ICMA
International Capital Market Association

International Capital Market Association European Repo Market Survey

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Disclaimer

This report has been compiled by Richard Comotto, Senior Consultant to ICMA.

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Executive Summary

In June 2021, the European Repo and Collateral Council (ERCC) of the International Capital Market Association (ICMA) conducted the 41st in its series of semi-annual surveys of the repo market in Europe.

The 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 9, 2021. Replies were received from 59 institutions, mainly banks. Returns were also made separately by the principal automatic repo trading systems (ATS) and tri-party repo agents in Europe, giving the size and composition of almost all automatic electronic repo trading and tri-party repo collateral management in Europe.

Total repo business

The total value of the repo contracts outstanding on the books of the 59 institutions who participated in the latest survey was a record **EUR 8,726 billion**, compared with EUR 8,285 billion in December. The latest total represents a rise in the headline number of 5.3% since December and 10.7% year-on-year. However, adjusting for the change in the number of institutions in the survey over the last three surveys, growth rates were +3.7% and +6.3%, respectively.

The drivers of growth in the first half of 2021 include further heavy issuance by governments and short-selling in anticipation of monetary policy shifts. Intensified collateral scarcity means that the European repo market continues to be largely securities-driven.

Trading analysis

The value of trading on interdealer automatic trading systems (ATS) declined but their share of the survey increased, suggesting that survey participants were more active users of electronic platforms. In contrast, there was strong growth in trading on the automated trading systems that primarily serve the dealer-customer market. (Automated trading requires manual intervention to execute a deal. Automatic does not).

The share of voice-brokers fell and may have resumed its long-term decline.

Tri-party repo appears to have been weighed down by abundant central bank liquidity. Both its share of the survey and the absolute size reported separately by the principal tri-party agents contracted. However, there was increased use of GC financing facilities, which is the electronically-traded and CCP-cleared segment of the tri-party repo market.

Geographical analysis

The share of domestic repo fell back further in December but stayed within its recent range.

Changes in the flows of automatically-traded repos reported by the principal ATS suggest that the relocation of electronic trading from the UK to the EU following the end of the Brexit Transition Period may have been equivalent to about EUR 33 billion.

Clearing and settlement analysis

The share of anonymous (CCP-cleared) repo trading did not change significantly over the first half of 2021, but the value of anonymous trades increased, showing that the reduction in the share of anonymous trading continues to be due to faster growth in uncleared business rather than any weakness in the demand for CCP-cleared repo.

Cash currency analysis

The share of the euro was stable over the first half of 2021, while the share of the pound sterling continued to expand in line with the growth in repos of UK government securities. The share of the US dollar in tri-party repo continued to rise and is now comparable in weight to the euro.

Collateral analysis

The share of European collateral in the form of government securities retreated, led by German government securities but partially offset by strong growth in French government securities. The value of most other European government securities increased but their shares contracted because of faster growth in non-European collateral, in particular, US Treasuries and 'other OECD' issues. UK government securities provided the largest share of the European repo market collateral on the back initially of strong demand from foreign investors and subsequently heavy short-selling.

The reduced role of German government securities as collateral was attributed to scarcity created by asset purchases by the Eurosystem, aggravated by the restrictive policies applied by the Bundesbank to its securities lending programme.

Repos against UK government securities took a record share of trading on ATS but Italian government securities remain by far and away the largest component of interdealer electronic trading.

The survey sample continued to be a significant net lender of Belgian and German government securities as well as US Treasuries but was a net borrower of French, Italian, JGBs and especially UK government securities.

The share of government securities used as collateral in tri-party repo decreased due to a rise in the use of equity and convertible bonds as collateral in tri-party repo managed by global custodian banks.

The share of securities issued by the EU being used as collateral was just 0.3% of the survey but this was equivalent to about EUR 22 billion, which was over 8% of the EUR 259 billion issued by the time of the survey. The repo market has therefore been playing a significant role in facilitating the distribution of these securities and can be expected to play a growing role in fostering secondary market liquidity.

Maturity analysis

The survey showed the usual mid-year seasonality in maturities in the form of a rebound in the share of short-dated repos (one month or less remaining to maturity). The rebound was particularly pronounced in June.

The main counterpart to the jump in short dates was a drop in one to three-month repos, which may reflect the run-off of collateral swaps originally transacted for three to six months.

The share of repos with a remaining maturity between three and six-months fell back but is still elevated compared with pre-Covid levels.

The survey sample continues to run a negative gap (borrowing cash short-term and lending longer-term). However, in June 2021, there was more net cash lending (net securities borrowing) beyond six months as well as more through open repo and forwards.

Rate analysis

The recommendation by the ERCC in 2019 that the interdealer market in Europe should refrain from trading floating-rate repo indexed to overnight indices may have contributed to a significant drop in the share of floating-rate repo in the survey of as much as one-third.

Product analysis

The share of securities lending conducted on repo desks fell back to its June 2020 level.

Concentration analysis

The concentration of business in the survey was markedly higher.

Other analysis

Over 80% of the master agreements used by survey participants were the ICMA Global Master Repurchase Agreement (GMRA).

Chapter 1: The Survey

On June 9, 2021, the European Repo and Collateral Council (ERCC) of the International Capital Market Association (ICMA) conducted the 41st in its series of semi-annual surveys of the repo market in Europe.

The survey was carried out and the results analysed on behalf of ICMA by the author under the guidance of the ERCC Steering Committee ("ERCC Committee").

1.1 What the survey asked

The survey asked financial institutions operating in Europe for the value of the cash side of repos and reverse repos that were still outstanding at close of business on Wednesday, June 9, 2021. The survey covered all types of true repo (which means repurchase transactions, reverse repurchase transactions, buy/sell-backs and sell/buy-backs but not synthetic or pledge structures).

The survey also asked participating institutions to break down their data by: repo and reverse repo; location of counterparty; method of execution; cash currency; type of contract; type of repo rate; remaining term to maturity; method of clearing and settlement; origin of collateral; and some other categories. In addition, institutions were asked to report the value of their turnover since the previous survey, the legal agreements under which they transacted repos and the outstanding value of any securities lending and borrowing conducted from 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.

Data were provided separately by the principal automatic repo trading systems (ATS) and by the main tri-party repo agents in Europe. In an annex to this report, there is a review by the author of the data reported directly by tri-party agents in Europe since 2004.

Ahead of this report, ICMA published a review by the author analysing the first year of public data released by trade repositories in the EU and UK from the data collected under the respective Securities Financing Transactions Regulations (SFTR).

1.2 The response to the survey

The latest survey was completed by 59 offices of 53 financial groups. The current total is one less than in the June 2020 survey due to a merger.

Of the current 59 survey participants, 45 were headquartered across 15 European countries, including Norway (1), Switzerland (2) and the UK (6). 36 participants were headquartered across 11 of the 27 member states of the EU (there continue to be no institutions in the survey from Finland and Sweden, and only one from a former Accession State). 33 participants were headquartered across 10 of the 19 countries of the eurozone. Others survey participants were headquartered in Australia (1), Japan (4) and North America (9). 16 respondents were branches or subsidiaries of foreign parents or supranational entities. Most of these (15) were located in the UK.

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 8, 2021.

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 website. The latest forms will be published shortly before the next survey at www.icmagroup.org/Regulatory-Policy-and-Market-Practice/repo-and-collateral-markets/market-data/repo-market-surveys/.

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

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

Chapter 2: Analysis of Survey Results

The aggregate results of the latest two surveys and of the surveys in each June in the three previous years (2017-2020) are set out in Appendix C. The full results of all previous surveys can be found at https://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/repo-and-collateral-markets/market-data/repo-market-surveys/previous-surveys/.

Total repo business (Q1)

The total value, at close of business on June 9, 2021, of repos and reverse repos outstanding on the books of the 59 institutions which participated in the latest survey was a record **EUR 8,725.7 billion**, compared with EUR 8,285 billion in December, EUR 7,885 billion in June 2020 and the previous record of EUR 8,310.3 billion in December 2019. This means the latest survey total showed a rise of 5.3% since the December 2020 survey and 10.7% year-on-year.

Figure 2.1 – Total business

For the first time since 2007, the survey sample as a whole was a net cash lender (net securities borrower) to the rest of the market, albeit by a small margin.

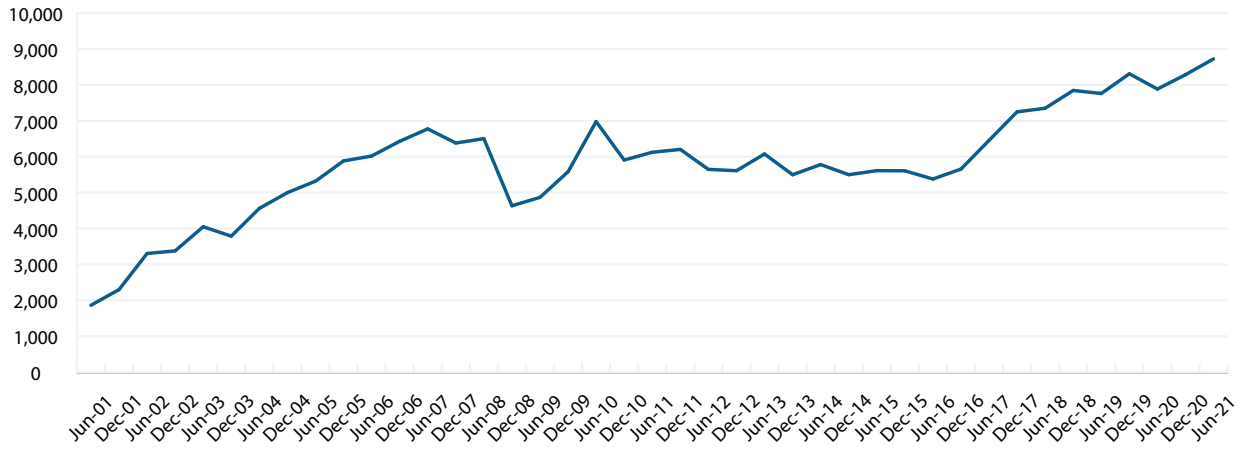
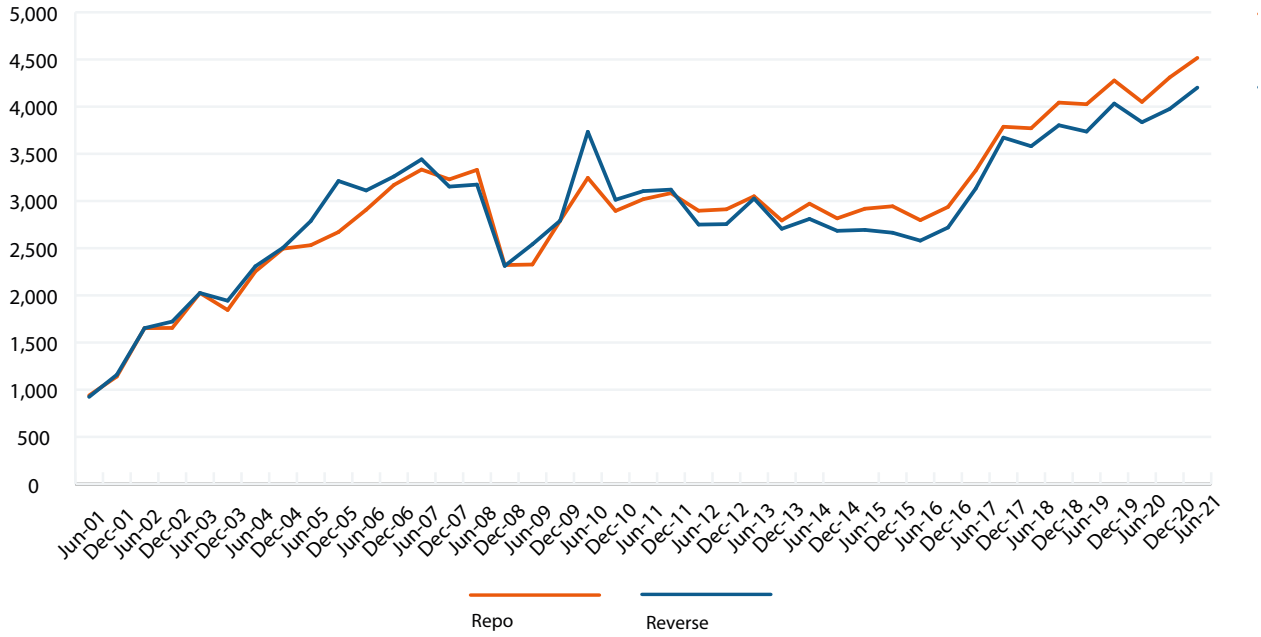


Table 2.1 – Total repo business

survey	total	repo	reverse repo
2021 June	8,726	48.2%	51.8%
2020 December	8,285	48.0%	52.0%
2020 June	7,885	48.6%	51.4%
2019 December	8,310	48.5%	51.5%
2019 June	7,761	48.1%	51.9%
2018 December	7,846	48.5%	51.5%
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 2.2 – Total repo versus reverse repo business



It is important to remember that the ICMA survey measures the value of outstanding transactions at close of business on the survey date. Measuring the stock (open positions) of transactions at one date, rather than the flow (turnover) between two dates, measures risk and permits deeper analysis but is difficult to reconcile with the flow numbers published by some other sources. It also means that the share of shorter-term repos is understated compared with turnover data, given that shorter-term repos will run off faster between surveys than longer-term repos.

In addition, the values measured by the survey have not been adjusted for the double-counting of the same transactions by pairs of survey participants. However, a study by the author (see the report of the December 2012 survey) suggested that the problem of double-counting was not very significant. Interestingly, a trade repository in Europe has estimated that two-sided reporting under EU SFTR has been less than 25% and, under UK SFTR, less than 15%, which is similar to the author's estimate of double-counting in 2012.

The survey also does not measure the very significant value of repos transacted with central banks as part of official monetary policy operations.

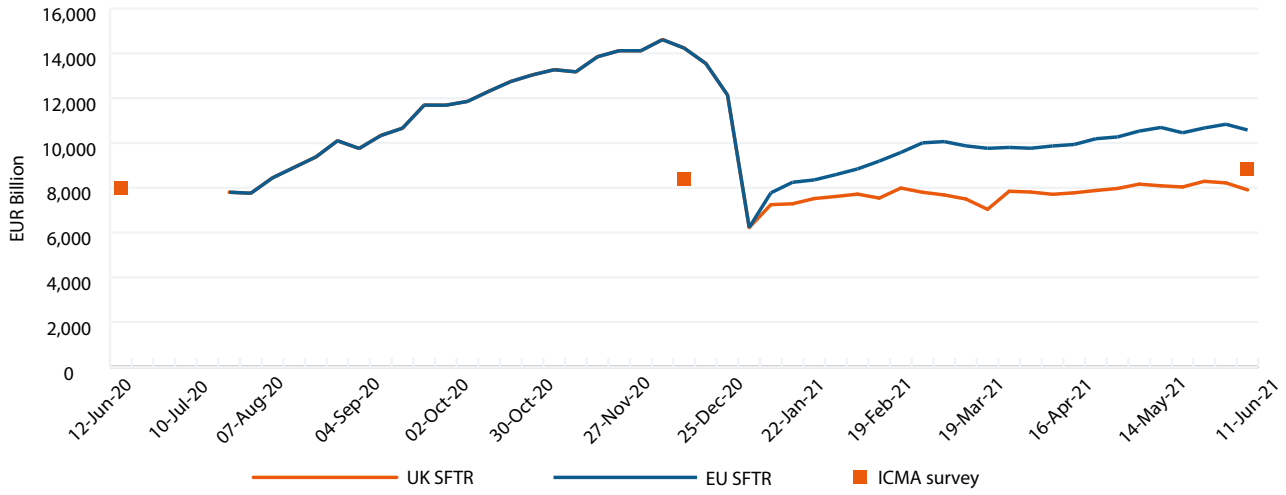
In order to accurately gauge the growth of the European repo market (or at least that segment represented by the institutions who have participated in the survey), it is not valid to simply compare headline survey numbers. Some of the changes will represent the entry and exit of institutions into and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

Out of the 59 institutions which participated in the latest survey, 56 had also participated in the previous two (that is, the three surveys in succession). Overall, the aggregate value of outstanding repos and reverse repos transacted by the constant sample of these 56 institutions rose by 3.7% since the December 2020 survey and 6.3% year-on-year (compared with +5.3% and +10.7%, respectively, in the headline number). The change for the 58 institutions which had participated in at least the last two surveys was a rise of 5.3% since the June survey, the same as in the headline number. Comparison with the change in the headline number of the survey shows that a part of the growth in the headline number between December 2020 and June 2021 was due to change in the composition of the survey sample.

Between December 2020 and June 2021, 27 of the 59 institutions who responded to the latest survey and were also in the previous survey expanded their repo books (compared to 25 out of 60 between June and December 2020). The repo books of 28 institutions contracted over the same period (compared to 30 between the previous two surveys). The median percentage change was -1.0% compared to -2.3% in the half-year to December. This means that institutions who expanded their repo books did so by more than those who contracted their books (the average unweighted change for the former group was +57.2%, whereas the average unweighted change for latter group was -20.2% and the weighted average change was +11.8%).

The total value of all outstanding repos reported under the Securities Financing Transactions Regulations (SFTR) in the EU and the UK on June 11, 2021 (the reporting date closest to a survey date), was EUR 10,836 billion in the EU and EUR 8,288 billion in the UK, totalling EUR 18,957 billion (+33.2% since December 11, 2020). The ICMA survey is therefore equivalent to 46% of the EU and UK total, compared with 58% in December (but note that SFTR data are believed to be inflated by various factors, which have been discussed in the review of the first year of the regulation).

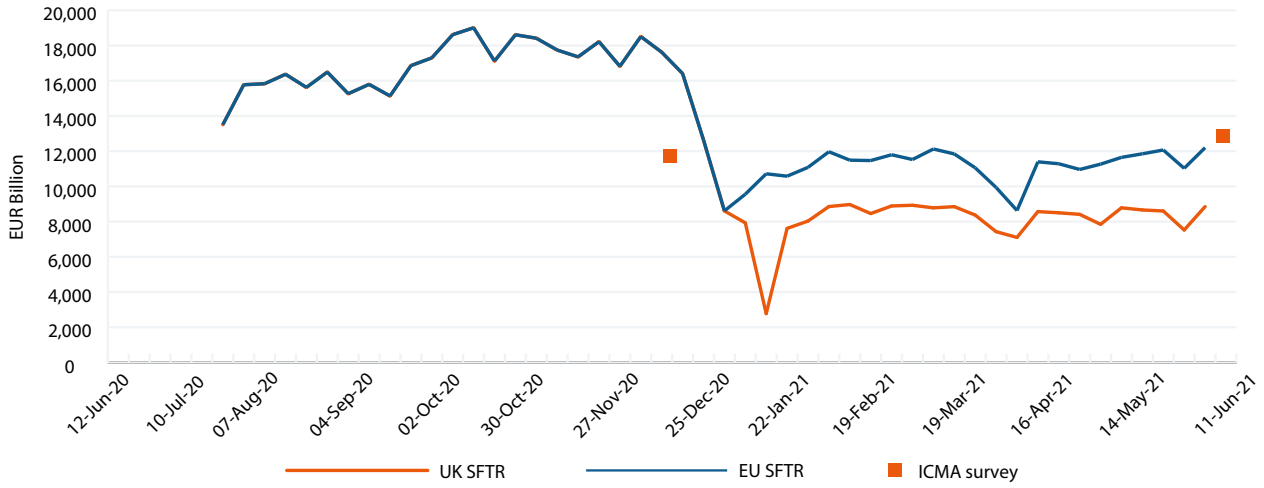
Figure 2.3 – ICMA survey versus SFTR public data: outstanding amounts



Institutions accounting for 49% of the total value of the survey also reported their repo turnover over the six months since the previous survey. Grossing up for those survey participants who did not report their turnover, on the basis of relative shares of the outstanding total, suggests that the daily average turnover for the whole survey sample over the first half of 2021 was EUR 2,540 billion per day compared to EUR 2,317 billion between the December 2020 and June 2020 surveys (+ of 9.6%).

Turnover in repo reported under SFTR in the week ending June 11 was EUR 2,440 billion per day in the EU and EUR 1,770 billion per day in the UK, totalling EUR 4,210 billion per day (+19.5% since the week ending December 11, 2020), compared to turnover estimated in the ICMA survey of EUR 2,540 billion (+9.6% since December). The estimated survey turnover was therefore 62% of the SFTR number.

Figure 2.4 – ICMA survey versus SFTR public data: weekly turnover



Trading analysis (Q1.1)

Table 2.2 – Trading analysis

	June 2021		December 2020		June 2020	
	share	users	share	users	share	share
direct	63.4%	59	63.4%	60	63.7%	61
of which tri-party	*8.0%*	*43*	*8.8%*	*42*	*9.2%*	*37*
voice-brokers	8.3%	31	9.5%	38	8.8%	43
ATS	27.5%	46	27.1%	48	27.5%	46

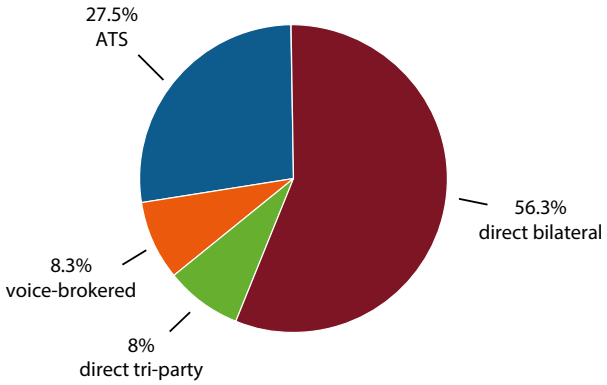
The share of ATS in the survey increased at the expense of voice-brokers and tri-party repo.

The share of **voice-brokers** fell to 8.3% in June, close to its record low of 8.1% in June 2019. The number of voice-brokers reported as having been used by survey participants fell sharply to a record low of 31.

Table 2.3 – Numbers of participants reporting particular types of business

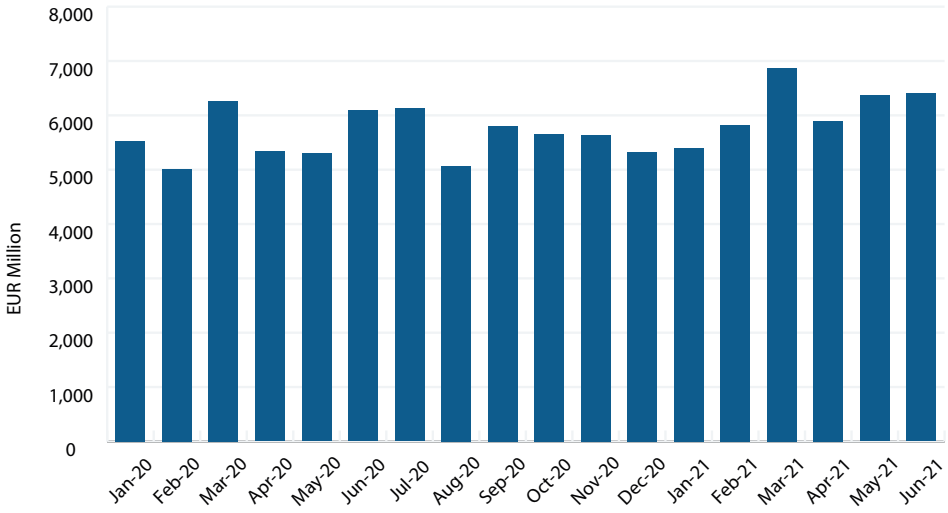
	Jun-21	Dec-20	Jun-20	Dec-19	Jun-19	Dec-18
ATS	46	48	46	46	45	44
anonymous ATS	41	42	42	41	40	40
voice-brokers	31	38	43	43	40	42
tri-party repos	43	42	37	41	38	42
total	59	60	61	58	55	58

Figure 2.5 – Trading analysis



In contrast to the survey, data provided separately by the principal ATS in Europe showed that the outstanding value of repos executed on **automatic trading systems (ATS)** retreated a little further over the latest survey period (-2.1%) to EUR 1,057.9 billion. In terms of turnover, as reported separately by the platforms, automatic electronic trading fell back by 1.3% to an average daily value of EUR 525 billion. On the other hand, the number of transactions on ATS increased by 10.1% to an average daily rate of over 19,100, implying a smaller average deal size of EUR 27 million. But the overall falls in value masked increases in the automatic electronic trading of certain types of repo (sterling on the cash side and Italian and UK government bonds on the collateral side). There were also differences between the performance of the systems (for example, see the monthly turnover on BrokerTec in Figure 2.5, which shows increased turnover between the second-half of 2020 and the first-half of 2021).

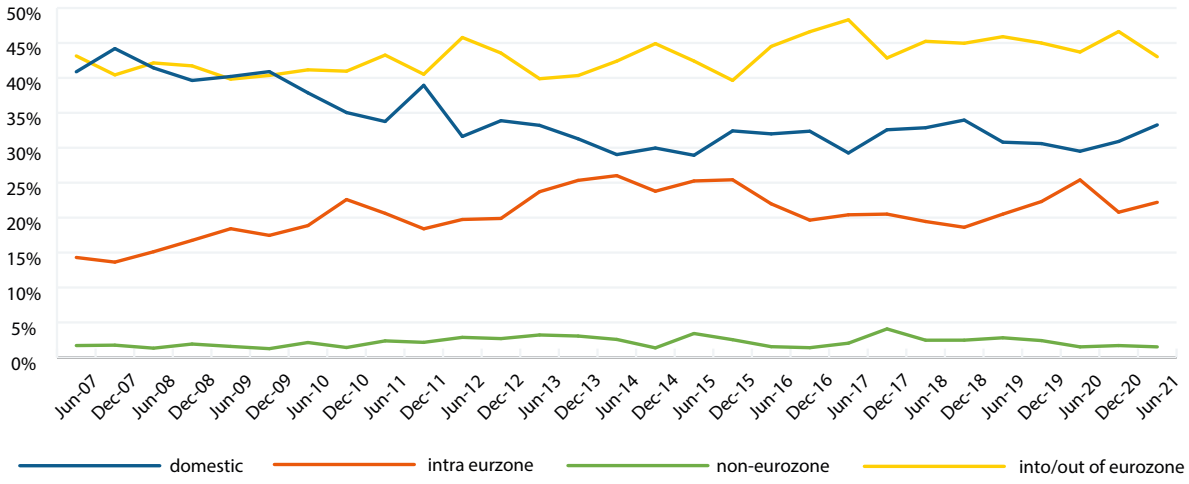
Figure 2.6 – Monthly turnover in repo on CME BrokerTec



Source: CME

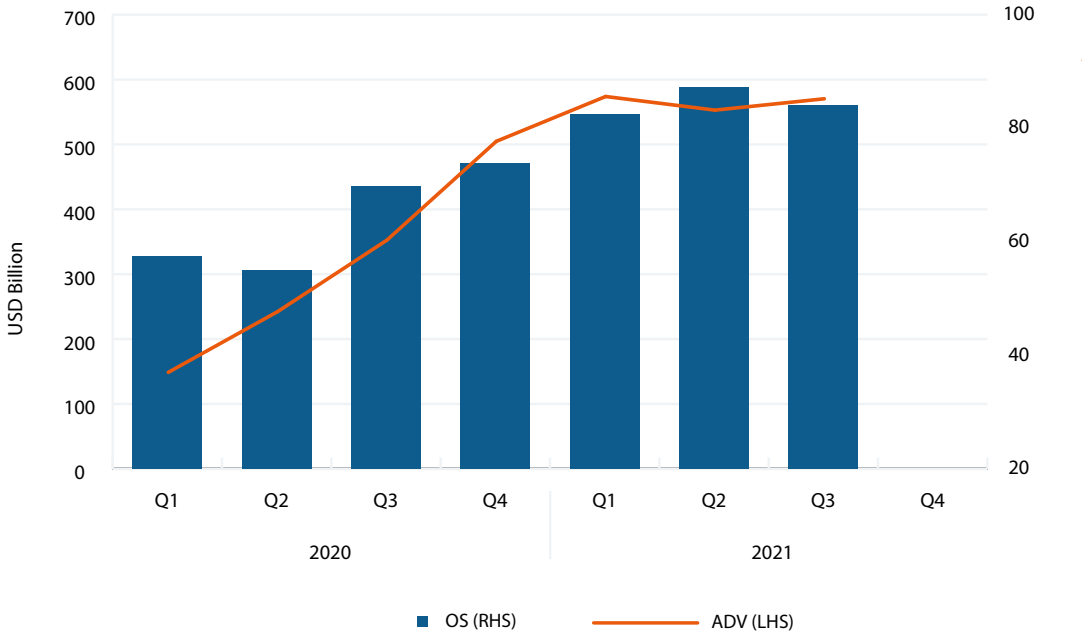
The share of repos reported directly by the principal ATS that crossed into and out of the eurozone dropped to 43.0% from 46.6%, while domestic repos rose to 33.3% from 30.9% and intra-eurozone repos recovered from to 22.2% from 20.8%.

Figure 2.7 – Outstanding of ATS business by location of counterparties



Trading appears to have been buoyant on **automated repo trading systems**, which are often called request-for-quote (RFQ) systems and are largely used for dealer-to-client business (whereas automatic systems execute interdealer business). An indication is provided by data from Tradeweb, which is probably the largest automated repo trading system in Europe (and is the only automated system to publish data). Turnover data published by Tradeweb showed a rise in average daily turnover of repo on its European platform in the first-half 2021 of 24.8% compared with the second half and a rise of 22.4% in the value of outstanding repos between end-2020 and end-June 2021 (see Figure 2.8).

Figure 2.8 – Monthly turnover and outstanding value in European repo on Tradeweb



Source: Tradeweb

Tri-party repo fell back further to 8.0% from 8.8% of the survey in December. This was reflected in a fall in the outstanding value of tri-party repo reported by the survey sample to EUR 695 billion from the recent peak of EUR 950 billion in December (-26.8%). The outstanding value of all tri-party business reported separately by the five principal tri-party agents operating in Europe (Bank of New York Mellon, Clearstream, Euroclear, JP Morgan and SIS) was almost static at EUR 670 billion.[1] However, the share of tri-party repo accounted for by GC financing facilities (electronic markets for CCP-cleared, tri-party repos) increased to 9.5% from 8.6% and the value of outstanding tri-party repo on these facilities was reported as reaching EUR 63.9 billion from EUR 57.5 billion in December (+11.3%).

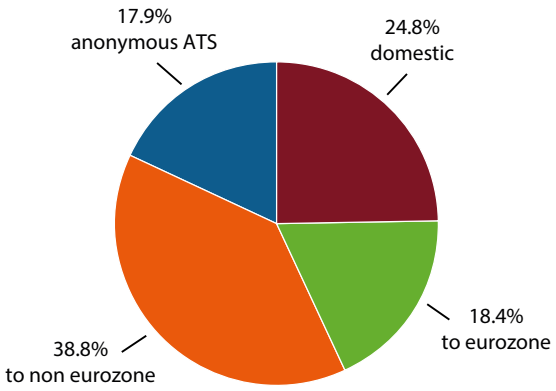
Tri-party repo continued to provide the survey sample with net cash but gross tri-party lending by the survey sample dropped sharply, to 23.3% from 58.5% in December.

Geographical analysis (Q1.1)

Table 2.4 – Geographical analysis

	June 2021		June 2020		December 2019	
	share	users	share	users	share	users
domestic	24.8%		26.2%		27.4%	
cross-border to (other) eurozone	18.4%		18.5%		16.8%	
cross-border to (other) non-eurozone	38.8%		37.3%		36.3%	
anonymous	17.9%	41	18.0%	42	19.5%	42

Figure 2.9 - Geographical analysis



1 The fact that the survey sample sometimes reported a greater value of tri-party repo than the tri-party agents (who should represent the 'universe' of tri-party repo) is discussed in the review of tri-party repo attached to this report.

Table 2.5 – Geographical comparisons in June 2021 (December 2020)

	main survey	ATS	tri-party
domestic	24.8% (26.2%)	33.3% (30.3%)	33.8% (34.9%)
cross-border	57.2% (55.8%)	66.7% (69.7%)	66.2% (65.1%)
anonymous	17.9% (18.0%)		

The share of **domestic repo** business fell back further in December but stayed within the range of 23.2-27.4% which it has followed since 2017. On the other hand, domestic business increased its share of automatic electronic trading, probably due to the re-entry of certain domestic participants into the Italian market.

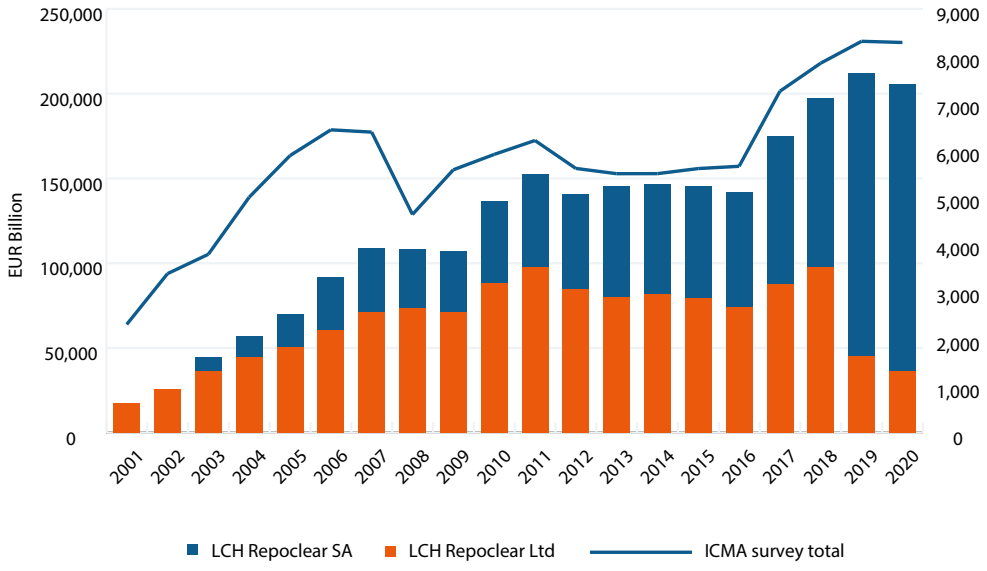
Clearing and settlement analysis (Q1.2 and Q1.8)

The share of **anonymous (CCP-cleared) repo trading** did not change significantly over the first-half of 2021 (17.9% compared to 18.0% in December), slowing its two-year contraction, which is the latest phase in a wide fluctuation around a downward trend that has been followed since June 2016, when the share of anonymously-traded repo fell off a plateau of about 25% that had been reached in 2013. However, the value of anonymous trades increased by 3.9% to EUR 1,510.6 billion, showing that, once again, the reduction in the share of anonymous trading continues to be due to faster growth in uncleared business rather than any weakness in the demand for CCP-cleared repo.

The share of ATS business that was cleared on a CCP fell back from an all-time high of 99.6% in December to 97.8%, which reflects a shift in the Italian market.

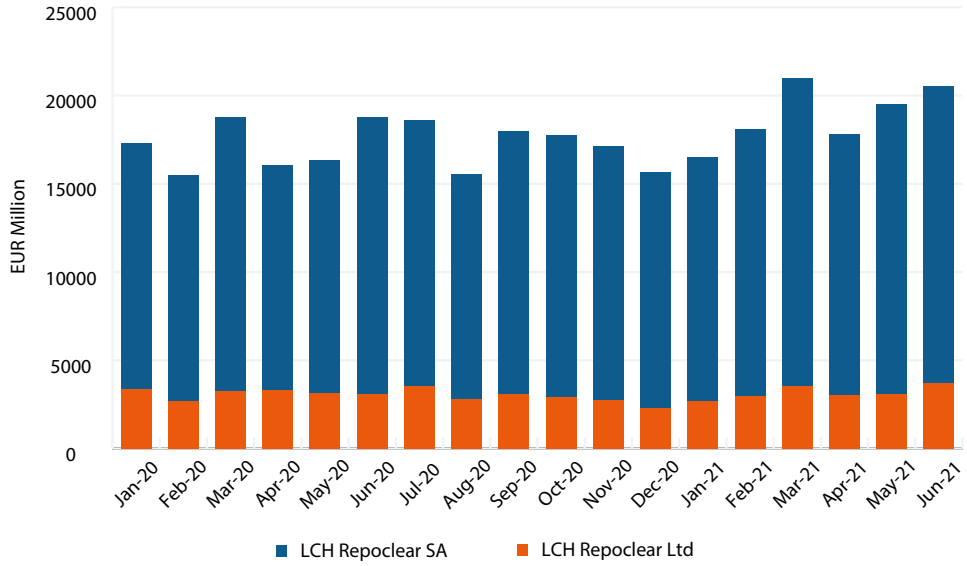
Turnover data from LCH RepoClear, the largest repo CCP in Europe, continues to be correlated with the survey, although the outstanding value of repos cleared on LCH contracted faster in 2020 compared to 2019 than the survey (see Figure 2.10).

Figure 2.10 – Annual cleared notional turnover on LCH RepoClear (EUR billion, double-counted)



Although LCH turnover fell back in 2020, it recovered in the first half of 2021 by 10.5% to EUR 113.5 trillion (see Figure 2.11).

Figure 2.11 – Monthly cleared notional turnover on LCH RepoClear in 2020 (EUR billion, double-counted)



Source: LCH

While the bulk of CCP-clearing is of repos transacted on ATS, a significant proportion of CCP-cleared repo are transacted directly (including on automated trading systems) and registered with a CCP post trade. In June 2021, post-trade CCP-clearing accounted for 14.3% of the total survey, reflecting strong growth since 2019, while the share of anonymous (CCP-cleared) repo trading has been declining.

Figure 2.12 – Post-trade CCP-clearing

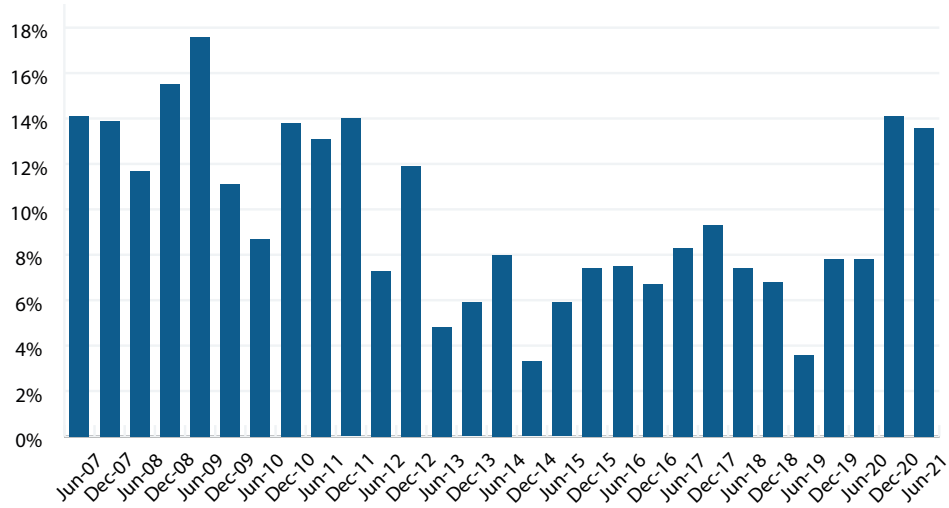
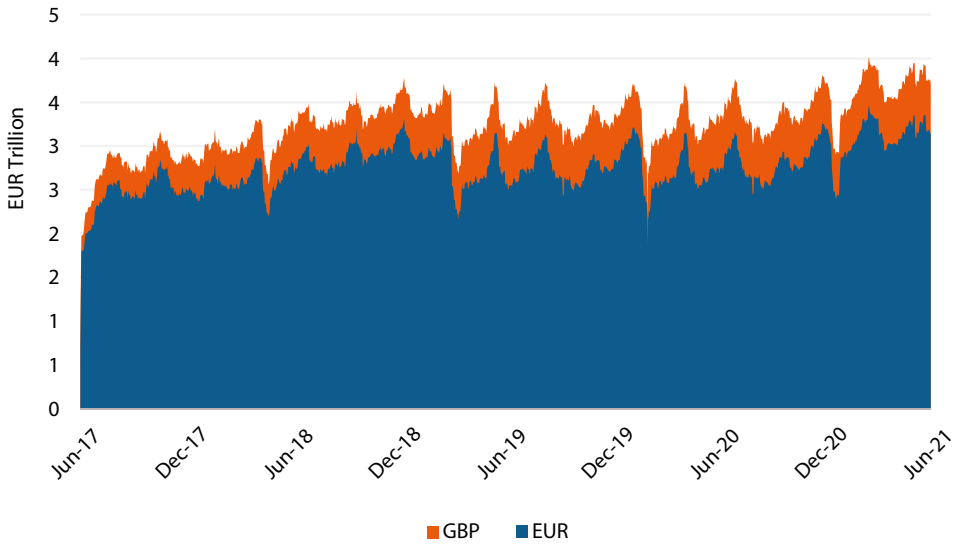


Figure 2.13 shows the outstanding value of repos cleared by LCH (open interest). Average daily outstanding in CCP-cleared euro repo rose by 9.3% in the first-half of 2021 compared to the second-half of 2020 and 3.5% year-on-year, while CP-cleared sterling repo fell by 1.2% and rose by 1.1%, respectively. The chart illustrates the strongly seasonal pattern of clearing, which peaks around bond futures delivery dates and drops sharply at each end-year.

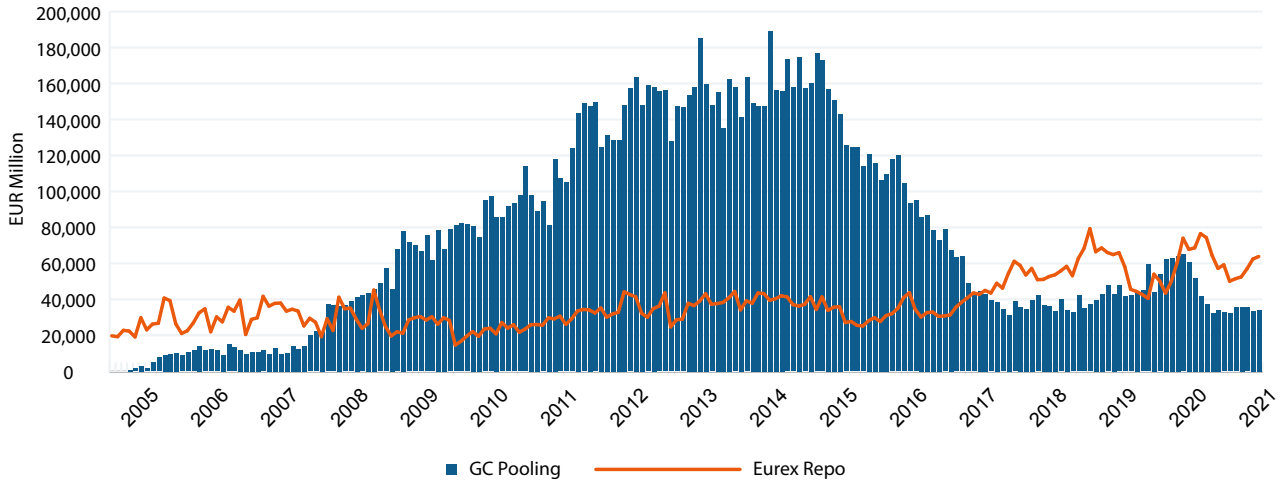
Figure 2.13 – Daily outstanding turnover on LCH RepoClear 2018-2020 (EUR trillion, double-counted: calculated using same methodology as ICMA survey)



Source: LCH

On Eurex Repo and GC Pooling, which are both CCP-cleared, average daily turnover grew from about EUR 80 billion to about EUR 100 billion over the first half of 2021, averaging about EUR 91 billion. However, GC Pooling fell back from its Covid-related peak, reflecting the crowding out of GC repo by central bank liquidity, while Eurex Repo, which trades both GC and specific/special collateral picked up over the first-half of 2021, suggesting a renewed focus by the market on securities-driven repo in response to collateral shortages induced by QE.

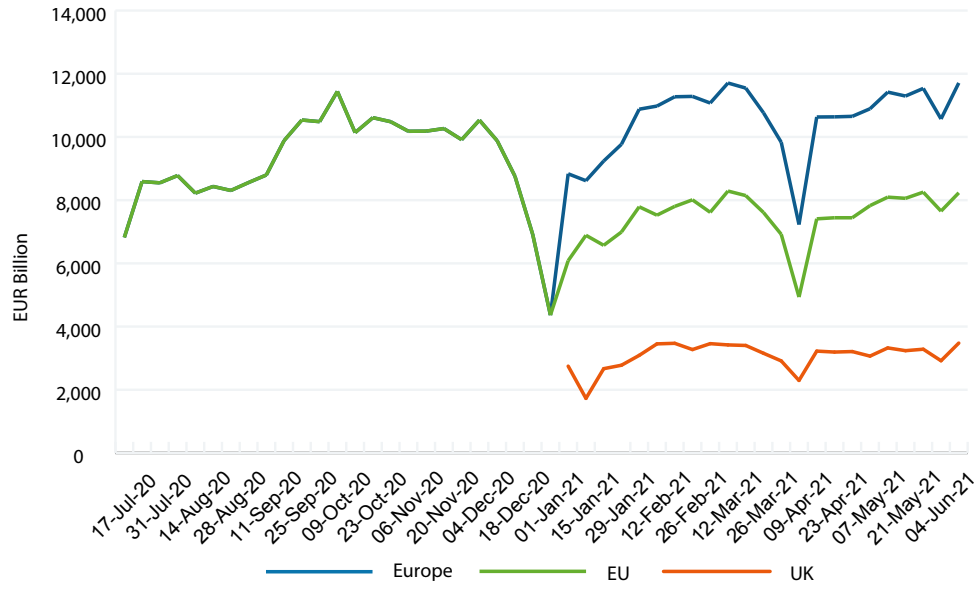
Figure 2.14 – Monthly turnover on Eurex Repo and GC Pooling (EUR million, 20-day moving average, adjusted for double-counting)



Source: Eurex Repo

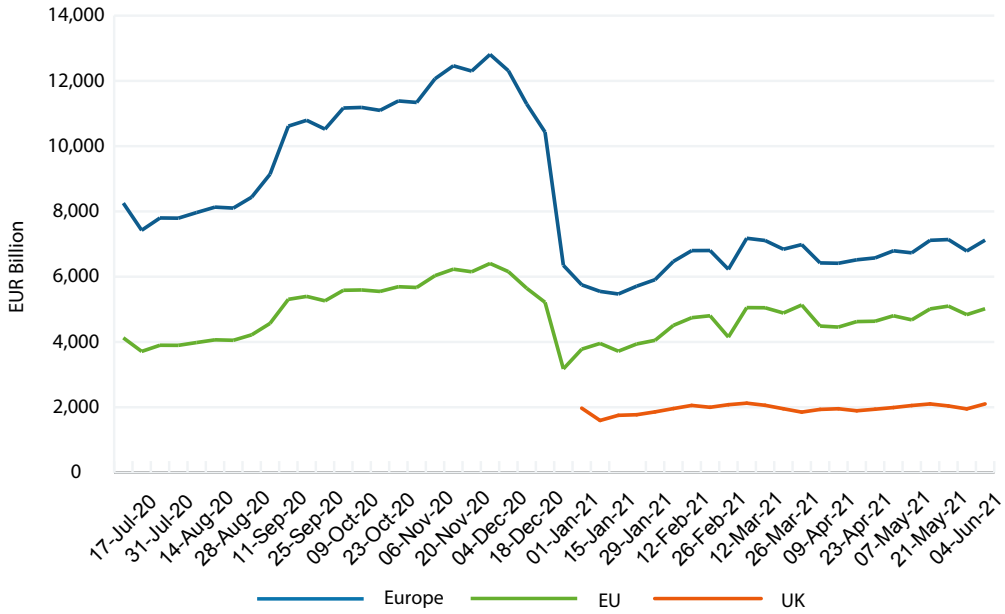
SFTR public data confirmed very sharp drops in reported CCP-cleared repos in December in terms of both turnover and outstanding business (see Figures 2.15 and 2.16). These drops are not reflected in the ICMA survey because of the timing of the surveys, which is on the second Wednesday of the month (usually the 9th or 10th) and so mostly precedes the largely seasonal end-year drop in trading and clearing volumes. SFTR public data shows a strong recovery in CCP-cleared repos in the first quarter, interrupted by Easter, then gradual recovery until a dip in early June.

Figure 2.15 – new CCP-cleared repos reported under SFTR (EUR trillion)



Source: DTCC, Regis-TR, Unavista

Figure 2.16 – outstanding CCP-cleared repos reported under SFTR (EUR trillion)



Source: DTCC, Regis-TR, Unavista

As noted, the share of **GC financing** (mainly through Eurex's GC Pooling service but also LCH's EuroGCPlus) picked up in the first half of 2021 compared with the second half of 2020. However, the recovery was modest and GC financing activity remained below historic levels. As a percentage of the tri-party business reported by the survey sample, the share of GC financing recovered to 9.2% from 5.5% in December (reflecting not just the growth of GC financing but also the contraction of tri-party repo). Its share of electronic business as reported directly by ATS increased to 3.4% from 2.9% and its share of tri-party repo as reported directly by the tri-party agents rose to 9.6% from 8.6%.

The estimated outstanding size of all GC financing (GC Pooling and EuroGCPlus) grew to about EUR 64 billion from EUR 60 billion. Average daily turnover over the first-half of 2021 is estimated at some EUR 35 billion for GC Pooling and over EUR 2 billion for the newer EuroGCPlus service.

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

Table 2.6 – Cash currency analysis

	June 2021	June 2020	December 2019
EUR	54.5%	54.4%	54.1%
GBP	16.9%	16.5%	15.8%
USD	19.5%	19.2%	20.6%
DKK, SEK	1.6%	1.4%	1.7%
JPY	5.2%	5.7%	5.7%
CHF	0.0%	0.1%	0.0%
other APAC	1.1%	1.5%	1.0%
other currencies	1.2%	1.2%	1.1%
cross-currency	2.3%	2.7%	1.6%

The share of the euro was stable over the first half of 2021. The share of the pound sterling continued to grow in line with the growth in the use of UK government securities. This was at the expense of Asian currencies.

The share of the euro in tri-party repo reported separately by the principal agents continued to fall back, touching a three-year low of 48.6% from 50.6% in December. The counterpart was a further rise in the share of the US dollar, which reached 40.0% from 36.3% in December.

Figure 2.17 - Currency analysis

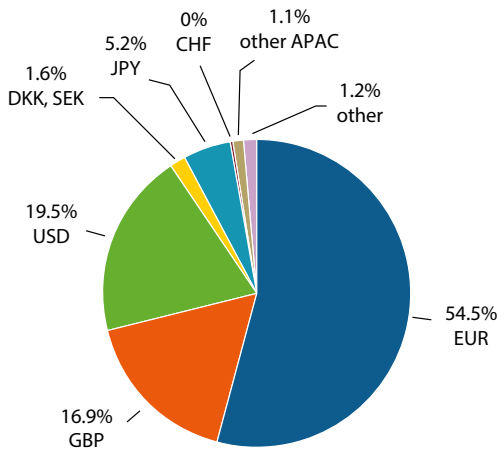


Table 2.7 – Currency comparison in June 2021

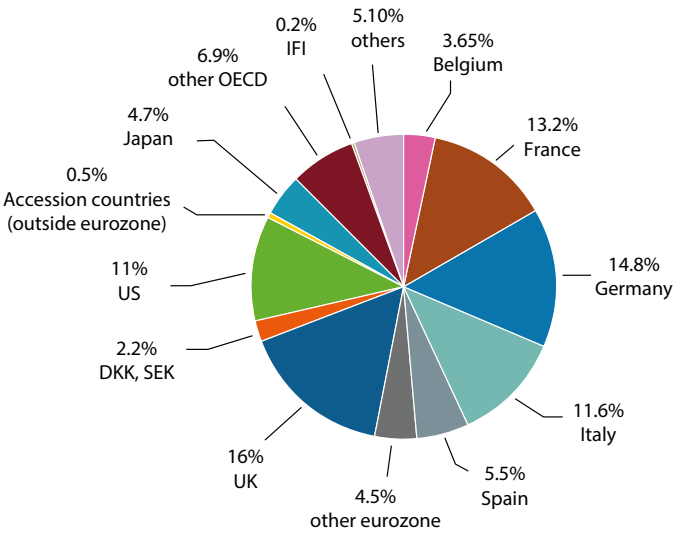
	main survey	ATS	tri-party
EUR	54.5%	89.4%	48.6%
GBP	16.9%	10.1%	7.7%
USD	19.5%	0.5%	40.0%
DKK, SEK	1.6%	0.0%	0.3%
JPY	5.2%	0.0%	1.2%
CHF	0.0%	0.0%	0.5%
other APAC	1.1%	0.0%	0.1%
etc	1.2%		1.5%
cross-currency	2.3%		

Collateral analysis (Q1.9)

Table 2.8 – Collateral analysis

	June 2021	December 2020	June 2020
Germany	14.8%	15.5%	13.3%
Italy	11.6%	11.7%	12.7%
France	13.2%	12.7%	10.9%
Belgium	3.6%	3.4%	3.8%
Spain	5.5%	5.2%	5.3%
other eurozone	4.5%	4.3%	4.5%
DKK, SEK	2.2%	1.7%	2.0%
former EU Accession	0.5%	0.5%	0.5%
EU institutions	0.3%	0.5%	-
UK	16.0%	16.2%	15.9%
international institutions	0.2%	0.2%	0.5%
US Treasuries	8.7%	8.1%	9.1%
other US	2.3%	2.4%	2.9%
Japan government	0.5%	5.2%	4.8%
other Japan	3.5%	1.1%	1.6%
other OECD ex APAC	1.2%	5.4%	6.0%
other APAC OECD	6.4%	0.8%	0.6%
eurobonds	0.4%	1.9%	1.7%
other fixed income	1.7%	3.0%	3.7%
equity	3.1%	0.3%	0.3%

Figure 2.18 - Collateral analysis (main survey)



There was a mixed picture as regards collateral in the first-half of 2021. As regards European collateral (EU plus UK), the shares of Belgian, French and Spanish securities increased but those issued in Germany and, to lesser extents, in Italy and UK decreased. Except in the case of UK securities, these changes were driven by government issues.

The combined share of European collateral in the form of government securities retreated to 91.2% from 94.4% in December but largely because of faster growth in non-European collateral, in particular, US Treasuries (8.7% from 8.1%) and 'other OECD' issues (6.4% from 5.4%).

The values and shares of most European government securities increased, with the notable exception of German government securities. The value of Italian government securities increased but their share contracted. UK government securities provided the largest share of the European repo market, reaching a new record of 14.9%.

There was increased trading in Italian and UK government securities on ATS. The share of UK issues increased to a record 11.4% from 7.8% in December but Italian government securities remain by far and away the largest component of interdealer electronic trading, increasing its share to 35.9% from 32.4%, largely at the expense of German and Spanish government securities (which fell to 17.8% from 21.6% and 10.2% from 8.8%, respectively).

JGBs dropped to 3.5% from a record share of 5.2% in December. Securities issued in the APAC region excluding Japan contracted to 1.3% from 1.8% in December and outstanding repos with APAC counterparties (including Japan) declined to 4.3% from 5.3%.

The share of securities issued by the EU being used as collateral was just 0.3% of the survey but this was equivalent to about EUR 22 billion, which was over 8% of the EUR 259 billion issued by the time of the survey.

The survey sample continued to be a significant net lender of Belgian and German government securities as well as US Treasuries (equivalent to 1.0%, 0.7% and 3.6% of the survey, respectively) but was a net borrower through reverse repo of French, Italian and especially UK government securities as well as of JGBs (1.7%, 2.1%, 6.5% and 1.1%, respectively).

The share of government securities used as collateral in tri-party repo decreased to 44.6% from 46.7% in December. This was due to a large increase in the use of equity and convertible bonds as collateral in tri-party repos managed by global custodian banks (to 20% from 11.9%). There were falls in the outstanding values and

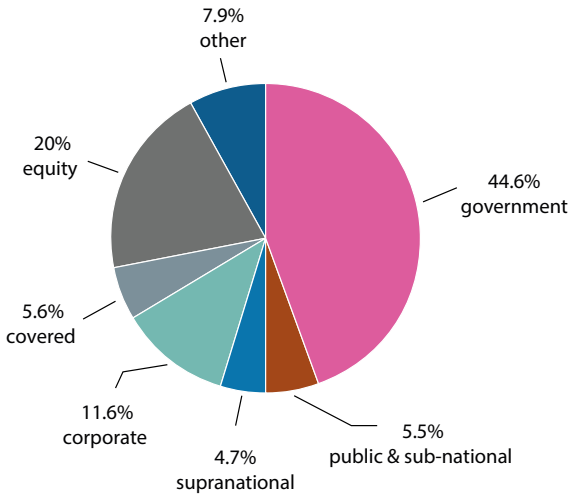
shares of other public sector issuance, covered bonds, RMBS and ABS. However, the data on the changes in the collateral composition of tri-party repos may have been distorted by enhanced reporting by one agent.

Table 2.9 – Tri-party repo collateral analysed by type of asset

	June 2021	December 2020	June 2020
government securities	44.6%	46.7%	45.6%
public agencies / sub-national governments	5.5%	7.9%	8.4%
supranational agencies	4.7%	3.6%	3.1%
corporate bonds	11.6%	15.5%	18.6%
covered bonds	5.6%	6.4%	8.1%
residential mortgage-backed	1.2%	1.2%	1.6%
commercial mortgage-backed	0.3%	0.4%	0.3%
other asset-backed	1.5%	1.7%	1.2%
CDO, CLN, CLO, etc	2.2%	1.6%	1.8%
convertible bonds	2.5%	1.2%	1.0%
equity	20.0%	11.9%	10.1%
other	0.1%	2.1%	1.2%

NB This table has been corrected.

Figure 2.19 - Collateral analysis (tri-party agents) by type of asset



The increased use of equity and convertible bonds as collateral helped to reduce the overall share of rated securities in tri-party collateral, although the values of most rated securities also contracted. This was especially true in A and BBB-rated issues.

Table 2.10 – Tri-party repo collateral analysed by credit rating

	June 2021	December 2020	June 2020
AAA	21.9%	23.3%	24.8%
AA	26.3%	26.8%	26.9%
A	8.9%	13.1%	13.8%
BBB	11.5%	14.9%	16.3%
below BBB-	6.2%	6.3%	6.3%
A1/P1	2.7%	2.8%	3.4%
A2/P2	0.0%	0.1%	0.2%
Non-Prime	0.0%	0.2%	0.1%
unrated	22.3%	12.6%	10.3%

Figure 2.20 - Collateral analysis (tri-party agents) by credit rating

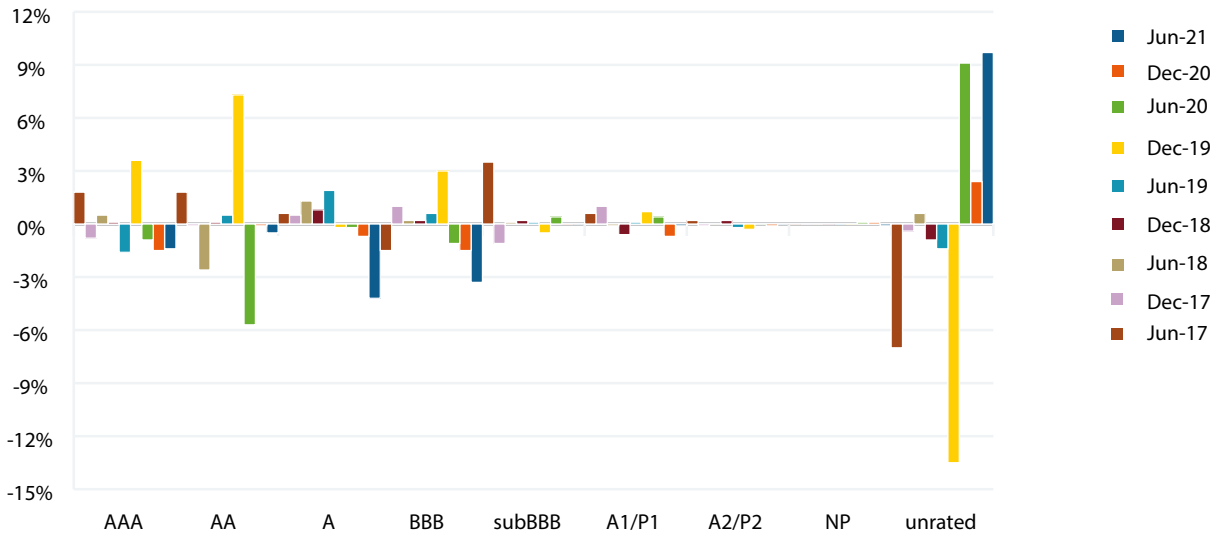


Figure 2.21 – Historic collateral analysis (tri-party agents) by credit rating

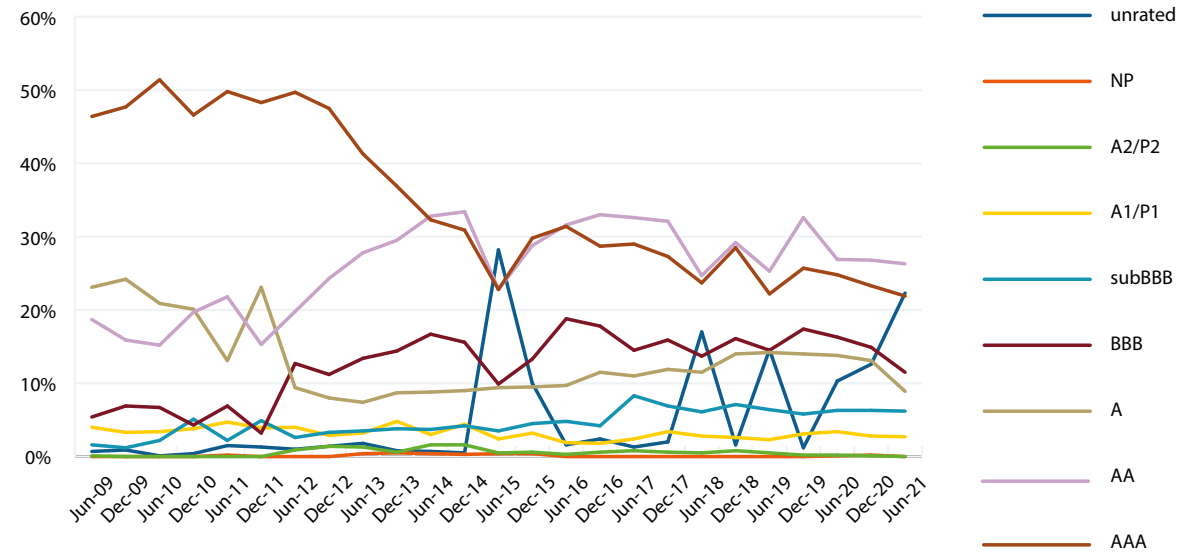
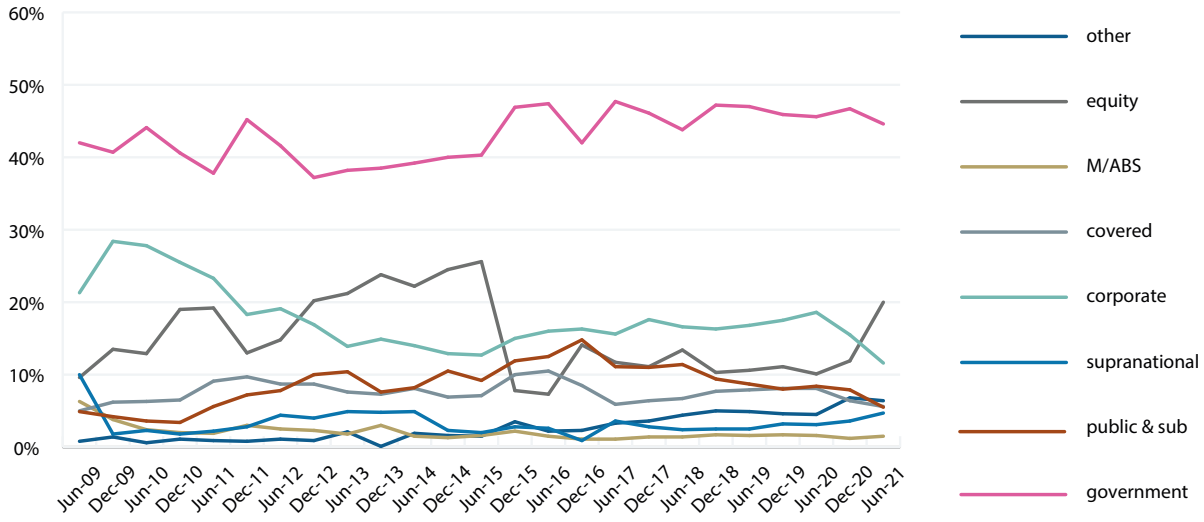


Figure 2.22 – Historic collateral analysis (tri-party agents) by type of asset



Weighted average haircuts on government securities, covered bonds CMBS, ABS and equity used as collateral in tri-party repo widened.

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

	June 2021	December 2020	June 2020
government securities	3.1%	2.0%	2.6%
public agencies / sub-national governments	2.6%	2.6%	3.1%
supranational agencies	1.4%	2.0%	1.9%
corporate bonds (financial)	3.2%	3.3%	3.4%
corporate bonds (non-financial)	3.2%	3.6%	2.9%
covered bonds	2.7%	0.8%	2.4%
residential mortgage-backed	2.2%	2.4%	1.6%
commercial mortgage-backed	2.6%	1.8%	1.4%
other asset-backed	4.5%	4.1%	3.2%
CDO, CLN, CLO, etc	2.5%	2.7%	2.8%
convertible bonds	3.7%	3.7%	2.2%
equity	2.7%	1.2%	1.7%
other	1.2%	1.8%	1.4%

Contract analysis (Q1.5)

There was a fall in the share of repurchase transactions in the survey but an increase in their share of ATS data.

Figure 2.23 - Contract analysis

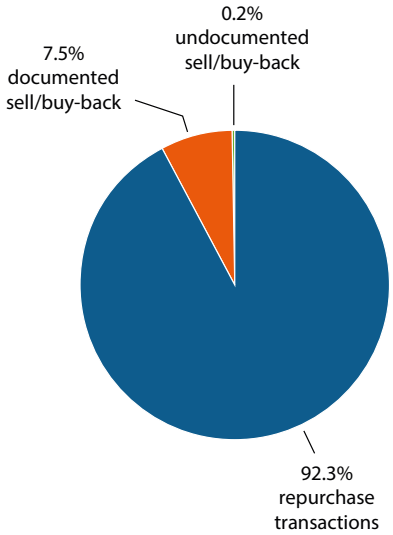


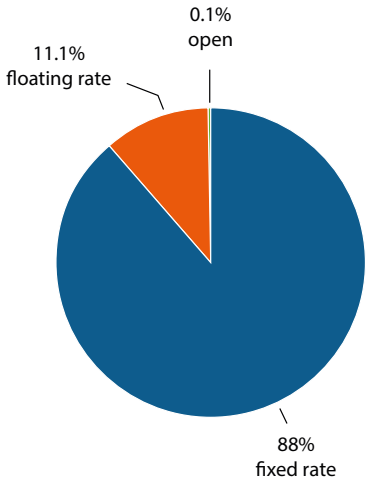
Table 2.12 – Contract comparison in June 2021 (December 2020)

	main survey	ATS	tri-party
repurchase transactions	92.3% (93.0%)	92,2% (90.6%)	100.0% (100.0%)
documented sell/buy-backs	7.5% (6.8%)	7.8% (9.4%)	
undocumented sell/buy-backs	0.2% (0.3%)		

Of the master agreements used by survey participants, 80.3% were reported to be the ICMA Global Master Repurchase Agreement (GMRA), up from 73.4% in December.

Repo rate analysis (Q1.6)

Figure 2.24 - Repo rate analysis



The figure for open repo in Table 2.13 should be zero, as this category has been dropped from the repo rate analysis (on the basis that open repos should be assumed to be fixed-rate unless they are expressly linked to a floating-rate index). This change therefore accounted for the sudden change in the tri-party numbers.

Table 2.13 – Repo rate comparison in June 2021 (December 2020)

	main survey	ATS	tri-party
fixed rate	88.8% (87.7%)	98.5% (98.5%)	56.3% (22.3%)
floating rate	11.1% (10.5%)	1.5% (1.5%)	43.7% (5.5%)
open	0.1% (1.8%)		(72.2%)

Maturity analysis (Q1.7)

Table 2.14 – Maturity analysis

	June 2021	December 2020	June 2020
open	7.5%	6.2%	8.5%
1 day	18.8%	18.0%	19.0%
2 days to 1 week	21.5%	19.3%	19.2%
1 week to 1 month	17.3%	13.7%	16.9%
>1 month to 3 months	9.8%	15.6%	10.4%
>3 months to 6 months	7.5%	8.2%	7.4%
>6 months to 12 months	3.8%	3.5%	3.1%
>12 months	2.4%	2.4%	2.8%
forward-start	11.4%	13.2%	12.6%

Figure 2.25 – Maturity analysis (main survey)

The survey showed the usual mid-year seasonality in the form of a rebound in the share of short-dated repos (one month or less remaining to maturity). Short dates typically shrink at year-end as cash borrowers seek term funding into the new year but they recover by mid-year. However, the rebound in June was particularly pronounced, reaching 57.6% from 50.9% in December. The strength of the June rebound has been growing since 2018, while the share of short dates at mid-year has remained fairly constant.

The main counterpart to the jump in short dates in June was a drop in one to three-month repos to 9.8% from 15.6%. This maturity bracket also continued to show strong seasonality, although in an inverse direction to short dates (rising at year-end and falling at mid-year).

The share of repos with a remaining maturity between three and six-months fell back to 7.5% from 8.2% but is still elevated compared with pre-Covid levels (which were generally below 5%).

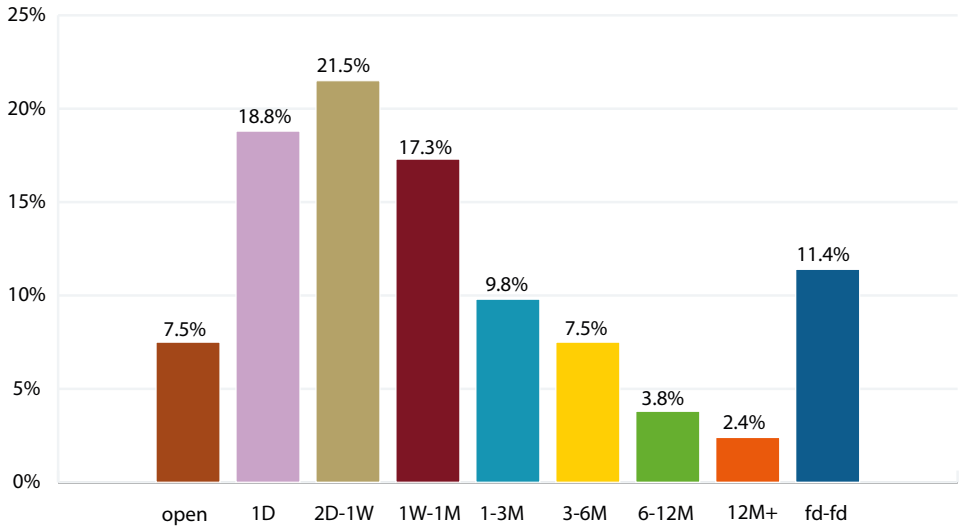


Figure 2.26 – Maturity analysis: short dates, longer terms & forwards (main survey)

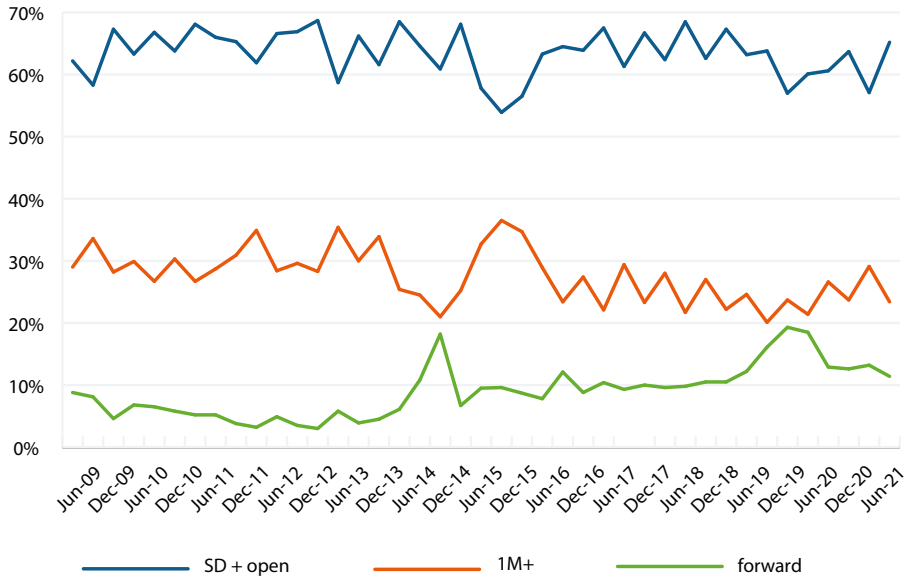


Figure 2.27 – Maturity analysis: non-forward terms (main survey)

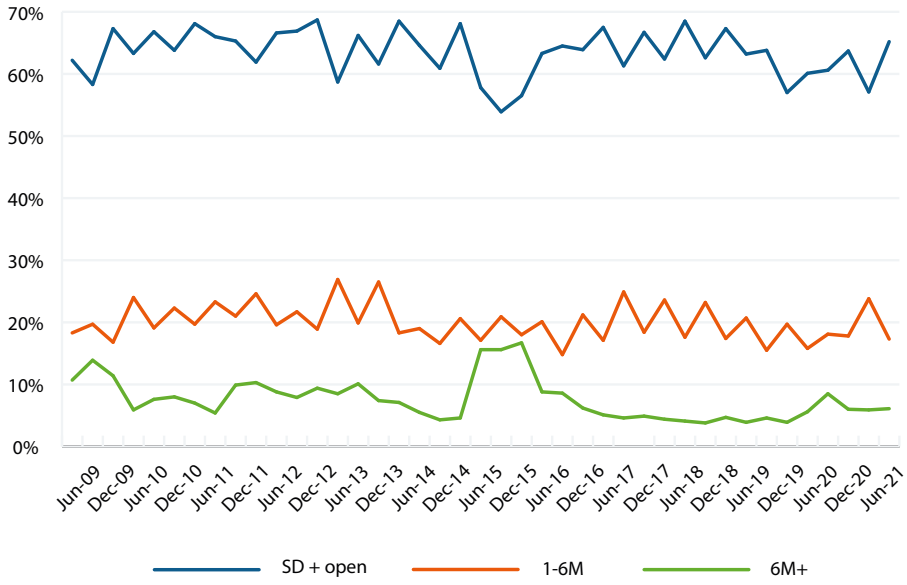


Figure 2.28 – Maturity analysis: breakdown of short dates plus open (main survey)

Reflecting the jump in short dates, the weighted average term to maturity of outstanding repos was shorter at 31-69 days compared with 33-76 days in December (the lower end of the range assumes that all transactions have the minimum term in each maturity band: the upper end assumes the maximum and a term of 31 days for open repo).

The latest survey showed a continuation of the switch that took place in June 2020 in the aggregate maturity transformation profile of the survey sample to a negative gap (borrowing short-term and lending longer-term). In June 2021, there was more net cash lending (net securities borrowing) beyond six months as well as in open repo and forwards.

Figure 2.29 – Maturity analysis: maturity transformation profile --- net reverse repo (main survey)

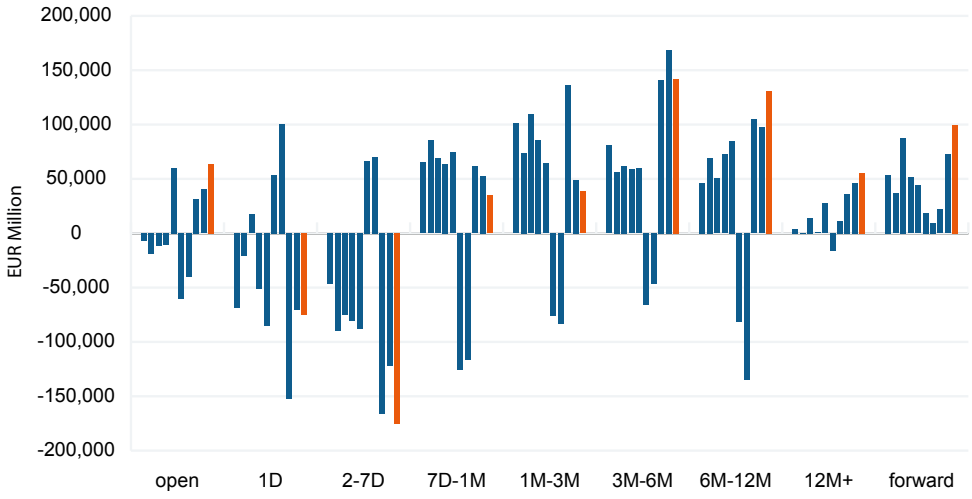


Figure 2.30 – Maturity analysis (ATS)

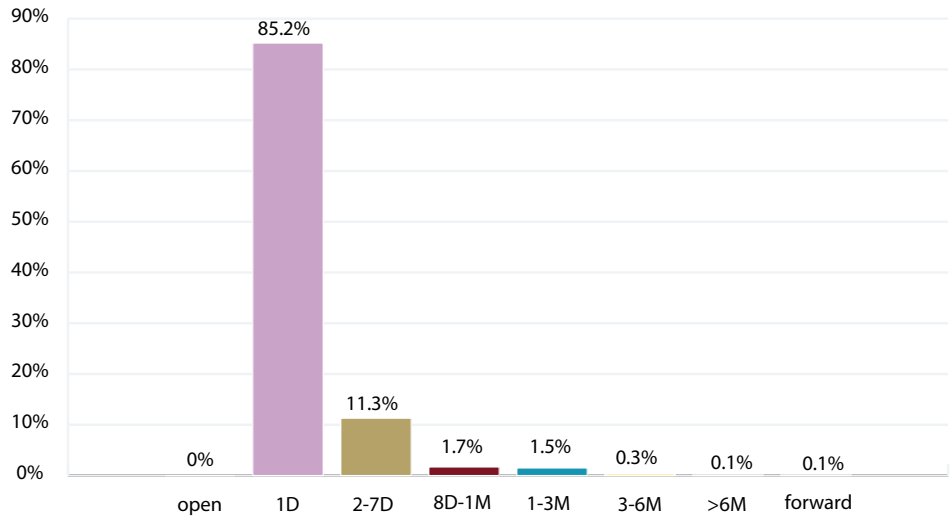


Figure 2.31 – Maturity analysis (tri-party agents)

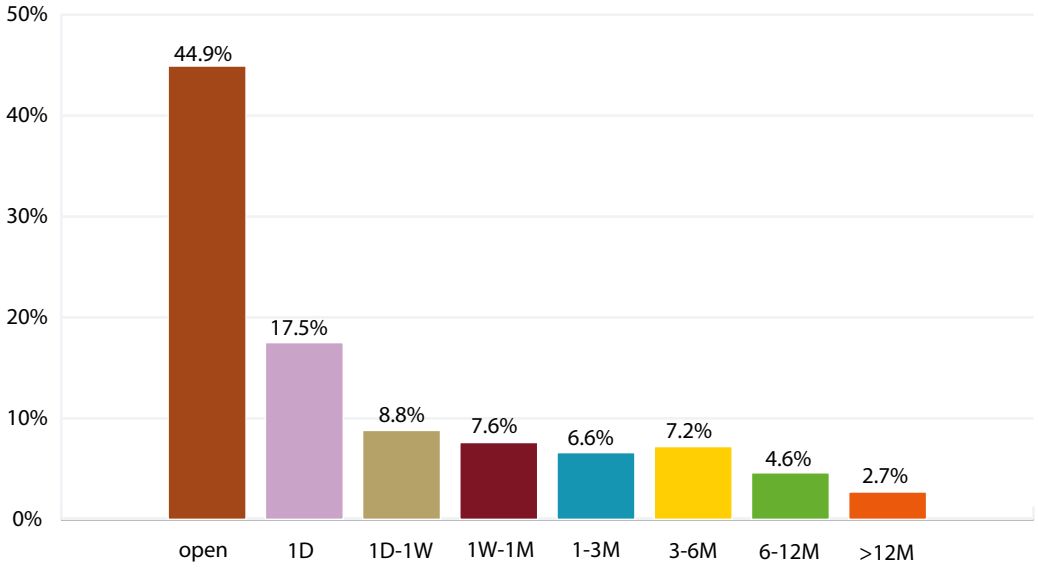


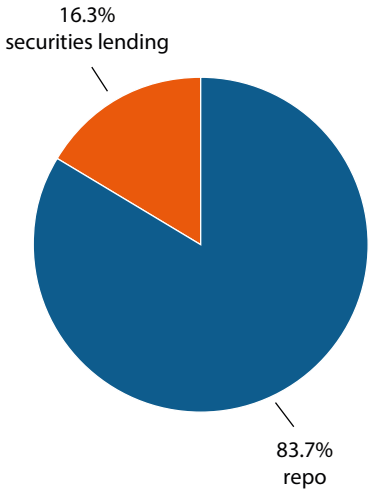
Table 2.15 – Maturity comparison in June 2021 (December 2020)

	main survey	ATS	tri-party
open	7.5% (6.2%)	-	44.9% (42.1%)
1 day	18.8% (18.0%)	85.2% (88.9%)	17.5% (15.9%)
2 days to 1 week	21.5% (19.3%)	11.3% (8.7%)	8.8% (10.6%)
1 week to 1 month	17.3% (13.7%)	1.7% (0.9%)	7.6% (8.4%)
>1 month to 3 months	9.8% (15.6%)	1.5% (0.8%)	6.6% (8.9%)
>3 months to 6 months	7.5% (8.2%)	0.3% (0.4%)	7.2% (8.5%)
>6 months to 12 months	3.8% (3.5%)	0.1% (0.2%)	4.6% (2.9%)
>12 months	2.4% (2.4%)	0.1% (0.2%)	2.7% (2.7%)
forward-start	11.4% (13.2%)	0.0% (0.0%)	

Product analysis (Q2)

The share of securities lending conducted on repo desks returned to its June 2020 level of 15.6% from 17.6% in December.

Figure 2.32 - Product analysis

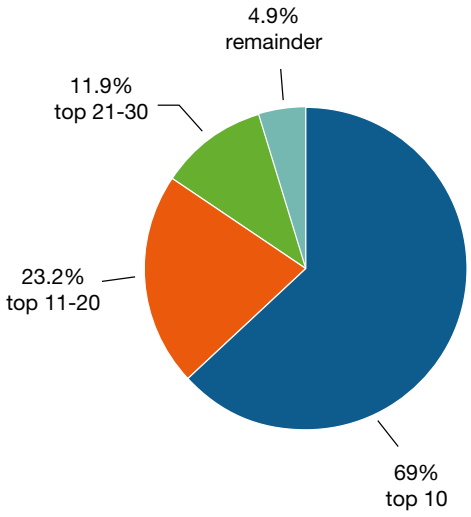


Concentration analysis

Table 2.16 – Concentration analysis

	June 2021	December 2020	June 2020
top 10	69.0%	65.6%	66.8%
top 20	87.2%	84.1%	84.2%
top 30	95.1%	93.6%	93.7%
other	4.9%	6.4%	6.3%

Figure 2.33 - Concentration analysis



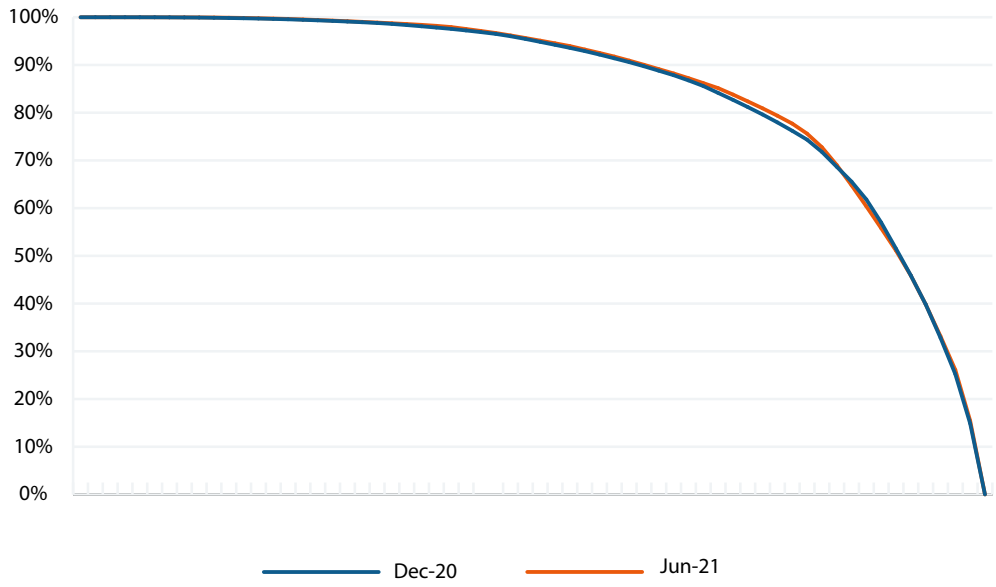
The concentration of business in the survey sample increased significantly.

Table 2.17 – Herfindahl Index[2]

	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	59
June 2010	0.105	57
December 2010	0.064	57
June 2011	0.074	58
December 2011	0.065	62
June 2012	0.062	60
December 2012	0.054	69
June 2013	0.046	63
December 2013	0.046	66
June 2014	0.046	64
December 2014	0.043	64
June 2015	0.044	64
December 2015	0.041	70
June 2016	0.050	66
December 2016	0.056	65
June 2017	0.052	64
December 2017	0.049	64
June 2018	0.053	62
December 2018	0.060	59
June 2019	0.054	59
December 2019	0.059	60
June 2020	0.069	61
December 2020	0.062	60
June 2021	0.064	59

2 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.

Figure 2.34 – Cumulative distribution of market share



Chapter 3: Conclusion

Activity in the European repo market continued to be buoyant. Among the drivers was new issuance by many governments, which was up in both gross and net terms compared to the second-half of 2020 (although lower than in the first-half of 2020). Higher issuance was reflected in increased secondary cash market turnover in several countries, notably France and Italy (MTS bond trading more than tripled in May), and would have fed the repo market. Increased repo trading also reflected heavy short-selling in anticipation of possible interest rate rises in the UK and a start to the 'tapering' of QE in the eurozone.

Short selling was reported to have aggravated collateral scarcity arising from QE. Net asset purchases under the Pandemic Emergency Purchase Programme (PEPP) picked up pace and increased Eurosystem holdings of securities by EUR 557.2 billion over the first half of 2021, a rise of 45.2% compared to the second half of 2020. That the market was securities-driven was confirmed by the increase in turnover on Eurex Repo (which trades both GC and specific/special repos) and the coincident decrease in turnover on GC Pooling.

The major exception to the picture of increased activity was repo against German government securities. Secondary market trading weakened and both the share and value of German government securities contracted. Market participants attributed this hiatus mainly to QE, exacerbated by constraints on the programme operated by the Bundesbank through which the repo market can borrow German government securities purchased by the Eurosystem. A contrast has been drawn with the more accessible securities lending programme of the Banque de France, which could have contributed to the strong growth in the share and value of French government securities in use as collateral.

The value of trading on interdealer automatic trading systems (ATS) declined but its share of the survey increased, suggesting that survey participants were more active users of electronic platforms, which is what would be expected given that the survey includes the largest dealers in the European repo market.

The fall seen since 2016 in the value of CCP-cleared automatic electronic trading was halted and its share of the survey increased, which seems to confirm that the reduction in the share of anonymous trading continues to be due to faster growth in uncleared business rather than any weakness in the demand for CCP-cleared repo.

The value of automated electronic repo trading continued to grow strongly, reflecting the continued impact of 'working-from-home', the onboarding of new users and incremental flows facilitated by additional functionalities. Another factor may have been the Unclear Margin Rules (UMR), which have increased the use of repo by buyside firms, both directly and by encouraging a shift away from synthetic repo (which are subject to UMR).

The share of voice-brokers fell back, in part, as a result of a decline in forward repos, which is core to voice-brokers' repo business, but perhaps also a resumption in the secular decline of voice-broking in the repo market.

The share of tri-party repo contracted, as did the outstanding value of tri-party repo, reflecting the continued crowding-out of GC repo by central bank liquidity. However, the GC financing facility segment of the tri-party market expanded. GC financing may have benefitted from the attraction of higher returns for cash investors in the repo market compared to money market funds, the precautionary diversification of funding sources by buyside firms worried about future scarcity of bank balance sheets (particularly in the face of the liquidity risk they face because of the UMR) and the attraction of netting across a CCP.

Tri-party repo continued to provide the survey sample with net cash. Gross tri-party lending by the survey sample dropped sharply. Given that tri-party repo is normally used by dealers to borrow from customers, the reduction in gross lending by the survey sample, who are mainly dealers, could reflect some customers reverting to the use of tri-party repo as a cash investment after having been forced to become borrowers as a result of liquidity pressures during the Covid crisis, for example, as a result of increased margin calls.

Anonymous trades increased their share of the survey by 3.9% to EUR 1,510.6 billion, showing that, once again, the reduction in the share of anonymous trading continues to be due to faster growth in uncleared business rather than any weakness in the demand for CCP-cleared repo.

The share of repos reported directly by the principal ATS that crossed into and out of the eurozone dropped, while domestic and intra-eurozone repos recovered. These changes are likely, to some extent, to reflect the relocation of electronic trading from the UK to the EU following the end of the Brexit Transition Period and the imposition of MiFID restrictions on the location of trading with EU counterparties. The total shift is equivalent to about EUR 32.8 billion.

The share of the euro was stable while the share of sterling continued to increase as a consequence of increased repos of UK government securities. The US dollar also increased its share of tri-party repo, which may reflect the switch in funding by non-US banks from largely unsecured deposits from money market funds to repos with other non-bank financial institutions as a source of dollars following the Covid-driven run on the funds.

There was a reduction in the shares of European securities being used as collateral but increases in their values. This was because of the faster growth of non-European collateral, in particular, US Treasuries and other OECD securities.

The share of UK government securities in the European repo market increased to a record level and constitutes the largest share of the market. To some extent, this reflects the sheer size of UK government issuance (the largest outstanding amount in Europe), but immediate drivers include a surge in demand for gilts by foreign investors seeking a higher yielding asset after exchange rate concerns were assuaged following a calm end to the Brexit Transition Period. More recently, trading in gilt repos has been driven by heavy short-selling in anticipation of a tightening of monetary policy by the Bank of England (ahead of other European central banks).

Securities issued by the EU being used as collateral accounted for just 0.3% of the survey but this was equivalent to about EUR 22 billion, which was over 8% of the EUR 259 billion issued by the time of the survey. The repo market has therefore been playing a significant role in facilitating the distribution of these securities and can be expected to play a growing role in fostering secondary market liquidity.

There was a predictable rebound in short-dated repo but it was particularly strong in June. The main counterpart was a drop in one to three-month repos. This maturity bracket is of particular interest because it probably gives the best indication of the rate of collateral transformation. While new collateral swaps are reported to be concentrated in the three to six-month bracket, many swaps will have rolled down into the one to three-month bracket by the time of each survey.[3]

It would appear that the recommendation by the ERCC in 2019, that the interdealer market in Europe should refrain from trading floating-rate repo indexed to overnight indices such as €STR and SONIA, may have resulted in a drop in the share of floating-rate repo in the survey of as much as one-third (equivalent to EUR 100 billion in outstanding value).[4]

3 A minimum original maturity of three months reduces the roll-over frequency of trades designed to boost firms' stock of HQLA to meet their LCR obligations, while a maximum of six months avoids introducing complications with NSFR obligations.

4 Because of the high operational cost of making small claims for retrospective reimbursement of discrepancies between assumed and actual fixings. Fixings have to be assumed for the final day of any floating-rate repo because actual fixings are published the next day.

About the Author

This report was compiled by Richard Comotto, who is Senior Consultant to the ICMA's European Repo and Collateral Council. He is also author of the ICMA's 'Guide to Best Practice in the European Repo Market' and its Repo FAQs, Course Director of the ICMA Professional Repo Market and Collateral Management Course and of the ICMA-ISLA GMRA-GMSLA Workshop and author of the ICMA SFTR Task Force's Reporting Recommendations. Richard also provides technical assistance on behalf of ICMA and its development partner Frontclear, IMF, World Bank and Asian Development Bank to developing repo markets around the world.

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 June 9, 2021.

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 9, 2021, 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 9, 2020).

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 9, 2021*. This means the value of transactions at their repurchase prices.

h) "Outstanding" means repos and reverse repos with a repurchase date, or which will roll over, on or after Thursday, December 10, 2020. You should include all *open repos and reverse repos* that have been rolled over from Wednesday, June 9, 2021, to a later date and all *forward-forward repos and reverse repos* that are still outstanding as forward contracts at close on Wednesday, June 9, 2021.

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 9, 2021, 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) Do not report synthetic repos.

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.

(1.1.2) 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 or semi-automatic trading systems (e.g. BrokerTec, Eurex Repo, MTS and tpREPO) but not voice-assisted electronic systems used by voice-brokers (where voice-brokers record and communicate transactions agreed by telephone or electronic messaging) or automated systems such as GLMX or TradeWeb (which offer a request-for-quote (RFQ) trading model). Nor does use of an ATS include trading assisted by electronic means of structured messages and confirmations such as Bloomberg's RRRA and similar screens. Transactions on automated trading systems (RFQ systems) should be included in (1.2.2) --- see below. 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 Repo Euro GC Pooling (EGCP), LCH SA's €GCPlus and LCH Ltd's £GC. They do not include GC basket trading on ATS in which the seller manually 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).

(1.2.1) 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.

(1.2.2) Questions (1.1.3.1) to (1.1.3.5) measure repos and reverse repos transacted on automatic or semi-automatic trading systems such as BrokerTec, Eurex Repo, MTS and tpREPO, but not voice-assisted electronic systems used by voice-brokers (where voice-brokers record and communicate transactions agreed by telephone or electronic messaging) or automated systems such as BrokerTec Quote, GLMX, MTS BondVision or TradeWeb (which offer a request-for-quote (RFQ) trading model). This question asked for the total value of business transacted on any electronic trading system, whether automatic, semi-automatic or automated, and therefore including automated systems such as GLMX or TradeWeb, which offer a request-for-quote (RFQ) trading model. Electronic trading Is defined in terms of where the contract is executed and so does not include voice-assisted electronic systems used by voice-brokers or trading assisted by electronic means of structured messages and confirmations such as Bloomberg's RRRA and similar screens.

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, which are reported in (1.7.3), 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. Open repos should also be included in fixed-rate repo (1.6.1) unless their repo rates are linked to interest rate indexes which will be refixed during the life of the repos, in which cases, they would be reported as floating-rate repos (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 9, 2021, with a repurchase date on Thursday, June 10, 2021;
- overnight, tom/next, spot/next and corporate/next contracts transacted on Wednesday, June 9, 2021.

(1.7.1.2) 2–7 days – this means:

- all contracts transacted prior to Wednesday, June 9, 2021, with a repurchase date on Friday, June 11, 2021, or any day thereafter up to and including Wednesday, June 16, 2021;
- contracts transacted on Wednesday, June 9, 2021, with an original repurchase date on Friday, June 11, 2021, or any day thereafter up to and including Wednesday, June 16, 2021 (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 9, 2021, with a repurchase date on Thursday, June 17, 2021, or any day thereafter up to and including Friday, July 9, 2021;
- contracts transacted on Wednesday, June 9, 2021, with an original repurchase date on Thursday, June 17, 2021, or any day thereafter up to and including Friday, July 9, 2021 (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 9, 2021, with a repurchase date on Monday, July 12, 2021, or any day thereafter up to and including Thursday, September 9, 2021;
- contracts transacted on Wednesday, June 9, 2021, with an original repurchase date on Monday, July 12, 2021, or any day thereafter up to and including Thursday, September 9, 2021 (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 9, 2021, with a repurchase date on Friday, September 10, 2021, or any day thereafter up to and including Thursday, December 9, 2021;
- contracts transacted on Wednesday, June 9, 2021, with an original repurchase date on Friday, September 10, 2021, or any day thereafter up to and including Thursday, December 9, 2021 (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 9, 2021, with a repurchase date on Friday, December 10, 2021, or any day thereafter up to and including Wednesday, June 8, 2022;
- contracts transacted on Wednesday, June 9, 2021, with an original repurchase date on Friday, December 10, 2021, or any day thereafter up to and including Wednesday, June 8, 2022 (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 9, 2021, with a repurchase date on Thursday, June 9, 2022, or any day thereafter;
- contracts transacted on Wednesday, June 9, 2022, with an original repurchase date on or after Thursday, June 9, 2022 (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), which are subject to the settlement requirements of the EU CSDR, forward-forward repos are defined for the purposes of this survey as contracts with a purchase date of Monday, June 14, 2021, 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 10, 2021). For repos transacted in the OTC market or against collateral not regulated under CSDR, the definition of forward-forward may be different.

(1.7.3) Open repos in this field should equal open repos in item (1.6.3).

1.8 Please confirm whether the transactions recorded in the questions in (1.6 and 1.7) include your tri-party repo business. Some institutions do not consolidate their tri-party repo transactions with their direct or voice-brokered business because of delays in receiving reports from tri-party agents or the complexity of their tri-party business.

(1.8.1) and (1.8.2) should not include any repos transacted across GC financing systems and recorded in (1.8.3).

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

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

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)

Council of Europe Development Bank

East African Development Bank (EADB)

European Bank for Reconstruction and Development (EBRD)

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)

Securities issued by the EU (but not individual EU members) should now be included in the new question 1.9.37. EU issuers include:

European Commission

European Financial Stability Mechanism (EFSM)

European Financial Stability Facility (EFSF)

European Investment Bank (EIB)

European Stabilisation Mechanism (ESM)

(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.

2.1 This question asks for the total gross value of transactions with a transaction date on or after December 10, 2020 (the day after the previous survey date), to and including June 9, 2021 (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 transacted since the last survey date, even if it has matured before the survey date. This section is therefore different from the rest of the survey, which asks for the value of business outstanding on the survey date, in other words, the stock of transactions.

2.2 This question asks for the number of individual transactions with a transaction date on or after December 10, 2020 (the day after the previous survey date), to and including June 9, 2021 (the latest survey date), even if it has matured before the survey date. In other words, this is the number of tickets written.

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.

4.1 "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 independent survey administrator at reposurvey@icmagroup.org.

Appendix B: Survey Participants

List of respondents	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	Jun-19	Dec-19	Jun-20	Dec-20	Jun-21
ABN Amro Bank	x	x	x	x	x	x	x	x	x											
Allied Irish Banks		x	x	x	x	x	x	x	x	x	x	x	x	x						
AXA Bank Europe	x	x	x	x	x	x	x	x	x	x	x	x								
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	x	x	x	x	x	x
Banco Sabadell		x	x	x	x	x	x	x	x	x	x	x		x						
Banco Santander	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
UniCredit Bank Austria (Bank Austria)					x		x	x	x	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 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																	
Landesbank Berlin	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														
BHF-Bank International	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	x
Caixabank (including Bankia)	x	x	x	x	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											
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	
CA-CIB (formerly Calyon)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Citigroup Global Markets Ltd	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
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	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
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											

List of respondents	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	Jun-19	Dec-19	Jun-20	Dec-20	Jun-21
Dekabank Deutsche Girozentrale			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
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						
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			x			
Dexia Kommunal Bank Deutschland		x	x																	
DNB Bank ASA									x	x	x	x	x	x	x	x	x	x	x	x
DZ Bank	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
EFG Eurobank Ergasias	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x
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
European Investment Bank																			x	x
Hypothekenbank Frankfurt International (formerly Eurohypo Europäische Hypothekenbank)	x	x	x	x	x	x														
Fortis Bank	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Goldman Sachs	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x
HSBC HSBC Athens HSBC France	x	x		x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
HSH Nordbank									x											
Unicredit Bank Germany (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									
ING Bank	x	x	x	x	x	x	x	x	x	x	x									
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	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
KBC		x	x	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	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		
Landesbank Baden-Württemberg, Stuttgart	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
Landesbank Hessen-Thüringen -Girozentrale (Helaba)	x	x	x	x	x	x	x	x	x	x	x		x							
Lloyds Bank Commercial Banking															x	x	x	x	x	x
Lloyds Bank Plc												x	x	x	x	x	x	x	x	x
Macquarie Bank	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
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	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	x

List of respondents	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	Jun-19	Dec-19	Jun-20	Dec-20	Jun-21
National Australia Bank									x											
National Bank of Greece										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	x	x	x	x	
Nordea Markets	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
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	x	x	x
Nykredit Bank A/S																	x	x	x	x
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	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							
Société Générale	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Standard Chartered																	x	x	x	x
Toronto Dominion Bank				x	x		x	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
UniCredit Bank AG Milano Branch	x	x	x	x	x	x		x	x	x	x	x		x			x	x	x	x
Unicredit Bank Spa													x		x	x	x	x	x	x
Westdeutsche Landesbank Girozentrale																				
	62	60	69	63	66	64	64	64	70	66	65	64	64	62	59	56	60	61	60	59

Appendix C: Summary Of Survey Results

	Jun-18	Jun-19	Dec-19	Jun-20	Dec-20	Jun-21
Q1 What are the total gross values of cash due to be repaid by you and repaid to you on repo transactions maturing after survey date? (figures in EUR billions)	**6,978**	**7,761**	**8,310**	**7,885**	**8,285**	**8,726**
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	14.6%	17.2%	16.3%	18.7%	16.5%	15.9%
• cross-border in (other) **eurozone countries**	12.2%	12.0%	10.2%	12.9%	13.1%	13.2%
• cross-border in **non-eurozone countries**	34.6%	32.3%	34.7%	32.1%	33.8%	35.1%
through **voice-brokers**						
• in the **same country** as you	4.6%	4.0%	5.1%	4.0%	4.9%	4.0%
• cross-border in (other) **eurozone** countries	2.6%	3.1%	3.0%	2.6%	3.2%	2.7%
• cross-border in **non-eurozone** countries	2.8%	1.0%	1.8%	2.2%	1.3%	1.6%
on **ATSs** with counterparties						
• in the **same country** as you	5.6%	4.2%	4.9%	4.8%	4.8%	4.9%
• cross-border in (other) **eurozone** countries	1.4%	1.9%	1.2%	1.3%	2.2%	2.5%
• cross border-border in **non-eurozone** countries	2.3%	1.9%	1.7%	2.0%	2.2%	2.1%
• anonymously across a GC financing system	1.0%	1.1%	0.9%	0.9%	0.5%	0.6%
• anonymously across a central clearing counterparty but not GC financing	18.3%	21.1%	20.2%	18.5%	17.5%	17.3%
• total through a central clearing counterparty	25.5%	25.9%	29.9%	27.2%	32.1%	31.5%
• transacted across any electronic system					70.7%	32.4%
1.2 How much of the cash is denominated in:						
• EUR	65.3%	62.0%	53.6%	54.1%	54.4%	54.5%
• GBP	11.9%	13.3%	13.6%	15.8%	16.5%	16.9%
• USD	14.2%	17.0%	18.9%	20.6%	19.2%	19.5%
• SEK, DKK	2.0%	1.7%	1.9%	1.7%	1.4%	1.6%

	Jun-18	Jun-19	Dec-19	Jun-20	Dec-20	Jun-21
• JPY	4.8%	4.5%	5.4%	5.7%	5.7%	5.2%
• CHF	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
• other Asian and Pacific currencies	0.7%	0.4%	0.9%	1.0%	1.5%	1.1%
• other currencies	1.0%	1.0%	5.6%	1.1%	1.2%	1.2%
1.3 How much is cross-currency?	1.8%	1.5%	1.7%	1.6%	2.7%	2.3%
1.4 How much is:						
• classic repo	92.4%	92.4%	91.7%	92.7%	93.0%	92.3%
• documented sell/buy-backs	7.0%	7.3%	8.1%	7.0%	6.8%	7.5%
• undocumented sell/buy-backs	0.3%	0.2%	0.2%	0.3%	0.3%	0.2%
1.5 How much is:						
• fixed rate	71.6%	79.0%	85.0%	82.1%	87.7%	88.8%
• floating rate	21.6%	14.1%	9.0%	9.3%	10.5%	11.1%
• open	6.8%	6.9%	6.0%	8.7%	1.8%	0.1%
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**	17.6%	17.1%	16.9%	19.0%	18.0%	18.8%
• **2 - 7days**	21.8%	18.4%	17.3%	19.2%	19.3%	21.5%
• more than **7 days** but no more than **1 month**	17.0%	18.0%	16.8%	16.9%	13.7%	17.3%
• more than **1 month** but no more than **3 months**	11.1%	11.1%	13.3%	10.4%	15.6%	9.8%
• more than **3 months** but no more than **6 months**	4.2%	4.6%	4.7%	7.4%	8.2%	7.5%
• more than **6 months**	3.2%	3.2%	5.1%	3.1%	3.5%	3.8%
• more than **12 months**	1.3%	2.5%	3.4%	2.8%	2.4%	2.4%
• **forward-forward repos**	17.0%	18.5%	12.9%	12.6%	13.2%	11.4%
• **open**	6.7%	6.6%	9.6%	8.5%	6.2%	7.5%
1.7 How much is tri-party repo:	6.2%	8.0%	8.7%	9.2%	8.8%	8.0%
• for **fixed terms to maturity**	78.3%	82.4%	78.1%	76.2%	83.7%	83.1%
• on an **open** basis	11.2%	6.6%	6.3%	13.2%	10.8%	6.9%
GCF	10.5%	10.9%	15.6%	10.5%	5.5%	9.2%
1.8 How much is against collateral issued in:						
Austria						
• by the central government	0.8%	0.8%	0.8%	0.9%	0.9%	0.9%
• by other issuers	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%

	Jun-18	Jun-19	Dec-19	Jun-20	Dec-20	Jun-21
Belgium						
• by the central government	2.5%	3.1%	2.8%	3.3%	3.1%	3.3%
• by other issuers	0.9%	0.4%	0.3%	0.5%	0.3%	0.3%
Denmark						
• by the central government	0.2%	0.2%	0.4%	0.2%	0.3%	0.2%
• by other issuers	0.6%	0.5%	0.5%	0.7%	0.6%	0.6%
Finland						
• by the central government	0.5%	0.5%	0.3%	0.5%	0.4%	0.4%
• by other issuers	0.1%	0.0%	0.3%	0.0%	0.0%	0.0%
France						
• by the central government	13.8%	13.2%	12.0%	10.3%	12.2%	12.6%
• by other issuers	1.4%	0.8%	1.0%	0.6%	0.5%	0.5%
Germany						
• by the central government	17.4%	15.0%	12.3%	12.1%	14.8%	14.0%
pfandbrief	1.3%	0.1%	0.3%	0.2%	0.1%	0.1%
• by other issuers	1.1%	1.3%	0.9%	1.0%	0.6%	0.7%
Greece						
• by the central government	0.2%	0.2%	0.3%	0.1%	0.1%	0.1%
• by other issuers	0.2%	0.1%	0.1%	0.1%	0.0%	0.1%
Ireland						
• by the central government	0.2%	0.3%	0.3%	0.4%	0.3%	0.3%
• by other issuers	0.2%	0.3%	0.3%	0.2%	0.2%	0.2%
Italy						
• by the central government	11.0%	14.2%	13.7%	12.4%	11.4%	11.2%
• by other issuers	0.7%	0.6%	0.4%	0.4%	0.3%	0.4%
Luxembourg						
• by the central government	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%
• by other issuers	0.2%	0.1%	0.2%	0.1%	0.4%	0.3%
Netherlands						
• by the central government	1.8%	1.7%	1.0%	1.3%	1.2%	1.2%
• by other issuers	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%
Portugal						
• by the central government	0.4%	0.5%	0.5%	0.5%	0.5%	0.5%
• by other issuers	0.1%	0.1%	0.2%	0.1%	0.0%	0.0%
Spain						
• by the central government	4.4%	4.6%	5.0%	4.7%	4.8%	4.9%
• by other issuers	1.8%	0.7%	0.8%	0.6%	0.4%	0.6%

	Jun-18	Jun-19	Dec-19	Jun-20	Dec-20	Jun-21
Sweden						
• by the central government	0.7%	0.6%	0.4%	0.5%	0.5%	0.5%
• by other issuers	0.9%	0.7%	0.4%	0.6%	0.3%	0.8%
UK						
• by the central government	10.6%	11.9%	13.4%	14.5%	14.8%	14.9%
• by other issuers	1.5%	1.3%	1.2%	1.3%	1.4%	1.1%
US Treasury	4.5%	6.4%	8.8%	9.1%	8.1%	8.7%
US other issuers	0.8%	2.1%	2.4%	2.9%	2.4%	2.3%
US but settled across EOC/CS						
other countries						
Bulgaria						
• by the central government						
• by other issuers						
Cyprus						
• by the central government						
• by other issuers						
Czech Republic						
• by the central government	0.3%	0.1%	0.1%	0.1%	0.1%	0.1%
• by other issuers	0.0%	0.1%	0.1%	0.1%	0.1%	0.0%
Estonia						
• by the central government						
• by other issuers						
Hungary						
• by the central government						
• by other issuers						
Latvia						
• by the central government						
• by other issuers						
Lithuania						
• by the central government						
• by other issuers						
Malta						
• by the central government						
• by other issuers						
Poland						
• by the central government	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%
• by other issuers	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

	Jun-18	Jun-19	Dec-19	Jun-20	Dec-20	Jun-21
Romania						
• by the central government						
• by other issuers						
Slovak Republic						
• by the central government						
• by other issuers						
Slovenia						
• by the central government						
• by other issuers						
Other EU members by central government	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%
Other EU members by other issuers	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%
• by official international financial institutions	0.6%	0.5%	0.5%	0.5%	0.2%	0.2%
Japan						
• Japanese government	4.3%	3.6%	5.1%	4.8%	5.2%	3.5%
• Other Japanese issuers	1.0%	0.2%	1.4%	1.6%	1.1%	1.2%
Other Asian & Pacific OECD countries in the form of fixed income securities, except eurobonds	0.5%	1.8%	1.4%	0.6%	0.8%	0.4%
Other OECD countries in the form of fixed income securities, except eurobonds	4.9%	4.8%	4.2%	6.0%	5.4%	6.4%
non-OECD EMEA	0.4%	0.7%	0.6%	0.6%	0.7%	0.8%
non-OECD Asian & Pacific	0.5%	0.5%	0.6%	0.6%	0.6%	0.6%
non-OECD Latin America	0.4%	0.5%	0.4%	0.3%	0.3%	0.4%
eurobonds issued by European entities	1.1%	0.8%	0.8%	0.7%	0.8%	0.8%
eurobonds issued by US entities	0.1%	0.1%	0.2%	0.2%	0.1%	0.1%
eurobonds issued by Asian & Pacific entities	0.5%	0.3%	0.5%	0.4%	0.5%	0.4%
eurobonds issued by other entities	0.3%	0.4%	0.4%	0.4%	0.5%	0.4%
equity	0.3%	0.4%	0.3%	0.3%	0.3%	0.3%
collateral of unknown origin or type	1.2%	0.6%	0.2%	0.2%	0.2%	0.2%
collateral in tri-party which cannot be attributed to a country or issuer	2.1%	1.5%	1.6%	1.9%	1.2%	1.2%
EU issues					0.5%	0.3%
total gross values of repo & reverse repo with APAC	4.8%	4.0%	13.6%	5.3%	5.3%	4.3%

	Jun-18	Jun-19	Dec-19	Jun-20	Dec-20	Jun-21
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	27.2%	24.3%	20.4%	23.1%	19.6%	17.1%
• in equity	0.2%	0.8%	0.2%	0.1%	0.1%	4.4%
• cross-border in (other) **eurozone** countries						
• in fixed income	29.5%	34.1%	24.8%	33.9%	35.2%	19.5%
• in equity	1.4%	1.1%	0.2%	0.4%	1.2%	13.0%
• cross-border in **non-eurozone** countries						
• in fixed income	40.5%	37.8%	53.4%	41.9%	42.6%	35.6%
• in equity	1.3%	2.0%	1.0%	0.7%	1.3%	10.5%
for which the term to maturity is						
fixed	62.4%	69.2%	70.8%	73.4%	77.7%	52.7%
open	37.6%	30.8%	29.2%	26.6%	22.3%	47.3%
Number of GMRAs		78%	71%	73%	73.4%	80.3%

Appendix D: Data on the Russian repo market

In March 2021, SRO NFA (Self-Regulatory Organization National Finance Association) --- which is an association of some 230 Russian financial market participants --- published a report detailing flows and positions in the Russian repo market in 2020. The data was compiled by SRO NFA from the Bank of Russia, the Moscow Exchange and the National Settlement Depository (NSD). View the full XXIV Russian Repo Market Study Full Year - 2020.

Aggregate size

The Russian repo market turned over a total of **RUR 445,885 billion** during 2020 (about EUR 5,440 billion), an increase of 27% compared with 2019.

The outstanding size at the end of 2020 was **RUR 12,440 billion** (EUR 136 billion), up 38% over end-2019.

Trading venue

In terms of turnover:

- 73.3% was on the Moscow Exchange's Money Market (+20% over 2019), of which, 89.2% was CCP-cleared on the National Clearing Centre (+29%), of which, 45.8% was post-trade novation on the CCP rather than open offer.
- 70% of repo on the Moscow Exchange's Money Market was by dealers, 23% was agency and 7% was under a fiduciary management agreement.
- 14.4% was OTC (+3%), of which, 80.3% was domestic (+17%).
- 89% of cross-border OTC repos was reverse repo.
- 66% of domestic OTC repo was by dealers and 34% was agency; the shares of cross-border OTC repo were 63% and 37%, respectively.
- 12.1% was with the Bank of Russia or the Russian Federal Treasury (+165%).

At end-year:

- 43.9% were OTC (-43% comparing Q4 2020 with Q4 2019), of which, 93% were domestic.
- 37% of all OTC repo was by dealers and 38% was agency.
- 33.4% were on the Moscow Exchange (+21%), of which, 94.6% were CCP-cleared (+24%).
- 74% of repo on the Moscow Exchange's Money Market was by dealers, 20% was agency and 6% was under a fiduciary management agreement.
- 13.2% were with the official sector (+1379%).

Maturity

In terms of turnover over Q4 2020:

	on-exchange *(approx.)*	OTC domestic	OTC cross-border
intra-day		1.2%	-
1 day	56%	37.7%	4.6%
2-7 days	33%	16.7%	2.4%
8-31 days	9%	22.0%	1.7%
32-92 days	2%	8.7%	0.4%
93-182 days	-	1.8%	-
183-365 days	-	0.2%	0.2%
over 365 days		2.4%	-
	100.0%	90.7%	9.3%

In terms of outstanding positions at end-2020:

	on-exchange	OTC domestic	OTC cross-border
intra-day	-	0.7%	-
1 day	-	-	-
2-7 days	3.0%	2.0%	0.3%
8-31 days	72.5%	27.7%	1.2%
32-92 days	20.6%	22.8%	1.9%
93-182 days	2.5%	9.3%	0.3%
183-365 days	1.4%	1.4%	1.2%
over 365 days	-	28.4%	1.4%
open	-	-	1.2%
	100.0%	92.3%	7.5%

Collateral

In terms of turnover on the Moscow Exchange's Money Market over Q4 2020:

	2019	2020
Bank of Russia bonds	2%	1%
OFZ	32%	30%
sub-Federal bonds	-	-
corporate bonds	2%	2%
exchange-traded bonds	19%	24%
eurobonds	14%	14%
equity	17%	10%
depository receipts	4%	2%
clearing participation certificates (GCC)	10%	17%

In terms of outstanding positions on the Moscow Exchange's Money Market at end-2020:

	2019	2020
Bank of Russia bonds	2%	-
OFZ	18%	16%
sub-Federal bonds	-	-
corporate bonds	2%	1%
exchange-traded bonds	35%	37%
eurobonds	11%	10%
equity	15%	10%
depository receipts	1%	1%
clearing participation certificates (GCC)	16%	25%

In terms of turnover in domestic OTC repo over Q4 2020:

	2019	2020
OFZ	19%	41%
sub-Federal bonds	8%	-
municipal bonds	-	-
corporate bonds	45%	33%
eurobonds	-	2%
equity	32%	24%
depository receipts	-	-
foreign securities	-	-

In terms of outstanding positions in domestic OTC repo at end-2020:

	2019	2020
OFZ	9%	13%
sub-Federal bonds	3%	-
municipal bonds	-	-
corporate bonds	77%	76%
eurobonds	-	1%
equity	10%	9%
depository receipts	-	-
foreign securities	1%	1%

In terms of turnover in cross-border OTC repo over Q4 2020:

	2019	2020
OFZ	16%	11%
sub-Federal bonds	8%	-
municipal bonds	-	-
corporate bonds	17%	22%
eurobonds	2%	5%
equity	41%	54%
depository receipts	5%	4%
foreign securities	11%	4%

In terms of outstanding positions in cross-border OTC repo at end-2020:

	2019	2020
OFZ	8%	23%
sub-Federal bonds	8%	-
municipal bonds	11%	4%
corporate bonds	10%	22%
eurobonds	34%	34%
equity	8%	5%
depository receipts	21%	12%
foreign securities	-	-

9.2% of collateral was sold in basket trading in Q4 2020. 14.5% were clearing participation certificates (GCC).

Legal agreements

	turnover in Q4	outstanding
Exchange agreement	76%	37%
Master Agreement with Bank of Russia	7%	3%
SRO NFA Master Agreement	9%	43%
GMRA	-	3%
proprietary master agreement	-	1%
bespoke agreement	3%	3%
other	4%	10%

Counterparties

Of repos on the Moscow Exchange's Money Market:

	turnover in Q4	outstanding
resident credit institutions	49.3%	62%
other resident institutions	27.1%	32%
non-residents	8.1%	5%
individual residents	-	1%
CCP	15.5%	-

Of OTC repos:

	turnover in Q4	outstanding
resident credit institutions in domestic OTC	27.5%	87%
other resident institutions in domestic OTC	50.9%	-
resident individuals in domestic OTC	12.3%	1%
resident credit institutions in cross-border OTC	2.0%	5%
resident credit institutions in cross-border OTC	5.7%	3%
non-residents in cross-border OTC	1.6%	4%

Of OTC reverse repos:

	turnover in Q4	outstanding
resident credit institutions in domestic OTC	53.3%	46%
other resident institutions in domestic OTC	37.8%	48%
resident individuals in domestic OTC	-	-
resident credit institutions in cross-border OTC	-	1%
resident credit institutions in cross-border OTC	-	1%
non-residents in cross-border OTC	8.1%	4%

Currency

Of repos on the Moscow Exchange's Money Market:

	turnover in Q4	outstanding
RUR	77.7%	82%
USD	21.7%	15%
EUR	0.5%	3%
other	-	-

In terms of turnover in domestic OTC repo:

RUR	79.6%
USD	20.4%
EUR	-
other	-

In terms of turnover in cross-border OTC repo:

RUR	62.1%
USD	37.9%
EUR	-
other	-

Repo rate

In terms of turnover in domestic OTC repo over Q4 2020:

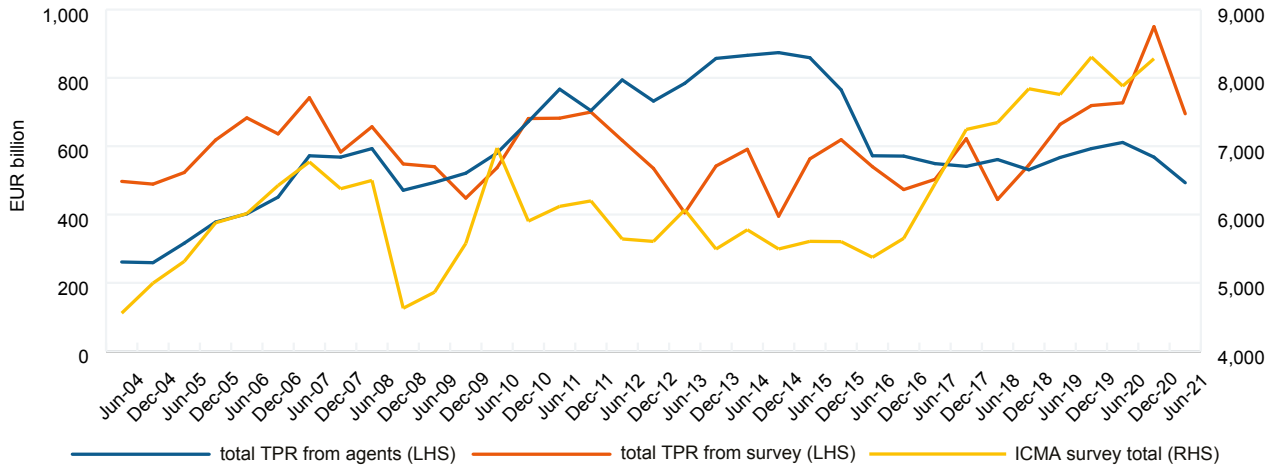
	domestic	**cross-border**
fixed-rate	92%	100%
floating rate	8%	-

Appendix E: A look-back at the tri-party repo data reported in the ICMA survey

The ICMA European repo market survey collects data, not only from a sample of market participants (currently, almost 60 firms, mainly securities dealers or banks) but also, since 2004, from financial market infrastructures operating in Europe, including the principal tri-party repo (TPR) agents. These are Bank of New York Mellon, Clearstream, Euroclear, JP Morgan and SIS. The data allow the evolution of TPR within the ICMA survey sample to be benchmarked against that of the regional TPR 'universe'.

Figure 1 compares the outstanding value of TPR reported to the ICMA survey by its sample of market participants (red line) with the data provided to the ICMA by the two largest TPR agents operating in Europe since 2004 ('agent TPR' --- blue line).[5] The Figure also plots the ICMA survey's total outstanding value ('survey TPR' --- yellow line), which can be used as a proxy for non-TPR business, given that the bulk of repos reported in the survey are bilaterally-managed.[6]

Figure 1 – Outstanding amount of TPR reported in the ICMA survey by respondents, the amount reported by the two largest agents and the ICMA survey total



Source: ICMA survey.

The relationship between agent TPR (red line) and survey TPR (orange line) is complicated. Some differences reflect the fact that agent TPR encompasses all users of TPR in Europe, whereas survey TPR is limited to a sample of about 60 firms, not all of whom report their TPR business in their survey returns.[7] In addition, there has been inconsistent reporting in both the ICMA survey and by the agents.[8] An obvious anomaly in the data is that, before the Great Financial Crisis (GFC) and from December 2018 through to the latest survey, survey TPR exceeded agent TPR. This probably reflects the exclusion of the business of some agents from agent TPR because of data concerns and the unreported activity of the DBV (Delivery-By-Value) tri-party facility operated by Euroclear UKI

5 Data from the other TPR agents has been excluded from the total TPR data series as a precaution because of a major correction in 2015 by one of the largest agents and because smaller agents have occasionally, if only temporarily, dropped out of the survey. However, the two agents whose data is plotted in Figure 1 together account for the bulk of the European TPR market and the exclusion of other agents' data does not unduly affect trends. On the other hand, in analyses of the currency, maturity and collateral composition of agent TPR, all reporting agents have been included as there are strong commonalities across agents.

6 Since 2001, the share of TPR in the ICMA survey has fluctuated between 6% and 12%.

7 One agent estimates that the value of TPR in the ICMA survey would be some 20% higher if all the sellers among its clients were to participate and that only about one-third of the business of the buyers among its clients is covered by the survey.

8 New firms have joined the ICMA survey, a few have left permanently, and some have dropped out and then re-joined. In addition, smaller TPR agents have occasionally, albeit temporarily, dropped out and, in December 2008, a large TPR agent was unable to report because of the GFC, which exaggerated the impact of the crisis on agent TPR.

(formerly Crest). DBV could add EUR 200-300 billion to recent agent TPR. On the other hand, double-counting in survey TPR is unlikely to have been a problem, as most TPR is between securities dealers and non-banks, whereas the ICMA survey is almost entirely among securities dealers and banks.

Survey TPR looks more closely correlated with the ICMA survey total than with agent TPR. However, all three series were broadly correlated until 2012, after which, survey TPR and the survey total have moved inversely to agent TPR (some reasons are suggested below).

Using agent TPR as a benchmark, it can be seen that, after the GFC, the evolution of TPR can be broken down into two phases: a generally buoyant TPR market during 2009-2014; and a stagnant market during 2015-2021.

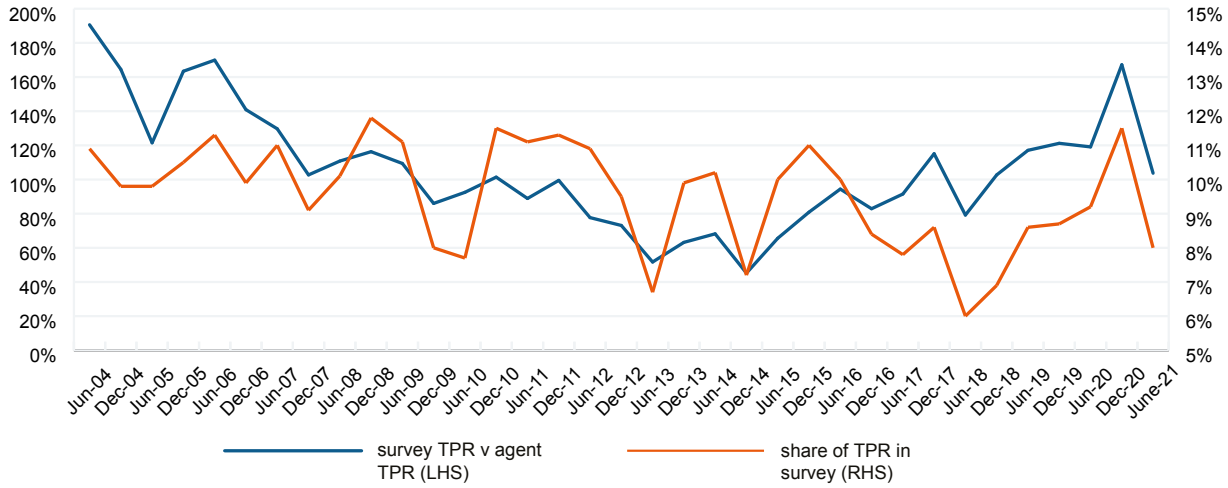
2009 to 2014 --- buoyancy

From June 2009 until December 2014, agent TPR expanded but in two stages separated by a volatile interval: from June 2009 to June 2011; and then from June 2013 to December 2014. As explained below, the watershed between the two stages reflected the intensification of Eurosystem market intervention in response to the eurozone sovereign debt crisis, while the buoyant phase was ended by a second round of Eurosystem activity.

The first stage of growth in agent TPR was driven by the revival of securities dealers' funding requirements following the immediate post-GFC rebound in financial market activity. Growth in TPR during this period is also likely to have benefited from the maturing of the tri-party product in Europe which was characterised by the entry of new types of user.

Survey TPR did not start to recover until June 2010, lagging agent TPR by a year. Moreover, the recovery of survey TPR was cut short in June 2012, while agent TPR continued to grow. Survey TPR then fell back sharply until June 2013, after which, it fluctuated sideways until the end of 2018, albeit within a fairly wide corridor of about EUR 400 billion to EUR 600 billion. Survey TPR also contracted as a proportion of the overall ICMA survey until 2017 (see Figure 2 below).

Figure 2 – The share of TPR in the ICMA survey versus the ratio of TPR in the survey to TPR reported by the two principal agents



Source: ICMA survey. This Figure measures the divergence of survey TPR and agent TPR by showing the share of TPR in the survey (orange line) and the ratio of TPR in the survey to agent TR (blue line).

The generally subdued state of the ICMA survey and the diminishing share of TPR within the survey were probably consequences of efforts by financial market participants to adjust to the reduction in the supply of and demand for wholesale funding as sell-side business models and balance sheets were brought into line with diminished risk appetite as well as less active trading and tightening regulatory constraints post GFC.

But the key event which triggered the downturn of survey TPR in June 2012 was renewed and intensified Eurosystem intervention in the financial markets in response to the eurozone sovereign debt crisis, which first flared up in early 2010. In December 2011 and February 2012, the Eurosystem launched its first three-year Long-Term Refinancing Operations (LTROs). Excess liquidity at the ECB ramped up quickly to almost EUR 800 billion (see Figure 4). The negative impact on TPR was because central bank liquidity is an attractive substitute for funding in the general collateral (GC) repo market, of which TPR is a major segment.

The LTROs also interrupted the growth in agent TPR but, unlike survey TPR, agent TPR recovered by 2013, when the LTROs were repaid early and excess liquidity at the ECB fell back sharply. The stronger growth in agent TPR compared with survey TPR suggests that, after the GFC, tri-party collateral management started to be exploited by new users or was employed more intensively by existing users who did not necessarily have direct access to central bank liquidity, and that many of these new and existing users did not participate in the ICMA survey.

The increased resort to TPR is likely to have reflected the general wish to diversify funding sources, particularly in the light of the contraction, in response to the GFC and to post-crisis re-regulation, of the balance sheets of many dealers and banks who had previously been liquidity-providers. As regards new users, TPR agents reported that, following the GFC, their client base expanded beyond traditional cash lenders. When TPR was established in Europe in 1993, the original cash lenders were central banks. They were soon followed by commercial banks. The GFC encouraged the adoption of TPR by securities lending agents re-investing cash collateral on behalf of lending clients, custodian banks investing client cash balances, a plethora of non-bank financial institutions such as asset managers, pension funds, insurance companies, CCPs investing cash margin, supranationals and sovereign wealth funds. More recently, TPR has been adopted by some large corporate treasurers, debt management offices, ETFs and new types of buyside firm, including hedge funds, who need securities to collateralise OTC derivatives positions as the Basel Uncleared Margin Rules (UMR) are implemented by national and regional regulators.

There was also anecdotal evidence of entry into or expansion of the European repo market of non-European dealers with balance sheets less constrained after the GFC. These new entrants would not have had access to local central bank liquidity and may have leveraged TPR to help fund their expanding European franchises (helped by the fact that TPR has always had a surplus of cash investors available).

Why did the firms participating in the ICMA survey sample not participate more in the expansion of agent TPR from 2011? This might have been expected, given that TPR is overwhelmingly between dealers and banks on one hand and non-dealers on the other, that the survey captures the largest repo dealers and banks in Europe and that most large survey participants were established users of TPR.

One possible reason, already noted, is that the share of TPR in the survey has been understated because some participants fail to report their use of TPR. In addition, large dealers and banks who are the core of the ICMA survey tended to have been early adopters of TPR, so the survey sample may have represented a relatively saturated market segment for TPR. Moreover, these firms, being the major market-makers in repo in Europe, were likely to have been downsizing their balance sheets to a greater degree than other firms. Finally, part of the divergence during 2009-2014 between survey TPR and agent TPR may have due to the significant expansion in use of Eurex Repo's GC Pooling (GCP), many of the users of which were largely domestic German institutions, whereas ICMA survey participants tend to be internationally active firms.[9] GCP is a so-called GC (general collateral) financing

9 GC Pooling is a GC financing facility which offers automatic anonymous GC repo against ECB-eligible collateral baskets managed by a tri-party agent. Central bank eligibility and the large size of the collateral baskets (several thousand securities) proved attractive in the stressed market conditions that characterised this period. However, GC Pooling's user base was largely domestic.

facility, which incorporates a TPR agent and a CCP. At its peak, GCP may have accounted for up to about 15% of European TPR.

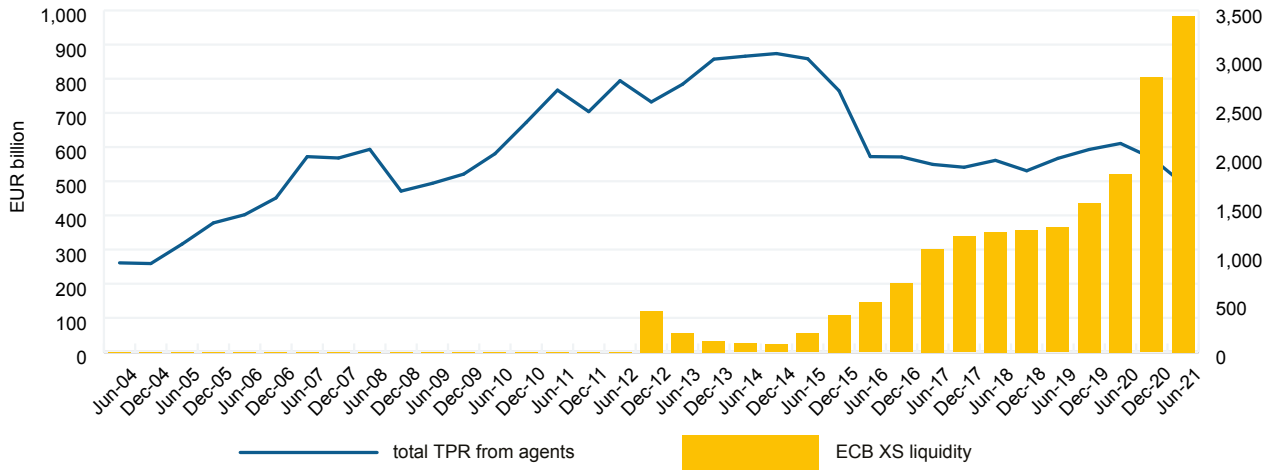
The recovery in agent TPR from June 2013 to December 2014 was in line with the rebound in market activity as the eurozone sovereign debt crisis abated following central bank intervention. On the other hand, during this period, survey TPR continued to fluctuate sideways. Once again, the growth in business reported by the TPR agents would appear to have been driven by firms outside the ICMA survey sample, while the failure of some firms participating in the survey to report their TPR business continued to depress survey TPR.

As noted earlier, Figure 2 above showed that, until 2017, not only did survey TPR represent a diminishing proportion of agent TPR but it was also a diminishing share of the ICMA survey total, which was itself trending downwards. This could suggest that firms in the survey sample found it easier to fund their contracting balance sheets from sources other than TPR. In other words, TPR may have been a marginal source of finance for major dealers and banks, who are likely to have had more alternative financing options than other types of market participant. In contrast, as previously suggested, firms outside the survey may have needed TPR to help fund their expansion into the European repo market. Access or lack of access to central bank liquidity could help to explain both developments.

2015 to 2021 --- stagnation

Figure 1 shows a collapse in agent TPR after December 2014, which Figure 2 identified as a point of inflection in the relationship between survey and agent TPR. In Figure 3 below, it can be seen that the inflection coincided with, and is very likely linked to, the announcement by the Eurosystem in March 2015 of quantitative easing (QE) in the eurozone, starting in June 2015, and the expansion of this programme in March 2016.[10] Indeed, it has been argued that QE was widely anticipated ahead of its announcement (among other reasons, because of the speech of the ECB President at Jackson Hole in August 2014) and this may be apparent in the December 2014 survey. As explained previously, central bank liquidity tends to crowd out general collateral (GC) repo.

Figure 3 – Outstanding TPR reported by the two principal agents v ECB excess liquidity



Source: ICMA survey & ECB.

10 QE was introduced in the eurozone in 2015 in the form of the new Public Sector Purchase Programme (PSPP) under the umbrella of the Expanded Asset Purchase Programme (EAPP), which also included the third Covered Bond Purchase Programme (CBPP3) and the ABS Purchase Programme (ABSPP). In contrast to asset purchases under the Securities Market Programme (SMP) in May 2010 and intended purchases under the Outright Market Programme (OMT) in March 2012, which targeted bonds issued by peripheral eurozone governments, the PSPP is 'broad-based' across the eurozone.

Figure 1 also shows that, following the collapse of agent TPR in 2015-16, there was a surge in the ICMA survey total to a record high of about EUR 8.3 trillion in December 2019. This growth led to a further reduction in the importance of TPR in the survey. The divergence of the ICMA survey and TPR following the start of net asset purchases by the Eurosystem reflects the fact that TPR is purely cash-driven, whereas bilaterally-managed repo (which makes up the bulk of the ICMA survey) can also be used for securities lending. This is significant because the effect of QE is not only to flood the repo market with cash and crowd out GC repo but also to drain eligible securities (in particular, longer-term, benchmark and cheapest-to-deliver government securities). While cash is abundant, securities become scarce. The surge in bilaterally-managed repos would therefore seem to have been securities-driven, with dealers responding to collateral shortages arising largely from Eurosystem asset purchases by borrowing scarce bond issues in the repo market in deals at special repo rates, which are able to attract additional supply from investors.[11]

Collateral shortages may have been exacerbated by increased demand for safe assets, particularly high-quality liquid assets (HQLA), arising from the progressive introduction of Basel III enhanced capital and new liquidity requirements. The effect of such liquidity requirements has been questioned in the light of the ample central bank reserves acquired by banks (which also count as HQLA) but it is generally accepted that specific shortages were created or exacerbated by central bank purchases.[12] [13] [14]

Evidence for increased securities borrowing in the repo market, particularly since 2015, is provided by an ECB estimate of the share of specials in the repo market for German government bonds and their stronger specialness.[15] [16] This showed specials trading picking up about the same time as the recovery in bilaterally-managed repos (rising sharply over the second-half of 2016 to peak at the end of the year, then remaining high until April 2018).[17] And data from BrokerTec and MTS show particularly heavy trading in special collateral during 2017.

The switch in repo trading from GC to special collateral can also be seen in Figure 4 below, which compares data from Eurex Repo and Eurex's GCP market with the excess liquidity held by banks at the ECB. Eurex Repo allows the trading of specific security issues, which includes issues that are special, whereas GCP is entirely cash-driven GC repo. The profile for GCP is similar to that for the business of the TPR agents (growing during 2012-15 and falling into a trough in 2018). While GCP was contracting in response to the EAPP, Eurex Repo was expanding.

11 The ECB Money Market report for 2019-2020 observes that Eurosystem intervention had reinforced the negative correlation between excess liquidity at the Eurosystem and GC turnover but switched the correlation with specials turnover from negative to positive.

12 Cœuré, Bond Scarcity and the ECB's Asset Purchase Programme, 3 April 2017, and Asset Purchases, Financial Regulations and Repo Market Activity, 14 November 2017. Cœuré makes the point that increased demand for short-term securities was largely satisfied by increased market lending, whereas increased demand for longer-term securities was inconsistently satisfied by Eurosystem lending programmes.

13 In addition, not all regulated entities have access to central bank reserves. For example, non-bank financial institutions are subject to Solvency II and to the UMIR/EMIR OTC derivatives margining requirements in March 2017 for initial margin and from September 2017 for variation margin. However, among these entities, negative interest rates have incentivised greater use of cash for margin.

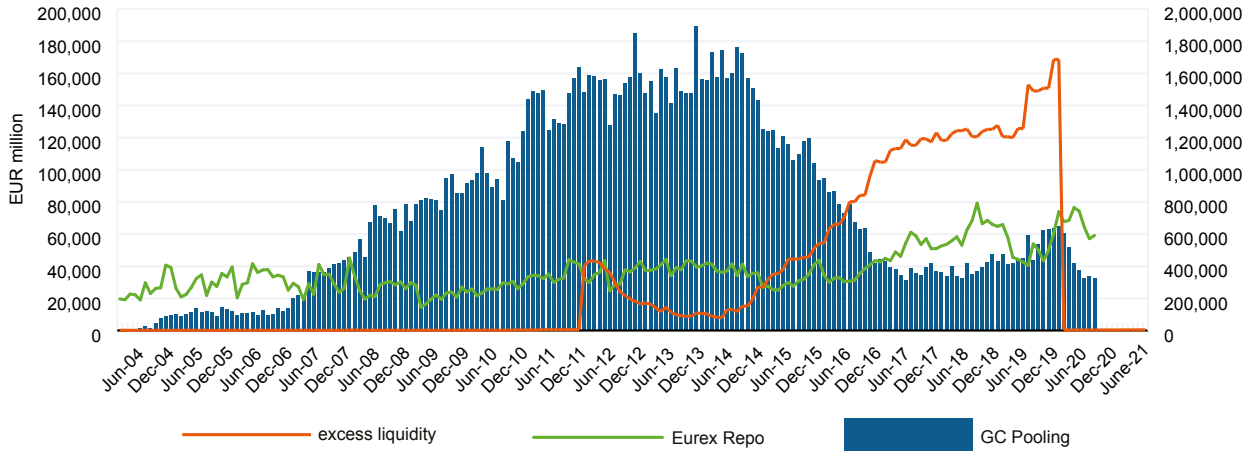
14 Extreme shortages of specific bond issues, as reflected in their specialness, have been relieved by the APP securities lending facility established by the Eurosystem in April 2015 and, in particular, its relaxation in December 2016 to allow cash collateral but is not intended to dampen specialness across the board and eliminate specials trading.

15 *Euro Money Market Study 2020*, ECB, April 2021.

16 Brand et al, *From Cash- to Securities-Driven Euro Area Repo Markets*, ECB Working Paper Series No.2332, January 2019.

17 This increase also coincided with estimates of significantly higher collateral re-use after the introduction by the EAPP. See Jank et al, Safe asset shortage and collateral re-use, November 2020.

Figure 4 – Outstanding repo at Eurex Repo and at GC Pooling compared to excess liquidity held at the ECB



Sources: Eurex & ECB.

At the same time as the need to trade specials increased, the repo market's capacity to trade seemed to have started to expand as intermediaries began to rebuild their balance sheets. To some extent, this reflected a backdrop of strong global economic growth and greater optimism in financial markets. But a big driver was that, by 2016, if not earlier, major dealers and banks appear to have successfully adapted their business models to absorb the higher capital requirements and to accommodate the new leverage and liquidity constraints introduced after the GFC, becoming confident about their ability to optimise these new regulatory requirements.[18] [19]

In 2019, there was a recovery in both survey and agent TPR, in line with continued expansion in the ICMA survey. The recovery may have owed something to the cessation of net asset purchases by the Eurosystem at the end of 2018, which reduced competition to TPR from central bank liquidity. There may also have been something of a rebound from 2018, which was a year marked by a slowdown in the global economy as a result of economic contraction in China and increased international political tensions.

On the other hand, the introduction of TLTRO III in March 2019 and other accommodative monetary policy measures by the Eurosystem announced in September 2019, including renewed net asset purchases under the EAPP, did not appear to have had a distinct impact on TPR other than, perhaps, to slow its recovery.

The initial impact of the Covid pandemic, which hit the market in March 2020, was to trigger frenetic trading from February to April, as participants sought to meet the escalating margin calls triggered by asset sell-offs and market volatility, as well as to shore up their precautionary cash balances, in part by liquidating assets, particularly equity.

18 Banks seem to have exceeded their regulatory ratios well ahead of the deadlines for enforcement set by regulators. Thus, the Leverage Ratio came into force in 2018 but banks seemed to have targeted the deadline for disclosure in 2015 in order to stand out from their peer group in reassuring investors of their financial solidity. They also anticipated the effect on their balance sheet of central bank asset purchases from customers (who tend to deposit the proceeds with their banks). A study of 70 major banks in the eurozone showed a rapid adjustment over 2013-14 to an average Leverage Ratio of 4.4% and only three banks below the 3% threshold by the end of 2014 (Bucalossi et al, Leverage Ratio, *Central Bank Operations and Repo Market*, Banca d'Italia Questioni di Economica e Finanza (Occasional Paper) No.347 (July 2016)). The BIS estimated that Leverage Ratio shortfalls in jurisdictions which were members of the Basel Committee on Banking Supervision (BCBS) had been eliminated by the end of 2016. A Bank of England study of the gilt repo market suggests that an increased supply of intermediation from 2016 showed that dealers had by then optimised their balance sheets and regulatory ratios (see Noss et al, *Decomposing Changes in the Functioning of the Sterling Repo Market*, Staff Working Paper no.797 (Bank of England, May 2019)). See also Special Feature C by Grill et al in the ECB's Financial Stability Review of November 2017. Optimisation was achieved by means of enhanced levels of capital, deleveraging, 'de-risking' by reallocating balance sheet, more efficient collateral management, the reduction of market-making inventories, more intense central-clearing on CCPs, use of synthetic repos, less use of cash collateral in securities lending, repricing and the shedding of unprofitable customers. It is noticeable that the recovery in the size of the ICMA survey from 2016 coincided with a jump in clearing at LCH, which is the largest CCP in Europe. Note also that Japanese and most EU banks are allowed to calculate the Leverage Ratio at the end of each quarter, rather than as an average of the three end-month ratios in each quarter (as intended under Basel III) or a daily average (as in the UK and, for balance sheet items, in the US). This allows those banks to use 'window dressing' to mitigate the impact of the Leverage Ratio: trading heavily during each quarter before shrinking their repo books at end-quarter.

19 At the end of 2016, there was a bout of severe market illiquidity, as dealers sought to protect their end-period ratios by closing their balance sheets to late business. Factors such as "window dressing" of end-year regulatory reports (particularly of the Leverage Ratio) and for the purpose of G-SIB determination, bank levies and other balance sheet-based charges on banks are the basic drivers of end-year reductions in balance sheets. However, caution in 2016 was perhaps exacerbated by shocks to the market such as the results of the UK Brexit referendum and the US Presidential election, earlier uncertainty during the Italian constitutional referendum and the run-up to the French presidential election in 2017. However, the end of 2016 was a watershed and was followed by a diminution in the spiking and dispersion of repo rates at end-quarters. This was likely to due to improved balance sheet management by firms in the run-up to end-year, including the increased use of forward repos to lock in cash and collateral over the turn of the year (forward repo increased from 10.5% of the ICMA survey in December 2016 to a peak of 19.3% by December 2018) and a switch to collateral swaps to minimise the impact of collateral trading on end-year balance sheets. The decision by the Eurosystem in December 2016 to lend securities against cash collateral may also have relieved tensions after that date.

The repo market was a key venue for both borrowers and lenders in this 'dash for cash'. This included TPR, which was helped by the reinvestment by CCPs of higher initial margins paid in cash. Demand for liquidity in the eurozone was eventually calmed by massive monetary and fiscal stimuli, including the Eurosystem's Pandemic Emergency Purchase Programme (PEPP) announced in March 2020 and expanded in June and December, and TLTRO IV launched in April 2020. There was similar official intervention in other markets.

Given the very short-term nature of much of the trading triggered by the pandemic, a lot of its impact appears to have worked through the market by the time of the June 2020 ICMA survey. Thus, the survey total fell back to EUR 7.8 trillion from the record EUR 8.3 trillion in December 2019. However, the impact on TPR persisted. The outstanding value of TPR reported by all agents expanded to EUR 710 billion from EUR 663 billion and the share of TPR in the survey rose to 9.2% from 8.7%.[20] This was despite massive central bank intervention, which normally crowds out TPR. The 'dash for cash' seemed to have encouraged borrowers to tap all available funding sources, including TPR, and to retain access for a time after the peak of the crisis.

The boost to TPR from the 'dash for cash' faded by the time of the December 2020 survey. Even though the ICMA survey total rebounded to EUR 8.3 trillion, both survey and agent TPR had contracted (to 8.8% and EUR 669 billion, respectively). The weight of new central bank liquidity appeared to have eventually displaced TPR.

Tri-party repo cash[21]

The principal cash currencies in European TPR have been the euro and the US dollar. The dollar has usually played a bigger role in TPR than it does in the European market as a whole (as proxied by the ICMA survey). However, during the period from December 2007 to December 2015, the supply of dollars into TPR more or less halved, while the supply of euro doubled. The main influence on the borrowing of the dollar through TPR has been its safe-haven status, while the borrowing of the euro has tended to mirror the share of the dollar but, since 2015, has mainly reflected the substitution of TPR by central bank liquidity.

Since the GFC, the pound sterling has been less well represented in European TPR than in the repo market as a whole but its share has been recovering. In part, this reflects the fact that the well-established DBV tri-party system, operated by Euroclear UK and Ireland in the UK, is not included in agent TPR.

The shares of other currencies, notably the Japanese yen, are also growing, albeit from low bases.

Cross-currency

A significant share of agent TPR reported by the two largest agents is cross-currency, that is, the currency denomination of the cash is different to that of the collateral. The provision of collateral management services against multiple assets in multiple currencies is one of the comparative advantages of TPR. Since 2019, cross-currency transactions have accounted for between about 34% and 74% of the TPR reported by the two largest agents. The share of cross-currency TPR has usually peaked towards year-end but unusually it stayed high in June 2021 at 73%.

Euro and dollar

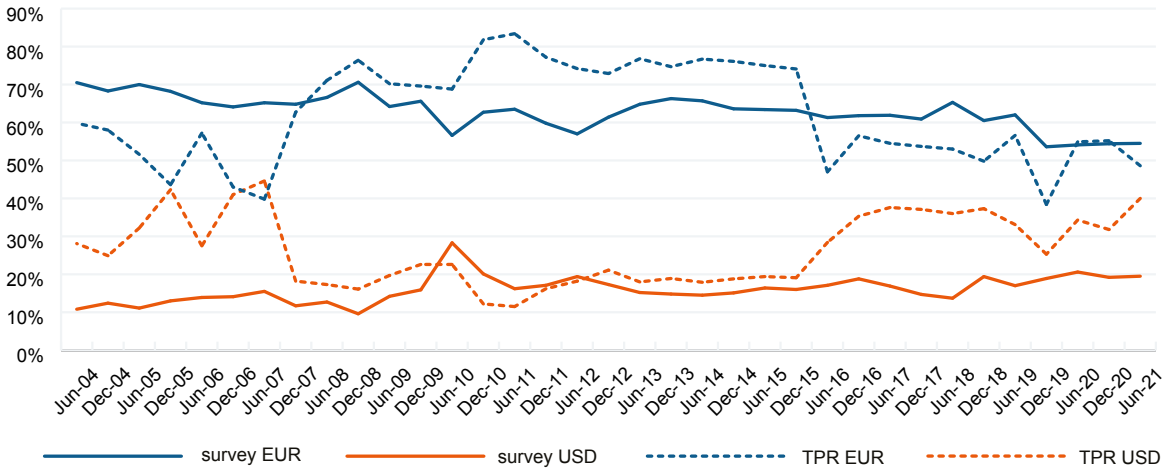
Prior to the GFC, there were wide fluctuations in the share of the euro in TPR reported by the principal agents. Figure 5 and Figure 6 compare, respectively, fluctuations in the shares of the euro and dollar in agent TPR with changes in their outstanding values. The shares of the two currencies have tended to mirror each other over the

20 The share of GC financing in the ICMA survey fell back to 10.5% in June 2020 from 15.6% in December 2019 but the value reported by the TPR agents increased to EUR 81.8 billion from EUR 69.4 billion and its share of agent TPR rose to 11.5% from 10.0%, which suggest that the resort to GC financing was stronger outside the ICMA survey sample.

21 Data in this section is drawn from all TPR agents except one. The reason is that the excluded agent did not start reporting the currency composition of its business until 2016. If the analysis had included this agent, the more global nature of its business would have meant a much higher share for the US dollar and a much smaller share for other currencies, which would have been most apparent in the share of the euro, given it was the largest alternative currency.

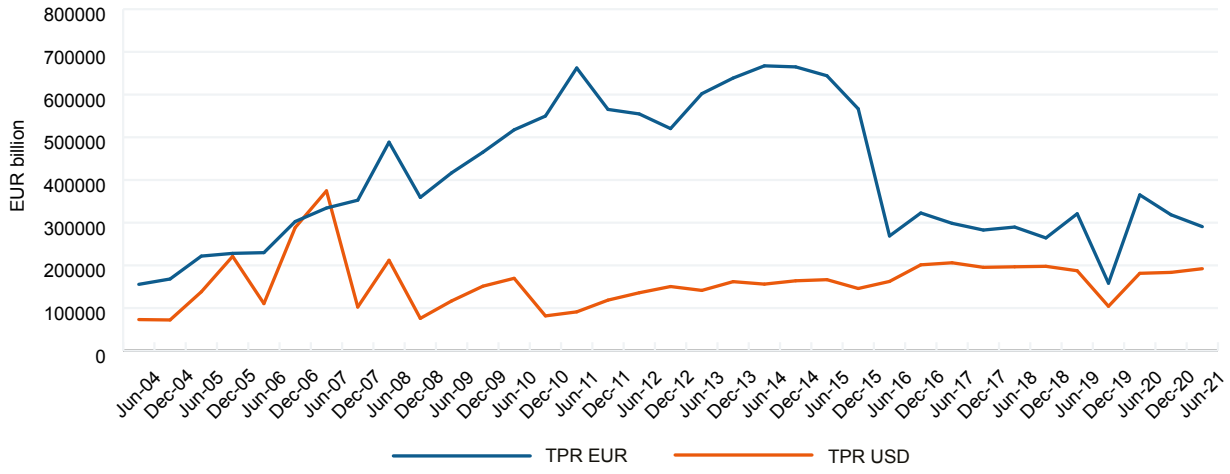
whole period, which is simply a reflection of their mutual preponderance in European TPR. On the other hand, the outstanding amounts of these currencies were positively correlated until the eurozone sovereign debt crisis in 2010 but have been inversely correlated from June 2016, which was likely the result of the adoption of QE by the Eurosystem in 2015.

Figure 5 – The shares of US dollar and euro in the ICMA survey versus TPR managed by most participating agents



Source: ICMA survey.

Figure 6 – The outstanding values of US dollar and euro in TPR managed by most participating agents



Source: ICMA survey.

There was strong growth in the outstanding amount of euro TPR until the GFC hit the market in June 2008. This recovered to reach a new and higher peak in June 2011 before eventually being dented by the eurozone sovereign debt crisis. It then bounced back to an all-time peak in June 2014 before collapsing in 2015 in the face of QE.

In the case of dollar TPR, there was further volatility after the GFC but an overall decline in the outstanding amount until December 2010, after which, there was a gradual recovery to 2015 followed by a sharp step-up in 2016, at the same time as the amount of euro TPR collapsed.

The initial growth in the euro and contraction in the dollar in TPR was also seen in the wider repo market as measured by the ICMA survey. From June 2007 to December 2008, the share of euros in the ICMA survey rose from 62.7% of the survey in December 2007 to 76.4% in December 2008 while the share of the dollar fell from 15.5% to 11.7%.

The outflow of dollars during and after the GFC from both TPR and the repo market as a whole likely reflected the role of the dollar as a safe asset and the shortage triggered by the crisis. On the other hand, the rise in euro TPR would seem to have been driven by the gradual maturing of the TPR product in Europe, reflected in the entry of new users. This trend was interrupted in 2011-12 by the eurozone sovereign debt crisis, which curtailed financial market activity and reduced funding needs. It also resulted in central bank intervention, which substituted for GC funding from the repo market, including TPR. Thus, the Eurosystem launched LTRO I in December 2011 and LTRO II in February 2012. From a peak of EUR 5,106 billion in June 2011, euro TPR contracted to EUR 4,091 billion in December 2012 (a fall from 83.4% to 72.9% of agent TPR).

As the eurozone sovereign debt crisis abated, euro TPR recovered strongly and topped its June 2011 peak, reaching EUR 667 billion in June 2014. But a further round of Eurosystem intervention once again deflated euro TPR. In June 2014, the TLTRO I was launched and euro money market rates turned negative. Then, in 2015, partly in response to the emerging Italian banking crisis, the Eurosystem launched QE, opened TLTRO II and cut interest rates again, all of which suppressed activity in the GC repo market and its TPR segment. Euro TPR dropped to a low of EUR 289 billion in June 2016 (44.1%).

The contraction in euro TPR was juxtaposed by a jump in dollar TPR from EUR 146 billion (19.1%) in December 2015 to EUR 258 billon (39.2%) in December 2016. The growth of the dollar in TPR seems to have reflected the result of the US Presidential election in November 2016, which caught the market off guard and triggered expectations of a fiscal stimulus and faster economic growth but a reactive tightening of monetary policy by the Fed leading to a stronger dollar. Given expectations of continued monetary easing by the Eurosystem, this news also contributed to a weaker euro.[22]

After its sharp drop in June 2016, euro TPR fluctuated sideways until 2019, when the suspension of net asset purchases by the Eurosystem in late 2018 relieved euro TPR of competition from central bank liquidity. Euro TPR reported by agents touched a new peak of EUR 390 billion in June 2020, apparently benefiting from the 'dash for cash' during the Covid-induced market turmoil before renewed and enhanced Eurosystem intervention once again crowded TPR out. One consequence of the Covid turmoil was increased use of CCP-cleared repo, which in turn increased initial margins to the CCPs, who tend to reinvest cash initial margin in TPR.

Since 2016, the share of the dollar in European TPR has fluctuated sideways but around an elevated average of about EUR 250 billion (39% of agent TPR). There was little if any apparent impact in the survey or on TPR data of the repatriation of dollars from the offshore to onshore market from 2016 following changes to US tax rules and tighter money market fund regulation or of the turmoil in the US dollar repo market in September 2019. More recently, however, it has been suggested that dollar TPR has been boosted by a switch in funding by non-US banks away from unsecured deposits by money market funds to repos with other non-bank financial institutions as a source of dollars following the Covid-driven run on these funds.

22 It has been suggested that a second factor driving the increased share of the dollar in TPR was the massive outflow of cash from US prime money market funds between January and October 2016 following regulatory tightening of liquidity management by such funds. Prime funds had been a key source of dollars for foreign banks, particularly French banks, who were forced to find alternative sources of US dollars. However, French banks switched to government money market funds in the US, and UK and Swiss banks, who were the next most important borrowers from US money market funds, reduced their reliance.

Pound sterling and other currencies

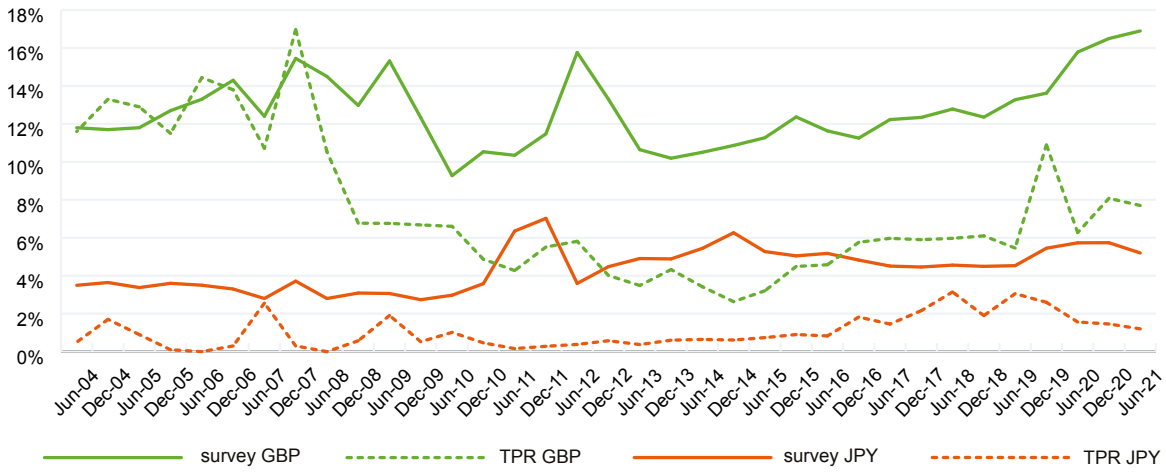
Since the GFC, the **pound sterling** has been under-weight in TPR relative to the ICMA survey. Whereas the share of sterling in the survey has fluctuated between 8.8% (June 2003) and 16.5% (December 2020), sterling TPR fell to 2.6% of agent TPR in December 2014 (EUR 24 billion) and, until December 2019, rarely ever exceeded 6% (EUR 40 billion). Moreover, the value of sterling TPR trended down between the GFC and 2014, while the value of TPR in other major currencies grew.

The unexpected result of the Brexit referendum, which was held on 23 June 2016, had no obvious impact on sterling TPR, even though this event seems to have adversely impacted the share of sterling in the ICMA survey.

On the other hand, the spike in December 2019 to 10.9% may have been driven by the imminent end of the Brexit transition period but it is not clear why. Moreover, there was no correlation with the allocation of UK collateral in TPR.

There has been an overall recovery in sterling TPR from the low of December 2014, which may have been helped by the fact that the currency continued to pay positive interest rates, in contrast to the euro, for which rates turned negative in 2014. Sterling accounted for 7.7% of outstanding agent TPR in June 2021.

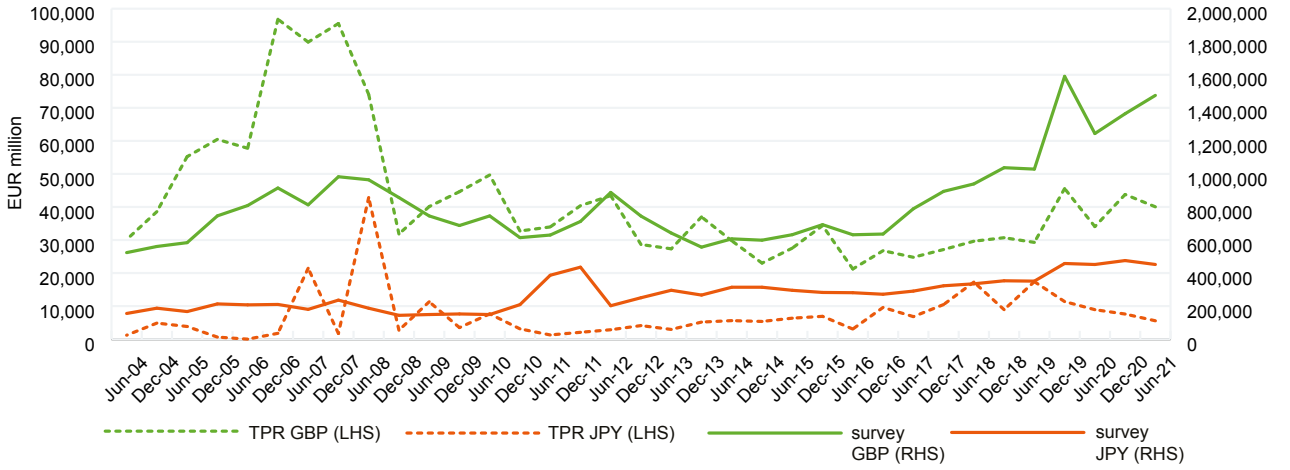
Figure 7 – The shares of the pound sterling and Japanese yen in the ICMA survey versus TPR managed by most participating agents



Source: ICMA survey.

Japanese yen has been a minor currency in European TPR, in line with its modest role in the ICMA survey, but has gradually increased its share of TPR over the last decade and has made two step gains in the survey (in 2011 and 2019). Some of the gains may be in response to increased trading of yen in Europe, which has occasionally been driven by cross-currency arbitrage opportunities.

Figure 8 – The outstanding values of the pound sterling and Japanese yen in the ICMA survey versus TPR managed by most participating agents



Source: ICMA survey.

Tri-party repo maturities[23]

Some tri-party agents have had difficulties distinguishing open repo from one-day repo and corrections were made in June and December 2011 with a significant reclassification from one-day TPR into open TPR. Data on one-day and open repos prior to 2012 should therefore be viewed with caution and are best considered in aggregate.

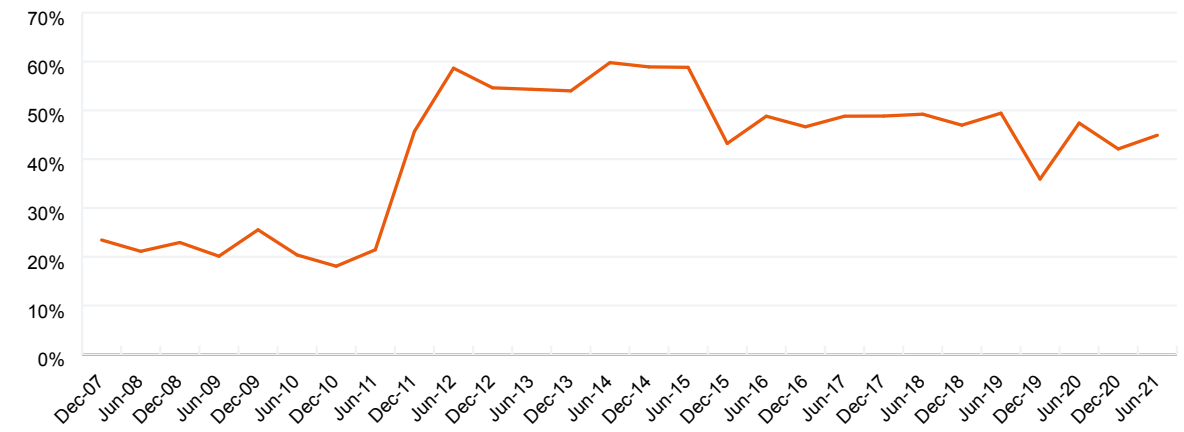
Short-dated TPR

From 2012, after the major corrections to reporting, the share of agent TPR taken by **open** transactions fluctuated within the range 54-60% until June 2015, after which there was a step-down to a new range of just under 50% between December 2015 and June 2019. The step-down coincided with the start of reporting under LCR in January 2015 and the launch of QE by the Eurosystem in March of that year. LCR imposes HQLA reserves requirements on borrowing for less than one month, including open transactions, while access to central bank liquidity tends to crowd out TPR. Both events seem to have disproportionately affected open transactions. Open repo has also been negatively affected by the fact that it cannot be netted (as it has no fixed maturity date) and is therefore less efficient on the balance sheet for dealers, which has led to its partial substitution by structured repos such as evergreens.

The spike downwards in open TPR in December 2019 could have been due to the reporting issue at one of the TPR agents.

23 The data of all agents participating in the survey are used in this section as all agents have provided these data for the whole period. However, total TPR is still shown just for the two principal agents in order to provide a continuous benchmark across the report.

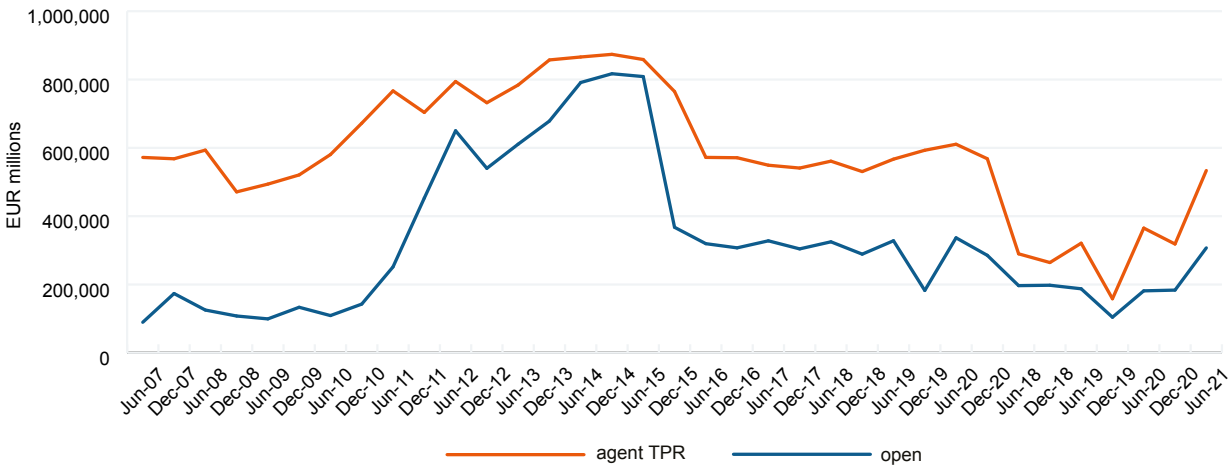
Figure 9 – The share of open TPR managed by all participating agents



Source: ICMA survey.

Figure 10(a) plots the evolution of the outstanding value of open TPR for all agents against agent TPR (which is only for the two largest agents). As reflected in the change in market share in Figure 9, all open TPR outstripped agent TPR until June 2012 but, as mentioned above, this outperformance may have been due to the reclassification of some one-day TPR to the open category. Subsequently, open TPR shadowed agent TPR until December 2015, when both series fell, although faster in the case of open TPR. The decline after June 2020 coincides with renewed asset purchases by the Eurosystem on TPR in general.

Figure 10(a) – The outstanding values of open TPR managed by all participating agents compared to total TPR by the two principal agents



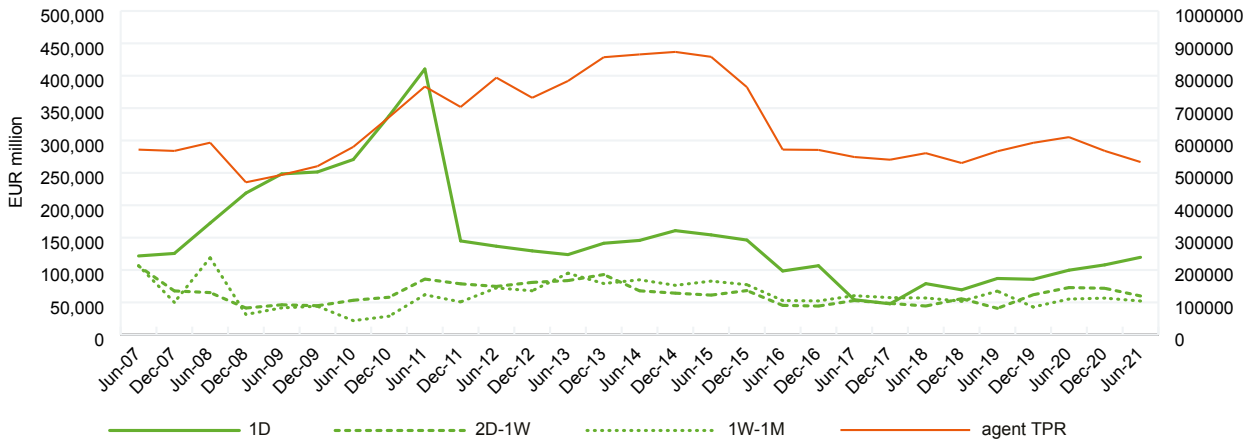
Source: ICMA survey.

It can be seen from Figure 10(b) that, after the GFC, all **one-day** TPR outperformed agent TPR until December 2011 but it has been explained that, during this period, some one-day TPR may in fact have been misreported as open transactions and the subsequent sharp drop in one-day TPR was likely to have been due to the consequent correction in reporting. The drop pushed one-day TPR down to a range of EUR 124-161 billion (11-15% of total TPR) until June 2015, after which one-day TPR fell to a low of EUR 48 billion in December 2017 (7.7% share). Like open TPR, one-day repo may have suffered from the phasing-in of LCR reporting and, in the case of euro

TPR, the launch of QE by the Eurosystem in 2015. The subsequent gradual recovery from December 2017 until December 2020 largely reflected the general recovery of agent TPR until Eurosystem asset purchases started again in response to the Covid pandemic.

Short dates beyond one day (to one month) have essentially followed the evolution of agent TPR.

Figure 10(b) – The outstanding values of residual maturities of short-dated fixed-term TPR managed by all participating agents compared to total TPR by the two principal agents



Source: ICMA survey.

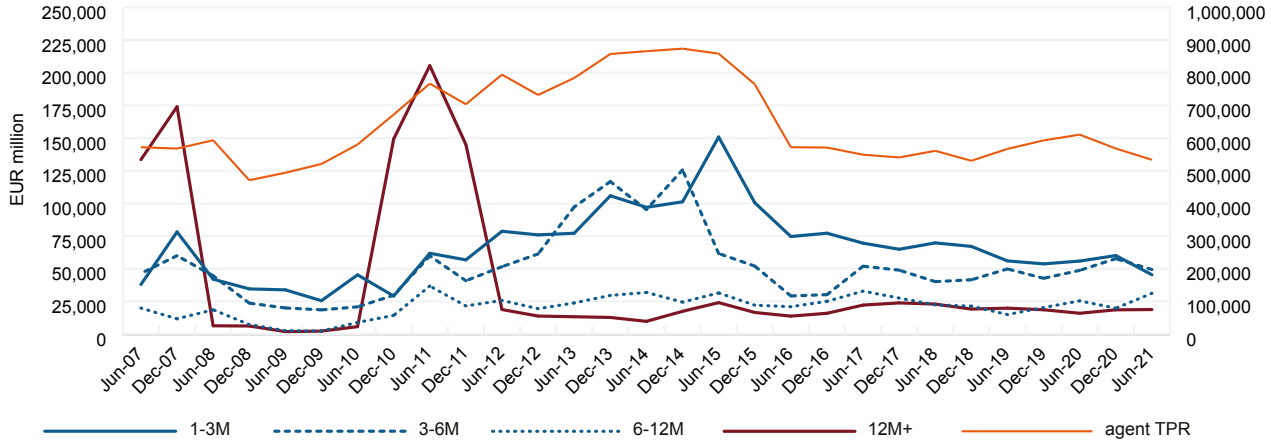
Longer-dated TPR

One of the key features of long-term TPR (repo over 12 months) was the sharp spike from December 2010 to December 2011. Anecdotal evidence suggests that long-term TPR are the collateral side of collateral swaps (also called liquidity swaps). These are large, longer-term and structured combinations of a repo of illiquid securities transacted back to back with a reverse repo of liquid government securities against the same cash amount. The principal cash flows therefore cancel out. The objective is to substitute holdings of the illiquid securities for issues which count as HQLA. TPR is a convenient way of managing the illiquid collateral in such transactions. Such collateral swaps gained prominence in 2010-2011 as firms sought to anticipate LCR.

Longer-term collateral swaps are typically used by liquidity-poor entities such as dealers to secure structural liquidity from liquidity-rich entities such as commercial banks and investment funds. However, collateral swaps are more commonly conducted tactically at shorter-maturities. Given the 30-day horizon for LCR, these shorter-term collateral transformation trades must have maturities beyond one month but are not usually more than six months in order to avoid an impact on the Net Stable Funding Ratio (NSFR). Transacting in this range balances the need for flexibility with the convenience of not having to roll over transactions too frequently. It can be seen from Figure 10(c) that the growth of residual maturities of one to three months was an important component of the growth in agent TPR from 2010 to 2015. The fact that the value of these maturities reached a record high in June 2015 is significant, given that LCR reporting started in 2015. Thereafter, these maturities declined largely in proportion to agent TPR as Eurosystem QE kicked in.

The value of TPR with three to six-month residual maturities grew in line with the one to three-month maturity band but started to fall earlier, from June 2015. It could be that the ageing of three to six-month collateral swaps boosted one to three-month TPR, which accordingly peaked later. Moreover, the ageing of one to three-month collateral swaps could in turn have driven an increase in the share of short-dated TPR from 2015 (two-day to one-week TPR grew from 5% in June 2015 to over 12% in December 2019 and one-week to one-month grew from 6% to over 10% in June 2019).

Figure 10(c) – The outstanding values of residual maturities of longer-dated fixed-term TPR managed by all participating agents compared to total TPR by the two principal agents



Source: ICMA survey.

Tri-party repo collateral[24]

TPR is typically a transaction between dealers, who usually borrow cash, and customers, who usually lend cash.[25] The composition of TPR collateral therefore tends to be a function of:

- dealers' inventories --- those securities held by market intermediaries, which largely reflect the relative size of different issues, current trading interest, net asset purchases by central banks and which of those holdings can be readily mobilised as collateral (eg whether they are 'Euroclearable' or not);[26]
- collateral eligibility schedules and concentration limits imposed by customers --- which securities are acceptable to customers as collateral and how much they will accept of each issue, largely reflecting the creditworthiness of issuers and, to a lesser degree, the liquidity of the issues;
- price --- which of the securities available from dealer inventories cannot be repoed out at special repo rates and are therefore useful only as general collateral (GC) for collateralising cash borrowing through tri-party repo.

In normal markets, during which customers' collateral eligibility schedules and concentration limits tend to be stable, dealer inventory is the main determinant of changes in TPR collateral allocations.

As in the wider repo market, the bulk of collateral in European TPR consists of fixed-income securities, which are more suitable as collateral than equity, given that fixed-income returns are generally more predictable than equity returns.

Equity as collateral in TPR

There is uncertainty over the share of equity used as collateral in agent TPR because of the major correction to the reporting of collateral type by one of the large TPR agents in 2015. For this reason, equity has been excluded from the data used in this study. For the two largest TPR agents, the share of equity has been low, fluctuating since 2018 between 2.3% and 4.5%, but for global custodian banks offering tri-party collateral management services, equity accounts for the bulk of collateral (70-90%).

24 The analysis of collateral allocated in European TPR as reported by the principal agents needs to be treated with some caution in view of the fact that not all agents report the country of origin of the collateral which they manage and there have been occasional interruptions in reporting. In addition, as noted earlier, there was a major correction to reporting by one of the TPR agents in 2015. This mainly affected collateral data, particularly on equity. For this reason, the data used here excludes the agent which made the reporting correction in 2015.
25 The exception is GC financing facilities, which are interdealer, such as Eurex' GC Pooling, LCH Ltd's £GC, LCH SA's €GCPlus and FICC's GCF.
26 Euroclearability' also applies to securities managed by Clearstream.

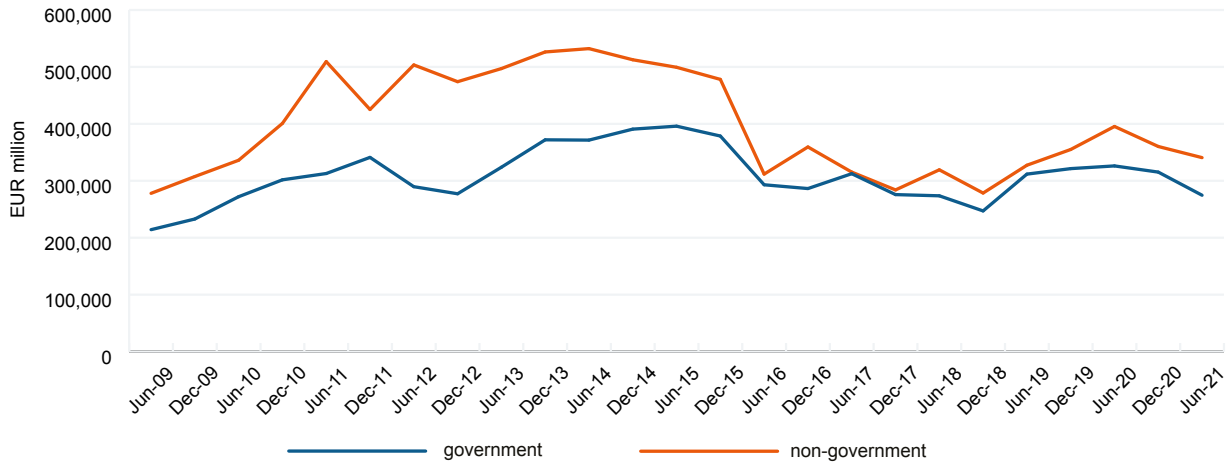
There is anecdotal evidence that the share of equity being used as TPR collateral increased after the GFC and again during the eurozone sovereign debt crisis because of the resilience of price discovery on stock exchanges. The allocation of equities as TPR collateral also surged over 2019 and 2020, notwithstanding the equity sell-off during the Covid market turmoil in early 2020, although it fell back in December 2020. However, higher allocation may have reflected the increase in inventories forced on dealers by the equity sell-off triggered by the onset of the pandemic.

Government versus non-government fixed-income securities as collateral in TPR

Figure 11 shows that, within the pool of fixed-income collateral, non-government securities have played a greater overall role as TPR collateral than government securities. The greater weight of non-government collateral differentiates TPR from inter-dealer repo in Europe (eg 91.2% of EU-28 fixed-income collateral in the June 2021 ICMA survey was government securities).[27] The reason lies in the fact that non-government debt tends to be less liquid and often have more complex structures than government securities, so are challenging to value, service and settle. Consequently, management of this type of collateral is often outsourced to tri-party agents, who can offer expertise and economies of scale. In contrast, government securities in the European market tend to be managed inhouse, as they are more likely to trade at special repo rates. This means they can be repoed out for cheaper cash in the bilaterally-managed market, whereas TPR is a market for cash at the higher GC repo rate.

While non-government fixed-income securities have predominated in European TPR, the share of government securities trended up until June 2017, despite set-backs during the eurozone sovereign debt crisis and increased purchases by the Eurosystem from 2015. In part, this change reflected less trading by dealers of non-government securities, particularly corporate bonds. But from December 2017, the share of non-government securities recovered, with Eurosystem purchases of corporate debt offset in the first-half of 2020 by higher issuance. There was a sharp drop in the allocation of corporate and covered bonds in December 2020, probably because of concerns over the impact of the pandemic on companies, but these securities were largely substituted by other types of non-government security and their reduced use was partly offset by a contraction in the allocation of government securities.

Figure 11 – The outstanding values of government and non-government securities in TPR reported by most participating agents



Source: ICMA survey.

27 Collateral composition also differentiates European from US TPR, although the differences have diminished since the reform of the US TPR market after the GFC. At the end of 2020, US Treasuries accounted for 44.8% of US TPR but another 35.3% consisted of Federal Agency and GSE securities.

Non-government fixed-income collateral in TPR

The principal non-government fixed-income securities allocated as collateral in TPR have been, in order of importance (see Figure 12):

- corporate bonds
- agency and public sector bonds
- covered bonds
- supranational bonds
- other' bonds

The major share of corporate bonds is likely to have been from financial issuers. The category 'other' has consisted mainly, in order of importance, of:

- residential mortgage-backed securities (RMBS)
- collateralised securities (eg CLOs, CDOs and CLNs)
- ABS

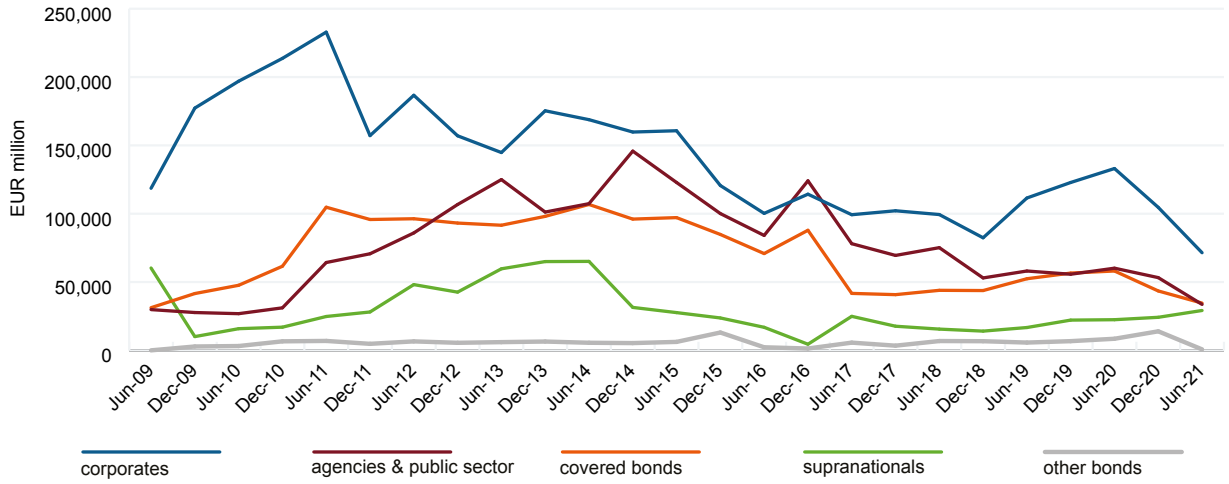
The amounts of commercial mortgage-backed securities (CMBS) and convertible bonds allocated as TPR collateral have been small.

In the aftermath of the GFC, corporate bonds were partly substituted by higher quality securities (agency, public sector, covered and supranational bonds) as the liquidity of corporate bonds deteriorated in line with their falling creditworthiness, which made them less acceptable as collateral. However, redemptions may have played a role. The allocation of corporate bonds is also likely to have been affected by the introduction by the Eurosystem in June 2016 of the Corporate Securities Purchase Programme (CSPP), which was extended until December 2018 and renewed in November 2019.[28] On the other hand, strong issuance in the eurozone would have offset such Eurosystem purchases in 2019.

The allocation of covered bonds and ABS as TPR collateral may have been reduced from late 2014 into 2015 by Eurosystem purchases under the covered bond purchase programme (CBPP) and the ABS purchase programme (ABSPP). These programmes were launched in late 2014. The Eurosystem's share of covered bond issuance exceeded 30% in 2016 and reached 40% by 2018, making net issuance net of CBPP purchases negative between 2015 and 2017.

28 On the other hand, there is evidence that issuance of eligible corporate bonds increased in response. See Pegoraro et al, Issuance and Valuation of Corporate Bonds with Quantitative Easing, ECB Working Paper Series No.2520, January 2021. See also Roh, Repo Specialness in the Transmission of Quantitative Easing, March 2019.

Figure 12 – The outstanding values of major non-government security types in TPR reported by most participating agents



Source: ICMA survey.

Market type of collateral in TPR

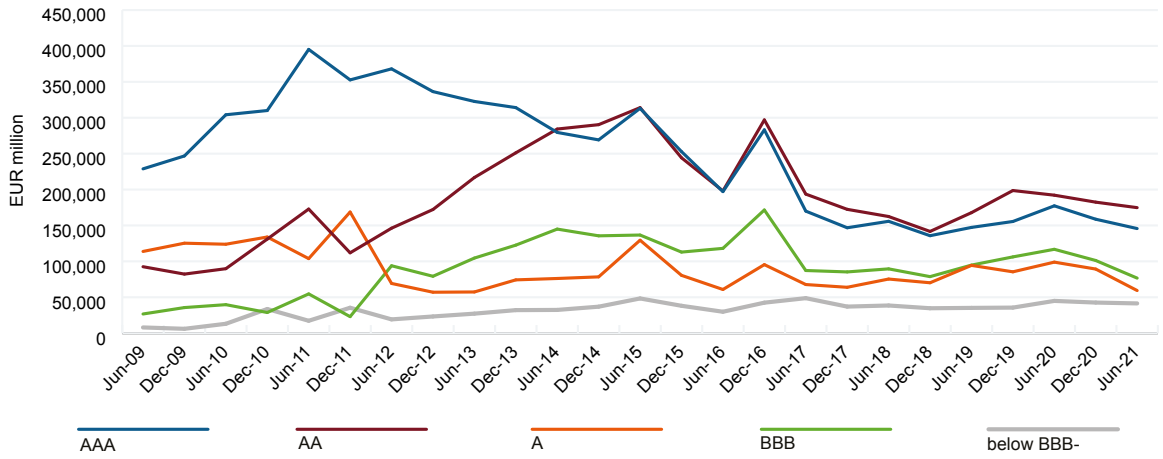
The most common market type of collateral allocated in TPR has been the eurobond (international bond issues). In June 2021, eurobonds accounted for 16.5% of TPR collateral, of which, 58.1% had been issued by European entities. The contribution of eurobonds had fallen from a peak of 23.8% in December 2019 but this was, in part, because of the introduction in December 2020 of a new category in the reports from TPR agents, namely, bonds issued by supranational European Union entities, for example, bonds issued under the SURE programme. These may have been reported previously as eurobonds. The new EU category also appears to have reduced the share of bonds issued by international financial institutions to 0.4% in June 2021 from 3.6% in June 2020.

Credit ratings of collateral in TPR

The bulk of collateral allocated in TPR is investment grade securities (BBB- and above). This is partly because of the weight of government issues, which tend to have higher ratings.

The average credit rating of TPR collateral declined after the GFC and the eurozone sovereign debt crisis as a result of widespread downgrades. This was evident in the reduced volumes of AAA and A-rated securities and coincident increases in AA and BBB-rated securities (see Figure 13), as AAA bonds were downgraded to AA and A bonds to BBB. (Note that the volatility in data in 2016 is an exaggeration caused by reporting problems.)

Figure 13 – Credit ratings of collateral in TPR reported by most participating agents



Source: ICMA survey.

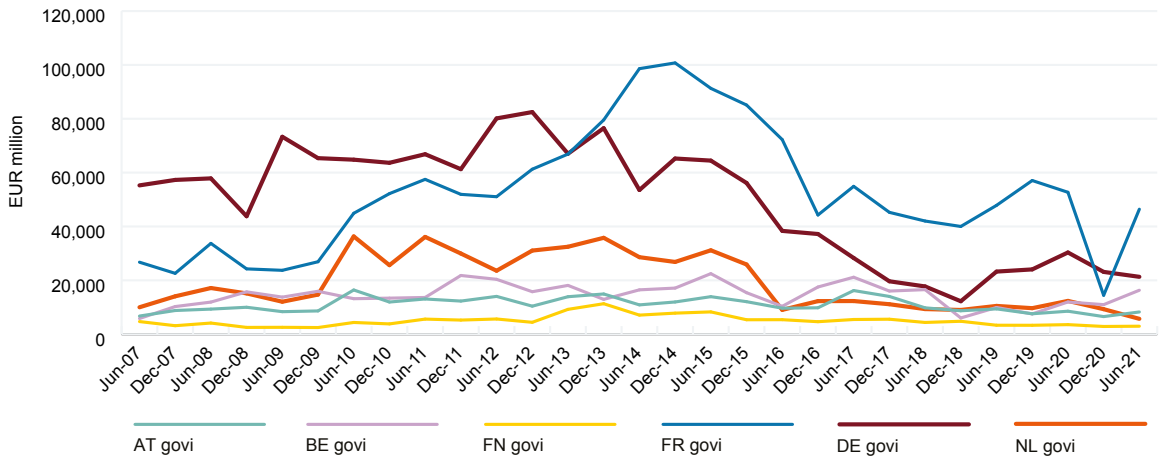
Major core eurozone government securities

Figure 14 shows the value of securities issued by the four core eurozone governments that have been the principal sources of collateral in TPR in Europe. Until 2013, the largest single source was **German government securities**. However, these have never exceeded EUR 83 billion (about 15%) and fell sharply during the GFC and again during the eurozone sovereign debt crisis. These drops reflected the 'safe-haven' status attributed to German government debt, which makes holders reluctant to lend these securities during periods of market stress and diverts much of the residual supply into the bilaterally-managed repo market, where their value can be monetized by trading as specials.

The use of German government securities dwindled to a low of EUR 12 billion by December 2018 (their share touched a low of 2.2% in December 2017) and they were replaced as the primary source of eurozone collateral in TPR by **French government securities.**

The scarcity of German government securities in TPR was intensified from 2015 until 2019 by Eurosystem QE, during which period, net issuance of all eurozone government securities net of Eurosystem purchases was negative. The scarcity of German government securities was apparent from the change in the behaviour of repo rates at end-quarter reporting dates. Until mid-2015, repo rates for German government securities firmed at end-quarter, reflecting stronger demand for cash but weaker supply as dealers 'window-dressed' their balance sheets for reporting purposes. But from mid-2015, these repo rates started to fall at end-quarter (become more special). The climax to this scarcity came at the end of 2016, when the specialness of repo rates for German and other core eurozone government securities spiked to record lows at year-end, by which time, some 50% of German government bonds were estimated to have been trading special (compared to a historic level of about 5%). There was a similar pattern in the allocation of Dutch government securities in TPR.

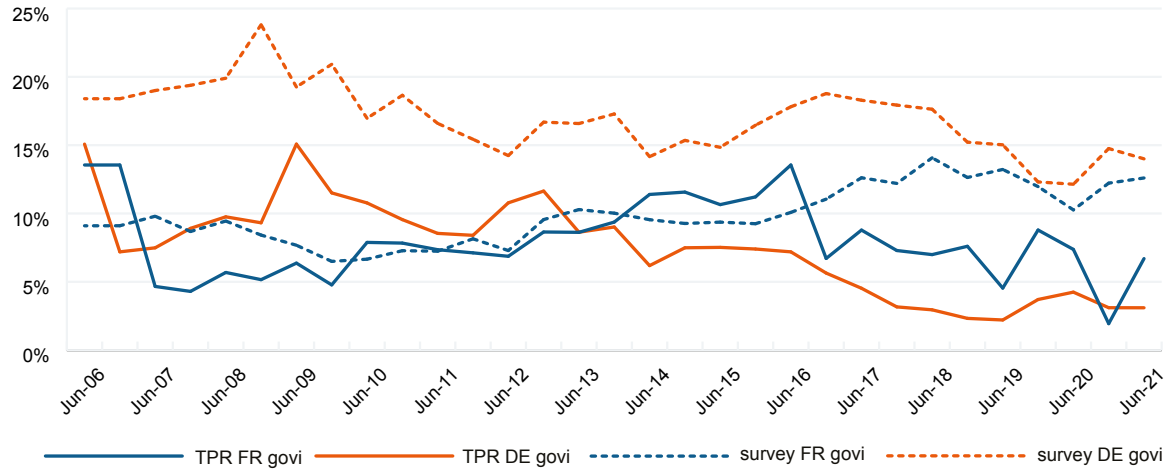
Figure 14 – The outstanding values of core eurozone government securities used as collateral in TPR managed by most participating agents



Source: ICMA survey.

A comparison of shares in TPR and the ICMA survey suggests that, from 2017, French government securities also started to be diverted into the bilaterally-managed repo market, as proxied by the survey (see Figure 15), implying that they became increasing special in the repo market.[29] This was probably also due to higher Eurosystem purchases.

Figure 15 – The shares of major core eurozone government securities used as collateral in TPR managed by most participating agents and in the ICMA survey

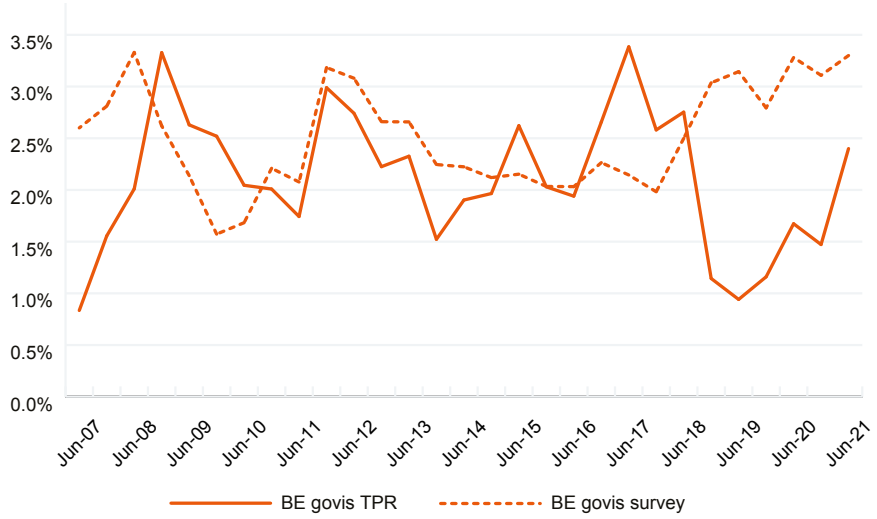


Source: ICMA survey.

The shares of **Belgian government securities** in TPR and the ICMA survey have usually been comparable (see Figure 16). This may reflect the location of one of the principal TPR agents (Euroclear Bank) in Belgium. However, in December 2018, there was a swing in terms of share out of TPR and into the ICMA survey, which is likely to have been due to increasing specialness in response to QE purchases of Belgian government securities.

29 The allocation of French government securities may have been dampened in 2016 by heightened political risk arising ahead of the French Presidential election in April-May 2017

Figure 16 – The shares of Belgian government securities used as collateral in TPR managed by most participating agents and in the ICMA survey



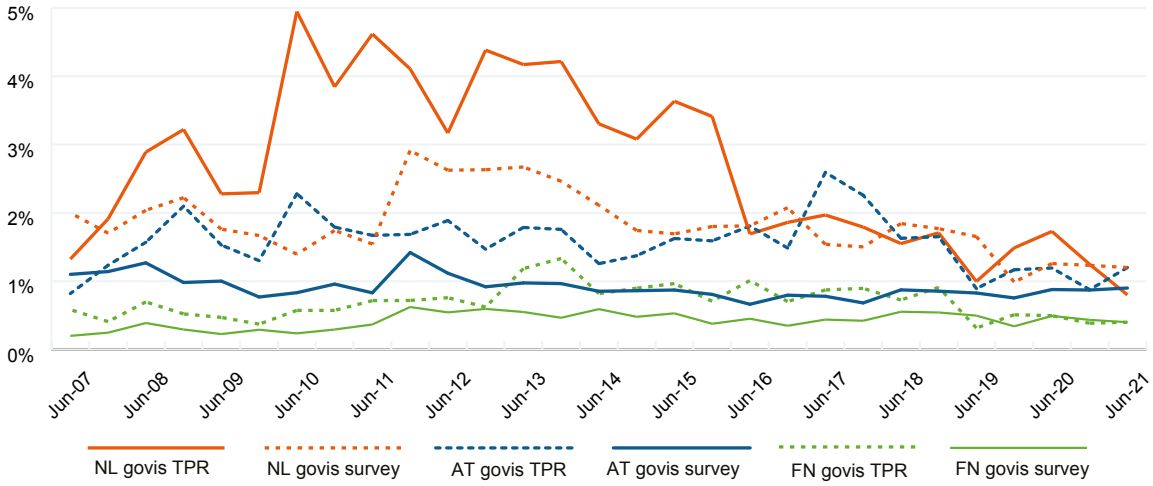
Source: ICMA survey.

Minor core eurozone government securities

In contrast to German and French government securities (and also peripheral eurozone government securities), government securities issued by the smaller core eurozone countries (**Austria, Finland and the Netherlands**) have usually been over-weight in TPR compared to the ICMA survey (see Figure 17). It is possible that such high-quality but smaller (and therefore less liquid) issues have been seen as better suited to TPR than the larger (and therefore more liquid and more valuable) issues by core eurozone countries.

After the eurozone sovereign debt crisis and, again in 2016, Finnish government securities became increasingly scarce and the share of Dutch government securities in TPR dropped into line with their share in the ICMA survey. Such changes suggest that these securities also became special, partly in response to increased net asset purchases by the Eurosystem. The reduction in Finnish government securities may have preceded that in Dutch government securities because of smaller issuance. Austrian government securities also became scarcer in 2016 but supply in the TPR market recovered before contracting decisively in 2019.

Figure 17 – The shares of minor core eurozone government securities used as collateral in TPR managed by most participating agents

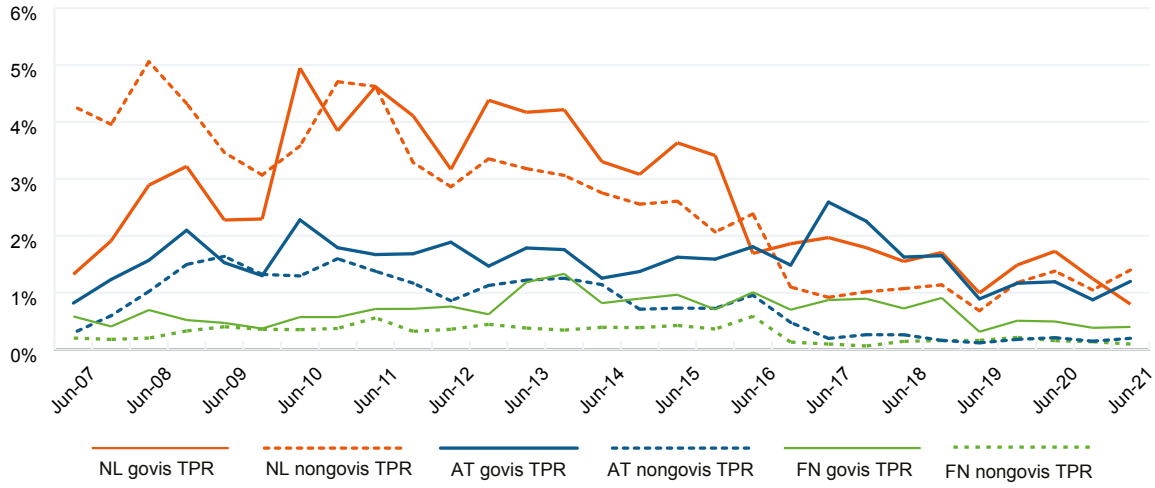


Source: ICMA survey.

It has usually been the case among minor core eurozone securities that, since the GFC, government fixed-income securities have predominated as TPR collateral over non-government issues, particularly in the case of Austrian securities during 2016-18. Dutch non-government securities were an exception prior to the GFC but have fallen from a high of 5.1% in June 2008 to around 1%, dropping sharply in June 2016. This is despite healthy levels of corporate bond issuance (issuance peaked in the second-quarter of 2020).

The lesser proportion of non-government bonds in TPR collateral issued by Finland and the Netherlands may be consistent with the fact that non-government securities in these countries provide a relatively high proportion of securities deemed to be HQLA and so there may be greater competition from other uses.

Figure 18 – The shares of minor core eurozone government versus non-government securities used as collateral in TPR managed by most participating agents



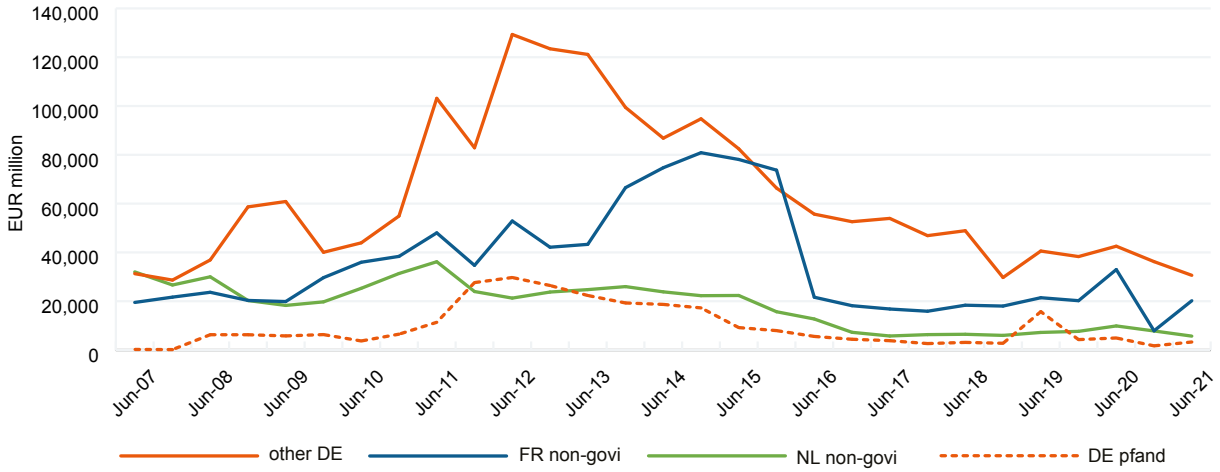
Source: ICMA survey.

Core eurozone non-government securities

The scarcity of German government securities in TPR was offset to some degree, not only by the increased allocation of other core eurozone government securities but also by **German non-government securities** (see Figure 19. Indeed, German non-government securities have usually exceeded government securities as TPR collateral, peaking at EUR 159 billion in total in June 2012 during an expansion in eurozone corporate bond issuance. However, the allocation of German non-government securities then declined sharply and in advance of the reduced supply of German government securities to about EUR 33 billion in December 2018, despite issuance growing until 2019.

In contrast, the use of **French non-government securities** as TPR collateral increased in step with that of French government securities but has not been quite as important. The surge in the allocation of French non-government securities from 2013 to 2015 did not coincide with increased corporate bond issuance, although the spike in June 2020 did. The drop in the allocation of French non-government securities in 2016 coincided with the start of the Eurosystem's Corporate Securities Purchase Programme (CSPP), although this assumes the CSPP was anticipated, as the CSPP only started operations on 6 June 2016 and the TPR data was for 8 June.

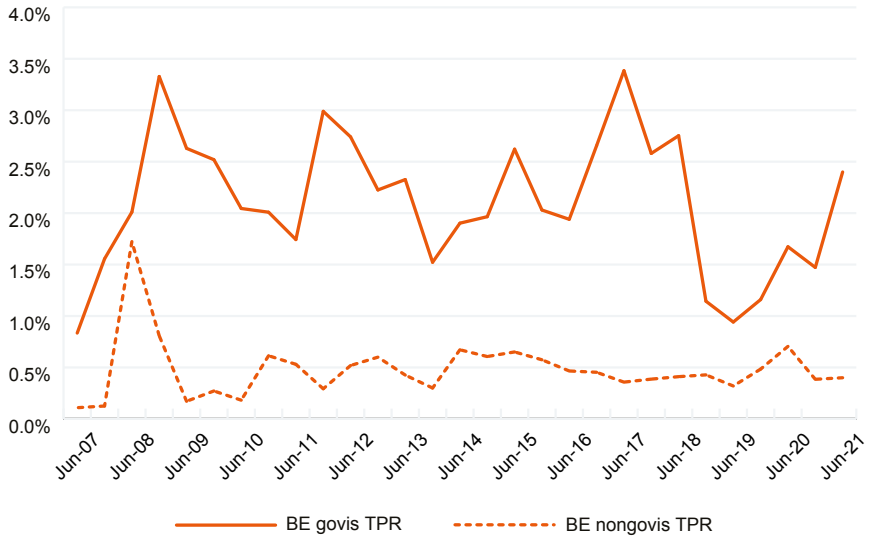
Figure 19 – The outstanding values of major core eurozone non-government securities used as collateral in TPR managed by most participating agents



Source: ICMA survey.

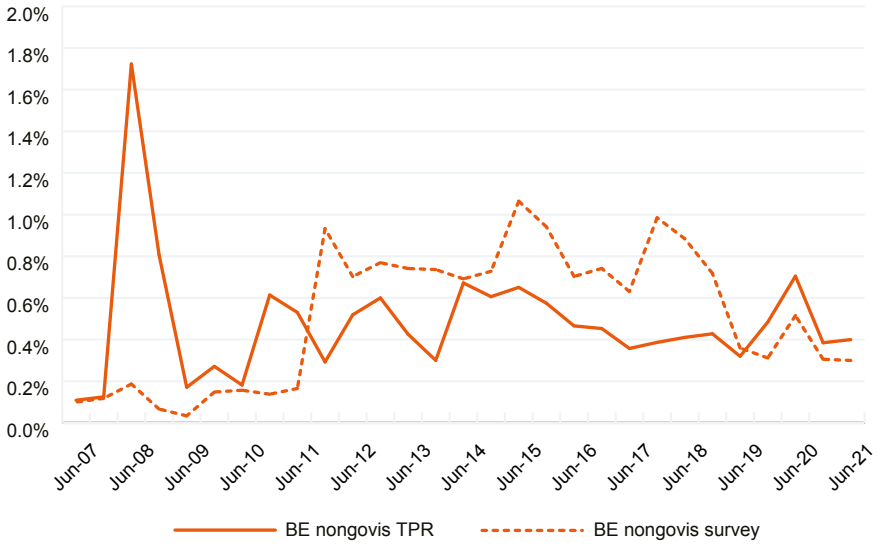
Unlike other minor core eurozone issues, the share of Belgian government securities in TPR has always exceeded that of **Belgian non-government fixed-income securities** (see Figure 20), which have been under-weight in TPR compared with the ICMA survey since the eurozone sovereign debt crisis and until 2019 (see Figure 12). This likely reflects the relatively small size of the Belgium corporate bond market. The spike in TPR allocation in June 2020 coincided with the Covid-driven surge in corporate bond issuance.

Figure 20 – The shares of Belgian government versus non-government securities used as collateral in TPR managed by most participating agents



Source: ICMA survey.

Figure 21 – The shares of Belgian non-government securities used as collateral in TPR managed by most participating agents and in the ICMA survey



Source: ICMA survey.

Major peripheral eurozone government securities

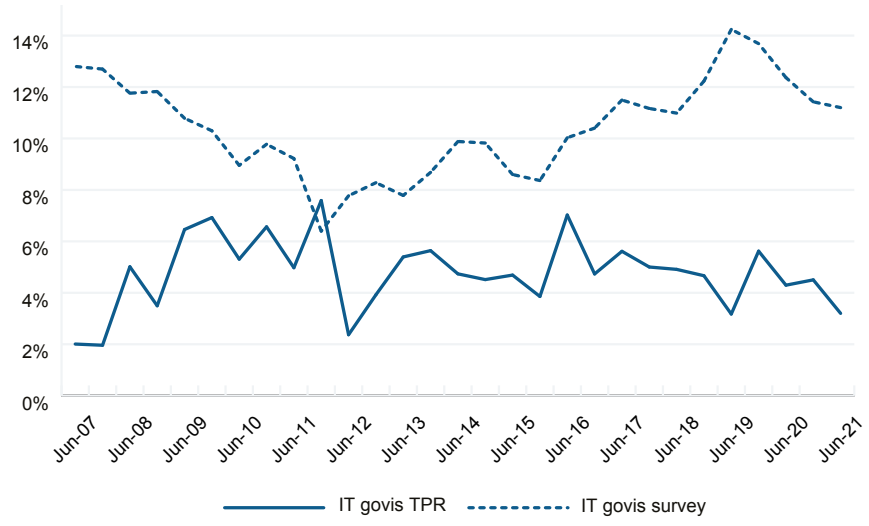
Peripheral eurozone government securities have usually been under-weight in TPR. In the case of Italian and Spanish government securities (see Figures 22 and 24), a key reason may be the fact that these securities are largely owned by domestic investors, who tend to deposit holdings in the national CSDs. To use these securities as collateral in TPR, they first have to be moved out of the national CSDs, usually via local custodians, to accounts accessible by the TPR agents, who are ICSDs and global custodians. Frictions in cross-border settlement, including a lack at the CSDs in Italy and Spain of automatic securities lending facilities to mitigate temporary shortages of collateral, make such movements inconvenient and more prone to settlement failures.

In the aftermath of the GFC, **Italian government securities** drained out of the bilaterally-managed repo market (as proxied by the ICMA survey) because of concerns over Italy's solvency. The share of Italian government securities in the survey fell to a record low of 6.7% in December 2011 from a record high of 18.5% in December 2002. Confidence was then hit by the eurozone sovereign debt crisis until the flight from peripheral eurozone securities was stemmed in both TPR and the wider repo market by the commitments made by the Eurosystem. These included the first two LTROs, the announcement of the Open Market Transactions (OMT) programme in March 2012 and the ECB President's statement in July 2012 that the Eurosystem was "ready to do whatever it takes to preserve the euro". However, the allocation of Italian government securities as collateral in TPR continued to slide, possibly helped by the increased funding needs of Italian banks following their early repayment of the first two LTROs.

The use of Italian government bonds in the wider repo market continued to recover until 2019 as a result of further supportive actions by the Eurosystem, including TLTRO I in June 2014, Draghi's speech at Jackson Hole in August 2014, which presaged QE, and the actual launch of QE in 2015. In contrast, the allocation of Italian government securities in TPR continued to shrink and was accelerated in 2016 following the introduction of QE (Figure 22).

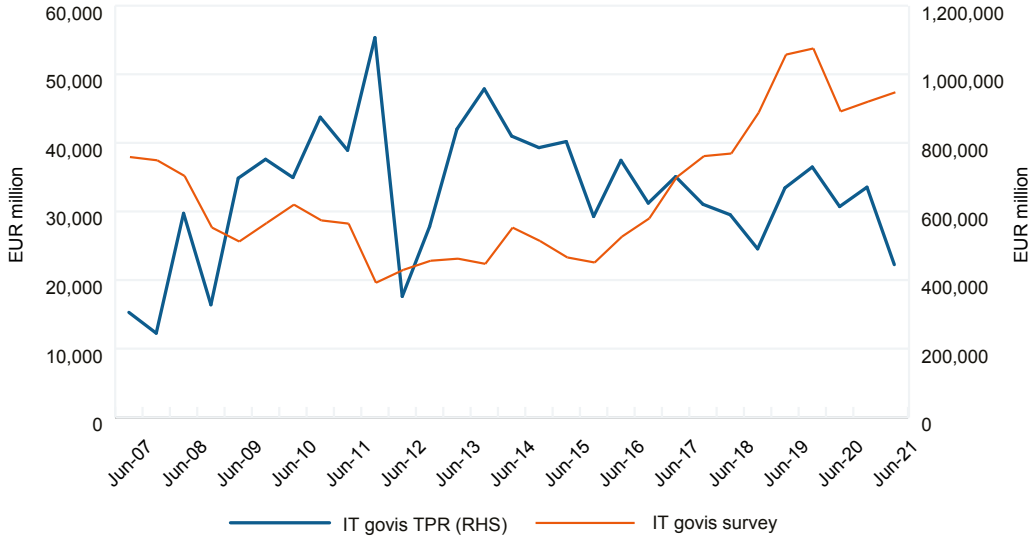
As discussed earlier, the effect of QE has been to move the repo away from GC trading towards specials trading. From the second-half of 2016, the repo rates of Italian (and Spanish) government securities followed those of core eurozone government issues in falling rather than rising at end-quarter, in other words, they were also tending to trade special.

Figure 22 – The shares of Italian government securities used as collateral in TPR managed by most participating agents and in the ICMA survey



Source: ICMA survey.

Figure 23 – The outstanding values of Italian government securities used as collateral in TPR managed by most participating agents

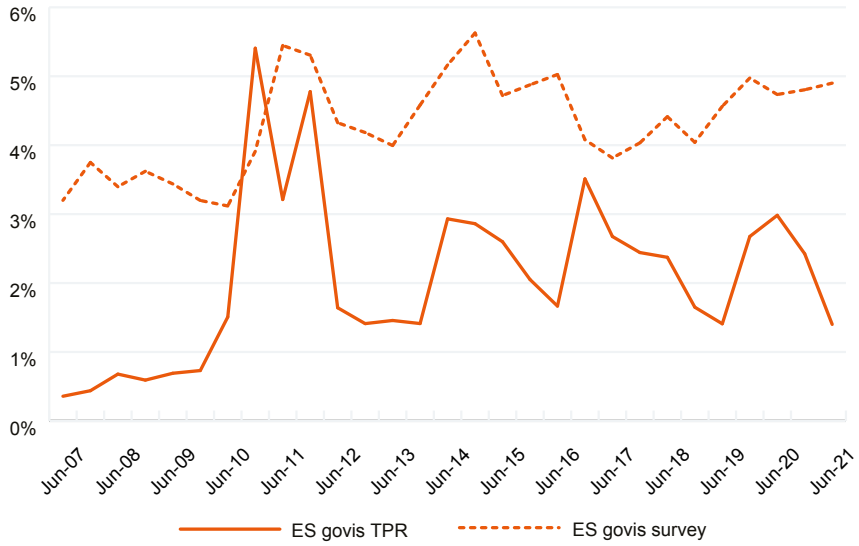


Source: ICMA survey.

In contrast to other markets, the Covid-induced 'dash for cash' did not seem to bolster the markets for Italian collateral as measured in June 2020 survey, perhaps because Italian banks were already flush with cash or preferred central bank liquidity. However, use of Italian collateral appears to have been boosted subsequently, perhaps reflecting increased issuance and the restoration of confidence in peripheral eurozone economies by official stimuli to mitigate the impact of the pandemic.

Spain is another repo market dominated by domestic investors and is under-represented in European TPR (see Figure 24). An exception to this situation was seen following the GFC, when Spanish banks made a concerted effort to shore up their liquidity, leading to a surge in the allocation of Spanish securities (both government and non-government) in TPR before usage was hit by the local savings bank crisis in 2012.

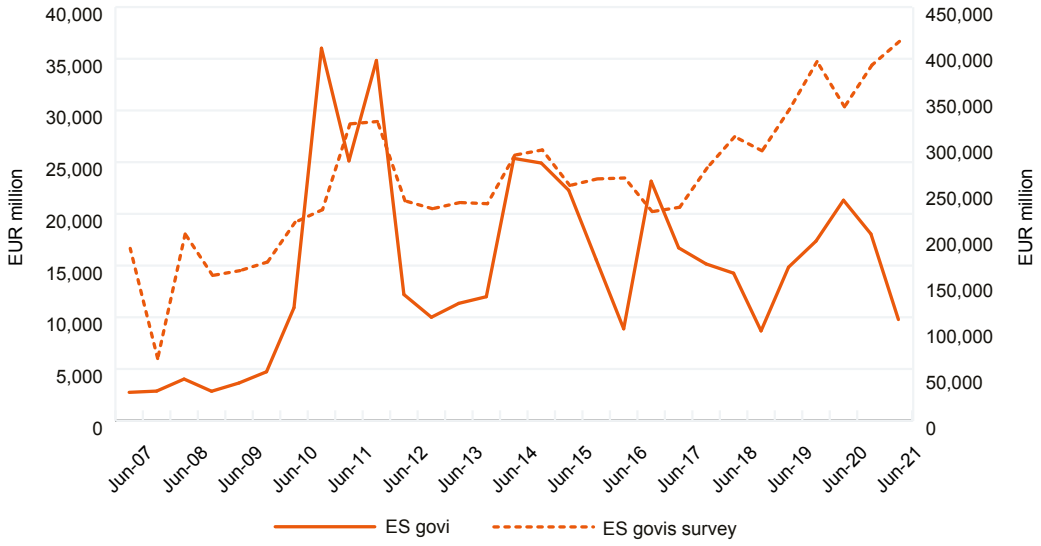
Figure 24 – The shares of Spanish government securities used as collateral in TPR managed by most participating agents and in the ICMA survey



Source: ICMA survey.

The allocation of **Spanish government securities** as a share of TPR collateral dropped again in 2016, probably as a result of Eurosystem purchases under QE (note the evidence for greater specialness in Spanish government securities in end-quarter repo rates). However, in terms of amounts, usage peaked in June 2014, December 2016 and June 2020. The last occasion was at the time of the 'dash for cash' triggered by the Covid market turmoil. The first peak follows Spain's exit from its EU and IMF bailout programmes. The middle peak might be better viewed as the result of an immediate switch of Spanish government securities from TPR into QE.

Figure 25 – The outstanding values of Spanish government securities used as collateral in TPR managed by most participating agents



Source: ICMA survey.

Minor peripheral eurozone government securities

Among smaller peripheral eurozone government securities, the impacts of the GFC and the eurozone sovereign debt crisis are clear, particularly for Greece, following its call for an EU financial assistance programme in May 2010 (Figure 26). In the case of Greek government securities, TPR allocation fell by 85% in the first-half of 2010. By December 2011, it had fallen by 98% from its 2009 peak.

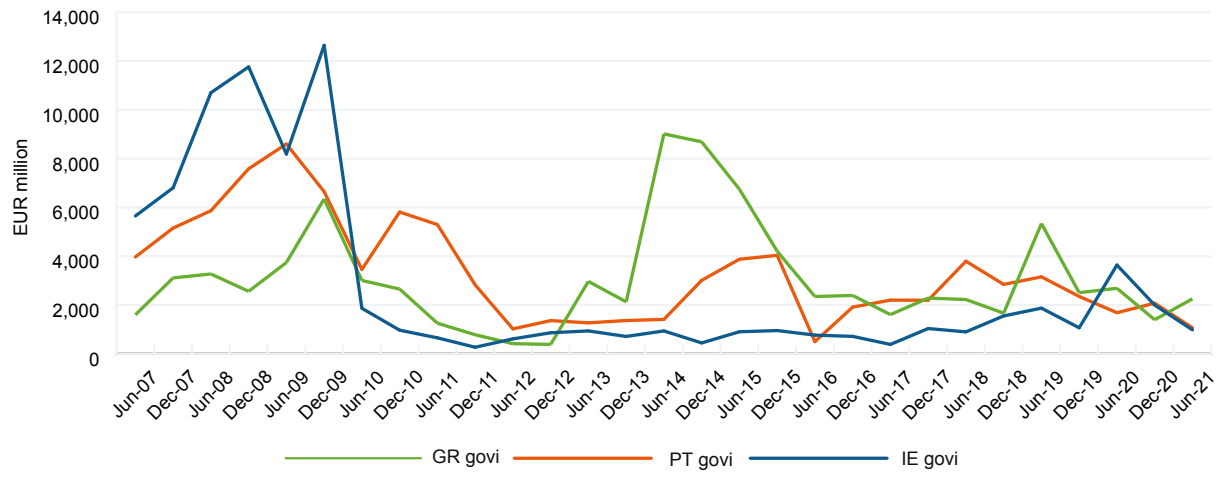
The allocation of **Greek government securities** in TPR started to recover in the second-half of 2017. It reached a 10-year peak in June 2020 following a sharp rise in bond prices during 2019, which may have encouraged their increased use as TPR collateral during the Covid-induced 'dash for cash', notwithstanding a partial rebound in bond yields during the market turmoil. However, Greek government securities have been the last eurozone securities to recover and their share has yet to breach 0.3% of all agent TPR compared to a peak of 2.5% in June 2008.

The significant recovery in the TPR allocation of **Irish government securities** in June 2013 followed the return of the Irish government to the capital markets in July 2012. A jump in allocation in June 2014 coincided with a ratings upgrade for Ireland back to A-.

The use of **Portuguese government securities** in TPR increased in December 2014, after Portugal's exit from its EU bailout programme in July 2014. However, the recoveries in Irish and Portuguese government securities appear to have been interrupted by increased global political uncertainty in 2016.

The crowding-out effect of QE on TPR from 2015 is apparent for the minor eurozone government securities, as is the reverse effect of the temporary cessation of net asset purchases by the Eurosystem from the end of 2018.

Figure 26 – The outstanding value of other peripheral eurozone government securities used as collateral in TPR managed by most participating agent



Source: ICMA survey.

Peripheral eurozone non-government securities

The allocation of peripheral eurozone non-government securities as TPR collateral has been mixed. This type of security has been relatively unimportant in the case of Greek, Italian and Portuguese collateral but occasionally significant in Spanish collateral and systematically significant in Irish collateral (see Figures 27 and 28).

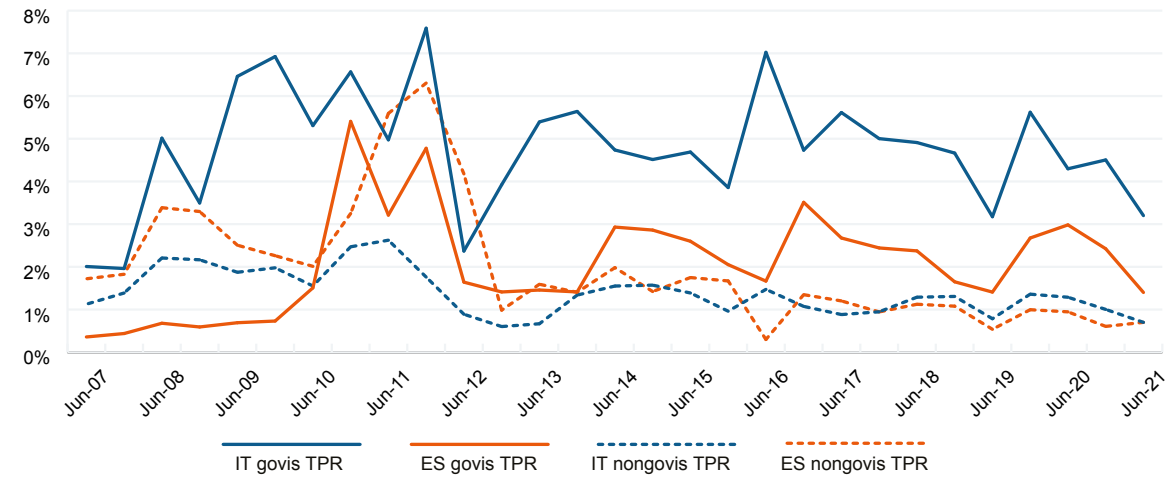
Non-government securities (probably covered bonds self-issued and retained to use as collateral with the Eurosystem) were particularly important as TPR collateral for Spanish banks during the eurozone sovereign debt

crisis and before the savings bank crisis (peaking at about EUR 45 billion in December 2011 compared to EUR 35 billion for government securities). Increased allocation also coincided with a spike in corporate bond issuance.

Irish non-government securities have typically been more important than government securities (as high as 4.6% of total TPR collateral in June 2008) until 2014, when the allocation of government securities increased. Non-government securities have been relatively more important in Ireland than in many other eurozone countries.

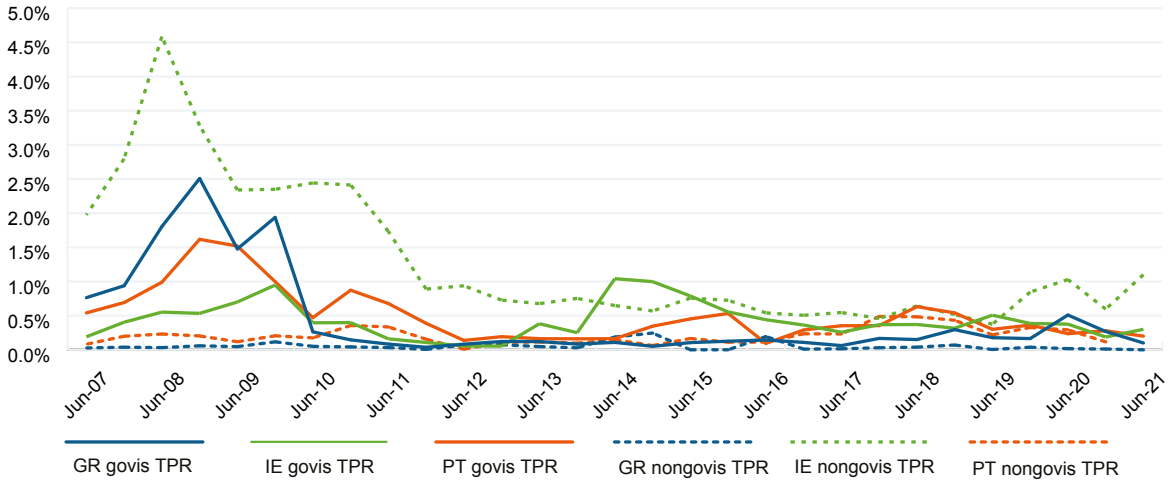
In contrast, in Italy, use of non-government securities as TPR collateral peaked at EUR 20 billion compared to EUR 55 billion for government securities. But following QE, the importance of Italian government securities has dwindled down to the same level as Italian non-government securities.

Figure 27 – The outstanding value of major peripheral eurozone non-government securities used as collateral in TPR managed by most participating agents



Source: ICMA survey.

Figure 28 – The outstanding value of minor peripheral eurozone non-government securities used as collateral in TPR managed by most participating agents



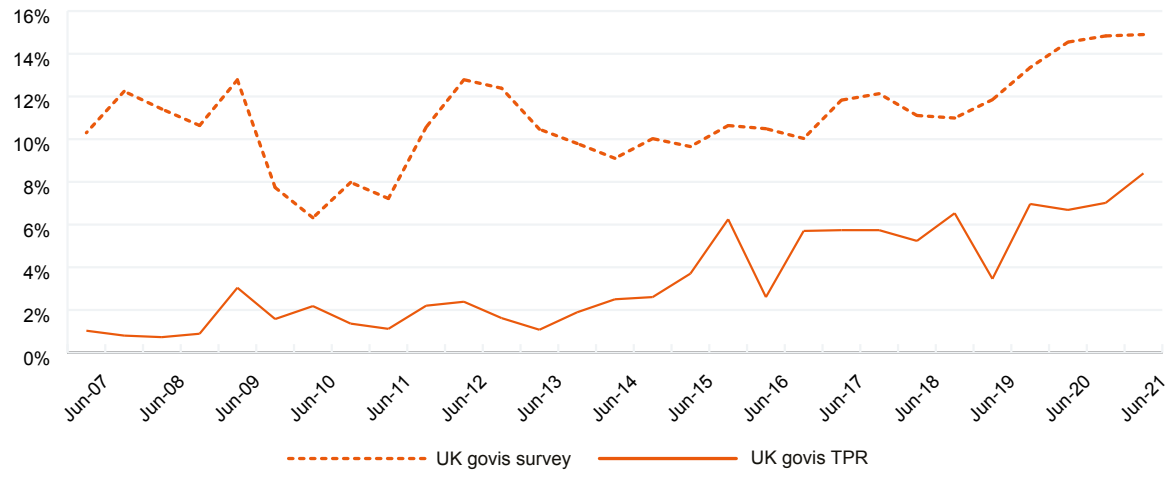
Source: ICMA survey.

The mixed picture in respect of the use of peripheral eurozone non-government securities as TPR collateral may reflect differences in the importance of the underlying bond markets across these countries and in the impact of post-crisis recessions on corporate bond issuance. In the case of Spanish and Irish non-government securities, greater use as TPR collateral could also have reflected lower 'wrong-way' risk (that is, correlations between the credit risks of counterparties and collateral) compared to other peripheral eurozone countries, making Spanish and Irish non-government securities relatively more acceptable as collateral. And in the case of Irish non-government securities, the fact that they constitute a relatively high proportion of Irish HQLA may have boosted their acceptability as collateral (although this factor appears to have taken non-government securities out of TPR in other countries).

Non-eurozone securities

UK securities have been chronically under-weight in TPR compared to the bilaterally-managed repo market (see Figure 29). Some of this may reflect competition from the well-established domestic tri-party system, DBV (Delivery By Value). DBV is operated by Crest, which is owned by a subsidiary of one of the ICSDs, Euroclear UK and Ireland, but operates separately from the rest of that ICSD. DBV data are not included in the European TPR universe as reported by the principal agents. The Bank of England estimated that, from June 2016 to 11 May 2020, only about 1% of UK government securities were allocated to non-DBV TPRs.[30] As noted already, DBV could add EUR 200-300 billion to the TPR data, which would transform the picture of sterling TPR against UK government securities. DBV is reported to have been growing strongly since 2016.

Figure 29 – The shares of UK government securities used as collateral in TPR managed by most participating agents and in the ICMA survey



Source: ICMA survey.

The decline shown in Figure 29 in the allocation of UK government securities after the GFC in both TPR and the ICMA survey may reflect the impact of QE in the form of the Bank of England's Asset Purchase Facility (APF) introduced in January 2009. However, the impact of QE on holdings of UK government securities was moderated by increased issuance, which also satisfied the stronger demand for gilts by UK banks to meet regulatory pressure to hold more liquid assets.[31]

The surge in growth of UK government securities as TPR collateral from December 2013 to December 2015 coincided with reports of renewed buying by foreign investors.

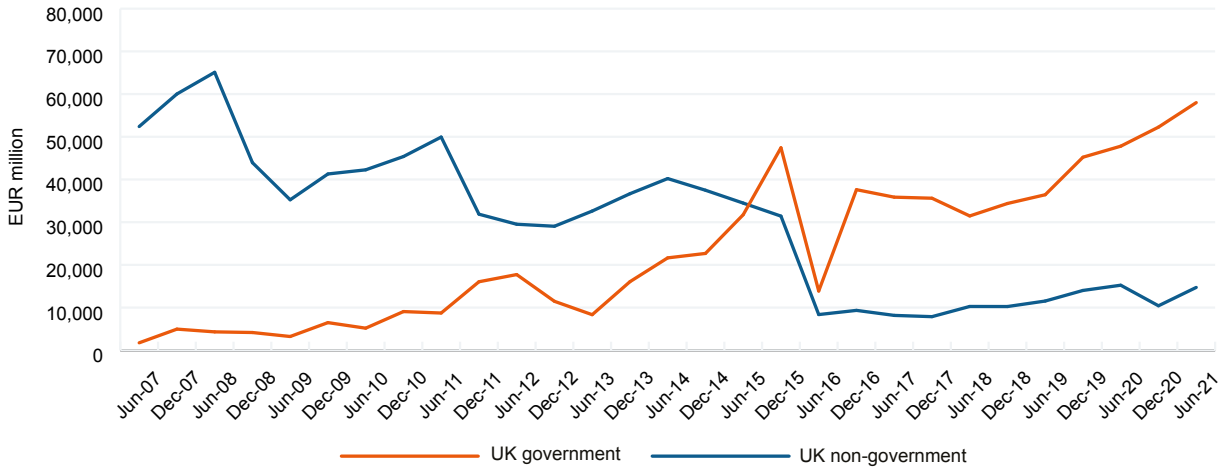
30 Huser et al, How do Secured Funding Markets Behave under Stress?, Bank of England Staff Working Paper No.910, February 2021.
31 Breedon et al, The Financial Market Impact of UK Quantitative Easing, BIS paper No,65, 2012.

An interesting feature of UK collateral in TPR is the predominance, until December 2015, of non-government securities, as shown in Figure 30. The UK has a significant corporate debt market. However, the supply of these securities was hit by asset purchases by the Bank of England in 2009 and again in 2012.

In June 2016, prior to the Brexit referendum, there was a sudden drop in the use of UK non-government securities as TPR collateral. This coincided with a drop in the allocation of UK government securities in TPR and reduced allocation of UK securities in the ICMA survey. It seems likely that both drops were triggered by political uncertainty around the referendum, resulting in reduced trading.

The impact of the referendum, reinforced by uncertainty over the direction of monetary policy and changes in regulation, depressed the repo market in UK government securities until the end of 2018, after which the allocation of UK government securities in both TPR and the survey recovered most of the lost ground fairly quickly. However, the recovery in the use of UK non-government securities was more muted.

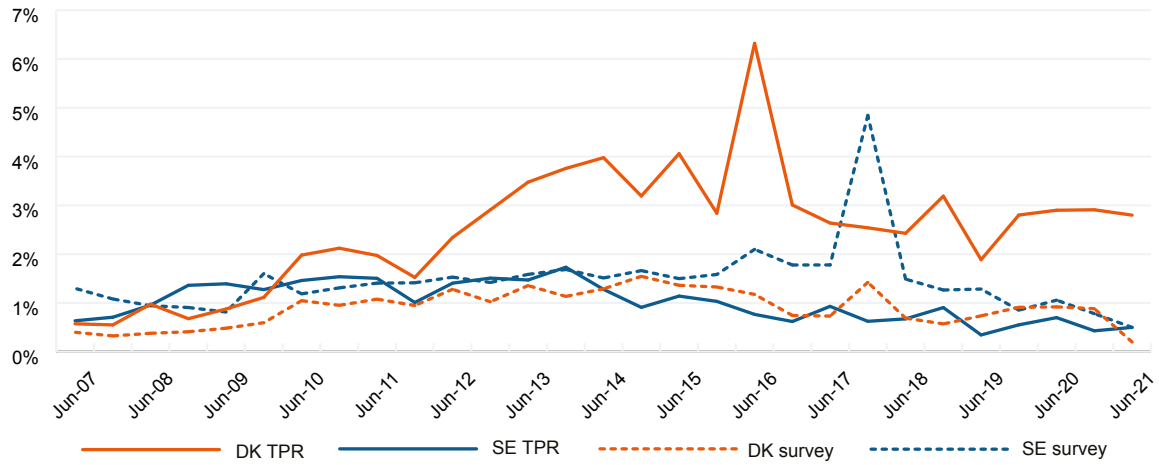
Figure 30 – Composition of outstanding tri-party repo collateral issued in the UK that is managed by most participating agents



Source: ICMA survey.

Danish fixed-income securities are over-weight as TPR collateral compared with their share in the ICMA survey but the shares of **Swedish** fixed-income securities in TPR and in the survey have generally been aligned since 2015.

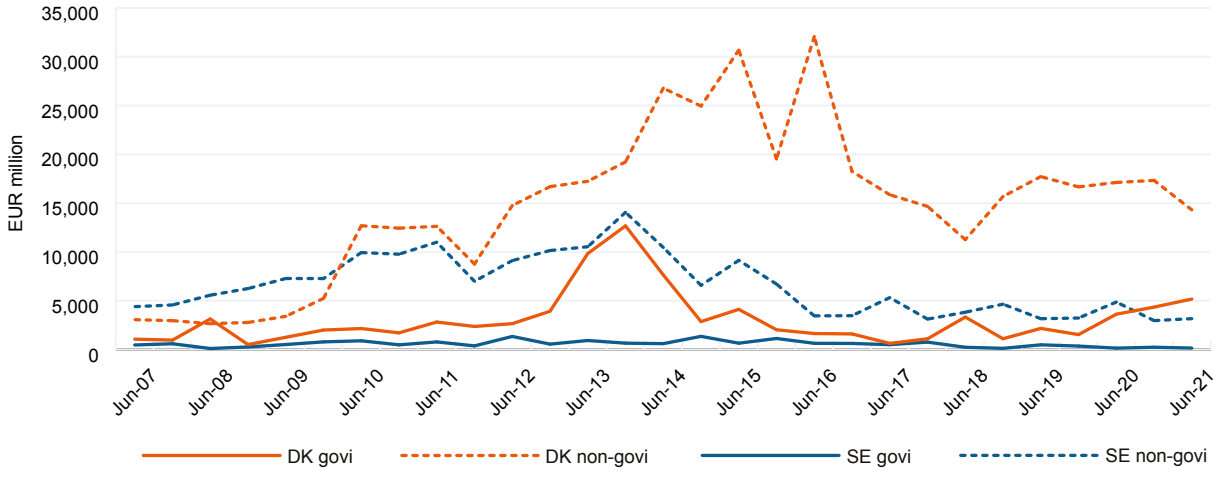
Figure 31 – The shares of Danish & Swedish securities used as collateral in TPR managed by most participating agents and in the ICMA surve



Source: ICMA survey.

In Denmark, non-government fixed-income securities have been of far greater importance as TPR collateral than government securities since the eurozone sovereign debt crisis, peaking in 2015-16. This reflects the importance of mortgage-backed issues in Denmark, which also explains why Danish fixed-income securities in general are over-weight in TPR. However, Danish government securities temporarily became more important in 2013-14, perhaps because of the spill-over of concerns from the eurozone sovereign debt crisis (even though Denmark is not in the eurozone, its currency is pegged to the euro). In Sweden, non-government securities as a whole have played a similar role as in Denmark but corporate bonds are likely to have had a bigger role, given the comparative size of the corporate bond market in Sweden.

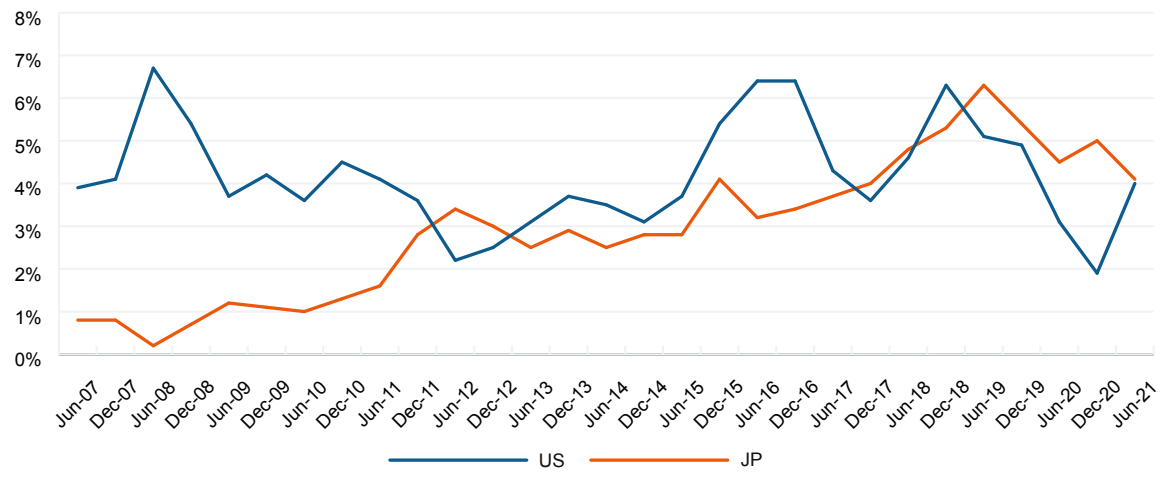
Figure 32 – Composition of outstanding tri-party repo collateral issued in Denmark and Sweden that is managed by most participating agents



Source: ICMA survey.

Figure 33 below shows how **Japanese** collateral has accounted for a growing share of TPR collateral in Europe since the GFC, in part, because Japanese government bonds (JGBs) have been viewed as safe assets but also because of increased trading in response to portfolio diversification by investors and therefore greater availability in Europe but sometimes in response to cross-currency arbitrage opportunities. This likely explains the spikes in the use of Japanese collateral in 2011-2012 and December 2015, which coincided with drops in dollar-yen cross-currency basis swap spreads. Japanese collateral in European TPR has primarily been JGBs, although some eurobond collateral issued in the APAC region may have been issued by Japanese firms.

Figure 33 – The shares of Japanese & US securities used as collateral in TPR managed by most participating agents and in the ICMA survey

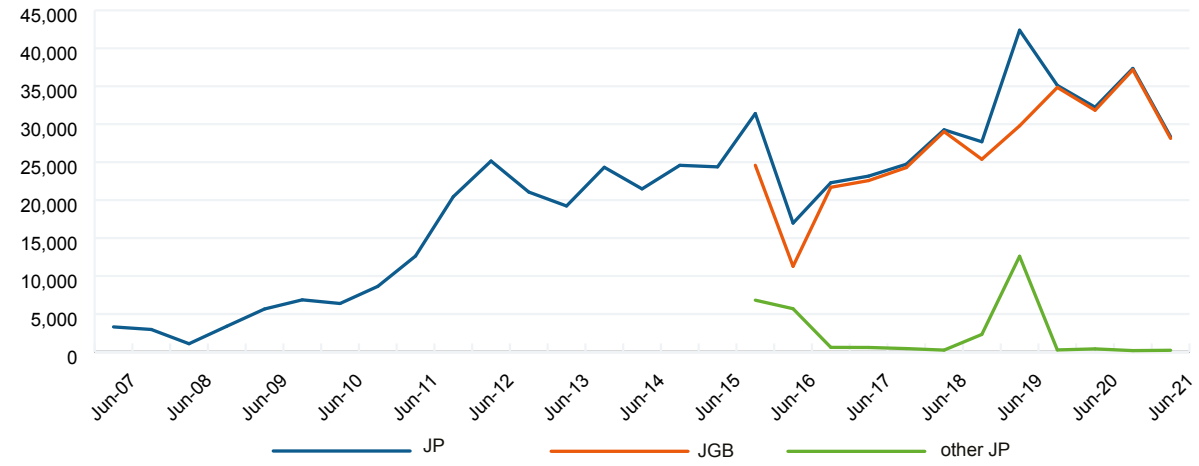


Source: ICMA survey.

The evolution of the share of **US** collateral in European TPR has been erratic, with peaks in 2008, 2016 and 2018, largely reflecting US dollar strength. The share of US collateral was depressed during the GFC and eurozone sovereign debt crisis, and since the Covid market turmoil, because of hoarding by investors seeking safe assets.

The value of US collateral in TPR is much lower than the amount of US dollars borrowed. A lot of US dollar TPR are thought to be cross-currency (dollar cash versus European collateral) and it has been noted already that global custodians specialise in cross-currency TPR. On the other hand, it needs to be remembered that most eurobonds are issued in dollars.

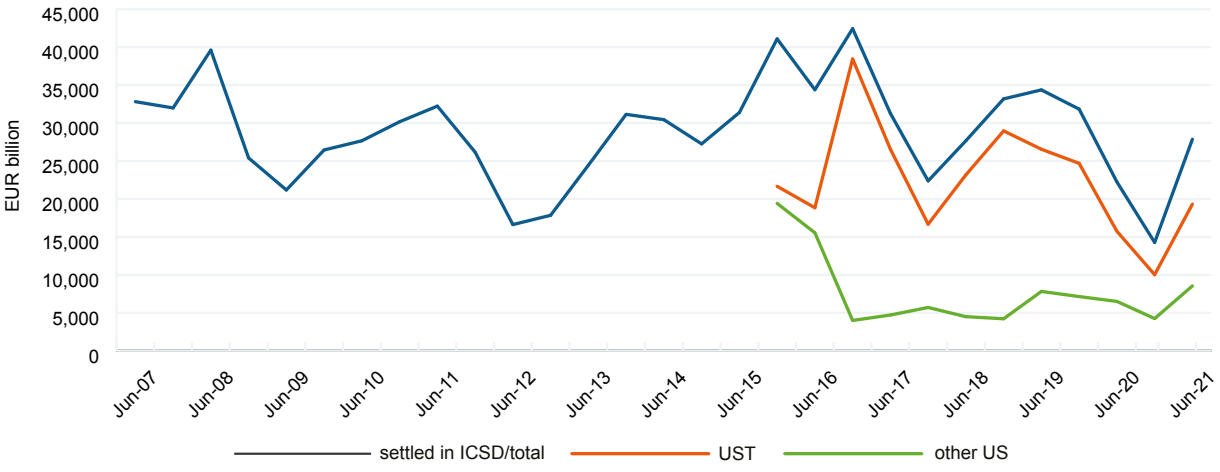
Figure 34 – Composition of outstanding tri-party repo collateral issued in Japan that is managed by most participating agents



Source: ICMA survey.

As with Japanese fixed-income collateral in European TPR, the principal type of US fixed-income collateral has been US Treasuries. **US non-government securities** have been a minor source of TPR collateral in Europe and are likely to have been limited to so-called Regulation S and Regulation 144a securities (private placements).

Figure 35 – Composition of outstanding tri-party repo collateral issued in the US that is managed by most participating agents



Source: ICMA survey.

Appendix F: 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 who transacts repo and associated collateral business in Europe, 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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