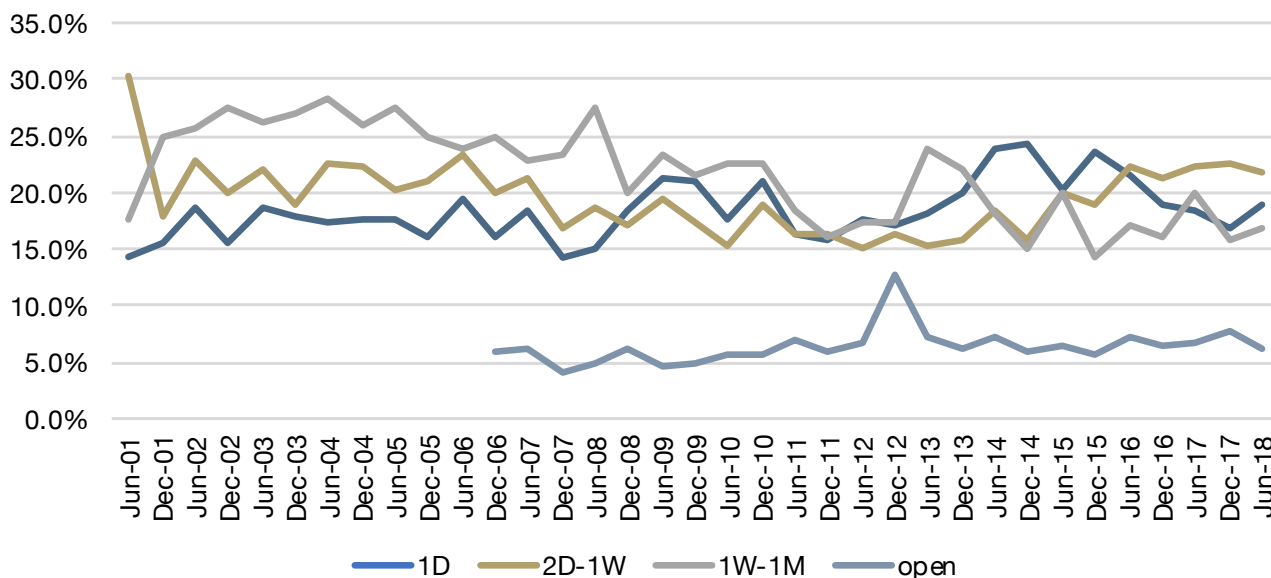


Figure 2.16 – Maturity analysis: non-forward terms (main survey)



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



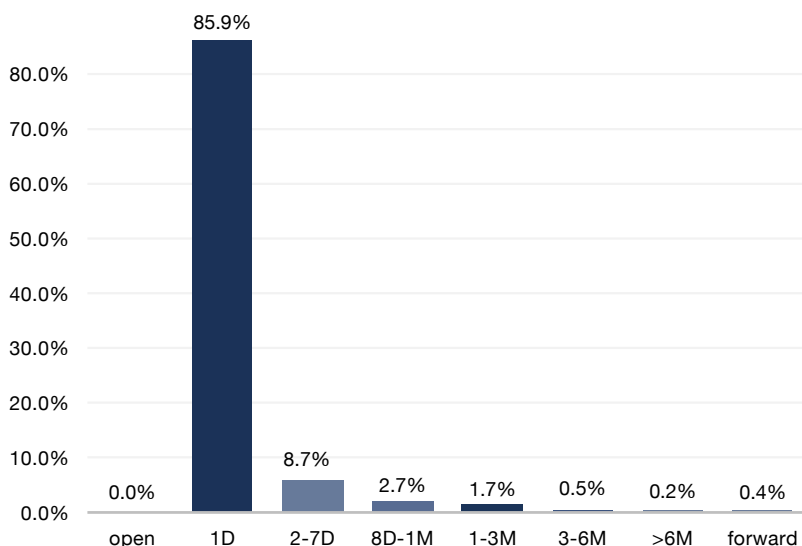
Overall, the market as represented by the survey sample continues to be a net cash borrower in open repos and repos with one week or less remaining to maturity and a net lender in other maturity brackets.

The share of short-dated positions rose to 57.5% from 55.4%, driven largely by more repos with one day and between eight days and one month remaining to maturity. However, the weighted average term to maturity again barely changed, spanning 24-56 days compared to 24-57 days in December 2017 (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). There was a sharp fall in repo with one to three months remaining to maturity. The shares of repo with just over one month to six months continued to be seasonal. There was another larger increase in the share of forwards, which could have been driven by interest rate expectations, although the survey sample was a net forward lender of cash.

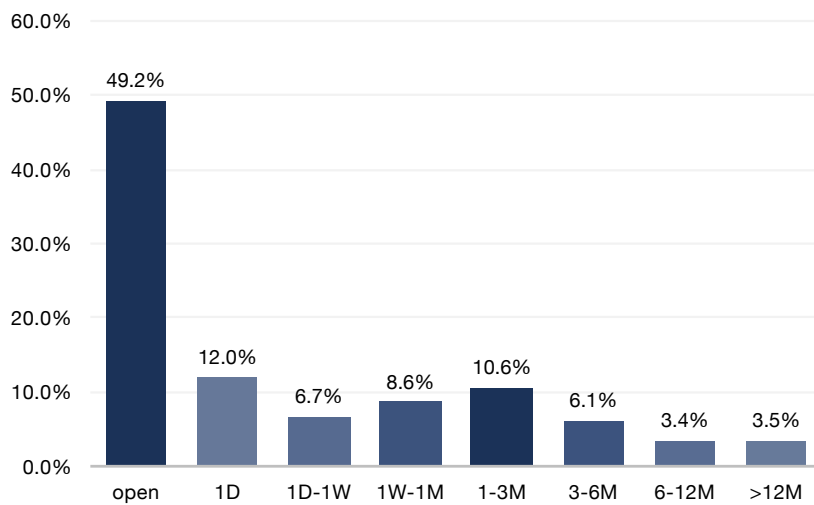
In contrast to the main survey, there was a shortening of remaining maturities in electronic trading reported directly and separately by ATS, with short-dates increasing to 97.2% from 93.8%, largely driven by an increase remaining maturities of one day to 85.9% from 83.9%, although this share remains below the levels seen between June 2016 to June 2017 (up to 95.1%).

In tri-party repo, as reported directly and separately by tri-party agents, there was a jump in repos with one day remaining to maturity to 12.0% from 7.7%.

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



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



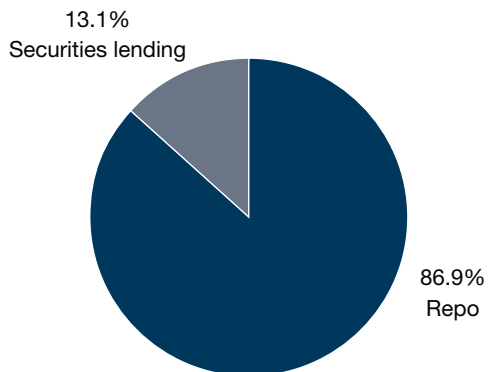
**Table 12.15 – Maturity comparison in June 2018 (December 2017)**

|                        | main survey   | ATS           | tri-party     |
|------------------------|---------------|---------------|---------------|
| open                   | 6.3% (7.8%)   |               | 49.2% (48.8%) |
| 1 day                  | 18.9% (16.9%) | 85.9% (83.9%) | 12.0% (7.7%)  |
| 2 days to 1 week       | 21.7% (22.6%) | 8.7% (9.3%)   | 6.7% (7.8%)   |
| 1 week to 1 month      | 16.9% (15.9%) | 2.7% (3.8%)   | 8.6% (9.2%)   |
| >1 month to 3 months   | 11.2% (16.3%) | 1.7% (1.8%)   | 10.6% (10.4%) |
| >3 months to 6 months  | 4.3% (4.4%)   | 0.5% (0.6%)   | 6.1% (7.8%)   |
| >6 months to 12 months | 3.3% (2.5%)   | 0.1% (0.2%)   | 3.4% (4.4%)   |
| >12 months             | 1.3% (1.5%)   | 0.1% (0.3%)   | 3.5% (3.8%)   |
| forward-start          | 16.1% (12.2%) | 0.4% (0.0%)   |               |

## Product analysis (Q2)

The share of securities lending conducted on repo desks rose.

Figure 2.20 – Product analysis

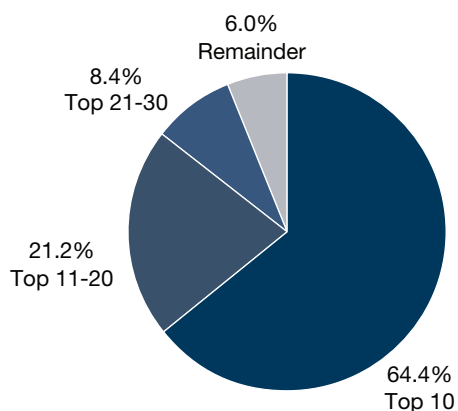


## Concentration analysis

Table 2.16 – Concentration analysis

|        | June 2018 | December 2017 | June 2017 |
|--------|-----------|---------------|-----------|
| top 10 | 64.4%     | 60.9%         | 62.1%     |
| top 20 | 85.6%     | 84.7%         | 85.3%     |
| top 30 | 94.0%     | 93.8%         | 93.7%     |
| other  | 6.0%      | 6.2%          | 6.3%      |

Figure 2.21 - Concentration analysis



**Table 2.17 – Herfindahl Index<sup>1</sup>**

|                      | <b>index</b> | <b>numbers in survey</b> |
|----------------------|--------------|--------------------------|
| <b>December 2003</b> | 0.045        | 76                       |
| <b>June 2004</b>     | 0.040        | 81                       |
| <b>December 2004</b> | 0.047        | 76                       |
| <b>June 2005</b>     | 0.043        | 81                       |
| <b>December 2005</b> | 0.043        | 80                       |
| <b>June 2006</b>     | 0.042        | 79                       |
| <b>December 2006</b> | 0.050        | 74                       |
| <b>June 2007</b>     | 0.041        | 76                       |
| <b>December 2007</b> | 0.040        | 68                       |
| <b>June 2008</b>     | 0.044        | 61                       |
| <b>December 2008</b> | 0.049        | 61                       |
| <b>June 2009</b>     | 0.051        | 61                       |
| <b>December 2009</b> | 0.065        | 58                       |
| <b>June 2010</b>     | 0.105        | 57                       |
| <b>December 2010</b> | 0.064        | 57                       |
| <b>June 2011</b>     | 0.074        | 58                       |
| <b>December 2011</b> | 0.065        | 64                       |
| <b>June 2012</b>     | 0.062        | 62                       |
| <b>December 2012</b> | 0.054        | 71                       |
| <b>June 2013</b>     | 0.046        | 65                       |
| <b>December 2013</b> | 0.046        | 67                       |
| <b>June 2014</b>     | 0.046        | 65                       |
| <b>December 2014</b> | 0.043        | 67                       |
| <b>June 2015</b>     | 0.044        | 65                       |
| <b>December 2015</b> | 0.041        | 72                       |
| <b>June 2016</b>     | 0.050        | 67                       |
| <b>December 2016</b> | 0.056        | 65                       |
| <b>June 2017</b>     | 0.052        | 64                       |
| <b>December 2017</b> | 0.049        | 64                       |
| <b>June 2018</b>     | 0.053        | 62                       |

<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 healthy growth of the European repo market seen in the previous survey was sustained in the first half of 2018 but was more broadly based. It would appear that the market has more or less fully adapted to recent waves of new regulation and much of the business is returning to normal and may be benefiting from the demand for securities collateral being generated by the regulation of OTC derivatives, as well as the gradually improving general macro-economic picture in Europe. This is most evident in the overall resurgence of electronic trading across automatic repo trading systems, particularly anonymous electronic business cleared across CCPs, although some ATS did better than others. Cleared electronic repo is currently restricted to dealers, so there appears to have been a recovery in interdealer activity in contrast to the focus on the customer franchise that was suggested by previous surveys. Another factor behind the market's recovery may have been the halving by the ECB of its Asset Purchase Programme (APP) announced in October 2017 with effect from January.

One segment of the market that has not returned to any sort of historical normality is tri-party repo. Its share of the survey fell to 6.0%, although there was some growth in absolute size. As a general collateral business used for funding rather than collateral management, tri-party repo (including GC financing facilities) has been depressed by the extraordinary monetary operations of central banks since the crisis that erupted in 2008. It appears to be continuing to suffer, which suggests that the winding down of the ECB's APP has benefitted collateral rather than cash trading in the repo market.

Another key feature of the latest survey is the jump in forward repos. Traditionally, these were used for interest-rate trading but, in the aftermath of the crisis and the monetary policy response, when interest rates were pinned down by central banks, the continued high volumes of forwards suggested that their use had switched to anticipatory collateral management. It may be the case that they are starting to be used once again for interest rate trading. The same driver may be behind at least some of the growth in floating-rate repos.

## 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. He is also Course Director of the ICMA Professional Repo Market Course and of the ICMA-ISLA GMRA-GMSLA Workshop and author of the ICMA's 'Guide to Best Practice in the European Repo Market' and its Repo FAQs.

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, World Bank, other multilateral development banks and other organizations 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 and Collateral 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/).

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, June 6, 2018.

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, June 6, 2018, and various breakdowns of these amounts, as well as the total value of all repos and reverse repos turned over the six months since the previous survey (which was on December 6, 2017).

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. simultaneas 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, June 6, 2018*. 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, June 7, 2018. You should include all *open repos and reverse repos* that have been rolled over from Wednesday, June 6, 2018, to a later date and all *forward-forward repos and reverse repos* that are still outstanding as forward contracts at close on Wednesday, June 6, 2018.
- 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, June 6, 2018, 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) "ATs" 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, MEFF and Eurex Clearing) should be recorded in either (1.1.3.4) or (1.1.3.5). (1.1.3.4) is for GC financing systems. These are ATS that are connected to a CCP **and** a tri-party repo service. Examples include Eurex Euro GC Pooling and LCH's €GC Plus. They do not include GC basket trading on ATS in which the seller selects the securities to be delivered from a list prescribed by the 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, June 6, 2018, with a repurchase date on Thursday, June 7, 2018;
  - overnight, tom/next, spot/next and corporate/next contracts transacted on Wednesday, June 6, 2018.
- (1.7.1.2) 2–7 days – this means:
- all contracts transacted prior to Wednesday, June 6, 2018, with a repurchase date on Friday, June 8, 2018, or any day thereafter up to and including Wednesday, June 13, 2018;
  - contracts transacted on Wednesday, June 6, 2018, with an original repurchase date on Friday, June 8, 2018, or any day thereafter up to and including Wednesday, June 13, 2018 (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, June 6, 2018, with a repurchase date on Thursday, June 14, 2018, or any day thereafter up to and including Friday, July 6, 2018;
  - contracts transacted on Wednesday, June 6, 2018, with an original repurchase date on Thursday, June 14, 2018, or any day thereafter up to and including Friday, July 6, 2018 (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, June 6, 2018, with a repurchase date on Monday, July 9, 2018, or any day thereafter up to and including Tuesday, March 6, 2018;
- contracts transacted on Wednesday, June 6, 2018, with an original repurchase date on Monday, July 9, 2018, or any day thereafter up to and including Thursday, September 6, 2018 (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, June 6, 2018, with a repurchase date on Friday, September 7, 2018, or any day thereafter up to and including Thursday, December 6, 2018;
- contracts transacted on Wednesday, June 6, 2018, with an original repurchase date on Friday, September 7, 2018, or any day thereafter up to and including Thursday, December 6, 2018 (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, June 6, 2018, with a repurchase date on Friday, December 7, 2018, or any day thereafter up to and including Thursday, June 6, 2019;
- contracts transacted on Wednesday, June 6, 2018, with an original repurchase date on Friday, December 7, 2018, or any day thereafter up to and including Thursday, June 6, 2019 (irrespective of the purchase date, which will vary).

(1.7.1.7) More than 12 months – this means;

- all contracts transacted prior to Wednesday, June 6, 2018, with a repurchase date on Friday, June 7, 2019, or any day thereafter;
- contracts transacted on Wednesday, June 6, 2018, with an original repurchase date on or after Friday, June 7, 2019 (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 traded or which it is possible to trade on a MiFIR-regulated trading venue (regulated market, multilateral trading facility or organised trading facility), forward-forward repos are defined for the purposes of this survey as contracts with a purchase date of Monday, June 11, 2018, 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 7, 2018).

(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.

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.

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 The rest of the survey (sections 1 and 3) ask for data measured in terms of the total gross value of transactions **outstanding** at the end of the survey date. In other words, the request is for the stock of business at that point in time and ignores all transactions that have matured before the latest survey date. The new section 2 asks for the total gross value of transactions executed from and 8 June 2017 (the day after the previous survey date) to but excluding the latest survey date. In other words, it asks for the **turnover** or flow of business over the six month interval and includes all business since the last survey date, even if it has matured before the survey date.
- 3 "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.
- 4 "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). 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  | 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 | Jun-17 | Dec-17 | Jun-18 |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| ABN Amro Bank  | 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      |        |        |
| Banc Sabadell  |        |        |        |        |        |        |        | x      | x      | 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      | 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      |
| Banco BPI  |        |        |        |        |        |        |        |        |        |        | x      | x      | x      | 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      | 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)           |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 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      |        |        |        |        |        |        |        |        |        |        |        |
| Landesbank Berlin  | 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      | x      |
| BHF-Bank   | x      | x      | x      | x      | x      | x      |        | x      | x      | x      | x      |        |        |        |        |        |        |        |        |        |
| BHF-Bank International   | 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      | 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   | 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 | Jun-17 | Dec-17 | Jun-18 |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| BW-Bank   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Caixa Bank  |        |        |        |        |        |        | x      | x      | 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      |        |        |        |        |        |
| 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      |
| CA-CIB (formerly Calyon)  | 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      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Citigroup Global Markets Ltd  | 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      |
| Canadian Imperial Bank of Commerce and Credit (CIBC)                                  |        |        |        | x      | x      |        | 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      |
| 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      |
| Danske Bank   | 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      |        |        |        |        |        |
| Dekabank Deutsche Girozentrale  |        |        |        |        |        |        |        |        | x      | x      | x      | x      | x      | x      | x      | x      | x      | x      | x      | x      |
| Delta Lloyd Securities  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| DNB Bank ASA  |        |        |        |        |        |        |        |        |        |        |        |        |        |        | x      | x      | x      | x      | x      | x      |
| DePfa ACS   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| DePfa Bank  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Deutsche Bank   | 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      |
| Belfius Bank (formerly Dexia)   | 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      | x      |
| Dexia Kommunal Bank Deutschland   | x      | x      | x      | x      |        | x      |        | x      | x      |        |        |        |        |        |        |        |        |        |        |        |
| Dresdner Bank   | x      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| DZ Bank   | 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      |
| Euroclear Bank  | 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      |        |        |        |        |        |        |        |        |



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|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 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      |
| 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      |
| Halifax Bank of Scotland                              |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| HSBC  | x      | x      | x      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| HSBC Athens   |        |        |        | x      | x      | x      | x      | x      | x      | x      | x      | x      | x      | x      | x      | x      | x      | x      | x      | x      |
| HSBC France   | 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      |
| 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      |        |        |        |
| 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      | x      | x      |
| JP Morgan   | 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      |
| KfW   |        |        |        |        |        | 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      |
| Landesbank Baden-Württemberg, Stuttgart               | 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      |
| Landesbank Rheinland Pfalz                            |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Landesbank Sachsen Girozentrale                       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Lehman Brothers                                       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Lloyds Bank   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | x      | x      |
| Macquarie Bank  |        |        |        |        |        | x      | 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      |
| Mitsubishi Securities International                   | x      | x      | 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      |
| Morgan Stanley  | 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      |        |        |        |
| 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      |
| Norddeutsche Landesbank Girozentrale                  | x      |        |        |        |        |        |        |        |        | x      | x      | x      | x      | x      | x      | x      | x      | x      | x      | x      |

| <b>List of respondents</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> | <b>Jun-17</b> | <b>Dec-17</b> | <b>Jun-18</b> |
|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Nordea Markets   | x             | x             | x             | x             | x             | x             | x             | x             | x             | x             | x             | x             | x             | x             |               | x             | x             | x             | x             | x             |
| Norinchukin Bank                                       |               | x             | x             | 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             |               |               | x             |               |
| Rabobank   | 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             | 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             |
| RBI  | x             | x             | x             | x             |               |               | x             |               | x             |               |               |               |               |               |               |               |               |               |               | x             |
| Sal. Oppenheim Jr.                                     |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| 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             |
| Toronto Dominion Bank                                  |               |               |               |               |               |               |               |               |               | x             | x             |               | x             | 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             |
| 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             |
| UniCredito Italiano Bank (Ireland)                     |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Vereins und Westbank                                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Westdeutsche Immobilien Bank                           |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Westdeutsche Landesbank Girozentrale                   |               | x             |               |               |               |               | x             |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Zagrabacka Banka                                       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| entry  | 6             | 7             | 2             | 5             | 3             | 5             | 10            | 5             | 9             | 8             | 4             | 2             | 4             | 0             | 7             | 1             | 2             | 4             | 3             | 3             |
| exit   | 6             | 7             | 5             | 6             | 3             | 4             | 4             | 7             | 0             | 2             | 2             | 4             | 2             | 2             | 0             | 6             | 3             | 5             | 3             | 6             |
|  | 61            | 61            | 58            | 57            | 57            | 58            | 64            | 62            | 71            | 65            | 67            | 65            | 67            | 65            | 72            | 67            | 65            | 64            | 64            | 61            |

## Appendix C: Summary Of Survey Results

|  | Jun-14       | Jun-15       | Jun-16       | Jun-17       | Dec-17       | Jun-18       |
|--|--------------|--------------|--------------|--------------|--------------|--------------|
| <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>5,782</b> | <b>5,612</b> | <b>5,379</b> | <b>6,465</b> | <b>7,250</b> | <b>7,351</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  | 14.4%        | 14.2%        | 13.9%        | 14.3%        | 16.2%        | 15.0%        |
| • cross-border in (other) <b>eurozone countries</b>  | 12.4%        | 13.8%        | 11.9%        | 12.4%        | 11.6%        | 11.9%        |
| • cross-border in <b>non-eurozone countries</b>  | 26.5%        | 29.6%        | 30.1%        | 35.7%        | 35.4%        | 33.7%        |
| through <b>voice-brokers</b>   |              |              |              |              |              |              |
| • in the <b>same country</b> as you  | 6.9%         | 5.1%         | 5.2%         | 5.4%         | 5.7%         | 5.8%         |
| • cross-border in (other) <b>eurozone countries</b>  | 3.5%         | 3.2%         | 3.1%         | 2.9%         | 3.1%         | 2.6%         |
| • cross-border in <b>non-eurozone countries</b>  | 3.6%         | 3.5%         | 2.8%         | 2.7%         | 3.4%         | 3.0%         |
| on <b>ATs</b> with counterparties  |              |              |              |              |              |              |
| • in the <b>same country</b> as you  | 3.9%         | 4.1%         | 4.0%         | 4.0%         | 4.0%         | 4.7%         |
| • cross-border in (other) <b>eurozone countries</b>  | 3.3%         | 4.2%         | 3.2%         | 1.6%         | 1.7%         | 1.1%         |
| • cross border-border in <b>non-eurozone countries</b>   | 1.6%         | 1.0%         | 0.9%         | 1.3%         | 1.7%         | 1.9%         |
| • anonymously across a GC financing system   | 5.8%         | 4.1%         | 3.5%         | 1.1%         | 0.9%         | 1.0%         |
| • anonymously across a central clearing counterparty but not GC financing  | 18.3%        | 17.2%        | 21.4%        | 18.6%        | 16.2%        | 19.3%        |
| • total through a central clearing counterparty  | 32.1%        | 27.2%        | 32.4%        | 28.0%        | 26.4%        | 27.6%        |
| <b>1.2 How much of the cash is denominated in:</b>   |              |              |              |              |              |              |
| • EUR  | 65.7%        | 63.4%        | 61.3%        | 61.9%        | 60.9%        | 65.3%        |
| • GBP  | 10.5%        | 11.3%        | 11.6%        | 12.2%        | 12.3%        | 12.8%        |
| • USD  | 14.5%        | 16.4%        | 17.1%        | 16.9%        | 14.7%        | 13.7%        |
| • SEK, DKK   | 2.4%         | 2.4%         | 2.6%         | 2.7%         | 5.9%         | 1.9%         |
| • JPY  | 5.4%         | 5.3%         | 5.2%         | 4.5%         | 4.5%         | 4.6%         |
| • CHF  | 0.1%         | 0.1%         | 0.0%         | 0.0%         | 0.0%         | 0.0%         |

|   | Jun-14 | Jun-15 | Jun-16 | Jun-17 | Dec-17 | Jun-18 |
|---|--------|--------|--------|--------|--------|--------|
| • other Asian and Pacific currencies  |        |        | 0.5%   | 0.7%   | 0.4%   | 0.7%   |
| • other currencies  | 1.3%   | 1.1%   | 1.6%   | 1.0%   | 1.2%   | 1.0%   |
| <b>1.3 How much is cross-currency?</b>  | 1.8%   | 2.6%   | 1.5%   | 0.0%   | 1.4%   | 1.7%   |
| <b>1.4 How much is:</b>   |        |        |        |        |        |        |
| • classic repo  | 85.4%  | 84.0%  | 82.6%  | 85.7%  | 86.0%  | 92.4%  |
| • documented sell/buy-backs   | 13.7%  | 15.0%  | 15.5%  | 12.9%  | 13.8%  | 7.3%   |
| • undocumented sell/buy-backs   | 0.9%   | 1.0%   | 1.9%   | 1.4%   | 0.2%   | 0.3%   |
| <b>1.5 How much is:</b>   |        |        |        |        |        |        |
| • fixed rate  | 79.6%  | 81.9%  | 82.5%  | 80.9%  | 80.6%  | 72.5%  |
| • floating rate   | 13.2%  | 11.5%  | 10.8%  | 12.7%  | 13.2%  | 21.1%  |
| • open  | 7.2%   | 6.5%   | 6.7%   | 6.4%   | 6.2%   | 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   | 20.9%  | 20.2%  | 21.6%  | 18.4%  | 16.9%  | 18.9%  |
| • 2 - 7days   | 16.8%  | 20.1%  | 22.4%  | 22.3%  | 22.6%  | 21.7%  |
| • more than 7 days but no more than 1 month   | 22.6%  | 19.9%  | 17.2%  | 20.0%  | 15.9%  | 16.9%  |
| • more than 1 month but no more than 3 months   | 11.7%  | 13.0%  | 13.1%  | 12.6%  | 16.3%  | 11.2%  |
| • more than 3 months but no more than 6 months  | 4.1%   | 5.3%   | 4.5%   | 4.9%   | 4.4%   | 4.3%   |
| • more than 6 months  | 3.6%   | 3.6%   | 2.7%   | 3.2%   | 2.5%   | 3.3%   |
| • more than 12 months   | 2.8%   | 1.4%   | 1.4%   | 1.5%   | 1.5%   | 1.3%   |
| • forward-forward repos   | 10.4%  | 10.0%  | 9.8%   | 10.5%  | 12.2%  | 16.1%  |
| • open  | 7.2%   | 6.5%   | 7.3%   | 6.6%   | 7.8%   | 6.3%   |
| <b>1.7 How much is tri-party repo:</b>  | 10.2%  | 9.3%   | 10.0%  | 7.8%   | 8.6%   | 6.0%   |
| • for fixed terms to maturity   | 93.4%  | 99.2%  | 91.1%  | 83.5%  | 87.9%  | 78.9%  |
| • on an open basis  | 6.6%   | 8.2%   | 9.2%   | 6.0%   | 3.7%   | 10.9%  |
| GCF   |        |        |        | 10.5%  | 8.4%   | 10.2%  |
| <b>1.8 How much is against collateral issued in:</b>  |        |        |        |        |        |        |
| Austria   |        |        |        |        |        |        |
| • by the central government   | 0.9%   | 0.9%   | 0.7%   | 0.8%   | 0.7%   | 0.9%   |
| • by other issuers  | 0.1%   | 0.1%   | 0.0%   | 0.1%   | 0.1%   | 0.1%   |

|                             | Jun-14 | Jun-15 | Jun-16 | Jun-17 | Dec-17 | Jun-18 |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| Belgium                     |        |        |        |        |        |        |
| • by the central government | 2.2%   | 2.2%   | 2.0%   | 2.1%   | 2.0%   | 2.5%   |
| • by other issuers          | 0.7%   | 1.1%   | 0.7%   | 0.6%   | 1.0%   | 0.9%   |
| Denmark                     |        |        |        |        |        |        |
| • by the central government | 0.5%   | 0.5%   | 0.3%   | 0.3%   | 0.4%   | 0.2%   |
| • by other issuers          | 0.8%   | 0.9%   | 0.9%   | 0.4%   | 1.0%   | 0.5%   |
| Finland                     |        |        |        |        |        |        |
| • by the central government | 0.6%   | 0.5%   | 0.5%   | 0.4%   | 0.4%   | 0.6%   |
| • by other issuers          | 0.0%   | 0.1%   | 0.1%   | 0.0%   | 0.0%   | 0.1%   |
| France                      |        |        |        |        |        |        |
| • by the central government | 9.5%   | 9.4%   | 10.1%  | 12.5%  | 12.2%  | 14.1%  |
| • by other issuers          | 1.3%   | 1.9%   | 0.8%   | 1.1%   | 1.0%   | 1.4%   |
| Germany                     |        |        |        |        |        |        |
| • by the central government | 14.2%  | 14.8%  | 17.8%  | 18.1%  | 17.9%  | 17.6%  |
| pfandbrief                  | 0.5%   | 0.6%   | 0.2%   | 0.1%   | 0.7%   | 1.1%   |
| • by other issuers          | 4.4%   | 3.9%   | 2.3%   | 1.6%   | 1.0%   | 1.1%   |
| Greece                      |        |        |        |        |        |        |
| • by the central government | 0.1%   | 0.0%   | 0.1%   | 0.1%   | 0.1%   | 0.2%   |
| • by other issuers          | 0.1%   | 0.0%   | 0.0%   | 0.1%   | 0.1%   | 0.2%   |
| Ireland                     |        |        |        |        |        |        |
| • by the central government | 0.4%   | 0.4%   | 0.3%   | 0.1%   | 0.1%   | 0.2%   |
| • by other issuers          | 0.2%   | 0.5%   | 0.3%   | 0.2%   | 0.1%   | 0.2%   |
| Italy                       |        |        |        |        |        |        |
| • by the central government | 9.9%   | 8.6%   | 10.0%  | 11.4%  | 11.2%  | 11.0%  |
| • by other issuers          | 0.7%   | 1.1%   | 0.4%   | 0.5%   | 0.6%   | 0.7%   |
| Luxembourg                  |        |        |        |        |        |        |
| • by the central government | 0.1%   | 0.1%   | 0.0%   | 0.1%   | 0.1%   | 0.1%   |
| • by other issuers          | 1.5%   | 0.4%   | 0.3%   | 0.2%   | 0.2%   | 0.2%   |
| Netherlands                 |        |        |        |        |        |        |
| • by the central government | 2.1%   | 1.7%   | 1.8%   | 1.5%   | 1.5%   | 1.8%   |
| • by other issuers          | 0.7%   | 0.8%   | 0.5%   | 0.2%   | 0.2%   | 0.3%   |
| Portugal                    |        |        |        |        |        |        |
| • by the central government | 0.4%   | 0.5%   | 0.5%   | 0.3%   | 0.4%   | 0.5%   |
| • by other issuers          | 0.1%   | 0.1%   | 0.1%   | 0.1%   | 0.1%   | 0.1%   |
| Spain                       |        |        |        |        |        |        |
| • by the central government | 5.2%   | 4.7%   | 5.0%   | 3.8%   | 4.0%   | 4.4%   |
| • by other issuers          | 1.1%   | 1.7%   | 0.8%   | 1.2%   | 1.4%   | 1.7%   |

|                              | Jun-14 | Jun-15 | Jun-16 | Jun-17 | Dec-17 | Jun-18 |
|------------------------------|--------|--------|--------|--------|--------|--------|
| Sweden                       |        |        |        |        |        |        |
| • by the central government  | 0.7%   | 0.8%   | 1.1%   | 0.9%   | 2.9%   | 0.7%   |
| • by other issuers           | 0.8%   | 0.7%   | 1.0%   | 0.9%   | 1.9%   | 0.8%   |
| UK                           |        |        |        |        |        |        |
| • by the central government  | 9.1%   | 9.7%   | 10.5%  | 11.7%  | 12.1%  | 11.1%  |
| • by other issuers           | 1.5%   | 2.4%   | 1.6%   | 1.6%   | 1.6%   | 2.1%   |
| US Treasury                  |        |        | 6.6%   | 6.5%   | 4.6%   | 4.3%   |
| US other issuers             |        |        | 1.5%   | 2.2%   | 1.2%   | 0.8%   |
| US but settled across EOC/CS | 2.6%   | 4.6%   |        |        |        |        |
| <b>other countries</b>       |        |        |        |        |        |        |
| Bulgaria                     |        |        |        |        |        |        |
| • by the central government  | 0.0%   | 0.1%   |        |        |        |        |
| • by other issuers           | 0.0%   | 0.0%   |        |        |        |        |
| Cyprus                       |        |        |        |        |        |        |
| • by the central government  | 0.0%   | 0.0%   |        |        |        |        |
| • by other issuers           | 0.0%   | 0.0%   |        |        |        |        |
| Czech Republic               |        |        |        |        |        |        |
| • by the central government  | 0.0%   | 0.0%   | 0.0%   | 0.2%   | 0.1%   | 0.2%   |
| • by other issuers           | 0.0%   | 0.0%   | 0.0%   | 0.0%   | 0.0%   | 0.0%   |
| Estonia                      |        |        |        |        |        |        |
| • by the central government  | 0.0%   | 0.0%   |        |        |        |        |
| • by other issuers           | 0.0%   | 0.0%   |        |        |        |        |
| Hungary                      |        |        |        |        |        |        |
| • by the central government  | 0.1%   | 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%   |
| Latvia                       |        |        |        |        |        |        |
| • by the central government  | 0.0%   | 0.0%   |        |        |        |        |
| • by other issuers           | 0.0%   | 0.0%   |        |        |        |        |
| Lithuania                    |        |        |        |        |        |        |
| • by the central government  | 0.0%   | 0.0%   |        |        |        |        |
| • by other issuers           | 0.0%   | 0.0%   |        |        |        |        |
| Malta                        |        |        |        |        |        |        |
| • by the central government  | 0.0%   | 0.0%   |        |        |        |        |
| • by other issuers           | 0.0%   | 0.0%   |        |        |        |        |
| Poland                       |        |        |        |        |        |        |
| • by the central government  | 0.2%   | 0.1%   | 0.1%   | 0.1%   | 0.1%   | 0.1%   |
| • by other issuers           | 0.0%   | 0.0%   | 0.0%   | 0.0%   | 0.0%   | 0.0%   |

|   | Jun-14 | Jun-15 | Jun-16 | Jun-17 | Dec-17 | Jun-18 |
|---|--------|--------|--------|--------|--------|--------|
| Romania   |        |        |        |        |        |        |
| • by the central government   | 0.0%   | 0.0%   |        |        |        |        |
| • by other issuers  | 0.0%   | 0.0%   |        |        |        |        |
| Slovak Republic   |        |        |        |        |        |        |
| • by the central government   | 0.0%   | 0.0%   |        |        |        |        |
| • by other issuers  | 0.0%   | 0.0%   |        |        |        |        |
| Slovenia  |        |        |        |        |        |        |
| • by the central government   | 0.0%   | 0.0%   |        |        |        |        |
| • by other issuers  | 0.0%   | 0.0%   |        |        |        |        |
| Other EU members by central government  |        |        | 0.2%   | 0.1%   | 0.1%   | 0.2%   |
| Other EU members by other issuers   |        |        | 0.1%   | 0.0%   | 0.1%   | 0.0%   |
| • by official international financial institutions  | 2.4%   | 2.1%   | 1.6%   | 1.2%   | 0.1%   | 0.6%   |
| Japan   | 4.8%   | 4.8%   |        |        |        |        |
| • Japanese government   |        |        | 4.2%   | 3.3%   | 3.3%   | 4.0%   |
| • Other Japanese issuers  |        |        | 0.5%   | 1.0%   | 1.1%   | 0.9%   |
| Other Asian & Pacific OECD countries in the form of fixed income securities, except eurobonds |        |        | 0.5%   | 0.4%   | 0.8%   | 0.4%   |
| Other OECD countries in the form of fixed income securities, except eurobonds                 |        |        | 3.7%   | 4.3%   | 3.7%   | 4.7%   |
| other OECD  | 11.2%  | 8.4%   |        |        |        |        |
| non-OECD EMEA   | 0.5%   | 0.6%   | 0.5%   | 0.4%   | 0.5%   | 0.4%   |
| non-OECD Asian & Pacific  | 0.5%   | 0.7%   | 0.5%   | 0.2%   | 0.3%   | 0.5%   |
| non-OECD Latin America  | 0.5%   | 0.6%   | 0.6%   | 0.4%   | 0.4%   | 0.4%   |
| eurobonds issued by European entities   |        |        | 1.2%   | 1.1%   | 1.0%   | 1.0%   |
| eurobonds issued by US entities   |        |        | 0.8%   | 0.0%   | 0.1%   | 0.1%   |
| eurobonds issued by Asian & Pacific entities  |        |        | 0.2%   | 0.3%   | 0.3%   | 0.4%   |
| eurobonds issued by other entities  |        |        | 0.4%   | 0.3%   | 0.3%   | 0.2%   |
| equity  | 0.1%   | 0.7%   | 0.1%   | 0.2%   | 0.2%   | 0.2%   |
| collateral of unknown origin or type  | 2.7%   | 2.5%   | 2.4%   | 1.3%   | 1.2%   | 1.0%   |
| collateral in tri-party which cannot be attributed to a country or issuer                     | 4.0%   | 3.5%   | 3.6%   | 2.3%   | 2.3%   | 2.0%   |

|   | Jun-14 | Jun-15 | Jun-16 | Jun-17 | Dec-17 | Jun-18 |
|---|--------|--------|--------|--------|--------|--------|
| <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   | 41.6%  | 30.2%  | 28.2%  | 26.3%  | 29.6%  | 26.8%  |
| • in equity   | 0.5%   | 2.3%   | 0.3%   | 0.4%   | 0.3%   | 0.2%   |
| • cross-border in (other) <b>eurozone</b> countries   |        |        |        |        |        |        |
| • in fixed income   | 20.8%  | 32.5%  | 36.0%  | 32.8%  | 29.7%  | 29.5%  |
| • in equity   | 1.3%   | 2.3%   | 2.6%   | 1.9%   | 1.8%   | 1.4%   |
| • cross-border in <b>non-eurozone</b> countries   |        |        |        |        |        |        |
| • in fixed income   | 35.2%  | 27.1%  | 32.4%  | 36.9%  | 37.2%  | 40.8%  |
| • in equity   | 0.5%   | 5.5%   | 0.5%   | 1.7%   | 1.5%   | 1.3%   |
| for which the term to maturity is   |        |        |        |        |        |        |
| <b>fixed</b>  | 60.5%  | 65.8%  | 56.1%  | 61.7%  | 66.9%  | 62.7%  |
| <b>open</b>   | 39.5%  | 34.2%  | 43.9%  | 38.3%  | 33.1%  | 37.3%  |



## 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 to commence, dedicated repo or collateral market activity, is willing to abide by the rules 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 six or seven times a year.

More information about the ERCC is available on [www.icmagroup.org](http://www.icmagroup.org).



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