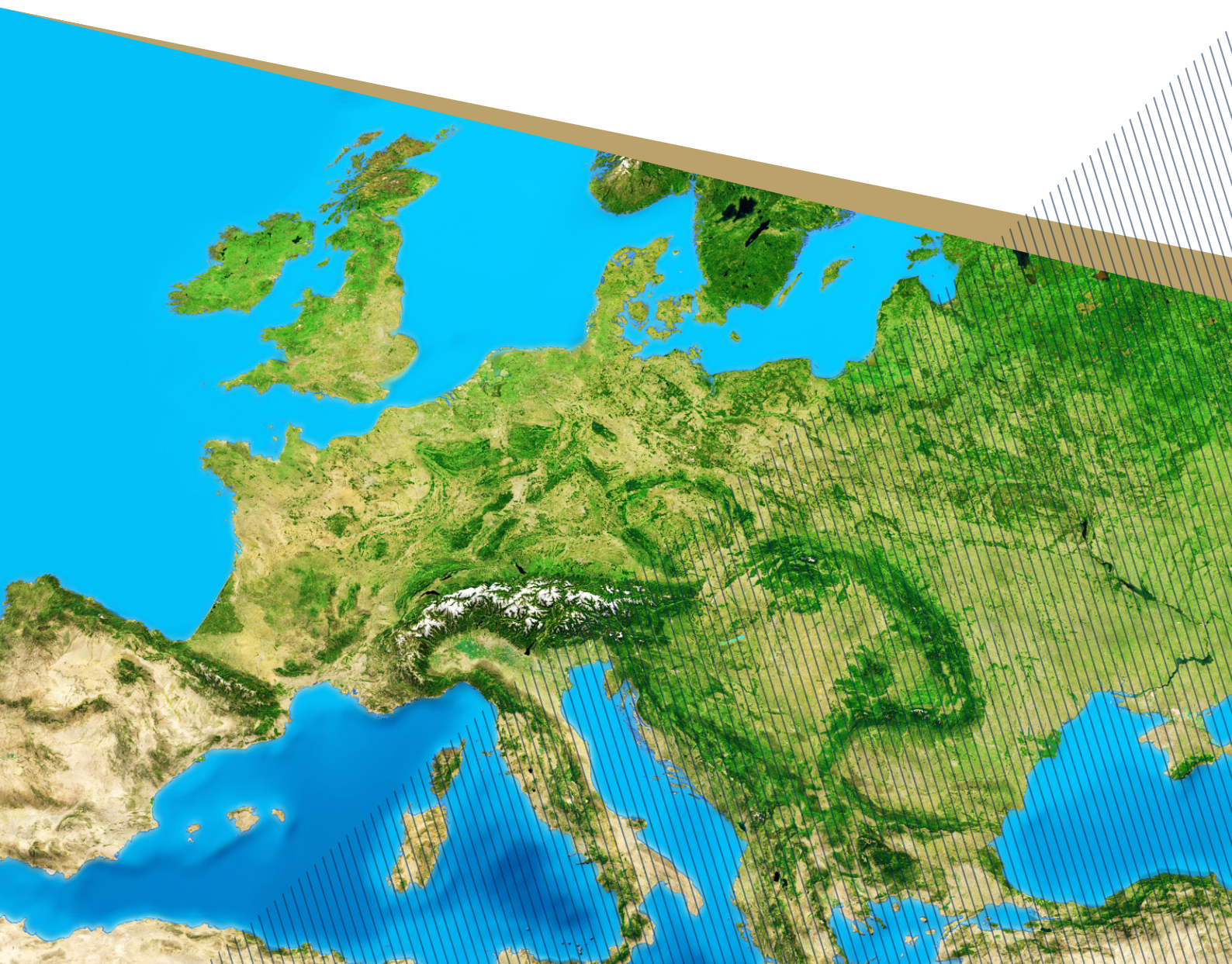


International Capital Market Association

European **Repo** Market Survey

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Disclaimer

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

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Executive Summary

In December 2018, the European Repo and Collateral Council (ERCC) of the International Capital Market Association (ICMA) conducted the 36th in its series of semi-annual surveys of the repo market in Europe. The latest survey asked a sample of financial institutions in Europe for the value and breakdown of their repo contracts that were still outstanding at close of business on December 5, 2018. Replies were received from 58 offices of 54 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 58 institutions who participated in the latest survey was **EUR 7,739 billion**, compared with the EUR 7,351 billion in June 2018. This represents an increase in the 'headline' number since the last survey of 4.9% and 6.3% year-on-year. Using a constant sample of banks, it is estimated that the market grew 4.8% since June and 5.9% year-on-year.

Trading analysis

The share of directly-negotiated repo continued to fall back from its peak in December 2017, largely due to increased electronic business transacted over automatic repo trading systems (ATS), although this is still well below the peak recorded in December 2015. The statistics may be showing greater reliance on electronic trading by participants in the survey compared with firms not participating in the survey. Voice-brokered repo may have resumed its secular decline.

Geographical analysis

Cross-border business fell back further. This reflected stronger domestic activity, in particular, directly-negotiated domestic business.

Clearing and settlement analysis

The share of tri-party repo in the survey bounced back to 6.9% from a low of 6.0% in June, continuing a possible seasonal pattern of expanding share towards year-end. However, the value of outstanding repo managed by tri-party agents fell, as did the share and absolute value of GC financing, which touched new lows. The share of transactions negotiated directly or via voice-brokers that were subsequently registered with a CCP fell back.

Cash currency analysis

There was a jump in the share of the US dollar to 19.4%, largely at the expense of the share of the euro.

Collateral analysis

The share of government bonds within the pool of EU-originated fixed-income collateral reported in the survey recovered to 87.0%, close to the 13-year high of 87.6% reached in June 2017. This change was due to an increase in the share of Italian government securities and the fact that declines in the share of the survey of EU government securities was more than offset by the proportionally greater contraction in the share of EU non-government securities compared to government securities. A notable change in collateral composition since the previous survey was a jump in the share of US Treasuries.

Maturity analysis

Overall, the survey sample continues to be a net cash borrower in repos with one week or less remaining to maturity and a net lender in other maturity brackets including, in contrast to the previous few reports, open repos. The share of short-dated repos (one month or less remaining to maturity) fell sharply to 51% from 57.5%, a partly seasonal change. Remaining maturities over one month up to three months recovered, possibly also a seasonal change but perhaps partly driven by collateral transformation to meet end-year regulatory liquidity ratios. The share of forward repos continued to surge, reaching a record 19.3%, which may reflect efforts by the market to manage end-year positions in advance in order to avoid seasonal pressures.

Concentration analysis

The concentration of business in the survey sample increased significantly, particularly the share of the top 10 participants.

Chapter 1: The Survey

On December 5, 2018, the European Repo and Collateral Council (ERCC) of the International Capital Market Association (ICMA) conducted the 36th 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, December 5, 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 58 offices of 54 financial groups. This is four less than in the June 2018 survey. Six institutions dropped out of the survey and two rejoined.

44 of the participants were headquartered across 16 European countries, including Norway (1) and Switzerland (2). Others were headquartered in Australia (1), Japan (4) and North America (9). 21 respondents were affiliates of foreign parents. Most (20) were located in the UK. 41 participants were headquartered across 14 of the 28 member states of the EU (there were no institutions in the survey from Finland and Sweden, and only one from a former Accession State). 35 participants were headquartered across 12 of the 19 countries of the eurozone.

A list of the institutions that have participated in the ICMA's repo surveys is contained in Appendix B.

1.3 The next survey

The next survey is scheduled to take place at close of business on Wednesday, June 5, 2019.

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

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

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

Chapter 2: Analysis of Survey Results

The aggregate results of the latest two surveys and of the surveys in each December in the five previous years (2014-2018) are set out in Appendix C. The full results of all previous surveys can be found at www.icmagroup.org.

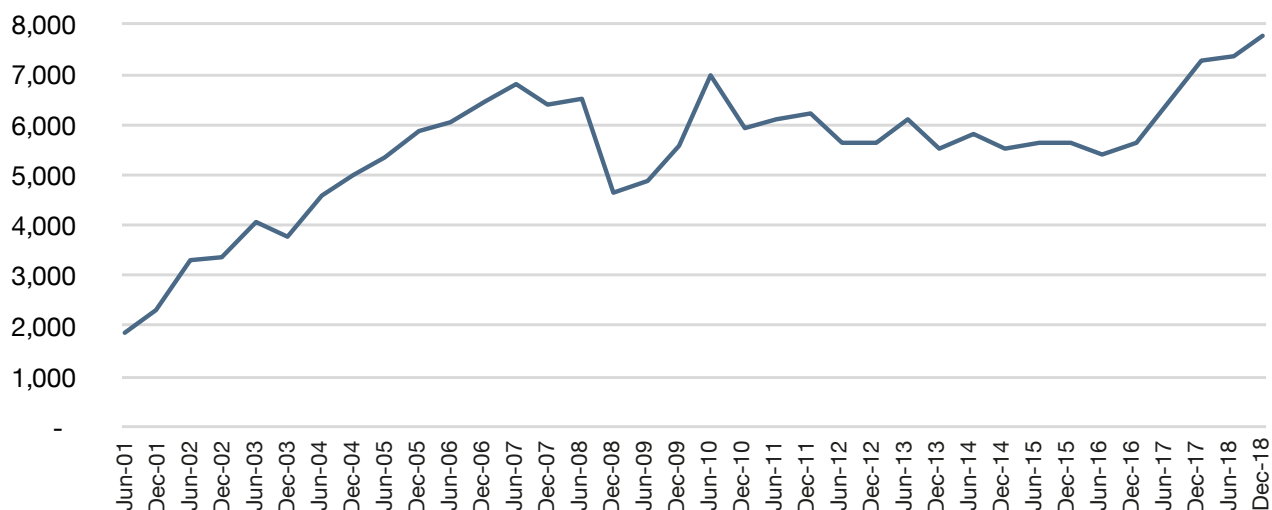
Total repo business (Q1)

The total value, at close of business on December 5, 2018, of repos and reverse repos outstanding on the books of the 58 institutions which participated in the latest survey was a record **EUR 7,739.0 billion**, a rise in the headline number of 6.3% year-on-year and 4.9% since the June 2018 survey.

Table 2.1 – Total repo business from 2001 to 2018

| survey | total | repo | reverse repo |
|---------------|-------|-------|--------------|
| 2018 December | 7,739 | 48.7% | 51.3% |
| 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 addition, the values measured by the survey are 'gross' figures, which mean that they have not been adjusted for the double counting of the same transactions between pairs of survey participants. However, a study (see the report of the December 2012 survey) suggested that the problem of double-counting was not very significant.

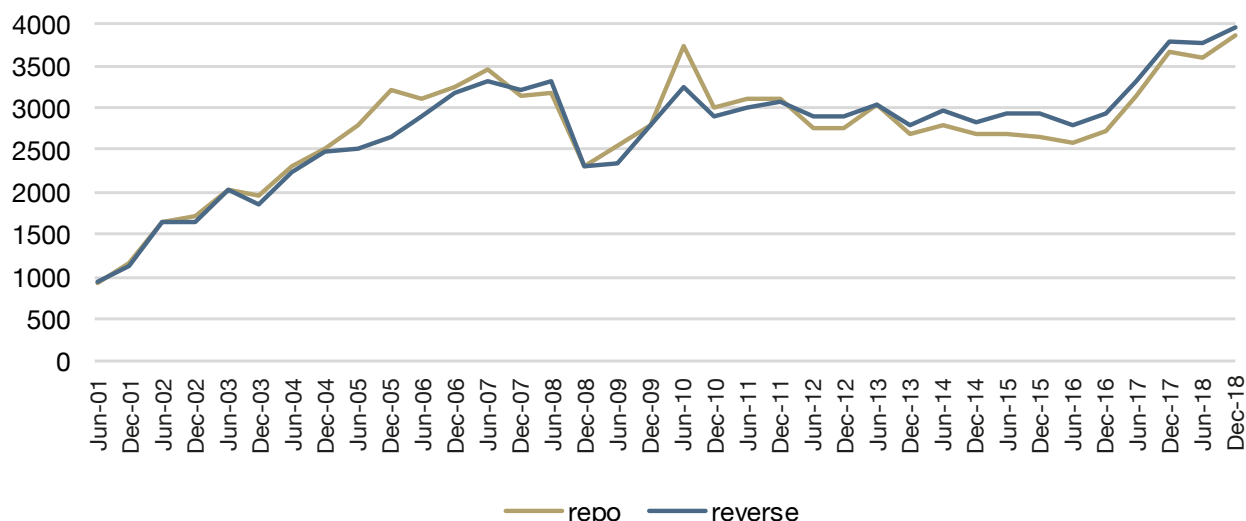
Nor does the survey measure the value of repos transacted with central banks as part of official monetary policy operations, which continue to be very substantial.

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

Out of the 58 institutions in the present survey, 54 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 54 institutions grew by 5.9% year-on-year and by 4.8% between the December and June 2018 surveys, on this occasion, similar to the changes in the headline number. The change for the 56 institutions which participated in the last two surveys was +4.9%.

The growth in the total size of the surveyed market occurred despite the fact that the repo books of 31 of the 58 institutions in the latest survey contracted or did not change, more than the 27 out of 64 repo books which contracted or did not change in the June 2018 survey. The unweighted mean percentage change dropped to +11.7% from +22.5% and the median percentage change to zero from +8.7%. The position of the survey sample as a net lender overall to the rest of the market was unchanged.

Figure 2.2 – Total repo versus reverse repo business



Trading analysis (Q1.1)

Table 2.2 – Trading analysis

| | December 2018 | | June 2018 | | December 2017 | |
|---------------------------|---------------|-------|-----------|-------|---------------|-------|
| | share | users | share | share | share | users |
| direct | 59.7% | 58 | 60.6% | 62 | 63.3% | 64 |
| of which tri-party | 6.9% | 42 | 6.0% | 43 | 8.6% | 44 |
| voice-brokers | 10.7% | 42 | 11.4% | 48 | 12.2% | 46 |
| ATS | 29.6% | 44 | 28.0% | 44 | 24.5% | 44 |

The share of **directly-negotiated** repo continued to fall back from its peak in December 2017, largely due to increased electronic business transacted over automatic repo trading systems (ATS), the share of which reached 29.6% (although this is still well below the peak of 33.4% recorded in December 2015). However, the absolute size of the business reported directly by the four principal ATS operating in Europe (as opposed to electronic business reported by the survey participants: the ATS were BrokerTec, Eurex Repo, MTS Repo and SIX Repo) contracted to EUR 1,137 billion from EUR 1,216 billion in June. The contradiction in statistics may reflect greater reliance on electronic trading by participants in the survey compared with firms not participating in the survey.

Voice-brokered repo may have resumed its secular decline. It fell to 10.7%, just above the record low of 10.5% touched in December 2016.

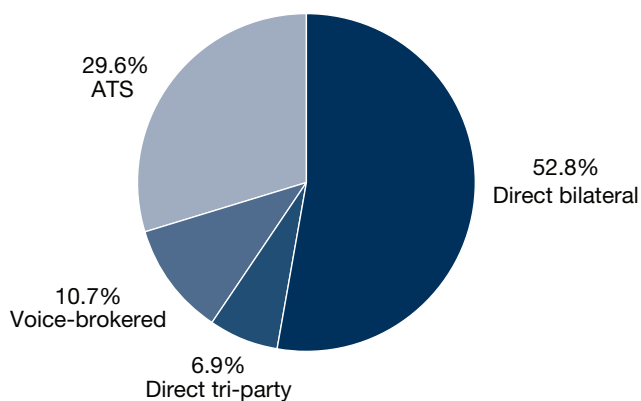
The share of tri-party repo in the survey bounced back to 6.9% from a low of 6.0% in June, continuing a possible seasonal pattern of expanding share towards year-end. 72.9% of tri-party business by the survey sample was repo (cash borrowing, as opposed to reverse repo or cash lending), compared with 76.1% in June. But, while the tri-party market as a whole was a source of net funding to the survey sample, there was a swing in GC financing (which combines automatic electronic trading, CCP clearing and tri-party collateral management) to net lending (59.8% of the use of GC financing facilities by the survey sample was in reverse repo compared with 28.8% in June).

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

Table 2.3 – Numbers of participants reporting particular types of business

| | Dec-18 | Jun-18 | Dec-17 | Jun-17 | Dec-16 | Jun-16 |
|------------------------|--------|--------|--------|--------|--------|--------|
| ATS | 44 | 44 | 44 | 48 | 51 | 51 |
| anonymous ATS | 40 | 40 | 40 | 42 | 42 | 47 |
| voice-brokers | 42 | 48 | 46 | 45 | 48 | 50 |
| tri-party repos | 42 | 43 | 44 | 43 | 44 | 41 |
| total | 58 | 62 | 64 | 64 | 65 | 67 |

Figure 2.3 - Trading analysis



Geographical analysis (Q1.1)

Table 2.4 – Geographical analysis

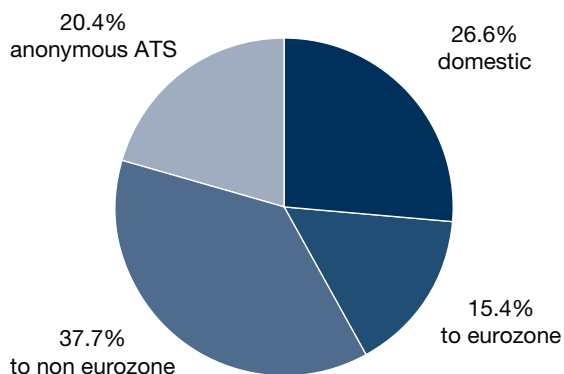
| | December 2018 | | June 2018 | | December 2017 | |
|---|---------------|-------|-----------|-------|---------------|-------|
| | share | users | share | users | share | users |
| domestic | 26.6% | | 25.5 % | | 25.9% | |
| cross-border to (other) eurozone | 15.4% | | 15.6% | | 16.5% | |
| cross-border to (other) non-eurozone | 37.7% | | 38.7% | | 40.5% | |
| anonymous | 20.4% | 40 | 20.2% | 40 | 17.1% | 42 |

Cross-border business fell back further, reflecting stronger **domestic** business. In fact, the latest survey shows an increase in domestic directly-negotiated business in particular, to 16.5% from 15.0% in June. The share of domestic business also increased at ATS (as reported directly by the ATS) but fell back in directly-reported tri-party repo.

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

| | main survey | ATS | tri-party | EVIA (WMBA) |
|---------------------|---------------|---------------|---------------|-------------|
| domestic | 26.6% (25.5%) | 34.0% (32.9%) | 32.3% (33.9%) | |
| cross-border | 53.1% (54.3%) | 66.0% (67.4%) | 67.7% (66.1%) | |
| anonymous | 20.4% (20.2%) | | | |

Figure 2.4 - Geographical analysis

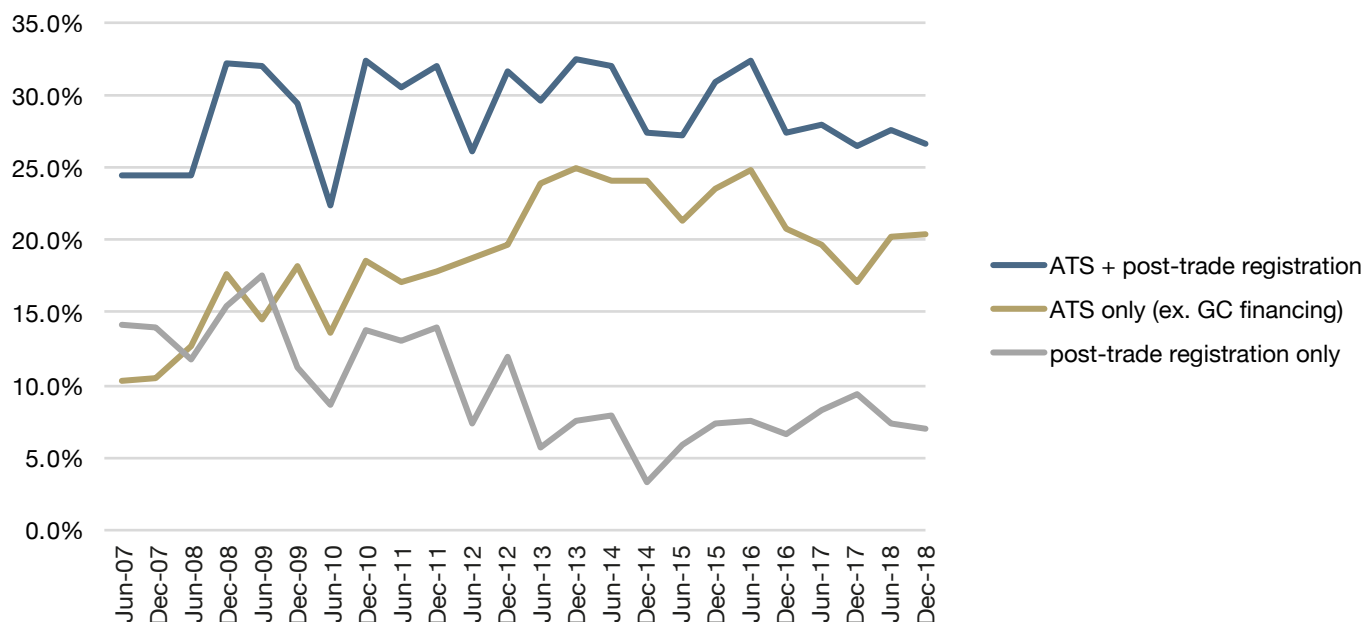


Clearing and settlement analysis (Q1.2 and Q1.8)

The value of outstanding repo business managed by the five tri-party agents who contributed directly to the survey (Bank of New York Mellon, Clearstream, Euroclear, JP Morgan and SIS) fell back to EUR 615.0 from EUR 660.4 billion in June. Within tri-party business, the share of GC financing (mainly through Eurex Repo's Euro GC Pooling but also LCH's EuroGC Plus) recovered to 12.4% from 10.2% of the tri-party business done by the survey sample but fell back to 9.3% from 10.1% of directly-reported tri-party repo. In other words, the survey sample made more use of GC financing facilities while the market as a whole made less use. GC financing increased its share of electronic business to 3.6% from 3.1% of business reported directly by ATS (with the absolute size of the business rising to EUR 43.2 billion from EUR 37.8 billion in June). The size of GC financing reported directly by the tri-party agents (which is a better total measure of this business) fell to EUR 57.0 billion from EUR 66.7 billion.

The share of transactions negotiated directly or via voice-brokers that were subsequently registered with a CCP fell back again, to 6.9% from 7.3%.

Figure 2.5 – Evolution of business cleared across CCP



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

Table 2.6 – Cash currency analysis

| | December 2018 | June 2018 | December 2017 |
|----------------|---------------|-----------|---------------|
| EUR | 60.5% | 65.3% | 60.9% |
| GBP | 12.4% | 12.8% | 12.3% |
| USD | 19.4% | 13.7% | 14.7% |
| DKK, SEK | 1.6% | 1.9% | 5.9% |
| JPY | 4.5% | 4.6% | 4.5% |
| CHF | 0.0% | 0.0% | 0.0% |
| other APAC | 0.6% | 0.7% | 0.4% |
| etc | 1.0% | 1.0% | 1.2% |
| cross-currency | 2.5% | 1.7% | 1.4% |

The biggest change in currency composition since the previous survey was a jump in the share of the US dollar to 19.4%, above its previous peak in December 2016 (18.8%). This was largely at the expense of the share of the euro.

The increase in the share of the dollar and fall in the share of the euro were more muted in tri-party business. The share of Asian currencies in repo business reported directly by the tri-party agents increased to 2.6% from 0.2% (but this may just reflect more accurate reporting).

Figure 2.6 - Currency analysis

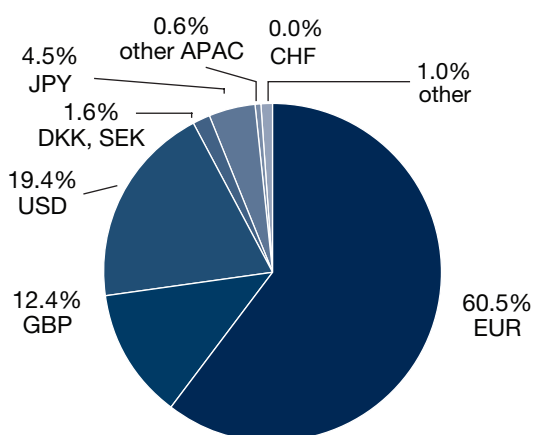


Table 2.7 – Currency comparison in December 2018

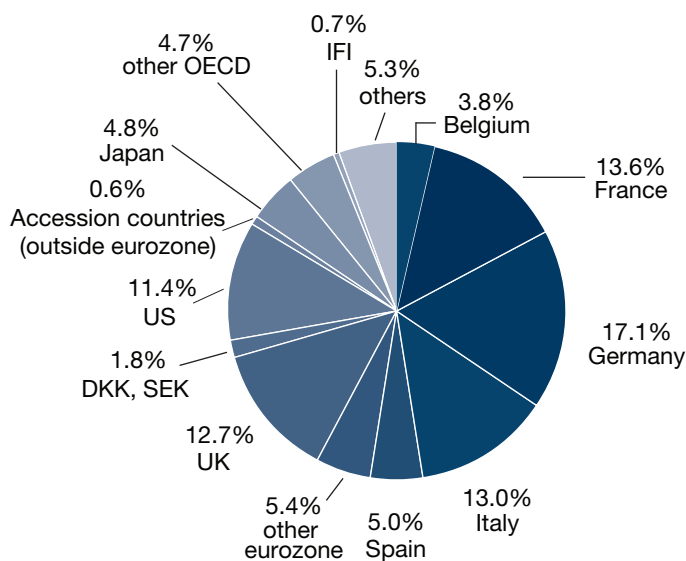
| | main survey | ATS | tri-party | EVIA (WMBA) |
|----------------|-------------|-------|-----------|-------------|
| EUR | 60.5% | 91.9% | 45.5% | |
| GBP | 12.4% | 5.5% | 6.1% | |
| USD | 19.4% | 1.0% | 41.7% | |
| DKK, SEK | 1.6% | 0.0% | 1.1% | |
| JPY | 4.5% | 0.0% | 1.9% | |
| CHF | 0.0% | 1.5% | 0.2% | |
| other APAC | 0.6% | | 2.6% | |
| etc | 1.0% | 0.1% | 0.9% | |
| cross-currency | 2.5% | | 13.3% | |

Collateral analysis (Q1.9)

Table 2.8 – Collateral analysis

| | December 2018 | June 2018 | December 2017 |
|--------------------------------------|---------------|-----------|---------------|
| Germany | 17.1% | 19.8% | 19.6% |
| Italy | 13.0% | 11.7% | 11.7% |
| France | 13.6% | 15.4% | 13.2% |
| Belgium | 3.8% | 3.4% | 3.0% |
| Spain | 5.0% | 6.1% | 5.5% |
| other eurozone | 5.4% | 5.5% | 4.2% |
| UK | 12.7% | 13.2% | 13.7% |
| DKK, SEK | 1.8% | 2.2% | 6.3% |
| international financial institutions | 0.7% | 0.6% | 1.0% |
| US Treasuries | 8.8% | 4.3% | 4.6% |
| other US | 2.6% | 0.8% | 1.2% |
| former Accession | 0.6% | 0.6% | 0.4% |
| Japan government | 3.4% | 4.0% | 3.3% |
| other Japan | 1.4% | 0.9% | 1.1% |
| other OECD ex APAC | 4.3% | 5.2% | 3.7% |
| other APAC OECD | 0.4% | 1.3% | 0.8% |
| eurobonds | 1.5% | 1.8% | 1.8% |
| other fixed income | 3.6% | 3.0% | 3.4% |
| 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 in the survey recovered to 87.0% from 85.2%, close to the 13-year high of 87.6% reached in June 2017. This change was due to an increase in the share of Italian government securities and the fact that declines in the share of the survey of EU government securities was more than offset by the proportionally greater contraction in the share of EU non-government securities (-17.9%) compared to government securities (-4.1%).

A notable change in collateral composition since the previous survey was a jump in the share of US Treasuries.

There was a different pattern of change in electronic trading, as reported directly by the ATS, with German government securities increasing share to 25.8% from 24.8%. Italian government securities declined in share but, at 30.9%, remains the biggest electronic market segment.

In tri-party repo, as reported directly by the agents, EU government securities fell back slightly to 58.5% from 59.0% but there was a sharp fall in the share of eurozone government securities to 18.5% from 23.1%.

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

| | December 2018 | June 2018 | December 2017 |
|------------|---------------|-----------|---------------|
| AAA | 23.7% | 23.7% | 23.2% |
| AA | 24.8% | 24.7% | 27.2% |
| A | 12.3% | 11.5% | 10.2% |
| BBB | 13.9% | 13.7% | 13.5% |
| below BBB- | 6.3% | 6.1% | 6.0% |
| A1/P1 | 2.2% | 2.8% | 2.9% |
| A2/P2 | 0.7% | 0.5% | 0.5% |
| Non-Prime | 0.0% | 0.0% | 0.0% |
| unrated | 16.0% | 17.0% | 16.4% |

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

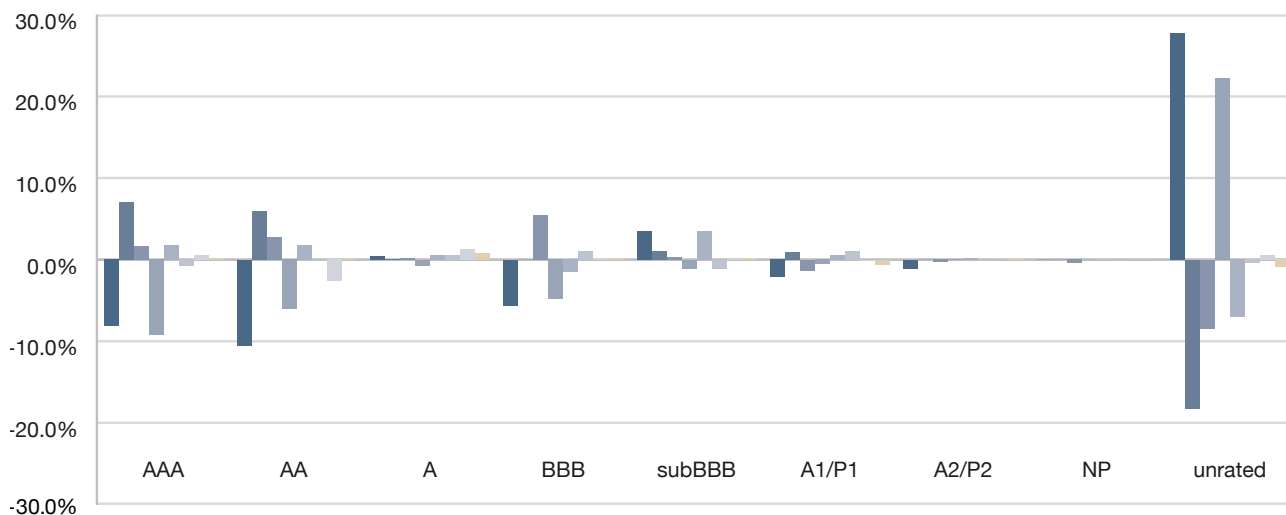


Table 2.10 – Tri-party repo collateral analysed by type of asset

| | December 2018 | June 2018 | December 2017 |
|--|---------------|-----------|---------------|
| government securities | 47.2% | 43.8% | 46.1% |
| public agencies / sub-national governments | 9.4% | 11.4% | 11.0% |
| supranational agencies | 2.5% | 2.4% | 2.8% |
| corporate bonds | 16.3% | 16.6% | 17.6% |
| covered bonds | 7.7% | 6.7% | 6.4% |
| residential mortgage-backed | 1.6% | 1.3% | 1.3% |
| commercial mortgage-backed | 0.2% | 0.1% | 0.1% |
| other asset-backed | 1.2% | 0.9% | 1.2% |
| CDO, CLN, CLO, etc | 1.2% | 1.0% | 0.7% |
| convertible bonds | 1.4% | 1.5% | 1.1% |
| equity | 10.3% | 13.4% | 11.1% |
| other | 1.2% | 1.0% | 0.5% |

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

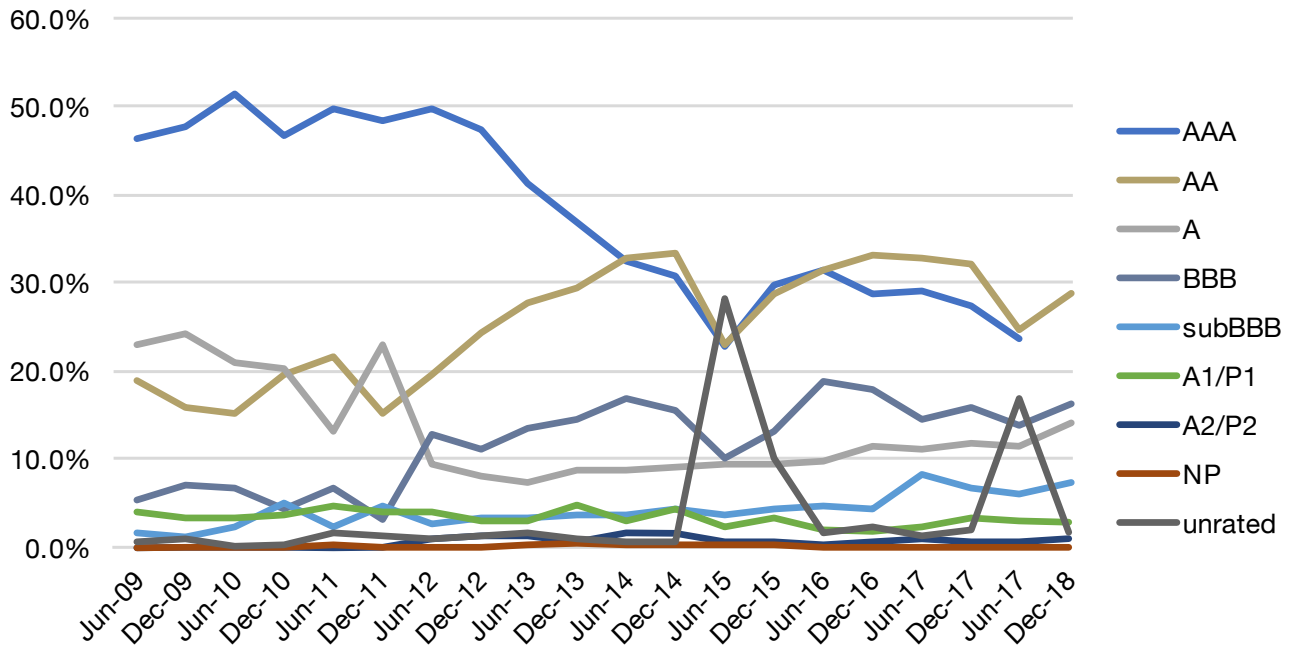
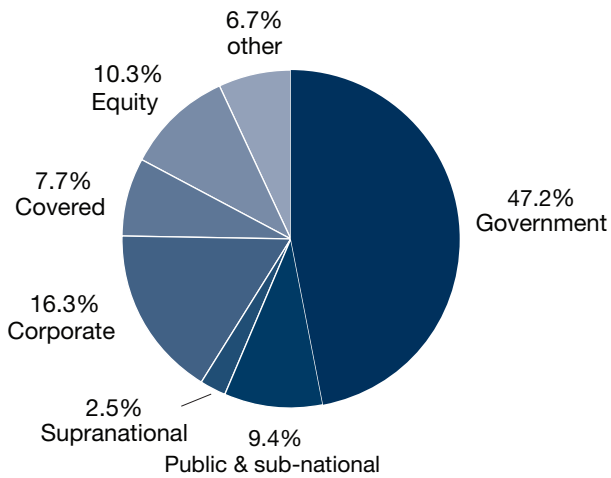


Figure 2.10 - Collateral analysis (tri-party agents) by type of asset



The share of government bonds and covered bonds in tri-party repo, as reported directly by the agents, continued to grow. The main counterparts were drops in the shares of equity and agencies.

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

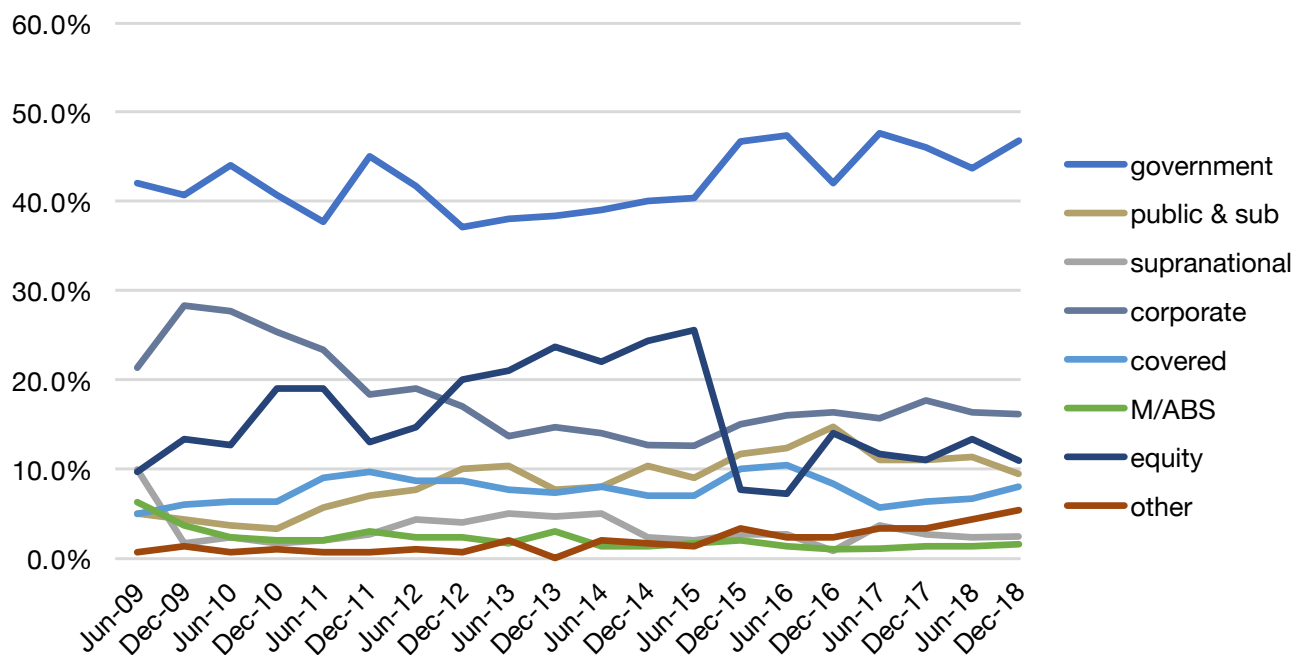


Table 2.11 – Tri-party repo collateral haircuts analysed by type of asset

| (weighted average haircuts) | December 2018 | June 2018 | December 2017 |
|--|---------------|-----------|---------------|
| government securities | 2.6% | 2.7% | 2.2% |
| public agencies / sub-national governments | 2.7% | 2.5% | 2.3% |
| supranational agencies | 2.7% | 1.9% | 2.9% |
| corporate bonds (financial) | 5.6% | 6.1% | 6.0% |
| corporate bonds (non-financial) | | | |
| covered bonds | 3.4% | 3.1% | 3.3% |
| residential mortgage-backed | 6.5% | 6.3% | 4.5% |
| commercial mortgage-backed | | | |
| other asset-backed | 4.8% | 3.9% | 3.9% |
| CDO, CLN, CLO, etc | 5.1% | 4.1% | 3.3% |
| convertible bonds | 5.9% | 8.5% | 10.8% |
| equity | 7.0% | 7.1% | 6.8% |
| other | 0.6% | 5.6% | 5.1% |

Contract analysis (Q1.5)

Figure 2.12 - Contract analysis

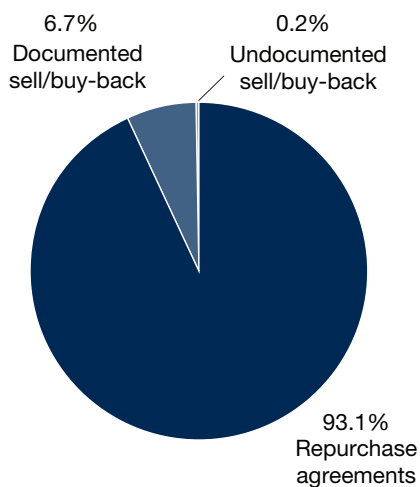


Table 2.12 – Contract comparison in December 2018 (June 2018)

| | main survey | ATS | tri-party |
|-----------------------------|---------------|---------------|-----------------|
| repurchase agreements | 93.1% (92.4%) | 92.6% (92.2%) | 100.0% (100.0%) |
| documented sell/buy-backs | 6.7% (7.3%) | 7.4% (7.8%) | |
| undocumented sell/buy-backs | 0.2% (0.3%) | | |

Repo rate analysis (Q1.6)

Figure 2.13 - Repo rate analysis

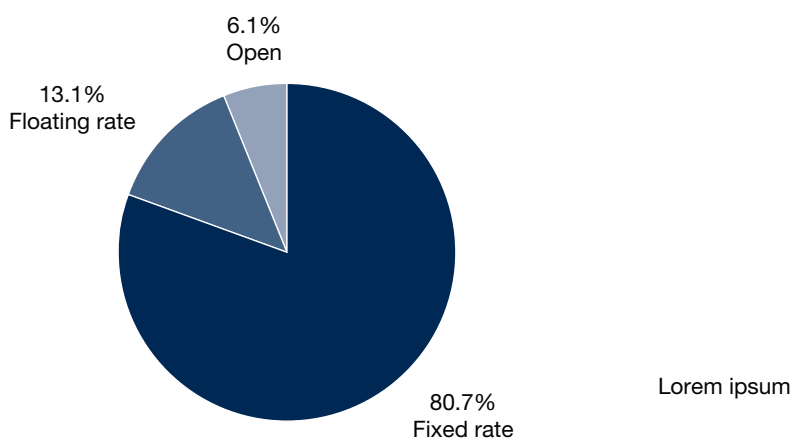


Table 2.13 – Repo rate comparison in December 2018 (June 2018)

| | main survey | ATS | tri-party |
|---------------|---------------|---------------|---------------|
| fixed rate | 80.7% (72.5%) | 85.4% (83.7%) | 21.9% (20.1%) |
| floating rate | 13.1% (21.1%) | 14.6% (16.3%) | 9.5% (6.8%) |
| open | 6.1% (6.4%) | | 68.6% (73.2%) |

Maturity analysis (Q1.7)

Table 2.14 – Maturity analysis

| | December 2018 | June 2018 | December 2017 |
|------------------------|---------------|-----------|---------------|
| open | 6.0% | 6.3% | 7.8% |
| 1 day | 18.9% | 18.9% | 16.9% |
| 2 days to 1 week | 17.5% | 21.7% | 22.6% |
| 1 week to 1 month | 14.6% | 16.9% | 15.9% |
| >1 month to 3 months | 16.1% | 11.2% | 16.3% |
| >3 months to 6 months | 3.6% | 4.3% | 4.4% |
| >6 months to 12 months | 2.5% | 3.3% | 2.5% |
| >12 months | 1.4% | 1.3% | 1.5% |
| forward-start | 19.3% | 16.1% | 12.2% |

Figure 2.14 – Maturity analysis (main survey)

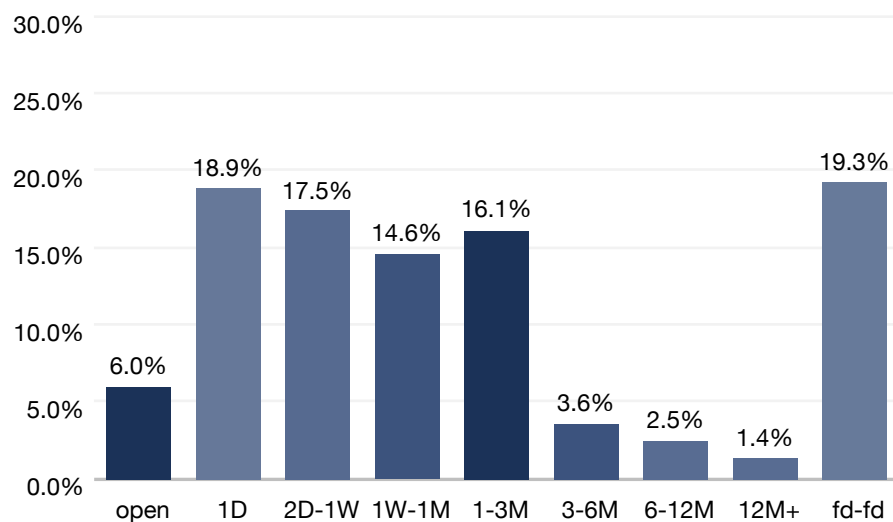


Figure 2.15 – Maturity analysis: short dates, longer terms & forwards (main survey)

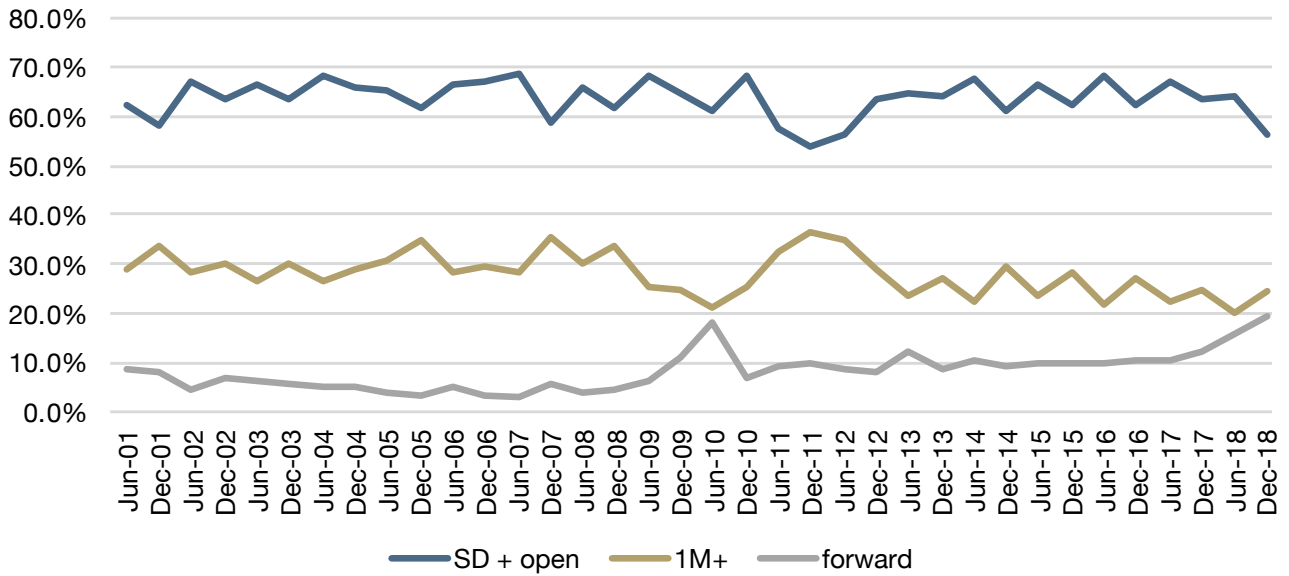


Figure 2.16 – Maturity analysis: non-forward terms (main survey)

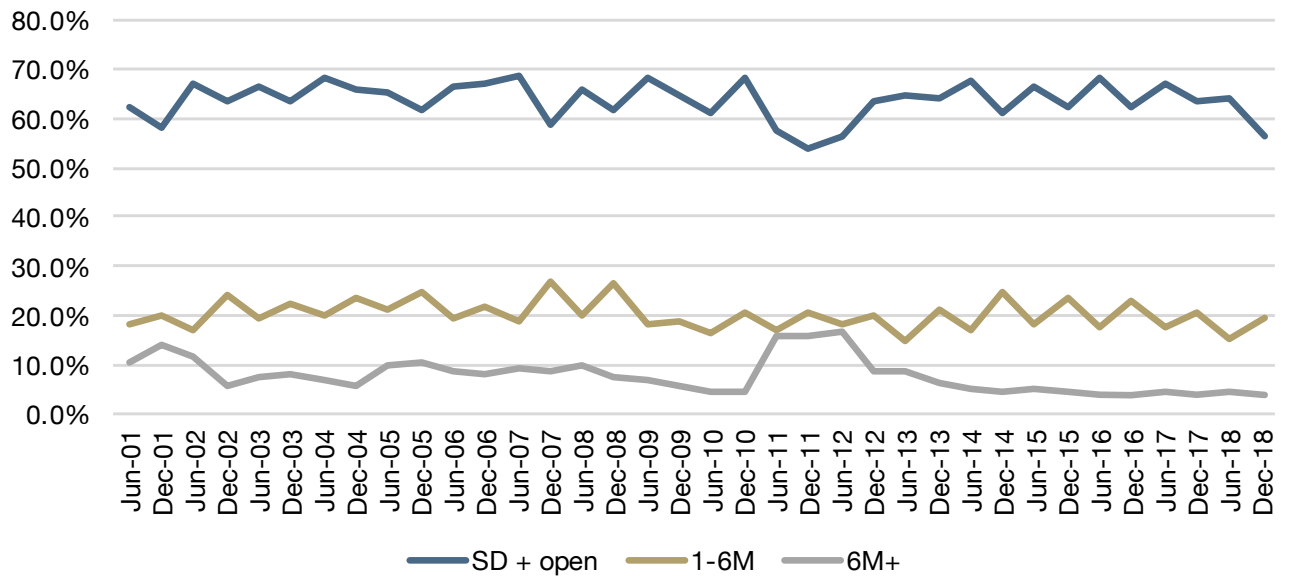
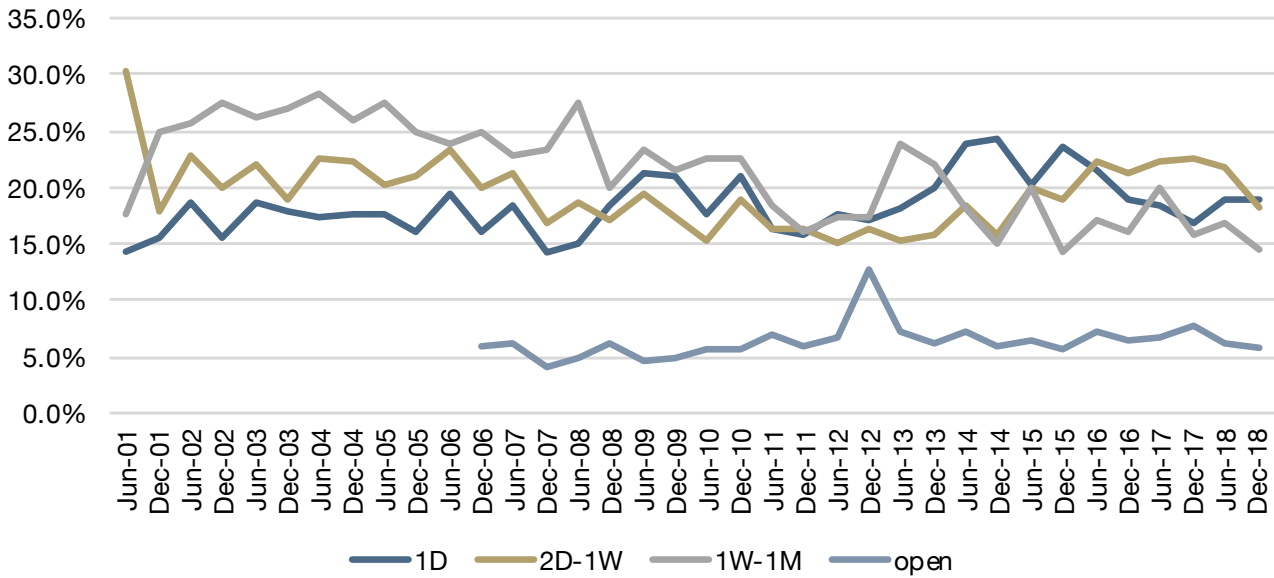


Figure 2.17 – Maturity analysis: breakdown of short dates plus open (main survey)



Overall, the market as represented by the survey sample continues to be a net cash borrower in repos with one week or less remaining to maturity and a net lender in other maturity brackets including, in contrast to the previous few reports, open repos. The share of short-dated repos (one month or less remaining to maturity) fell sharply to 51% from 57.5%, a partly seasonal change. Remaining maturities over one month up to three months recovered to 16.1% from 11.2%, possibly also a seasonal change but perhaps partly driven by collateral transformation to meet end-year regulatory liquidity ratios. However, the weighted average term to maturity widened to 24-59 days from 24-56 in June (the lower end of the range assumes that all transactions have the minimum term in each maturity band: the upper end assumes the maximum term). The share of forward repos continued to surge, reaching a record 19.3%, which may reflect efforts by the market to manage end-year positions in advance in order to avoid seasonal pressures.

Figure 2.18 – Maturity analysis (ATS)

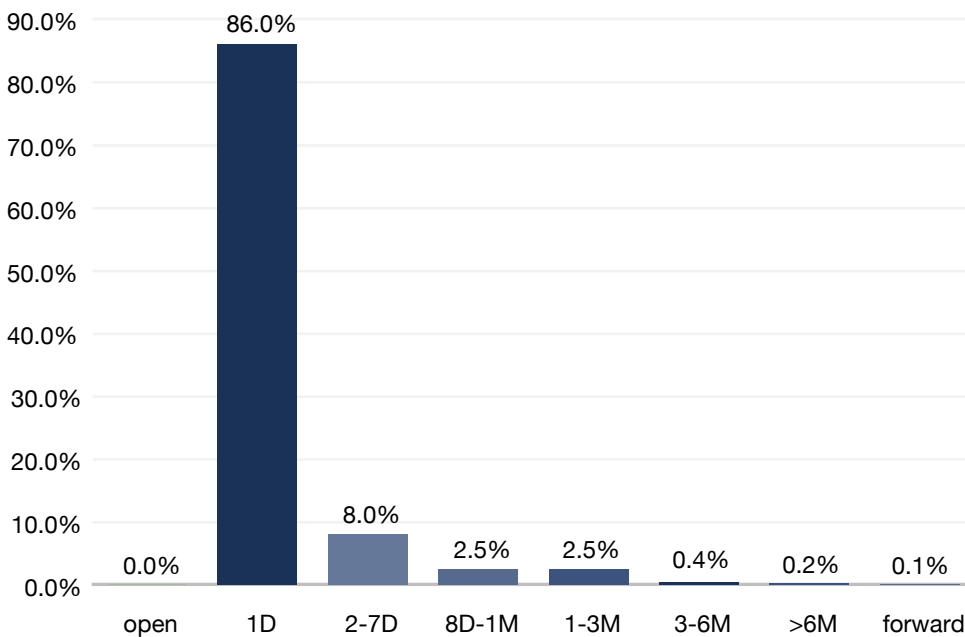


Figure 2.19 – Maturity analysis (tri-party agents)

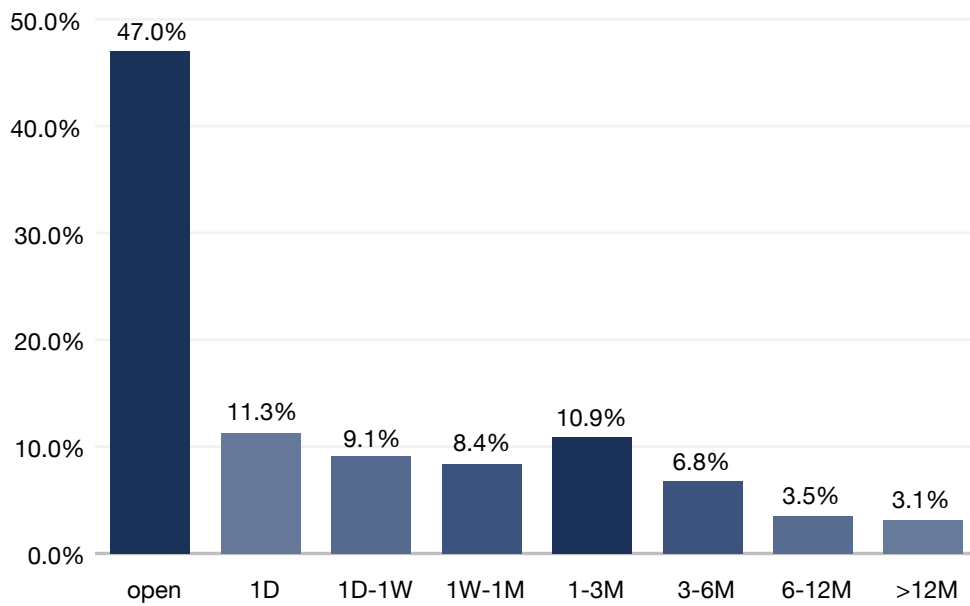


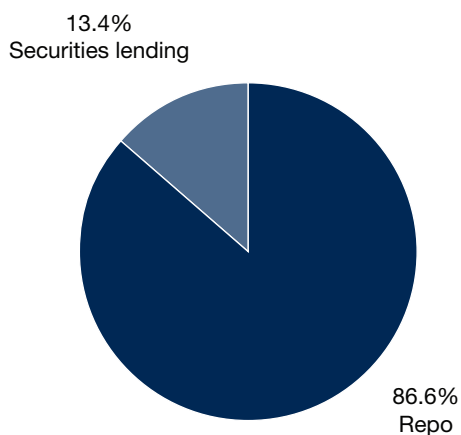
Table 12.15 – Maturity comparison in December 2018 (June 2018)

| | main survey | ATS | tri-party | EVIA (WMBA) |
|----------------------------------|---------------|---------------|---------------|-------------|
| open | 6.0% (6.3%) | | 47.0% (49.2%) | |
| 1 day | 18.9% (18.9%) | 86.0% (85.9%) | 11.3% (12.0%) | |
| 2 days to 1 week | 17.5% (21.7%) | 8.0% (8.7%) | 9.1% (6.7%) | |
| 1 week to 1 month | 14.6% (16.9%) | 2.5% (2.7%) | 8.4% (8.6%) | |
| >1 month to 3 months | 16.1% (11.2%) | 2.5% (1.7%) | 10.9% (10.6%) | |
| >3 months to 6 months | 3.6% (4.3%) | 0.4% (0.5%) | 6.8% (6.1%) | |
| >6 months to 12 months | 2.5% (3.3%) | 0.2% (0.1%) | 3.5% (3.4%) | |
| >12 months | 1.4% (1.3%) | 0.1% (0.1%) | 3.1% (3.5%) | |
| forward-start | 19.3% (16.1%) | 0.4% (0.4%) | | |

Product analysis (Q2)

The share of securities lending conducted on repo desks was little changed at 13.4%.

Figure 2.20 - Product analysis

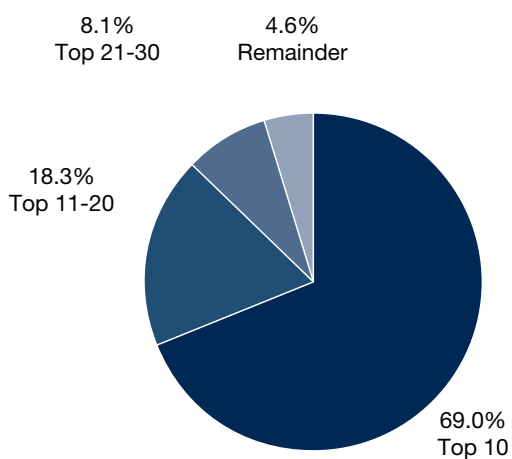


Concentration analysis

Table 2.16 – Concentration analysis

| | December 2018 | June 2018 | December 2017 |
|--------|---------------|-----------|---------------|
| top 10 | 69.0% | 64.4% | 60.9% |
| top 20 | 87.3% | 85.6% | 84.7% |
| top 30 | 95.4% | 94.0% | 93.8% |
| other | 4.6% | 6.0% | 6.2% |

Figure 2.21 - Concentration analysis



The concentration of business in the survey sample increased significantly, particularly the share of the top 10 participants. The Herfindahl Index rose to levels last seen in 2012.

Table 2.17 – Herfindahl Index¹

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

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

Chapter 3: Conclusion

The patterns seen in the last survey over the first half of 2018 have broadly persisted over the second half, that is: strong overall growth; a larger share for electronic trading (at least by survey participants) at the expense of direct and voice-brokered business; stronger domestic business; no evidence of a recovery in tri-party repo (beyond probable seasonal effects); and the continued expansion of forward repo. Presumably, the same explanations apply: the market having adapted to recent regulation and benefitting from new regulatory-driven collateral demand; a relaxation of the priority given to customer business when regulation constrained balance sheets and a consequent shift back into interdealer electronic trading; abundant liquidity from central banks undermining GC repo; and forward management of repo books to avoid end-year tensions. And behind these factors, the increased concentration of the market could indicate that the largest banks are driving the growth in repo, perhaps because they have been able to adapt most efficiently to regulatory demands.

However, it remains unclear what is driving the recovery of domestic business. One possibility is the demand for collateral transformation by a wider range of market users, including more domestic non-bank financial institutions, faced with regulatory requirements for the CCP-clearing or collateralization of OTC derivatives.

New developments in the latest survey included a jump in US dollar cash and US securities. This may reflect increased trading on the back of political instability in the US in late 2018 but could also be due to higher demand for dollars to use as variation margin for OTC derivatives. Another new development was the increased share of Italian government securities and a retreat from most other eurozone government securities. This could reflect opposing drivers: either political instability in Italy or a search for higher yield.

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. He is 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.

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

Appendix A: Survey Guidance Notes

The following extract is based on the Guidance Notes issued to participants in conjunction with the survey that took place on Wednesday, December 5, 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, December 5, 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 June 6, 2018).

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

Guidance Notes

General guidance

- a) Please fill in as much of the form as possible. For each question that you answer, you will receive back your ranking in that category.
- b) If your institution does not transact a certain type of repo business, please enter 'N/A' in the relevant fields. On the other hand, if your institution does that type of business but is not providing the data requested by the survey, please do not enter anything into the relevant field. If your institution does that type of business but has no transactions outstanding, please enter zero into the relevant field.
- c) You only need to give figures to the *nearest million*. However, if you give figures with *decimal points*, please use full stops as the symbols for the decimal points, *not* commas. For *nil returns*, please use zeros, *not* dashes or text.
- d) Please do not re-format the survey form, ie change its lay-out, and do not leave formulae in the cells of the underlying spreadsheet.
- e) Include all varieties of repos, ie repurchase transactions (classic repos and pensions livrées) and sell/buy-backs (e.g. simultaneous and PCT). There is a separate question (see question 2) on securities lending and borrowing transactions (including securities lending and borrowing against cash collateral).
- f) Exclude repo transactions undertaken with central banks as part of their official money market operations. Other repo transactions with central banks, e.g. as part of their reserve management operations, should be included.
- g) Give the value of the *cash* which is due to be repaid on all repo and reverse repo contracts (*not* the market value or nominal value of the collateral) that are still *outstanding at close of business on Wednesday, December 5, 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, December 6, 2018. You should include all *open repos and reverse repos* that have been rolled over from Wednesday, December 5, 2018, to a later date and all *forward-forward repos and reverse repos* that are still outstanding as forward contracts at close on Wednesday, December 5, 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, December 5, 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) “ATSs” are automatic trading systems (e.g. BrokerTec, Eurex Repo and MTS, but not voice-assisted electronic systems used by voice-brokers or automated systems such as Bloomberg). Transactions through voice-assisted systems should be included in (1.1.2). Anonymous transactions through an ATS with a central counterparty (e.g. CC&G, LCH, 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, December 5, 2018, with a repurchase date on Thursday, December 6, 2018;
 - overnight, tom/next, spot/next and corporate/next contracts transacted on Wednesday, December 5, 2018.
- (1.7.1.2) 2–7 days – this means:
- all contracts transacted prior to Wednesday, December 5, 2018, with a repurchase date on Friday, December 7, 2018, or any day thereafter up to and including Wednesday, December 12, 2018;
 - contracts transacted on Wednesday, December 5, 2018, with an original repurchase date on Friday, December 7, 2018, or any day thereafter up to and including Wednesday, December 12, 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, December 5, 2018, with a repurchase date on Thursday, December 13, 2018, or any day thereafter up to and including Monday, January 7, 2019;

- contracts transacted on Wednesday, December 5, 2018, with an original repurchase date on Thursday, December 13, 2018, or any day thereafter up to and including Monday, January 7, 2019 (irrespective of the purchase date, which will vary).

(1.7.1.4) More than 1 month but no more than 3 months – this means:

- all contracts transacted prior to Wednesday, December 5, 2018, with a repurchase date on Tuesday, January 8, 2019, or any day thereafter up to and including Tuesday, March 5, 2019;
- contracts transacted on Wednesday, December 5, 2018, with an original repurchase date on Tuesday, January 8, 2019, or any day thereafter up to and including Tuesday, March 5, 2019 (irrespective of the purchase date, which will vary).

(1.7.1.5) More than 3 months but no more than 6 months – this means:

- all contracts transacted prior to Wednesday, December 5, 2018, with a repurchase date on Wednesday, March 6, 2019, or any day thereafter up to and including Wednesday, June 5, 2019;
- contracts transacted on Wednesday, December 5, 2018, with an original repurchase date on Thursday, June 6, 2019, or any day thereafter up to and including Wednesday, June 5, 2019 (irrespective of the purchase date, which will vary).

(1.7.1.6) More than 6 months but no more than 12 months – this means;

- all contracts transacted prior to Wednesday, December 5, 2018, with a repurchase date on Thursday, June 6, 2019, or any day thereafter up to and including Thursday, December 5, 2019;
- contracts transacted on Wednesday, December 5, 2018, with an original repurchase date on Thursday, June 6, 2019, or any day thereafter up to and including Thursday, December 5, 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, December 5, 2018, with a repurchase date on Friday, December 6, 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. This survey is being conducted by the ICMA Centre, University of Reading, UK, at the request of ICMA's European Repo and Collateral Council (ERCC).

Appendix B: Survey Participants

| List of respondents | Jun -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 | Dec -18 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| ABN Amro Bank | x | | | | | x | x | x | x | x | x | x | x | x | | | | | | |
| Algemeine Hypothekenbank Rheinboden | | | | | | | | | | | | | | | | | | | | |
| Allied Irish Banks | 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 |
| Banco BPI | | | | | | | | | | x | 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 | | | | | | | | | | | | | |
| Landesbank Berlin | 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 | |
| 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 | | | | | | | | | | |
| BHF-Bank International | 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 |
| BW-Bank | | | | | | | | | | | | | | | | | | | | |
| Caixa Bank | | | | | | x | 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 | | | | | | |
| Caixa Geral de Depositos | | | | | | | | | | | | | | | | | | | | |

| List of respondents | 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 | Dec -18 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 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 | | | | | | | | | | | | | | | | | | | | |
| 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 | | 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 | | | | | | |
| Dekabank Deutsche Girozentrale | | | | | | | | x | 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 | |
| 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 | | | | | | | | | | | | |
| Dresdner Bank | | | | | | | | | | | | | | | | | | | | |
| 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 |
| 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 | | | | | | | | | | | | | | | | | | | | |
| Hypotheekbank Frankfurt International (formerly Eurohypo Europäische Hypothekbank) | x | x | x | x | x | x | x | x | x | x | x | | | | | | | | | |
| 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 | x | x | x | x | x | x | x | x | x | x | x | x | x |
| HSBC Athens | | | | | | | | | | | | | | | | | | | | |
| HSBC France | x | x | | | | | | | | | | | | | | | | | | |

| List of respondents | 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 | Dec -18 |
|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 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 | | | | |
| ILB Bank | | | | | | | | | | | | | | | | | | | | |
| ING Bank | 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 | 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 | x |
| KfW | | | | | x | x | | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Kingdom of Belgium Federal Public Service Debt Agency | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 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 | x |
| Macquarie Bank | | | | | x | 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 | | | |
| 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 |
| Nordea Markets | 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 | x |
| Nova Ljubljanska Banka d.d. | x | x | | x | x | x | x | x | x | | | x | | | x | x | x | x | | x |
| Omega Bank | | | | | | | | | | | | | | | | | | | | |
| Piraeus Bank | | | | | | | | | | | | | | | x | x | x | | | |
| Rabobank | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 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 | x |
| RBI | 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 |

| List of respondents | 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 | Dec -18 | |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---|
| Toronto Dominion Bank | | | | | | | | | x | x | | 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 | x |
| Ulster Bank | | | | | | | | | | | | | | | | | | | | | |
| UniCredit/Bayerische Hypo-un- Vereinsbank Milano Branch | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| UniCredito Italiano Bank (Ireland) | | | | | | | | | | | | | | | | | | | | | |
| Vereins und Westbank | | | | | | | | | | | | | | | | | | | | | |
| Westdeutsche Immobilien Bank | | | | | | | | | | | | | | | | | | | | | |
| Westdeutsche Landesbank Girozentrale | x | | | | x | | | | | | | | | | | | | | | | |
| Zagrabacka Banka | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| entry | 7 | 2 | 5 | 3 | 5 | 10 | 5 | 9 | 8 | 4 | 2 | 4 | 0 | 7 | 1 | 2 | 4 | 3 | 3 | 2 | |
| exit | 7 | 5 | 6 | 3 | 4 | 4 | 7 | 0 | 2 | 2 | 4 | 2 | 2 | 0 | 6 | 3 | 5 | 3 | 5 | 6 | |
| | 61 | 58 | 57 | 57 | 58 | 64 | 62 | 71 | 65 | 67 | 65 | 67 | 65 | 72 | 67 | 65 | 64 | 64 | 62 | 58 | |

Appendix C: Summary Of Survey Results

| | Dec-14 | Dec-15 | Dec-16 | Dec-17 | Jun-18 | Dec-18 |
|--|--------------|--------------|--------------|--------------|--------------|--------------|
| 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) | 5,500 | 5,608 | 5,656 | 7,250 | 7,351 | 7,739 |
| Of the amounts given in response to question (1) above: | | | | | | |
| 1.1 How much was transacted: | | | | | | |
| direct with counterparties | | | | | | |
| • in the same country as you | 14.7% | 14.2% | 13.7% | 16.2% | 15.0% | 16.5% |
| • cross-border in (other) eurozone countries | 11.3% | 12.3% | 11.6% | 11.6% | 11.9% | 10.3% |
| • cross-border in non-eurozone countries | 28.9% | 28.4% | 35.4% | 35.4% | 33.7% | 32.9% |
| through voice-brokers | | | | | | |
| • in the same country as you | 6.3% | 5.3% | 5.5% | 5.7% | 5.8% | 4.7% |
| • cross-border in (other) eurozone countries | 3.5% | 3.0% | 3.0% | 3.1% | 2.6% | 3.3% |
| • cross-border in non-eurozone countries | 3.8% | 3.4% | 2.0% | 3.4% | 3.0% | 2.8% |
| on ATs with counterparties | | | | | | |
| • in the same country as you | 3.7% | 5.0% | 4.1% | 4.0% | 4.7% | 5.4% |
| • cross-border in (other) eurozone countries | 2.3% | 3.3% | 2.8% | 1.7% | 1.1% | 1.9% |
| • cross border-border in non-eurozone countries | 1.4% | 1.4% | 1.3% | 1.7% | 1.9% | 2.0% |
| • anonymously across a GC financing system | 5.6% | 4.0% | 1.8% | 0.9% | 1.0% | 1.1% |
| • anonymously across a central clearing counterparty but not GC financing | 18.5% | 19.6% | 18.9% | 16.2% | 19.3% | 19.3% |
| • total through a central clearing counterparty | 27.4% | 31.0% | 27.4% | 26.4% | 27.6% | 27.2% |
| 1.2 How much of the cash is denominated in: | | | | | | |
| • EUR | 63.60% | 63.2% | 61.8% | 60.9% | 65.3% | 60.5% |
| • GBP | 10.9% | 12.4% | 11.3% | 12.3% | 12.8% | 12.4% |
| • USD | 15.1% | 16.0% | 18.8% | 14.7% | 13.7% | 19.4% |
| • SEK, DKK | 2.9% | 2.4% | 2.1% | 5.9% | 1.9% | 1.6% |
| • JPY | 6.3% | 5.0% | 4.8% | 4.5% | 4.6% | 4.5% |
| • CHF | 0.1% | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% |

| | Dec-14 | Dec-15 | Dec-16 | Dec-17 | Jun-18 | Dec-18 |
|---|--------|--------|--------|--------|--------|--------|
| • other Asian and Pacific currencies | | | 0.5% | 0.4% | 0.7% | 0.6% |
| • other currencies | 1.1% | 0.9% | 0.7% | 1.2% | 1.0% | 1.0% |
| 1.3 How much is cross-currency? | 1.1% | 2.6% | 1.8% | 1.4% | 1.7% | 2.5% |
| 1.4 How much is: | | | | | | |
| • classic repo | 85.00% | 83.9% | 85.2% | 86.0% | 92.4% | 93.1% |
| • documented sell/buy-backs | 12.9% | 15.6% | 14.6% | 13.8% | 7.3% | 6.7% |
| • undocumented sell/buy-backs | 2.1% | 0.6% | 0.2% | 0.2% | 0.3% | 0.2% |
| 1.5 How much is: | | | | | | |
| • fixed rate | 84.50% | 83.8% | 81.4% | 80.6% | 72.5% | 80.7% |
| • floating rate | 9.6% | 10.6% | 12.1% | 13.2% | 21.1% | 13.1% |
| • open | 5.9% | 5.6% | 6.4% | 6.2% | 6.4% | 6.1% |
| 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: | | | | | | |
| • 1 day | 24.30% | 23.5% | 18.9% | 16.9% | 18.9% | 18.9% |
| • 2 - 7days | 15.9% | 18.9% | 21.2% | 22.6% | 21.7% | 17.5% |
| • more than 7 days but no more than 1 month | 15.1% | 14.3% | 16.1% | 15.9% | 16.9% | 14.6% |
| • more than 1 month but no more than 3 months | 19.0% | 18.9% | 18.9% | 16.3% | 11.2% | 16.1% |
| • more than 3 months but no more than 6 months | 5.9% | 4.7% | 4.3% | 4.4% | 4.3% | 3.6% |
| • more than 6 months | 3.1% | 2.8% | 2.5% | 2.5% | 3.3% | 2.5% |
| • more than 12 months | 1.5% | 1.7% | 1.3% | 1.5% | 1.3% | 1.4% |
| • forward-forward repos | 9.3% | 9.6% | 10.5% | 12.2% | 16.1% | 19.3% |
| • open | 5.9% | 5.7% | 6.4% | 7.8% | 6.3% | 6.0% |
| 1.7 How much is tri-party repo: | 10.50% | 11.0% | 12.0% | 8.6% | 6.0% | 6.9% |
| • for fixed terms to maturity | 97.4% | 94.2% | 76.5% | 87.9% | 78.9% | 79.6% |
| • on an open basis | 2.6% | 5.8% | 6.9% | 3.7% | 10.9% | 8.0% |
| GCF | | | 16.7% | 8.4% | 10.2% | 12.4% |
| 1.8 How much is against collateral issued in: | | | | | | |
| Austria | | | | | | |
| • by the central government | 0.90% | 0.8% | 0.8% | 0.7% | 0.9% | 0.9% |
| • by other issuers | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% |

| | Dec-14 | Dec-15 | Dec-16 | Dec-17 | Jun-18 | Dec-18 |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Belgium | | | | | | |
| • by the central government | 2.10% | 2.0% | 2.3% | 2.0% | 2.5% | 3.0% |
| • by other issuers | 0.7% | 0.9% | 0.7% | 1.0% | 0.9% | 0.7% |
| Denmark | | | | | | |
| • by the central government | 0.50% | 0.4% | 0.3% | 0.4% | 0.2% | 0.2% |
| • by other issuers | 1.1% | 1.0% | 0.5% | 1.0% | 0.5% | 0.4% |
| Finland | | | | | | |
| • by the central government | 0.50% | 0.4% | 0.3% | 0.4% | 0.6% | 0.5% |
| • by other issuers | 0.0% | 0.1% | 0.0% | 0.0% | 0.1% | 0.1% |
| France | | | | | | |
| • by the central government | 9.30% | 9.3% | 11.1% | 12.2% | 14.1% | 12.6% |
| • by other issuers | 1.3% | 1.6% | 1.0% | 1.0% | 1.4% | 1.0% |
| Germany | | | | | | |
| • by the central government | 15.40% | 16.5% | 18.8% | 17.9% | 17.6% | 15.2% |
| pfandbrief | 0.8% | 0.7% | 0.7% | 0.7% | 1.1% | 0.9% |
| • by other issuers | 3.0% | 2.9% | 1.4% | 1.0% | 1.1% | 1.0% |
| Greece | | | | | | |
| • by the central government | 0.10% | 0.0% | 0.1% | 0.1% | 0.2% | 0.2% |
| • by other issuers | 0.0% | 0.0% | 0.1% | 0.1% | 0.2% | 0.2% |
| Ireland | | | | | | |
| • by the central government | 0.40% | 0.3% | 0.2% | 0.1% | 0.2% | 0.2% |
| • by other issuers | 0.4% | 0.9% | 0.1% | 0.1% | 0.2% | 0.2% |
| Italy | | | | | | |
| • by the central government | 9.80% | 8.4% | 10.4% | 11.2% | 11.0% | 12.2% |
| • by other issuers | 0.6% | 1.3% | 0.4% | 0.6% | 0.7% | 0.8% |
| Luxembourg | | | | | | |
| • by the central government | 0.10% | 0.0% | 0.0% | 0.1% | 0.1% | 0.1% |
| • by other issuers | 1.2% | 0.3% | 0.3% | 0.2% | 0.2% | 0.3% |
| Netherlands | | | | | | |
| • by the central government | 1.70% | 1.8% | 2.1% | 1.5% | 1.8% | 1.8% |
| • by other issuers | 0.6% | 0.6% | 0.4% | 0.2% | 0.3% | 0.3% |
| Portugal | | | | | | |
| • by the central government | 0.40% | 0.5% | 0.4% | 0.4% | 0.5% | 0.6% |
| • by other issuers | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% |
| Spain | | | | | | |
| • by the central government | 5.60% | 4.9% | 4.1% | 4.0% | 4.4% | 4.0% |

| | Dec-14 | Dec-15 | Dec-16 | Dec-17 | Jun-18 | Dec-18 |
|------------------------------|--------|--------|--------|--------|--------|--------|
| • by other issuers | 0.9% | 2.0% | 1.1% | 1.4% | 1.7% | 1.0% |
| Sweden | | | | | | |
| • by the central government | 0.80% | 0.9% | 0.9% | 2.9% | 0.7% | 0.6% |
| • by other issuers | 0.8% | 0.7% | 0.9% | 1.9% | 0.8% | 0.7% |
| UK | | | | | | |
| • by the central government | 10.00% | 10.6% | 10.0% | 12.1% | 11.1% | 11.0% |
| • by other issuers | 1.5% | 2.3% | 1.8% | 1.6% | 2.1% | 1.7% |
| US Treasury | 3.6% | 5.1% | 7.9% | 4.6% | 4.3% | 8.8% |
| US other issuers | | 1.0% | 2.2% | 1.2% | 0.8% | 2.6% |
| US but settled across EOC/CS | | | | | | |
| other countries | | | | | | |
| Bulgaria | | | | | | |
| • by the central government | 0.0% | | | | | |
| • by other issuers | 0.0% | | | | | |
| Cyprus | | | | | | |
| • by the central government | 0.0% | | | | | |
| • by other issuers | 0.00% | | | | | |
| Czech Republic | | | | | | |
| • by the central government | 0.0% | 0.0% | 0.1% | 0.1% | 0.2% | 0.2% |
| • by other issuers | 0.00% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% |
| Estonia | | | | | | |
| • by the central government | 0.0% | | | | | |
| • by other issuers | 0.00% | | | | | |
| Hungary | | | | | | |
| • by the central government | 0.1% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% |
| • by other issuers | 0.00% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Latvia | | | | | | |
| • by the central government | 0.0% | | | | | |
| • by other issuers | 0.00% | | | | | |
| Lithuania | | | | | | |
| • by the central government | 0.0% | | | | | |
| • by other issuers | 0.00% | | | | | |
| Malta | | | | | | |
| • by the central government | 0.0% | | | | | |
| • by other issuers | 0.00% | | | | | |
| Poland | | | | | | |

| | Dec-14 | Dec-15 | Dec-16 | Dec-17 | Jun-18 | Dec-18 |
|---|---------------|---------------|---------------|---------------|---------------|---------------|
| • by the central government | 0.2% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% |
| • by other issuers | 0.00% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Romania | | | | | | |
| • by the central government | 0.0% | | | | | |
| • by other issuers | 0.00% | | | | | |
| Slovak Republic | | | | | | |
| • by the central government | 0.0% | | | | | |
| • by other issuers | 0.00% | | | | | |
| Slovenia | | | | | | |
| • by the central government | 0.0% | | | | | |
| • by other issuers | 0.00% | | | | | |
| Other EU members by central government | | 0.2% | 0.1% | 0.1 | 0.2% | 0.1% |
| Other EU members by other issuers | | 0.1% | 0.0% | 0.1 | 0.0% | 0.0% |
| • by official international financial institutions | 2.2% | 2.1% | 1.9% | 0.1 | 0.6% | 0.7% |
| Japan | 8.60% | | | | | |
| • Japanese government | | 3.2% | 2.8% | 3.3 | 4.0% | 3.4% |
| • Other Japanese issuers | | 1.6% | 1.5% | 1.1 | 0.9% | 1.4% |
| Other Asian & Pacific OECD countries in the form of fixed income securities, except eurobonds | | | 0.5% | 0.8 | 0.4% | 0.4% |
| Other OECD countries in the form of fixed income securities, except eurobonds | | | 4.1% | 3.7 | 4.7% | 4.3% |
| other OECD | 6.5% | 5.5% | | | | |
| non-OECD EMEA | 0.6% | 0.6% | 0.6% | 0.5 | 0.4% | 0.5% |
| non-OECD Asian & Pacific | 0.7% | 0.6% | 0.4% | 0.3 | 0.5% | 0.4% |
| non-OECD Latin America | 0.6% | 0.7% | 0.5% | 0.4 | 0.4% | 0.4% |
| eurobonds issued by European entities | | | 1.1% | 1 | 1.0% | 0.8% |
| eurobonds issued by US entities | | | 0.1% | 0.1 | 0.1% | 0.1% |
| eurobonds issued by Asian & Pacific entities | | | 0.3% | 0.3 | 0.4% | 0.3% |
| eurobonds issued by other entities | | | 0.3% | 0.3 | 0.2% | 0.3% |
| equity | 0.1% | 0.1% | 0.3% | 0.2 | 0.2% | 0.2% |
| collateral of unknown origin or type | 2.7% | 2.4% | 1.6% | 1.2 | 1.0% | 1.0% |
| collateral in tri-party which cannot be attributed to a country or issuer | 3.5% | 4.8% | 2.4% | 2.3 | 2.0% | 1.3% |

| | Dec-14 | Dec-15 | Dec-16 | Dec-17 | Jun-18 | Dec-18 |
|---|--------|--------|--------|--------|--------|--------|
| Q2 What is the total value of securities loaned and borrowed by your repo desk: to/from counterparties | | | | | | |
| in the same country as you | | | | | | |
| • in fixed income | 38.3% | 35.7% | 24.7% | 29.6% | 26.8% | 22.3% |
| • in equity | 0.7% | 0.4% | 0.5% | 0.3% | 0.2% | 0.1% |
| • cross-border in (other) eurozone countries | | | | | | |
| • in fixed income | 21.7% | 35.0% | 34.8% | 29.7% | 29.5% | 32.1% |
| • in equity | 1.1% | 1.2% | 1.5% | 1.8% | 1.4% | 1.3% |
| • cross-border in non-eurozone countries | | | | | | |
| • in fixed income | 38.0% | 26.9% | 37.5% | 37.2% | 40.8% | 43.1% |
| • in equity | 0.3% | 0.7% | 1.1% | 1.5% | 1.3% | 1.1% |
| for which the term to maturity is | | | | | | |
| fixed | 58.6% | 66.7% | 62.9% | 66.9% | 62.7% | 72.8% |
| open | 41.40% | 33.3% | 37.1% | 33.1% | 37.3% | 27.2% |

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.



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International
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