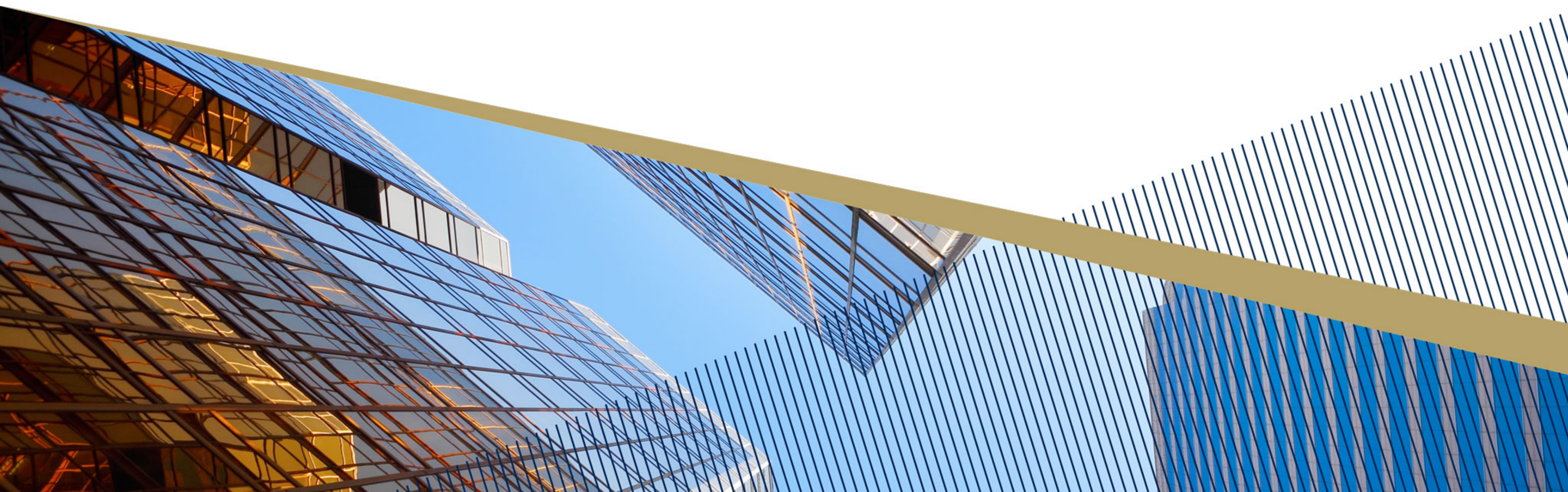
ICMA European Repo and Collateral Council Annual General Meeting

20 March 2017, Zurich



Welcome

- **Mr. Martin Scheck**, Chief Executive, International Capital Market Association

Remarks by the Chairman of ICMA's ERCC Committee

- **Mr. Godfried De Vidts**, Chairman of ICMA's ERCC Committee

ICMA ERCC Committee 2017-2018

Michael Manna	Barclays Capital Securities Limited
Emma Cooper	Blackrock Investment Management (UK) Limited
Eugene McGrory	BNP Paribas
Godfried De Vidts (Chairman)	BrokerTec Europe Limited, London
Grigorios Markouizos (Vice-Chair)	Citigroup Global Markets Limited
Andreas Biewald	Commerzbank Aktiengesellschaft
Michel Semaan	Crédit Agricole Corporate and Investment Bank
Romain Dumas	Credit Suisse Securities (Europe) Limited
Ronan Rowley	Deutsche Bank AG
Johan Evenepoel	Euroclear Bank S.A./N.V.
Jean-Michel Meyer	HSBC Bank PLC
Nicola Danese	J. P. Morgan Securities plc
Daniel Bremer	Merrill Lynch International (trading as Bank of America Merrill Lynch)
Thomas Wells	Morgan Stanley & Co. International PLC
Paul van de Moosdijk	PGGM Vermogensbeheer B.V.
Sylvain Bojic	Société Générale S.A.
Richard Hochreutiner	Swiss Reinsurance Company Ltd
Gareth Allen	UBS Limited
Eduard Cia (Vice-Chair)	UniCredit Bank AG

European Repo Market: Views from the buy-side

- **Mr. Paul van de Moosdijk**, Senior Treasury Manager, PGGM

European Repo Market: Views from the buy-side

PGGM

20-03-2017

Paul van de Moosdijk

Buy side membership: ERCC

- PGGM member of the ERCC
- Why is buy-side important?

Agenda

- ✓ Introduction
- ✓ Market & Regulation
- ✓ Liquidity risk
- ✓ Repo markets
- ✓ Alternatives
- ✓ Solutions

- PGGM: A Dutch asset manager for Pension Fund Clients
  - Responsibility for providing adequate old age pension, and hence responsible for paying retirement income;
  - pension funds are long term investors and minimize their allocation to cash in order to maximize the efficiency and the return;
  - leverage not allowed by Dutch Law;
  - large directional derivative positions to hedge liabilities as required by law (coverage ratio). Where swaps are used this requires cash!

Regulation & changing market circumstances

- Mar ´17 Required exchange Varation Margin OTC Derivatives
- “Aug ´18” Required Clearing Interest Rate Derivatives
- Sept ´20 Initial Margin apply with IM notional treshold (8bln)
- Changing market circumstances: capacity OTC market

Changing market circumstances

- EMIR category II: obligation to clear (21 may 2016)
- Capacity is shrinking in OTC derivatives market
- Banks are charging a higher cost
- Some banks are unwilling to trade

↓

General push towards to cash only Variation Margin

Cash only Variation Margin Problem

- Previously pension funds could use high quality government bonds (part of their investment portfolio) and cash as collateral margin for derivatives transactions.

- Clearing houses (CCPs) require to post cash as Variation Margin.

- Capital rules push banks to require cash only CSAs

We question the rationale of policy makers to give cash preference over high quality bonds: re-use risk

Liquidity & transformation Risk

- Currently the move in the market to cash only collateral margin for both cleared and non-cleared derivatives transactions causes sharply increased liquidity and costs

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A robust solution is required to access cash:

- Reliable upon in stressed market conditions.
- Avoid disproportionate risks and costs to pensioners.

✓ *Proposal EC exemption Pension funds to Aug '18*

Liquidity risk

In extreme circumstances are there sufficient balances?

Available

- Other
- Stocks
- Bonds
- Cash

Used for IM, but also transformation

Required

- FX Hedging
- Liability Hedging
- Commodities
- Initial Margining

Clearing members can raise to XX-YY%

Cash is key

- Focus on volatility of cash:
  - The ability to borrow or lend cash at any given point in time in any size
  - Higher amounts required
  - Shorter settlement cycles

- Alternatives
  - Sell return seeking assets to hold more cash
  - Stop using derivatives (not really an option)
    - The cost of a cash allocation -/-3.1% on pension income:
      - Europe Economics & Bourse consult
      - 200-250bln cash collateral requirements (interest shock of 100bps)
        - 420bln extreme scenario

Repo market
Developments

- Ability to transform collateral is required going forward: repo!
- Banks have a natural advantage over non-banks given they have access to central bank deposit facilities
- Impact various regulation such as:
  - Liquidity coverage ratio
  - Net Stable funding ratio
  - Leverage ratio

PGGM

Repo market

Developments

- All has contributed to higher capital cost and less liquidity and market making supply from the sell-side in the repo market to buy-side parties.
  - Market making & liquidity providing has never been a non-bank function

- Banks will allocate capacity to clients taking into account the overall value of the particular client relationship.
  - Buy-side are generally passive investors that generate little return;

Repo market
impact

- 2014: 12 counterparties to 4 (2016) counterparties
- Capacity of banks has reduced significantly and even worse during reporting periods
- Alternatives are difficult:
  - Deposits -> credit risk
  - MMFs -> gating
  - Short Term Govies -> yield & size
- Unable to trade the volatility of cash balances
  - large directional derivative positions

Quarter end I of 2017

- Notably more negative rates on
  - Short term government bond yields
  - Repo rates

- Availability
  - Questionable
  - Screens do not represent truth

↓

- Uncertainty!

Alternatives to the repo market

More counterparties	- Adding more counterparties (smaller cps that we dont know require more credit analysis
Peer-to-Peer	- Ability to assess credit risk appropriately - no daily market making
CCPs Cleared repo	- IM requirements - What about availability in times of stress
MMFs	- Gating - Credit risk
Short term Bonds	- Ticket size in the market declining (intraday depth) - Cost (yield spike & bid-offer)

Solutions

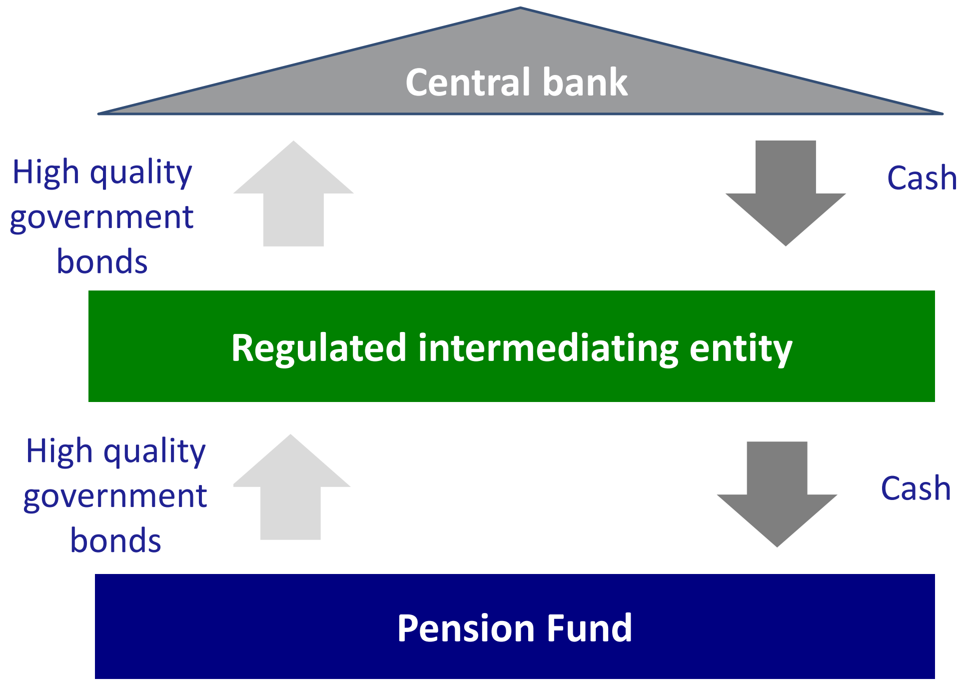
- Starting points:
  - ability to borrow or lend cash in any size at any given point in time.
  - Must be reliable in stressed market conditions
  - Should avoid material adverse impacts on pensioners : cost and risks

- Option: Pension funds posting high quality government bonds instead (or next to) cash as VM directly into clearing houses (CCPs).

Long Term Solution

- If option 1 is not possible, a robust collateral transformation solution that can be relied upon at all times is needed.

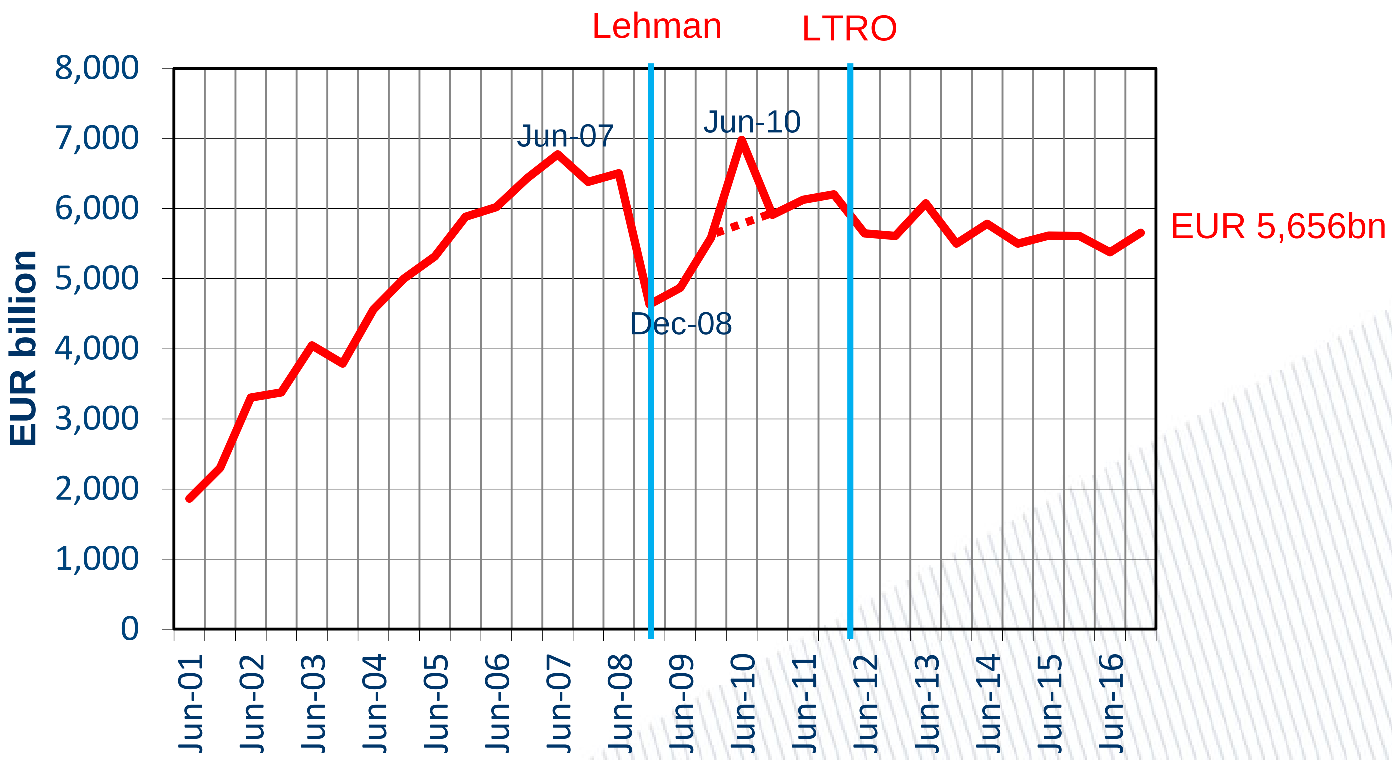
  Consequence: central bank help is needed in times of stress



Results of the 32nd semi-annual repo survey

- **Mr. Richard Comotto**, Senior Visiting Fellow, ICMA Centre

Headline numbers

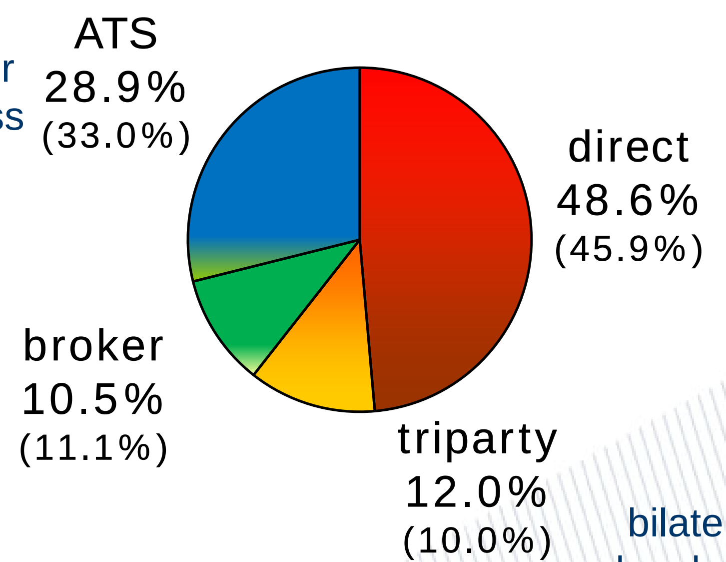


Comparable market growth

- headline number: +0.9% year-on-year; +5.2% since June 2016
- for 62 respondents participating in last 3 surveys: +0.8% year-on-year; +2.4% since June 2016

Trading analysis

automatic trading system (whether settled bilaterally or tri-party and/or cleared across CCP)

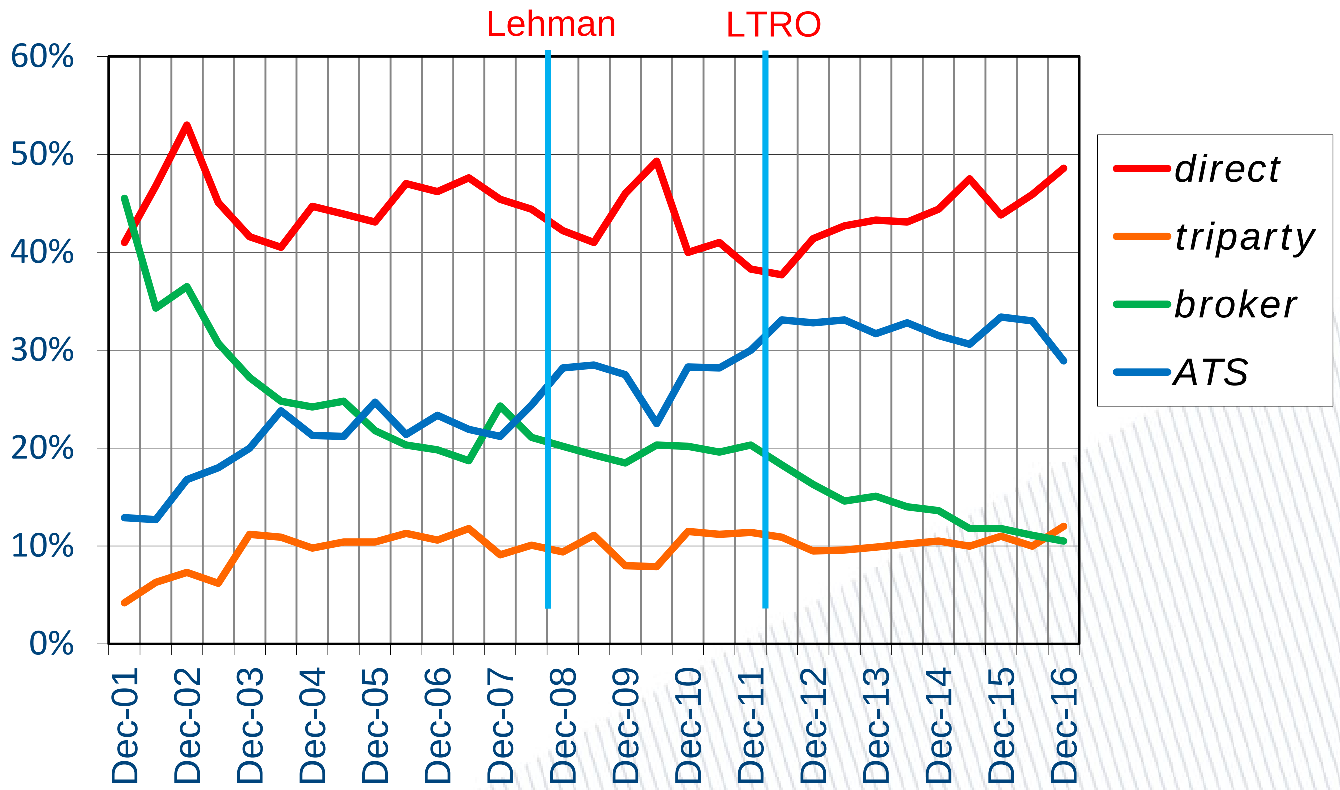


bilaterally-negotiated by phone or electronic messaging and bilaterally-settled

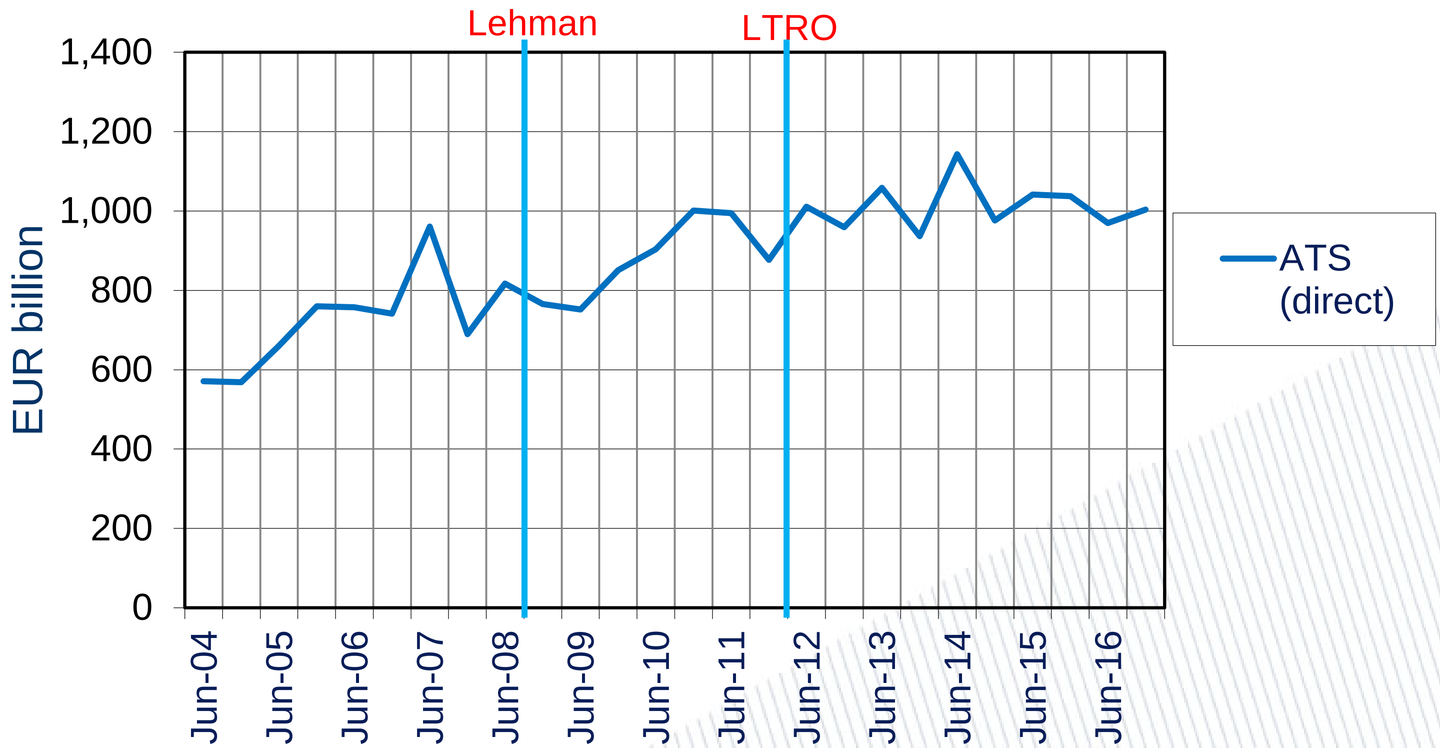
arranged by voice-broker and bilaterally-settled

bilaterally-negotiated by phone or electronic messaging and triparty-settled

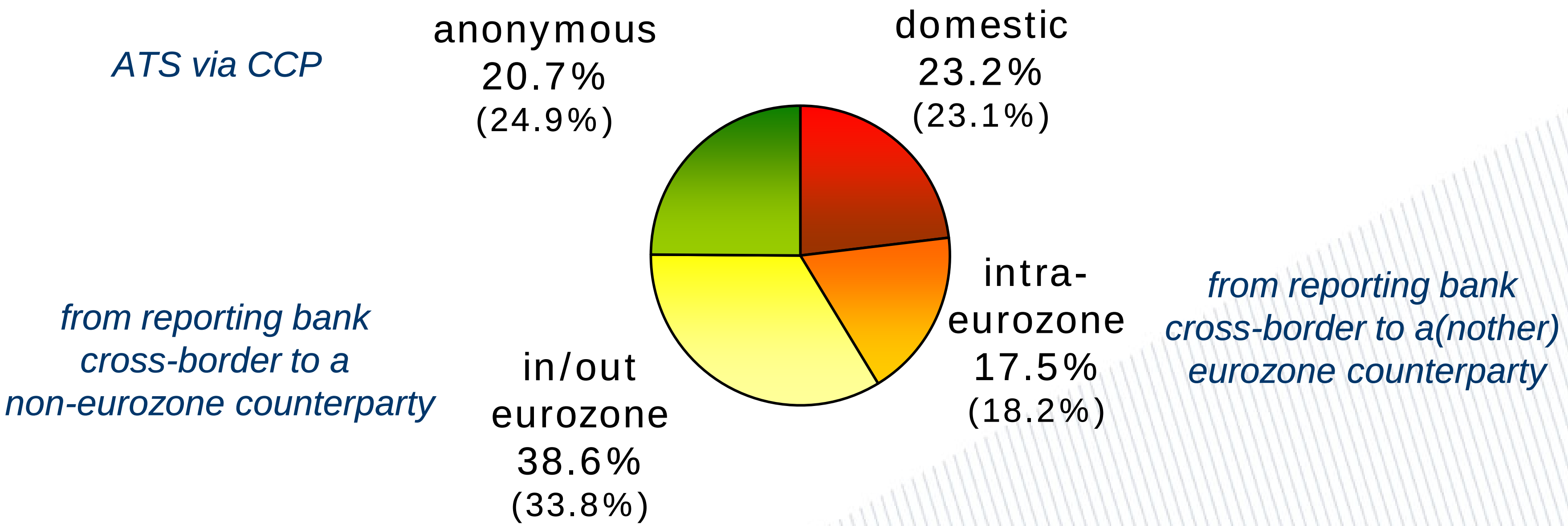
Trading Analysis



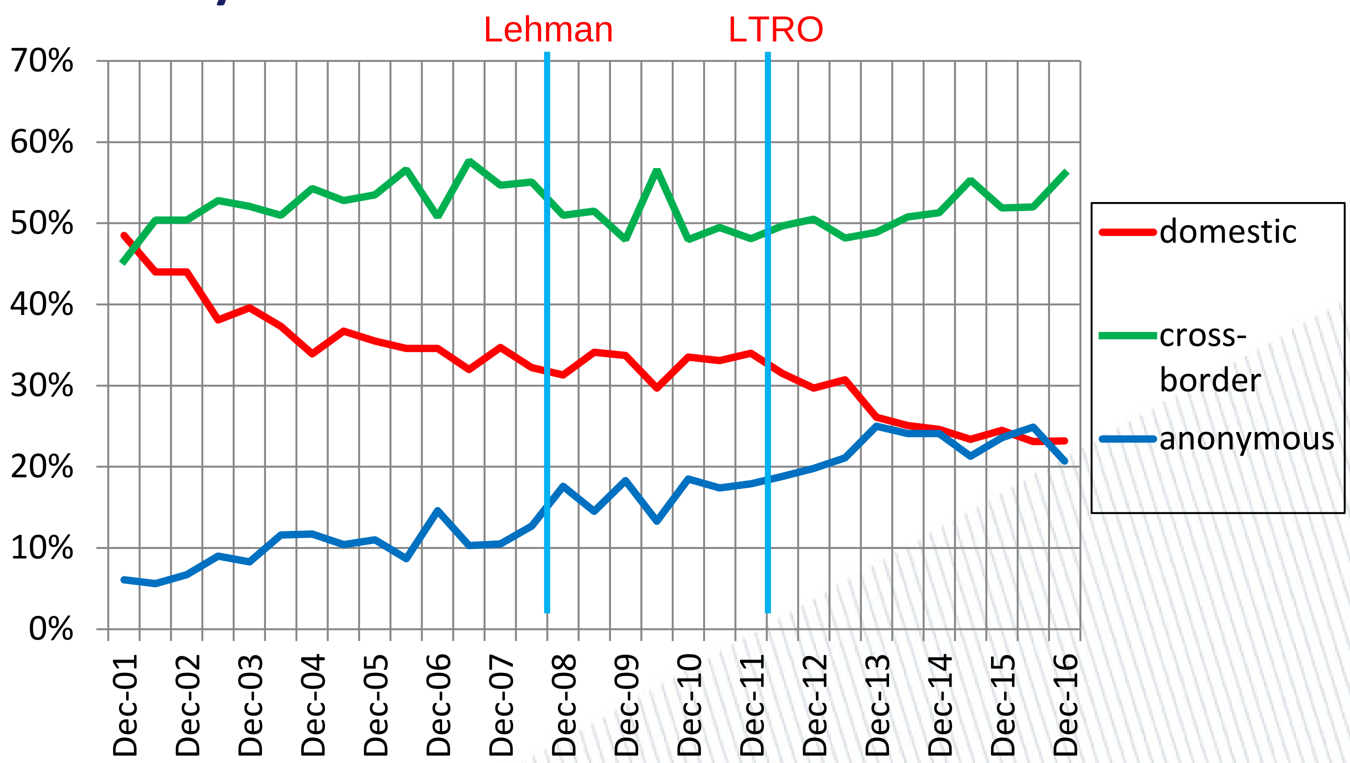
Trading Analysis (directly reported by providers)



Geographical Analysis



Geographical Analysis



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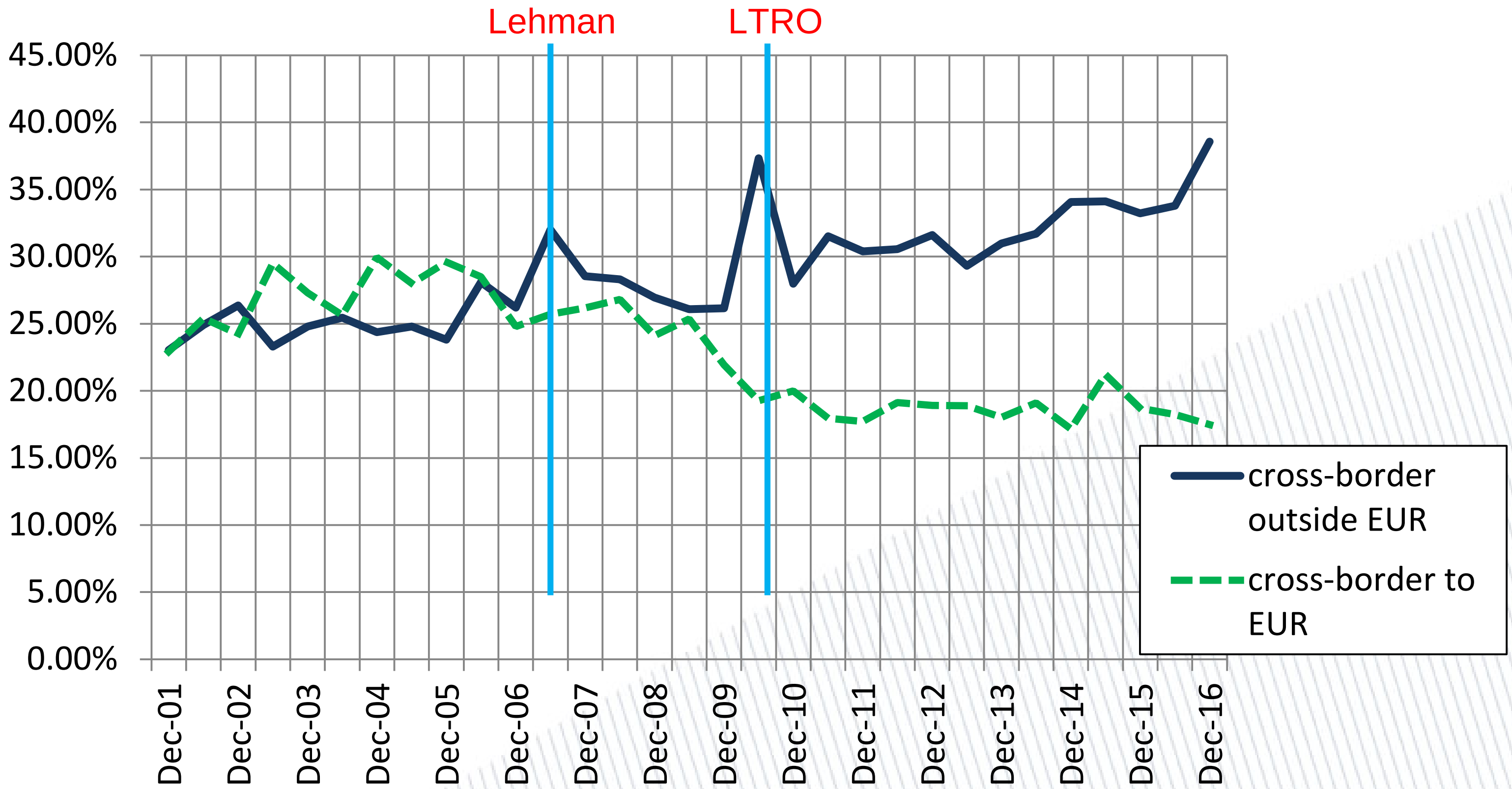

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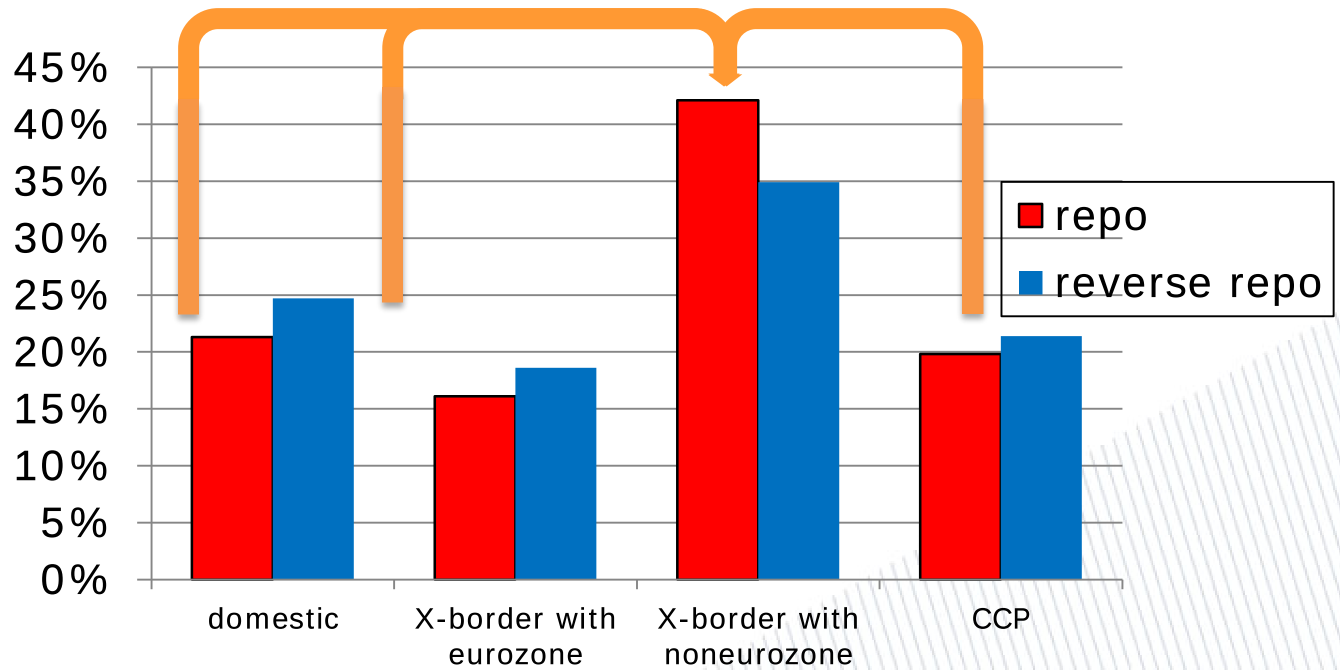
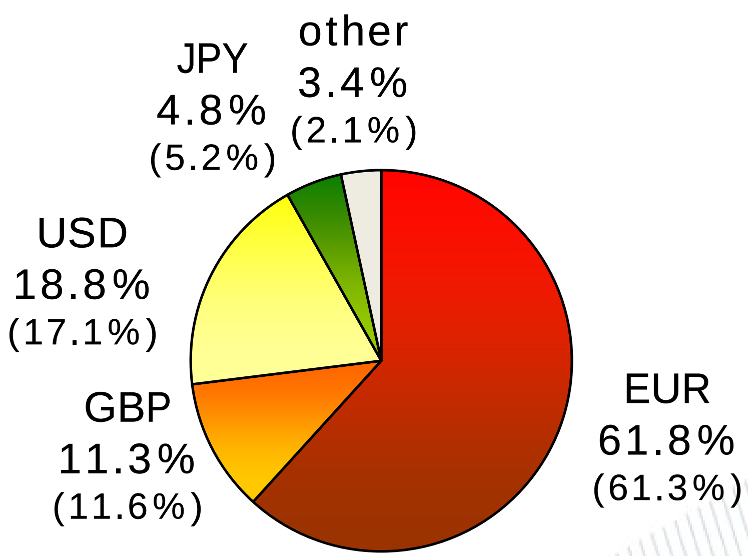


Currency Analysis



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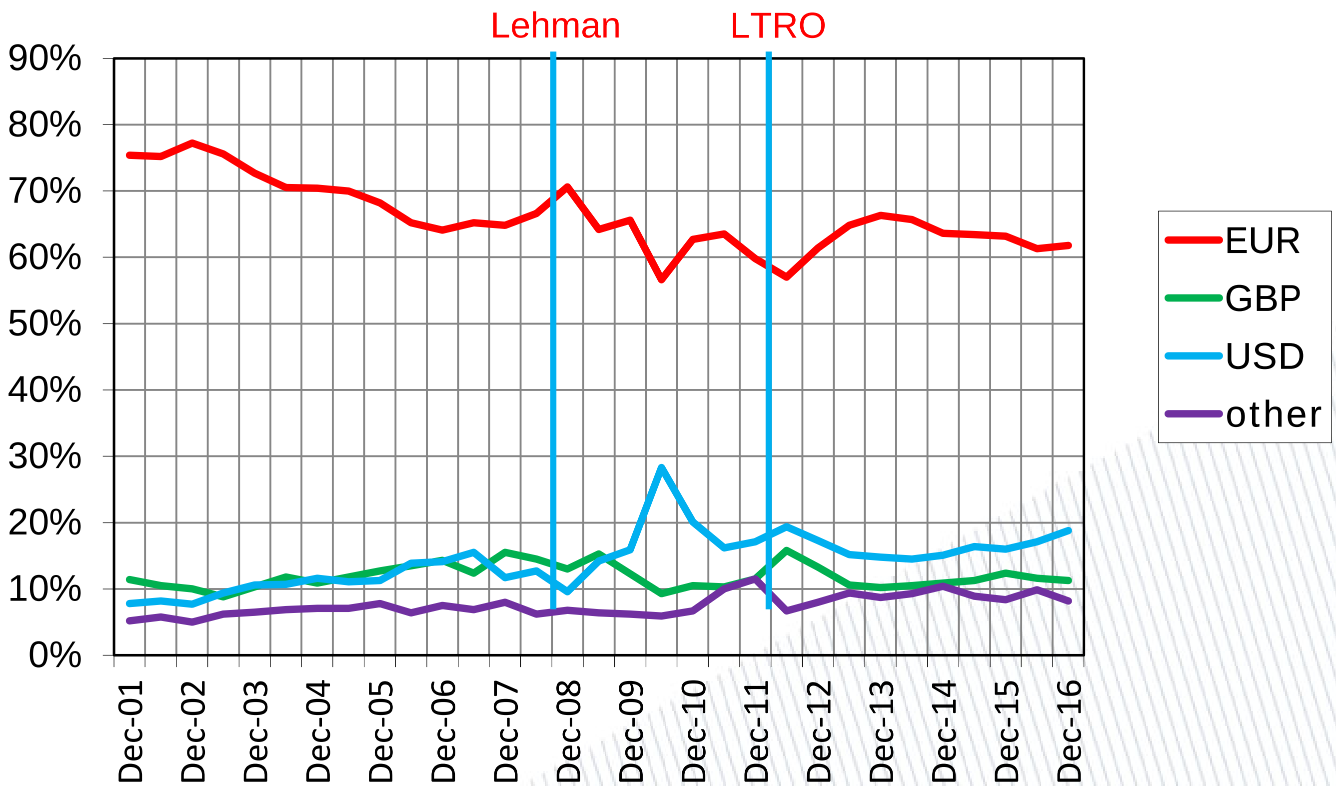
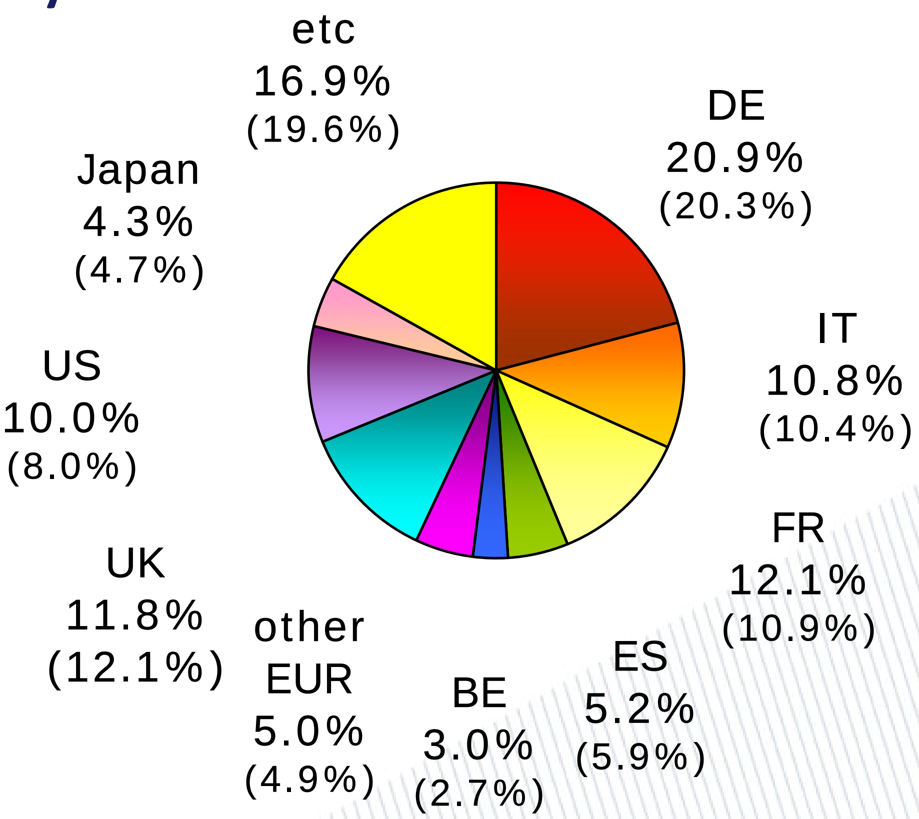
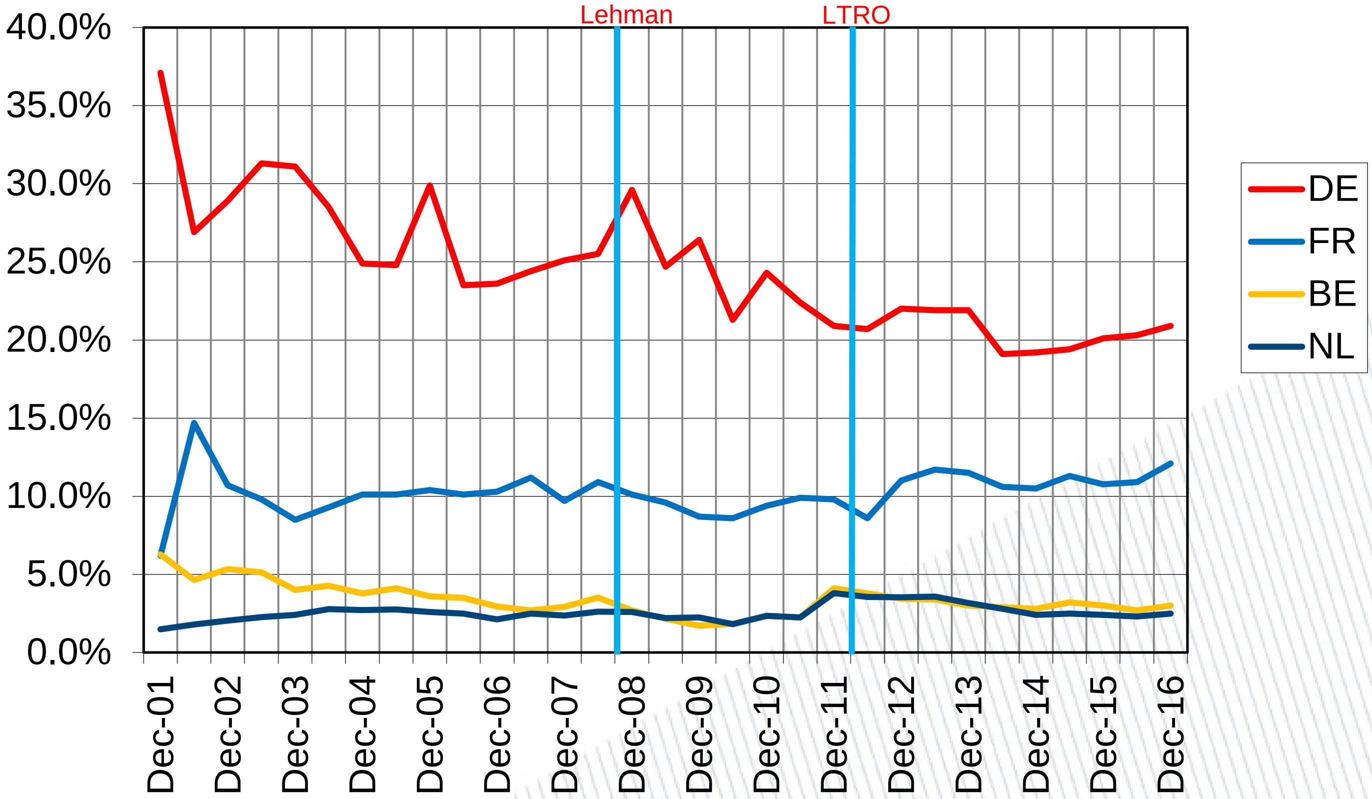


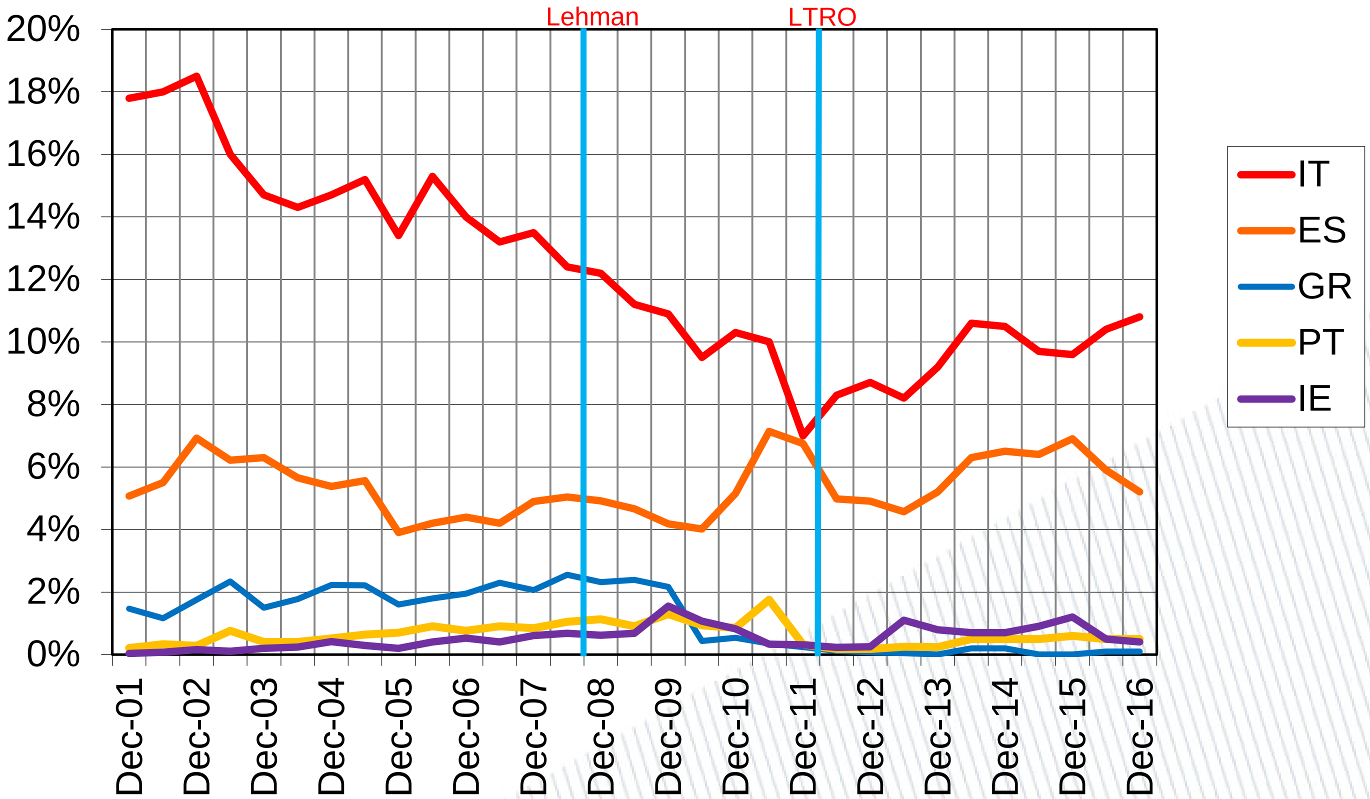
Collateral Analysis



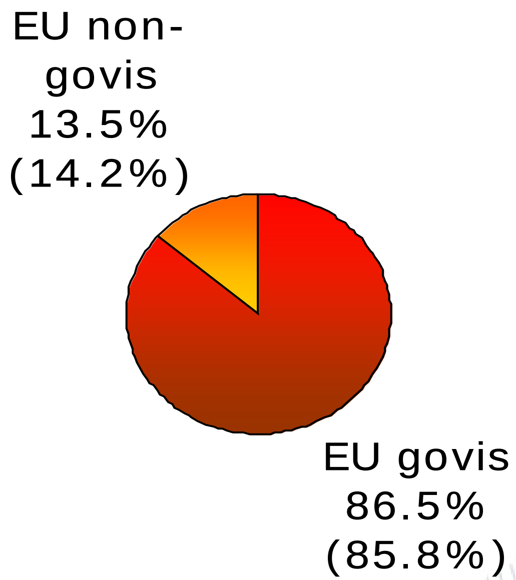
Collateral Analysis --- Core Eurozone



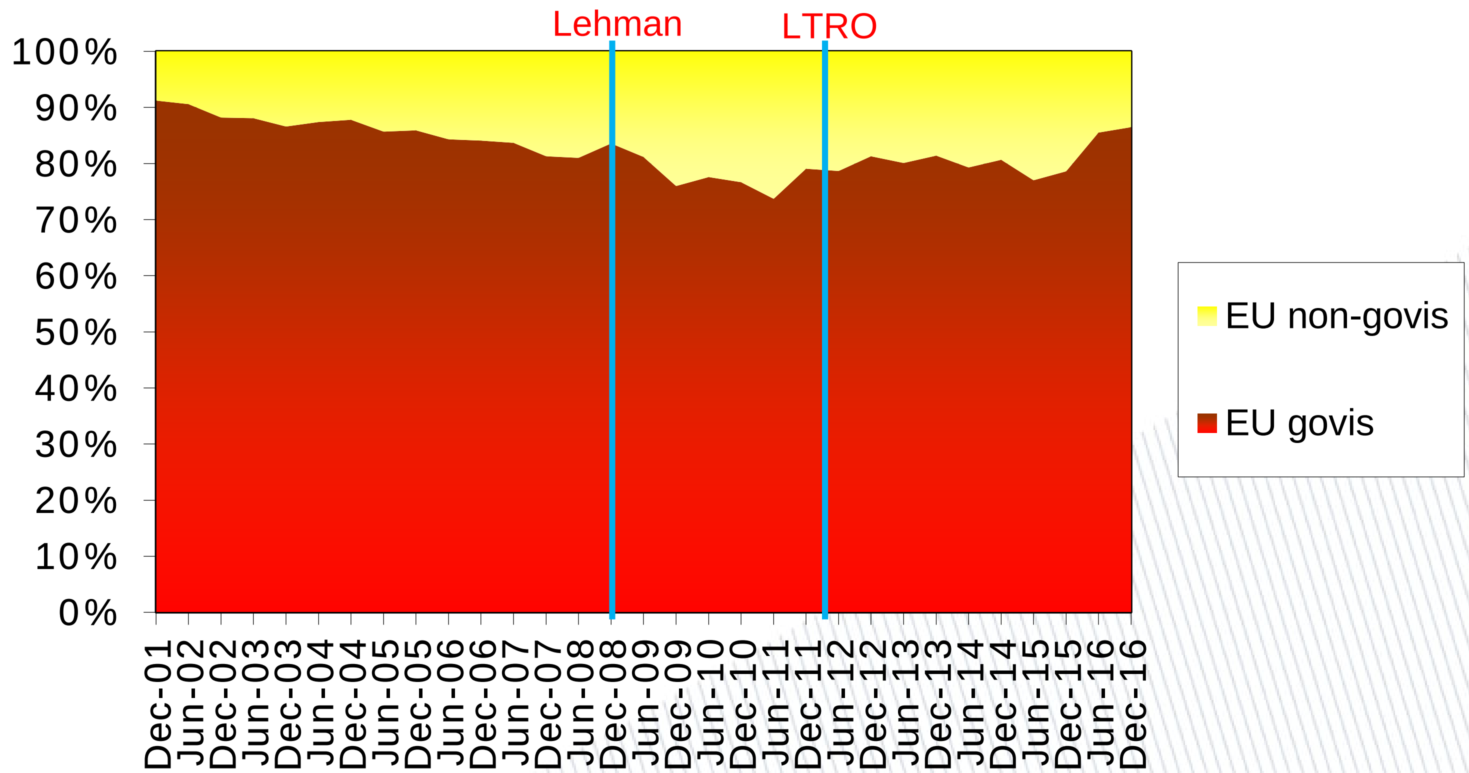
Collateral Analysis --- Peripheral Eurozone



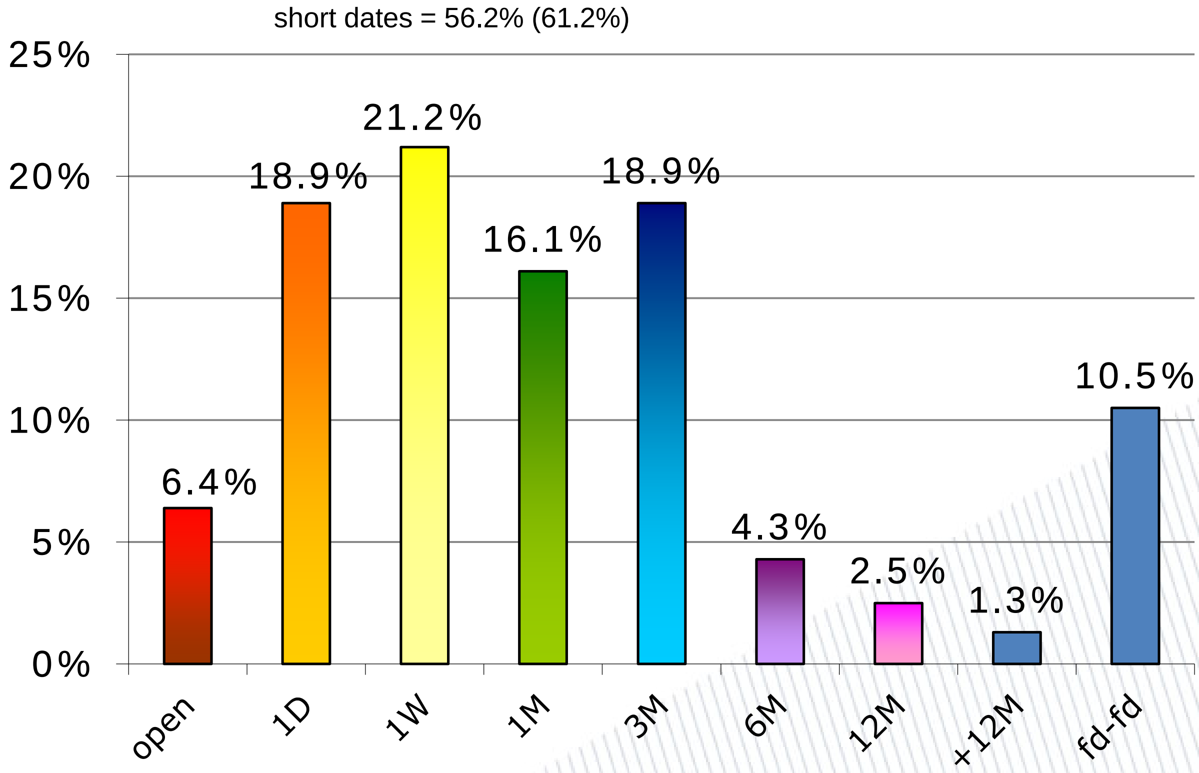
Collateral Analysis



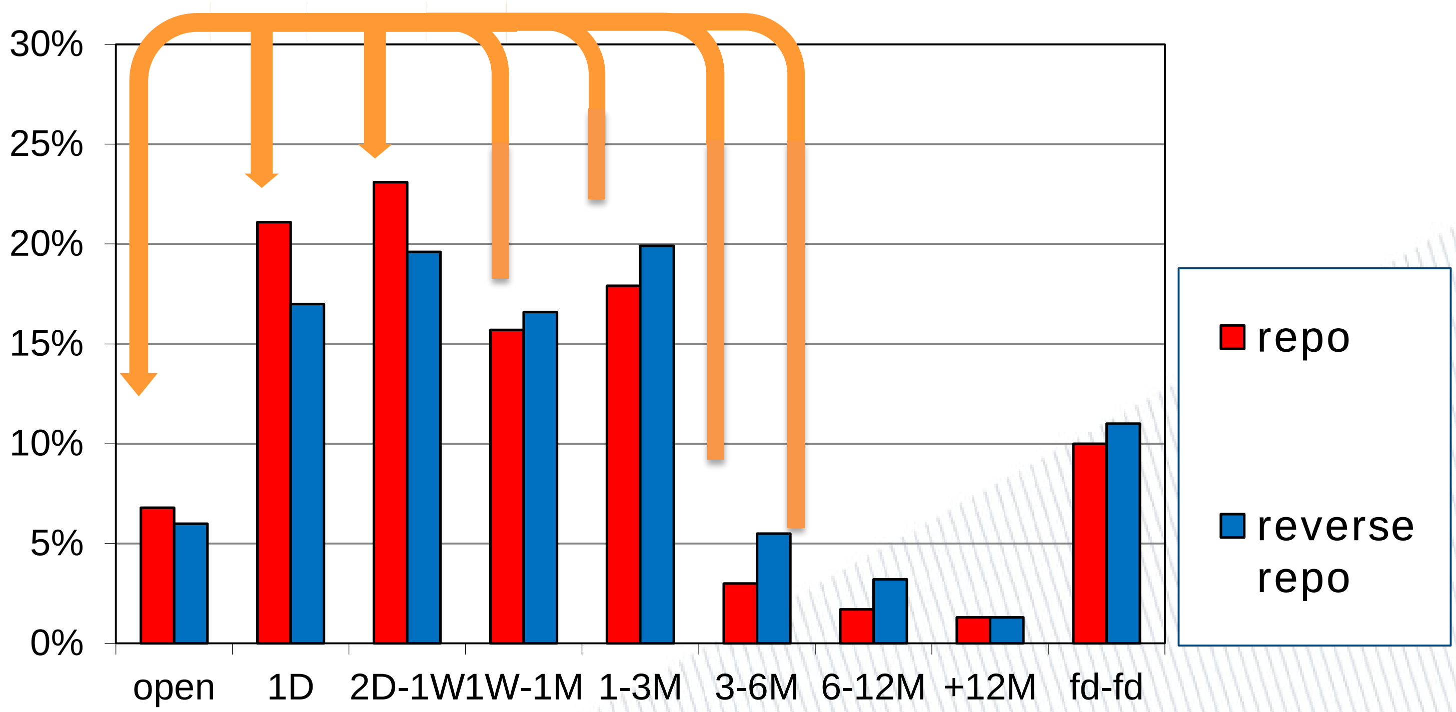
Collateral Analysis



Maturity Analysis



Maturity Analysis



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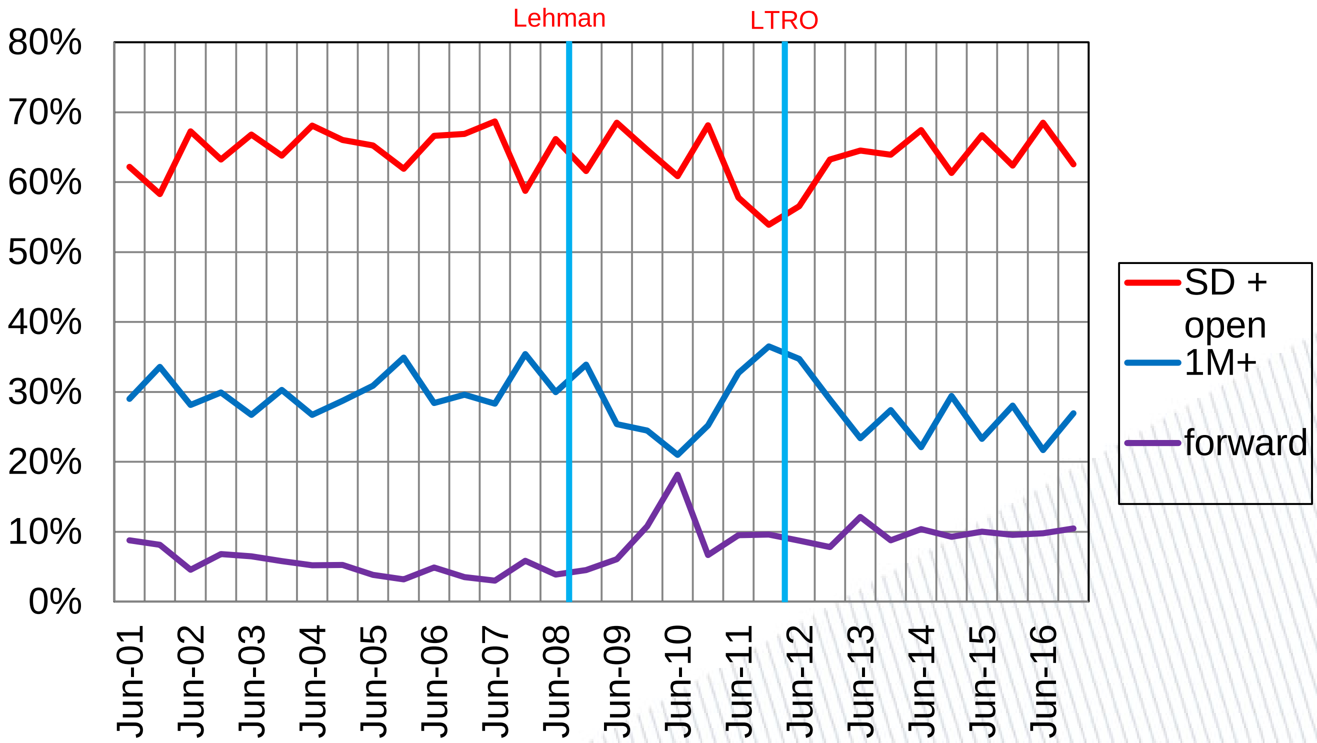

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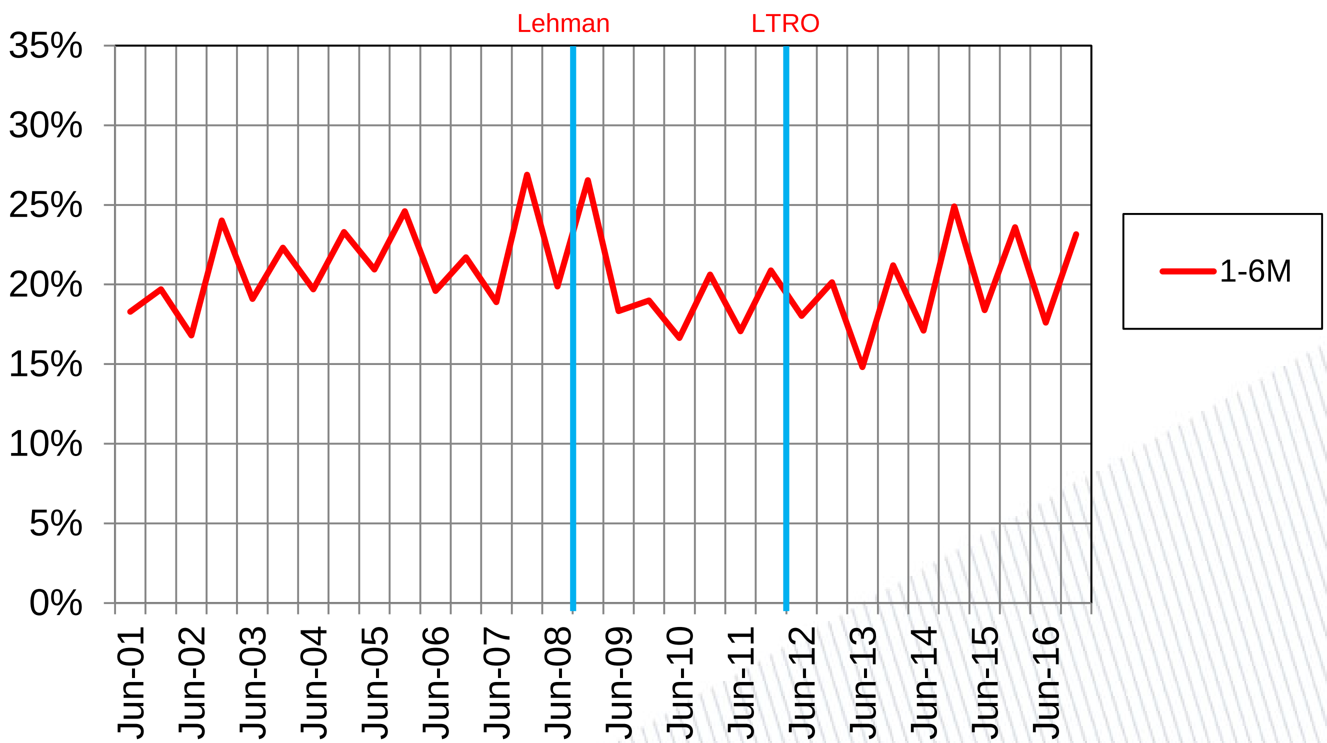
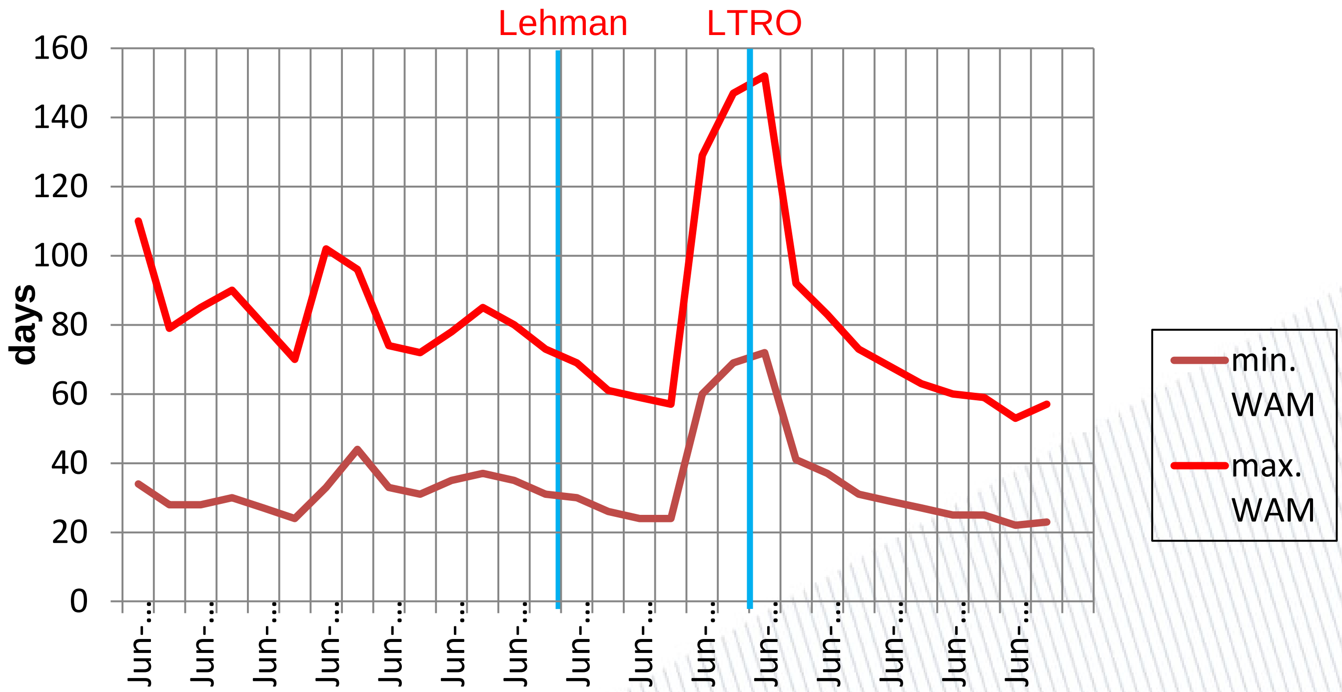
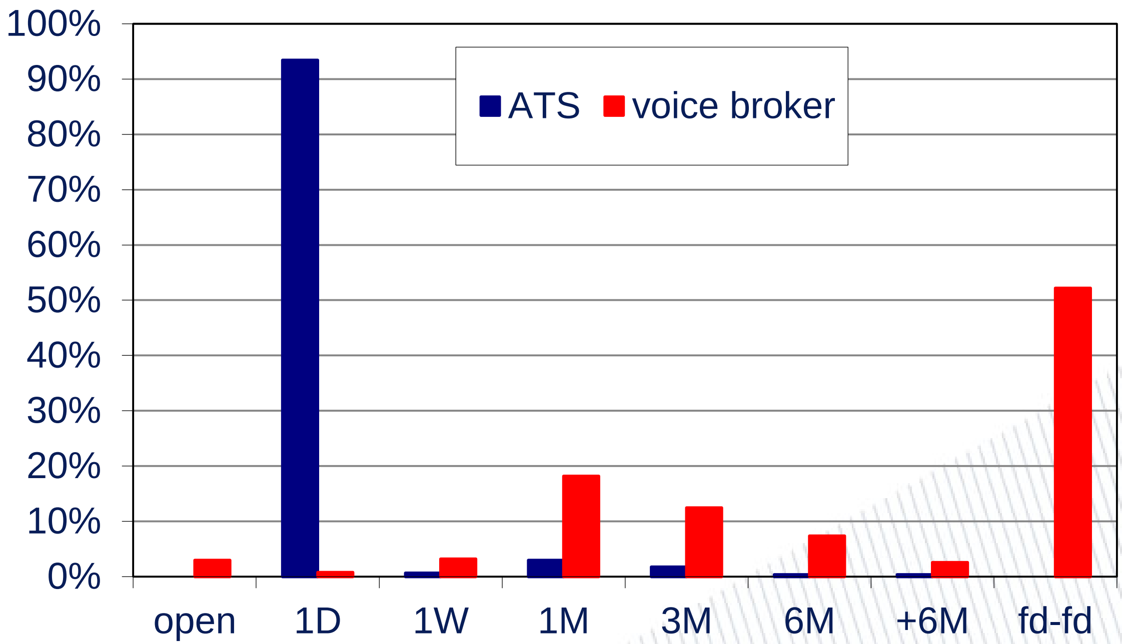


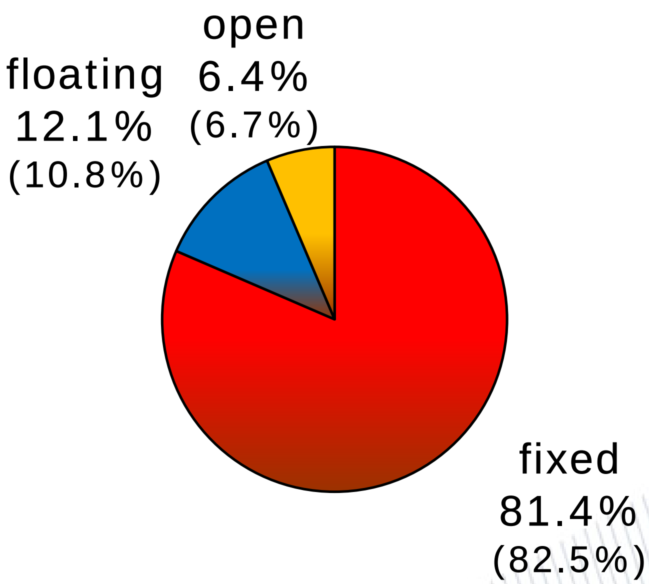
Maturity Analysis



Maturity Comparison



Rate Analysis



Next Survey

Wednesday, 7th June 2017

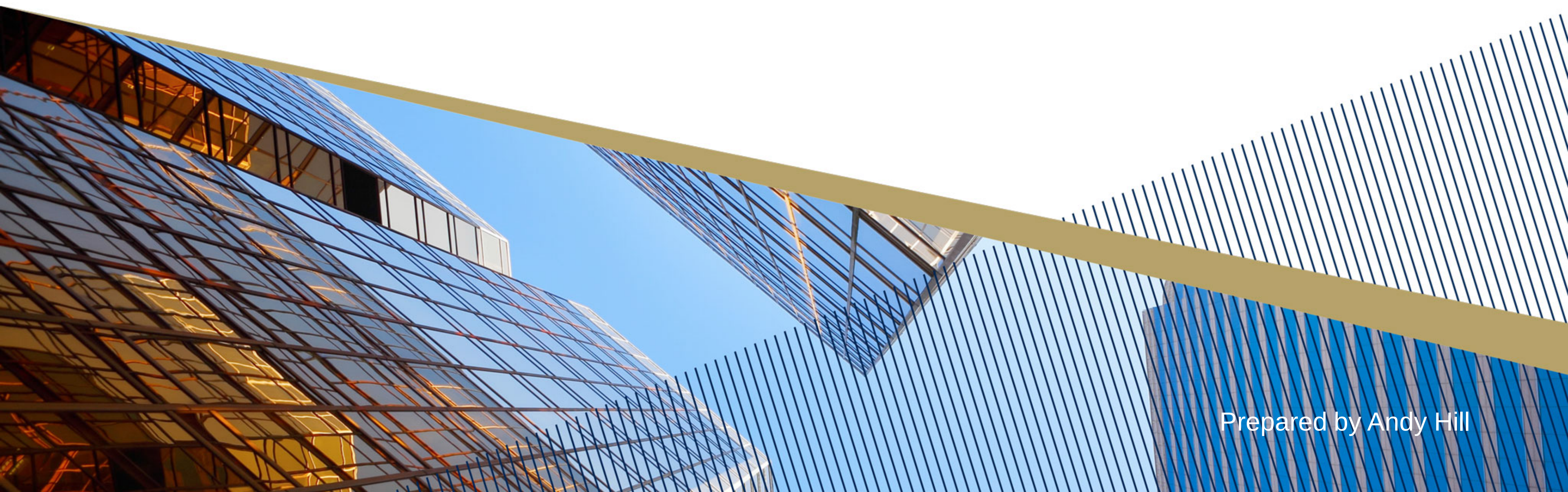
Repo market conditions in Europe: What happened with the repo market at year-end and why?

- **Mr. Andy Hill,** Senior Director, Market Practice and Regulatory Policy, International Capital Market Association

Closed for business:

A post-mortem of the European repo market break-down over the 2016 year-end

ERCC AGM, Zurich, March 20 2017



Prepared by Andy Hill

Introduction

- The extreme volatility and market dislocation experienced in the euro repo market (and to a lesser extent the sterling repo market) over the 2016 year-end are unprecedented in the post-euro era.

- This has raised concerns over whether this was a one-off event, or rather this is an indication of a market that no longer functions efficiently and effectively under stressed conditions, and signals a new normal for the European short-term funding and collateral markets.

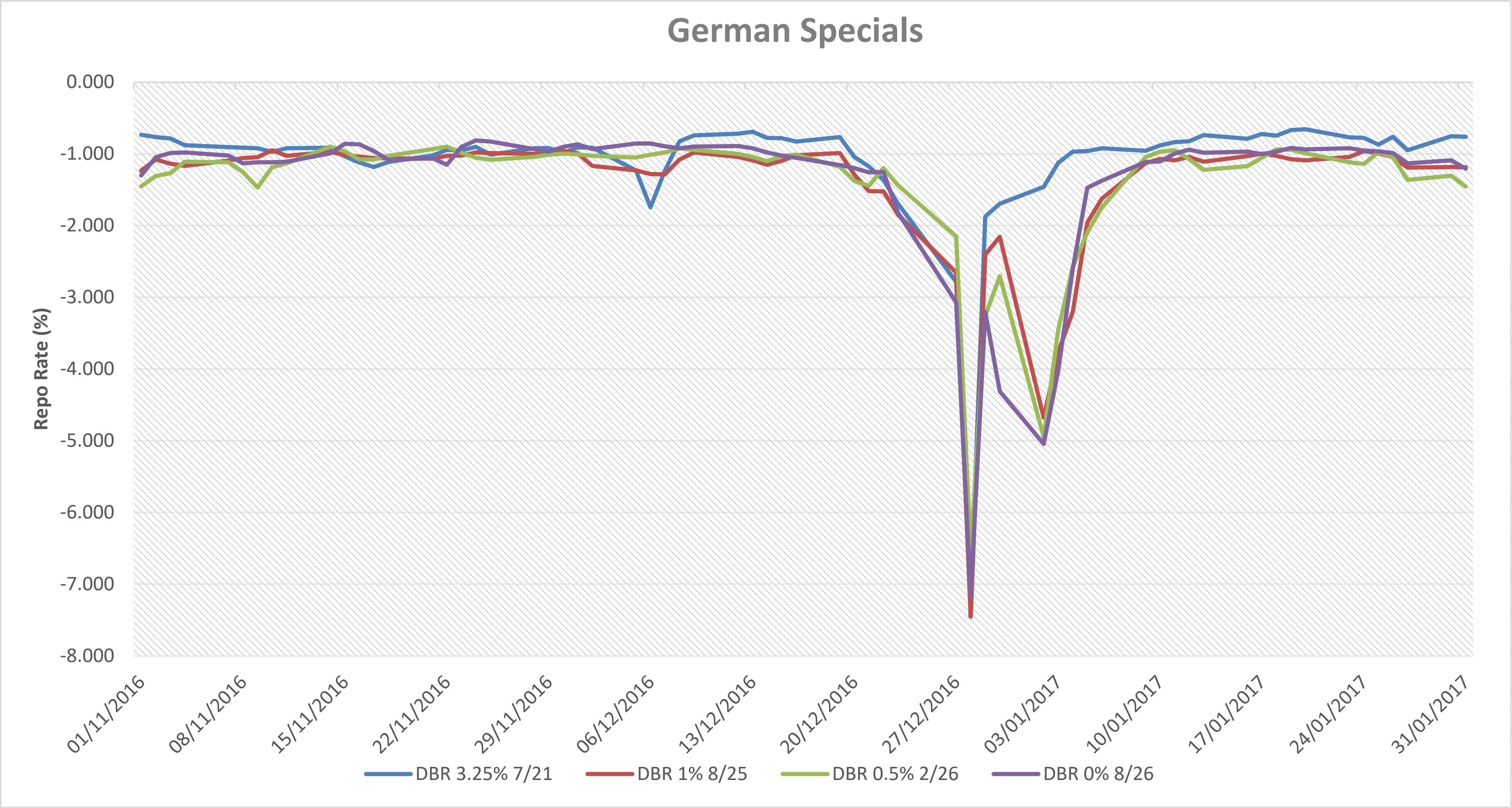
- The ERCC study, based on available market data and interviews with market participants (including repo market-makers, buy-side firms, and infrastructure providers), attempts to document the market moves and behaviour in the final week of December of 2016.

- More specifically it seeks to answer:
  - what happened?
  - why it happened?
  - what possible measures can be taken to avoid future extreme dislocation?

What happened?

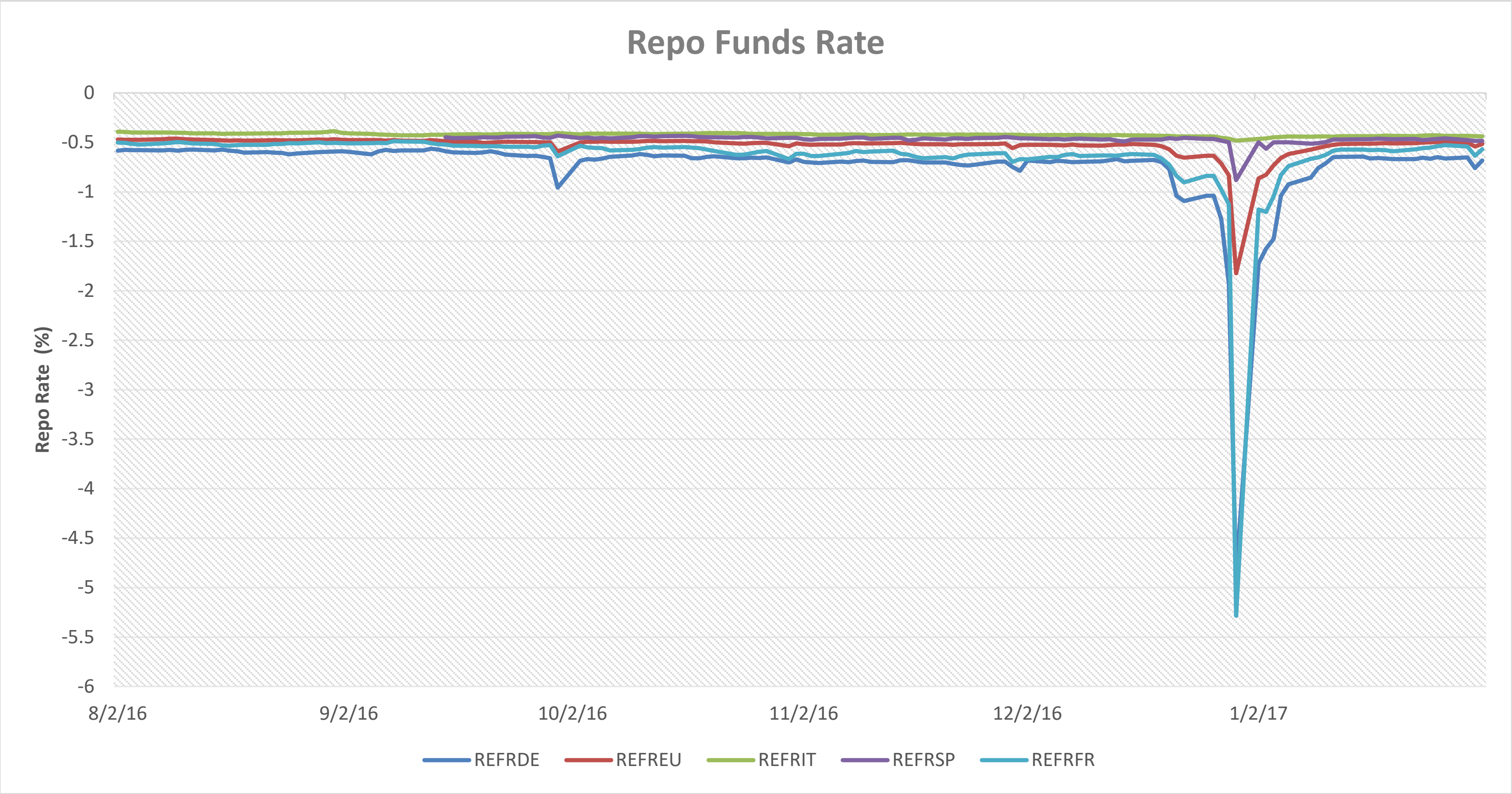
- Early warning
  - Locking in year-end financing from September
- Approaching the turn
  - Implied ‘turn’ rate of around -2% for HQLA
- Specials
  - Dec 28 ‘spot-next’: opened around -4%, gapped to around -6/-7%. Some specials as low as -15/-20%.
- GC
  - Dec 29 ‘tom-next’: shortage of HQLA, gapped to around -8/-9% for German and French GC
- Non-core markets
  - Spain -1%; Italy -0.4%

What happened?



Source: Nex Data Services Limited (Brokertec)

What happened?

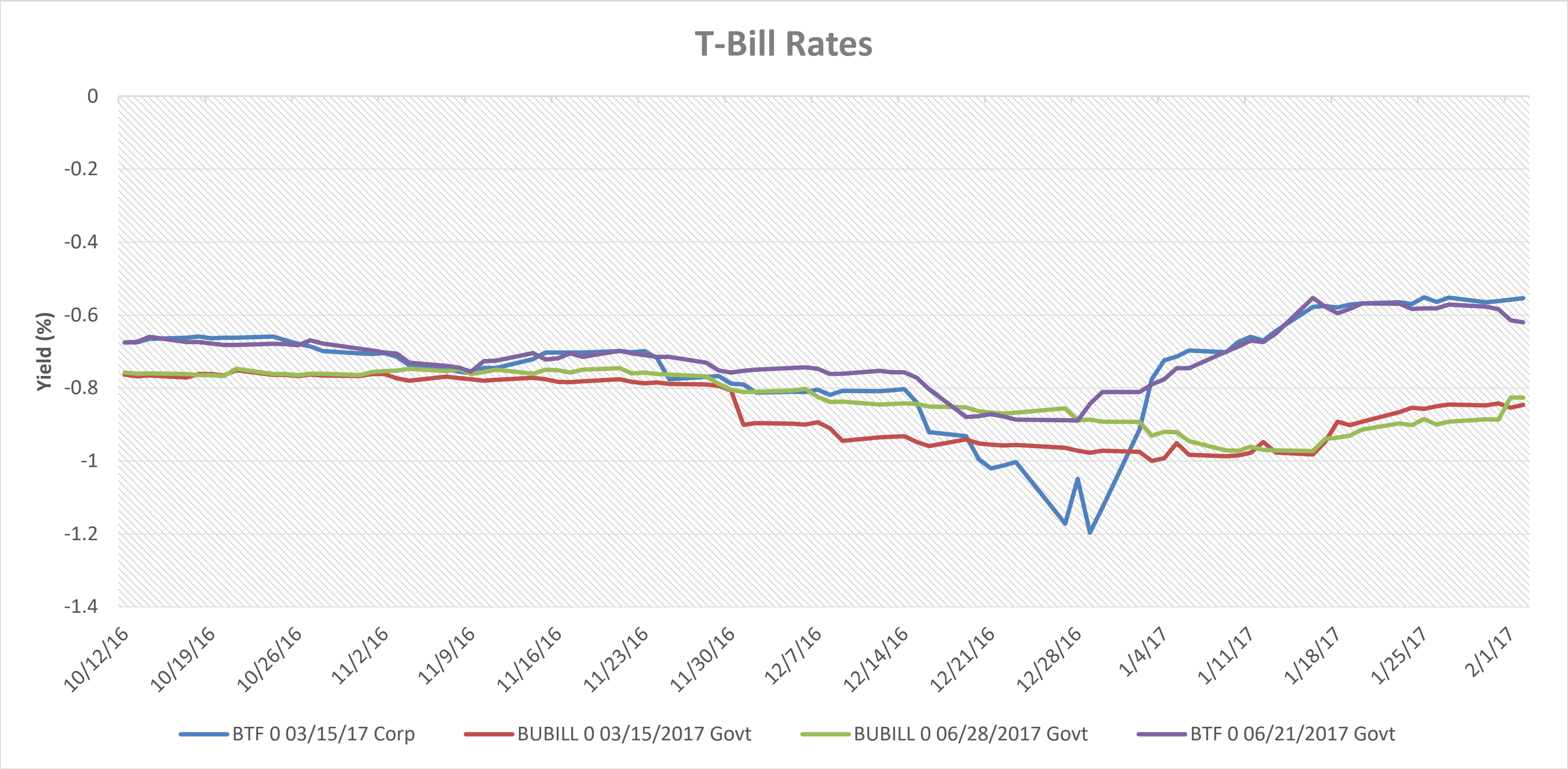


Source: Bloomberg

What happened?

- How the buy-side managed
  - UCITS funds (7 day maximum)
  - Flexibility for T+1 collateral and funding management (margin calls)
  - “Like watching a train smash in slow motion”
  - Leveraging dealer relationships
  - Using short-term instruments (e.g. T-bills) where no access to repo market
- Settlement efficiency and fails
  - Anecdotal reports suggest fails over year-end did not substantively increase
  - Capital costs of failing a deterrent (and reflected in repo rates)
  - No willingness to fail into CCPs (effective ‘default’)
  - The fact that mandatory buy-ins have not yet been introduced helped

What happened?

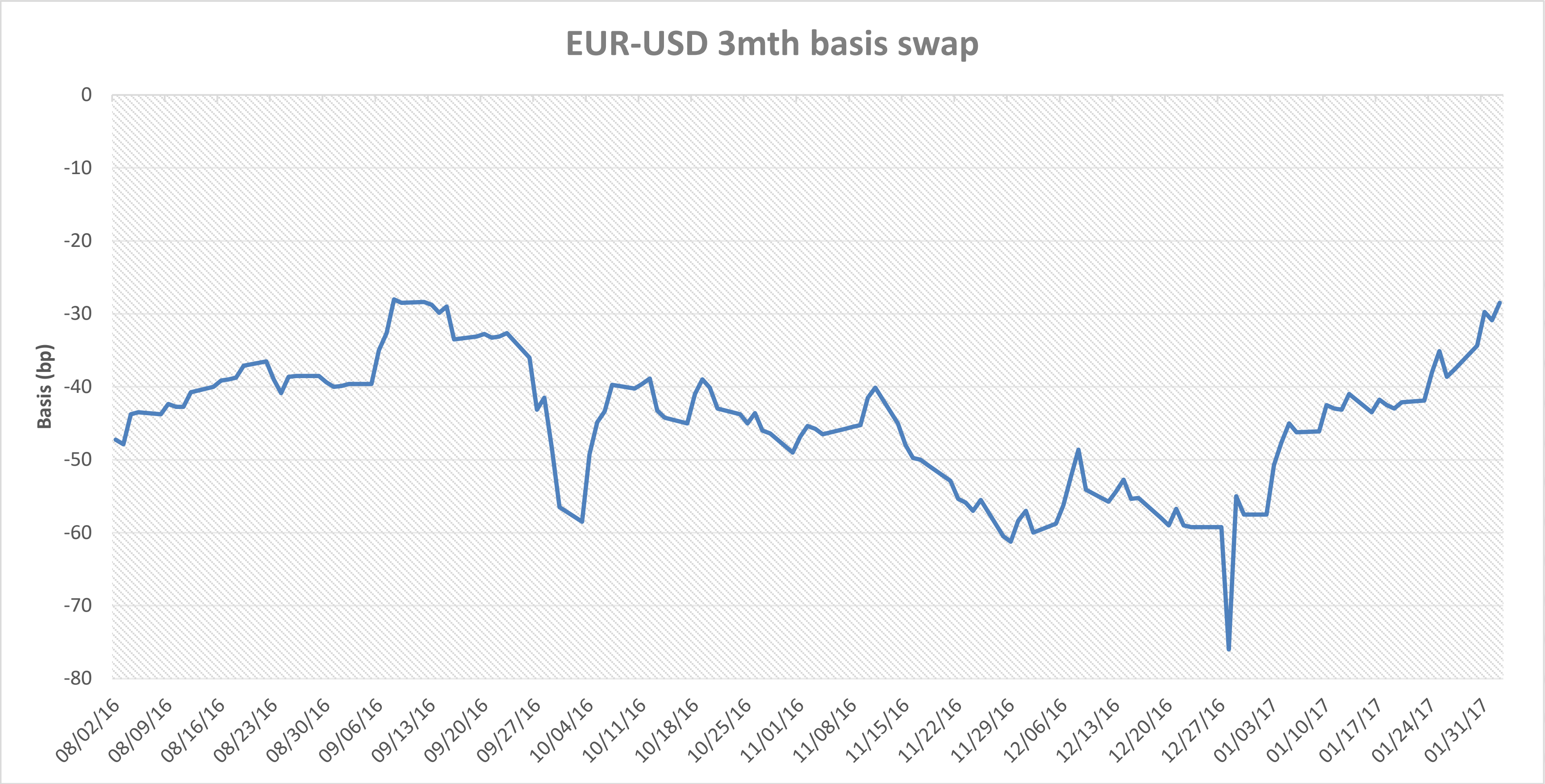


Source: Bloomberg

Why did it happen?

- Positioning
  - Short bonds
  - Short EUR-USD
- Quantitative easing
  - PSPP as at Dec 2016 €1.2tn: €300bn Germany (27% outstandings), €240bn France (15%)
  - Fragmented lending programs
  - Repo scheme limited
- Regulation
  - Balance sheet constraints for regulatory reporting (LCR, LR)
  - Year-end balance sheet levies
- Other considerations
  - Other supply of HQLA (non-EU SWFs)
  - Inability to arbitrage dislocations (market efficiency)
  - Risk-aversion

Why did it happen?



Source: Bloomberg

Possible measures to avoid future dislocations

- Further improvements in the ECB/NCB lending schemes
  - Centralized/harmonized (legal framework, rates, haircuts, collateral schedule)
  - Adequate supply of stock in ICSD auto-borrow facilities
  - Floor for central bank lending schemes
- Regulatory support for bank intermediation
  - Daily averaging (but will result in overall lower balance sheet capacity)
  - Special Leverage Ratio treatment for SFTs in HQLA
- More robust ex-ante impact analysis for potential future regulatory initiatives
  - NSFR (asymmetric treatment for short-term lending/borrowing); CSDR mandatory buy-ins; mandatory haircuts; collateral re-use limits; etc.
- Bank dis-intermediation by the ECB
  - e.g. Fed's ON RPP
- Bank dis-intermediation by the market
  - 'All-to-all' initiatives

Conclusion

- It is reasonable to conclude that at the end of December, the euro repo and short-term funding markets effectively broke-down, something that did not happen either during the Lehman crisis or over the sovereign bond crisis.

- The factors driving this break-down are multiple, and very much acted in confluence to precipitate the perfect storm.

- As QE continues, and as more regulation puts pressure on banks' balance sheet and intermediation capacity, there is a very real concern that the market behaviour over the 2016 year-end is not a 'one-off' event, and could herald the start of a new normal.

- This could heighten risks related to banks' and firms' ability to meet margin calls, which in turn could have systemic consequences.

- It seems unlikely that one single solution, either by regulatory or monetary policy makers, will provide a quick fix; rather it is likely to require a number of measures as well as more rigorous, ongoing analysis of the possible impacts of various policies on the smooth and efficient function of Europe's short-term funding and collateral markets.

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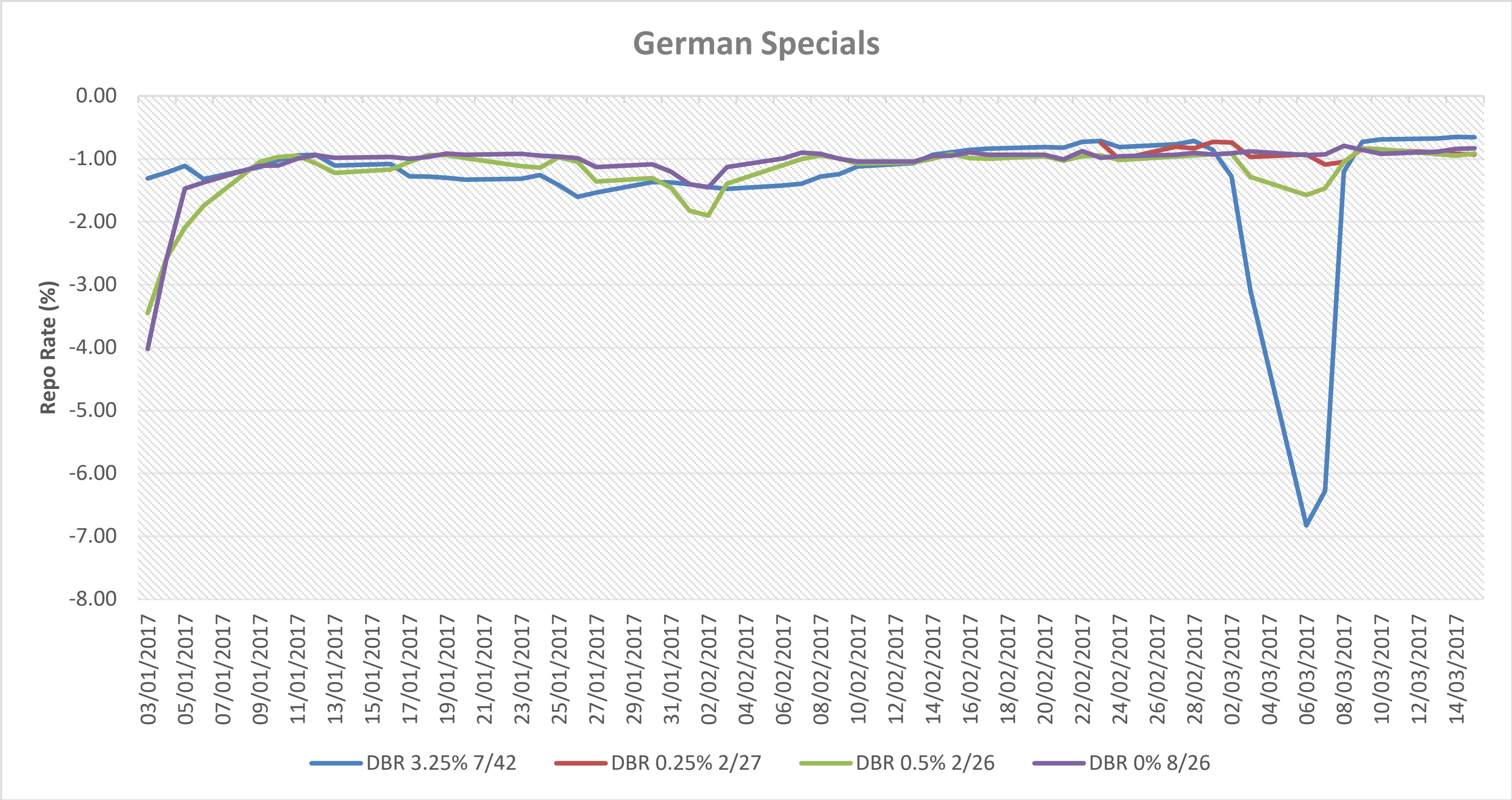
Continuing volatility and tightness post year-end



Source: Nex Data Services Limited (Brokertec)

Legal update

- **Ms. Lisa Cleary,** Senior Director, Associate Counsel, International Capital Market Association

Development of a new repo index

- **Mr. Alberto Lopez,** Research and Benchmarks Development Officer**,** European Money Markets Institute (EMMI)

Update on the development of a reference index for the euro repo market

ICMA European Repo and Collateral Council

General Meeting

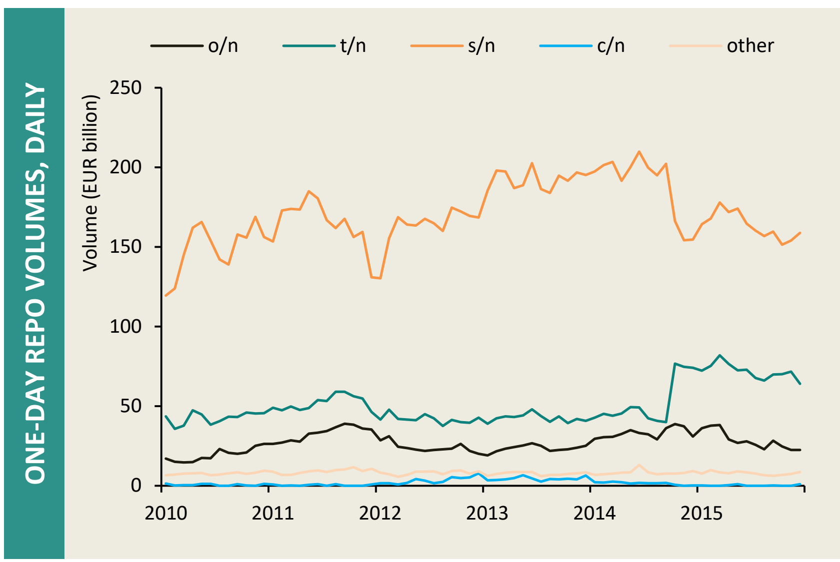
20 March 2017

European Money Markets Institute
56, Avenue des Arts 1000 Brussels | +32 (0) 2 431 52 08 | info@emmi-benchmarks.eu

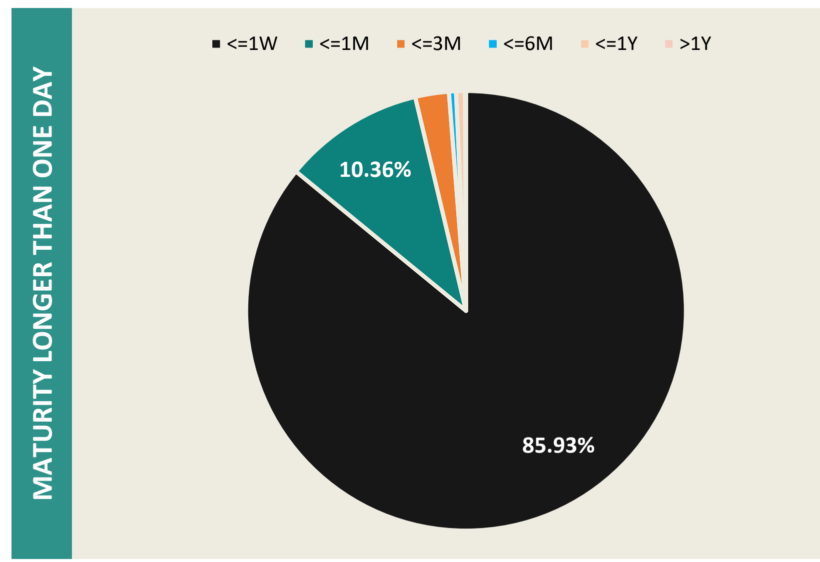
- Since September 2016, EMMI and the Secured Benchmark Task Force have made significant progress in the project.
- EMMI has now a methodology for the index and will be launching a public consultation at the end of the month to present the project and receive the market's feedback on the use and need of the New Repo Index.
- EMMI is currently in discussions with the three ATSs involved in the project: BrokerTec, Eurex Repo, and MTS Repo, and with STOXX and NEX, as providers of the GC Pooling and RFR indices.

2014	2015	2016
Establishing the Underlying Interest	**Euro Repo Market Analysis**	**Exploring Determination Methodologies**
The Secured Benchmark Task Force meets with ATSs, Clearing Houses, and existing Index Providers covering the European repo market.	Three major European ATSs provide 9 years of individual repo transaction data to EMMI to guide and inform the Task Force on the New Repo Index development work.*	EMMI starts (and concludes) its work on the development of a methodology for the New Repo Index.
The Secured Benchmark Task Force meets recommends EMMI to underpin the benchmark on on-screen euro repo transactions executed on European ATSs and cleared through qualified CCPs.	The ERCC recommends the expansion of the index's underlying transactions: bilateral and voice-brokered trades should be considered as eligible.	
	The Task Force recommends EMMI to launch a Public Consultation on two topics: the potential need and use of a pan-European repo benchmark, and the transactions supporting the determination of the index.	

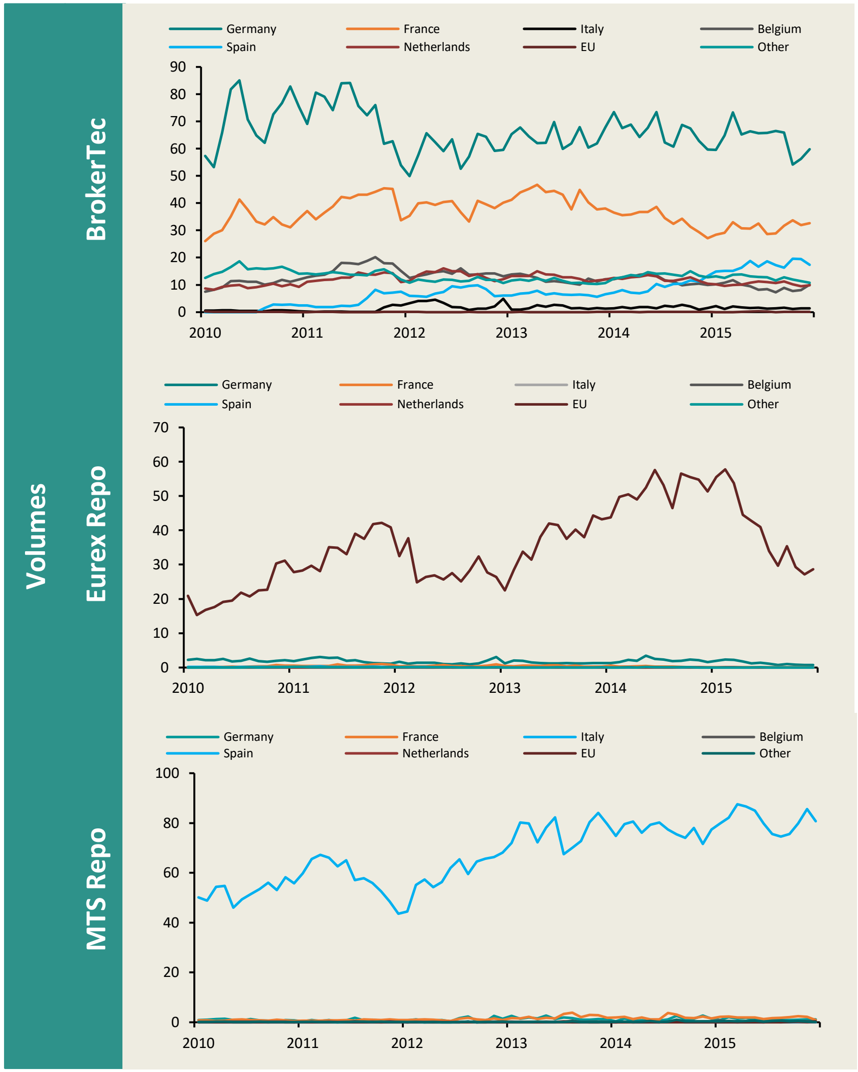
- The analysis indicated that around 95% of repos in the sample were traded with one-day maturities.
- One-day repos are available for every day in the sample. One-week repos are also available every day, but the number of transactions is very low on a considerable amount of days.
- One-day tenors are sufficiently liquid for a reliable index construction.



Source: BrokerTec, Eurex Repo, MTS Repo, and HSG calculations



Country of collateral securities



Source: BrokerTec, Eurex Repo, MTS Repo, and HSG calculations

- At Eurex, the only two categories with a meaningful share are Euro and German collateral (showing an increase from about 89% in 2010 to more than 95% in 2015).
- At MTS, more than 95% of repos are collateralized with Italian securities. French repos constitute the second most important group with a share of 2.2%, followed by German repos with 1.3%.
- BrokerTec hosts the largest variety of individual countries.

Floating rate transactions

- The vast majority of repos in the dataset have fixed rates.
- Repos with French collateral are partly floating rate due to historical reasons (99.3% of French specific repos and 16.1% of French GC repos, in terms of volume).
- The inclusion of floating rate repos will have an impact on the design of the pan-European secured index (alignment, publication time, etc.)

- The development work* of the determination methodology for the New Repo Index was done using the transaction data contributed by the three European ATSs above:
  - January 2006 through December 2015;
  - Total number of transactions: 18,576,813;
  - Total trading volume: EUR 510.04 trillion.

Design choices

- Transactions aligned by settlement (purchase) day: *deferred rate*;
- Transactions with trade settlement period of zero days (O/N), one business days (T/N), and two business days (S/N) are all combined and considered in a *one-day tenor*;
- Considered single fixing at the *end of day* (post-EONIA publication).

Outlier removal

For a given contract *k* on day *t:*

$$Spread_{k,t} = \frac{Repo\ Rate_{k,t} - ECB\ Deposit\ Rate_t}{ECB\ Lending\ Rate_t - ECB\ Deposit\ Rate_t}$$

Transactions with spreads larger than five or with rates larger than 10% are considered outliers.

Calculation methodologies

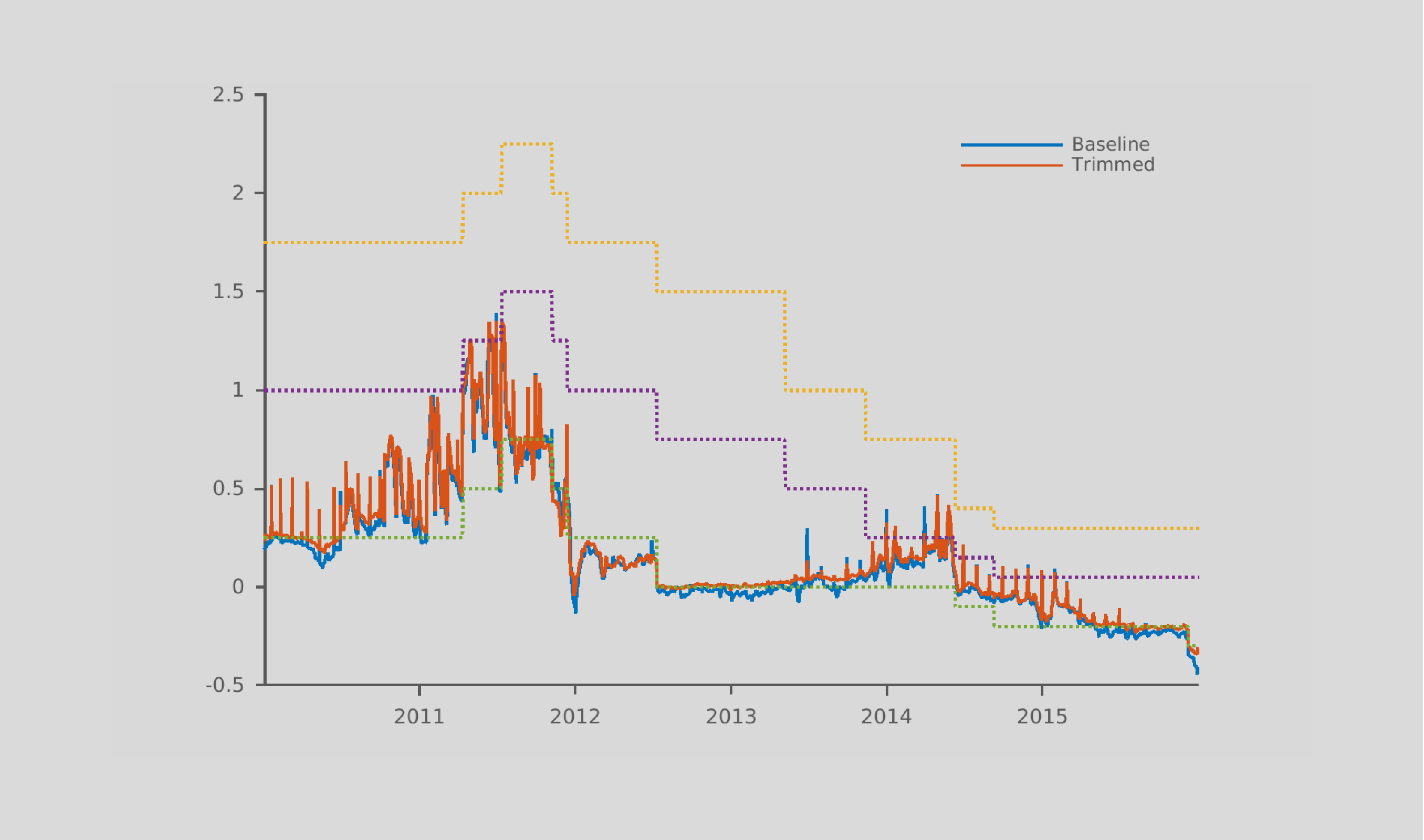
Volume-weighted average of the sample of eligible trades.

- Baseline index (all encompassing)
- GC index (GC trades only)
- IPOEm index (RFR algorithm on specifics)
- Trimmed index (25% higher-25% lower)
- Floor index (25% lower)

* In collaboration with Angelo Ranaldo (HSG)

	Baseline	GC	IPOEm	Trimmed	Floor
Mean	1.1875	1.2633***	1.2210***	1.2124***	1.2327***
SD	1.5513	1.5493	1.5508	1.5518	1.5487***
Min	-0.4445	-0.3109***	-0.3484***	-0.34172***	-0.3476***
Max	4.4160	4.4797**	4.4455**	4.4365*	4.446***
Skew	0.9093	0.89154***	0.9044***	0.9076*	0.9015***
Kurt	2.1473	2.1251***	2.1358***	2.1381***	2.1358***
Volume (trn)	51.004	13.541	42.111	38.727	41.388
GC (%)	24.945	100	30.076	24.129	30.564
Removed (%)	0	94.303	23.582	25.003	23.578
HHI	0.0149	0.0476	0.0156	0.0165	0.0156
P-value significance: *p < 0.05, **p < 0.01, ***p<0.001					

- Statistics over the whole sample period (2006-2015)
- Similar statistic analysis were performed under distressed market circumstances, in order to assess the behavior of each of the indices—making use of the ECB's CISS.
- Event study to assess the responsiveness of the proposed methodologies to changes in the market, e.g.:
  - the impact of monetary policy decisions;
  - the behavior of the index at the time of the announcement, by the ECB, of the Fixed Rate Full Allotment Regime on October 2008; and
  - the effect of severe market stress (as on August 2007, when a freeze of funds was announced by BNP Paribas).

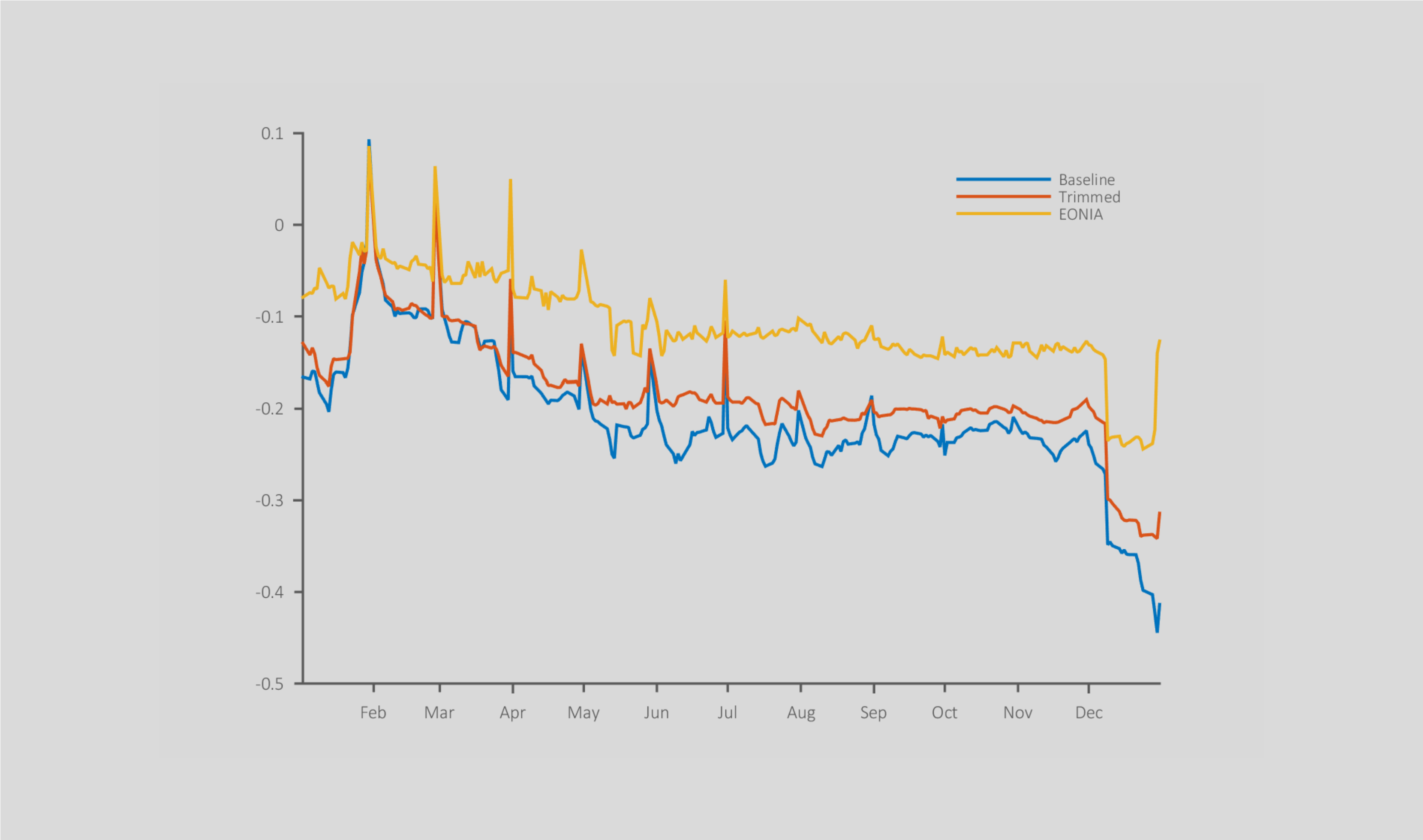


Baseline, Trimmed, and the ECB Corridor from 2010 to 2015

Source: BrokerTec, Eurex Repo, MTS Repo, and HSG calculations

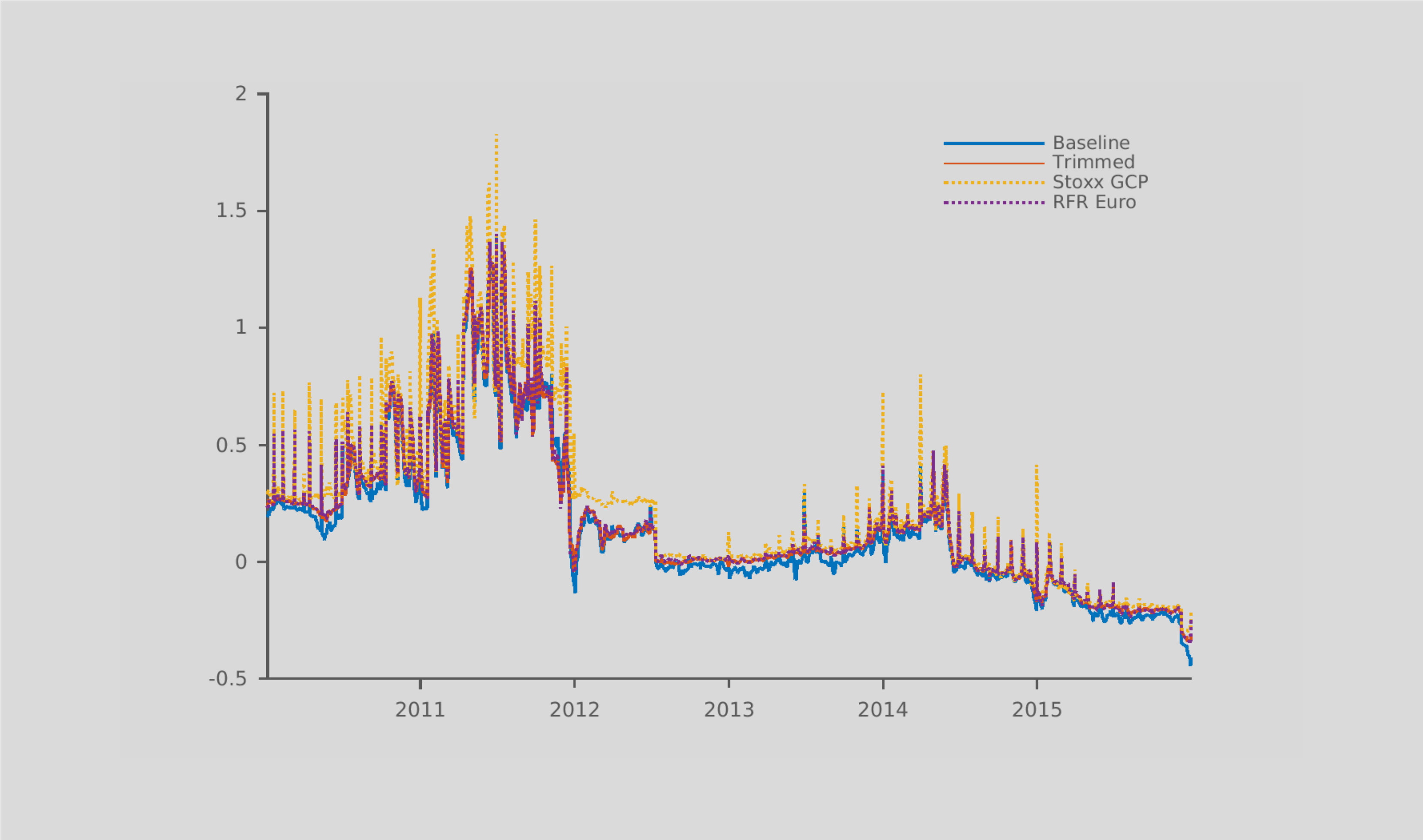
Topics discussed in the upcoming consultation

Determination methodology



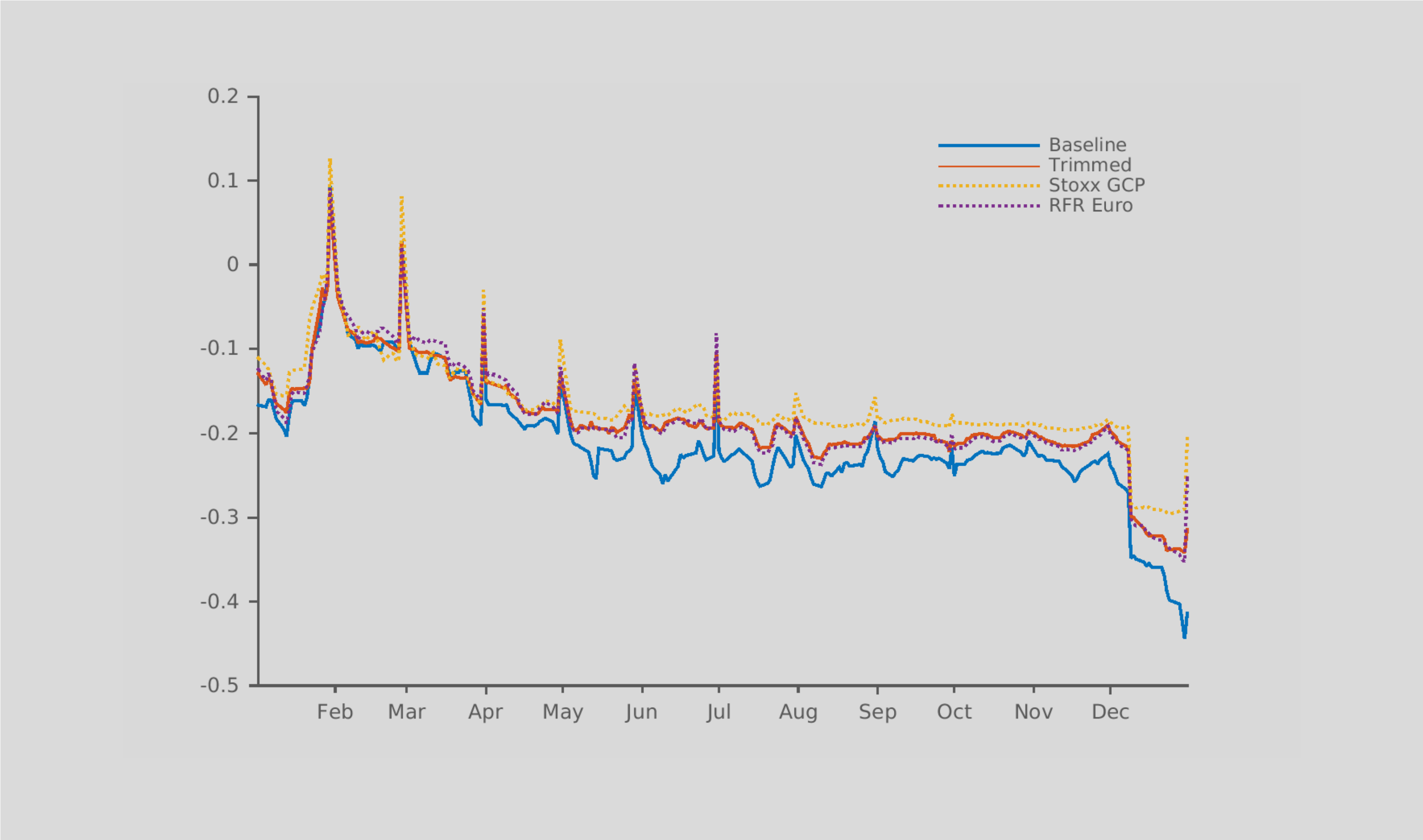
Baseline, Trimmed, and EONIA in 2015

Source: BrokerTec, Eurex Repo, MTS Repo, and HSG calculations



Baseline, Trimmed, STOXX GCP, and RFR Euro from 2010 to 2015

Source: BrokerTec, Eurex Repo, MTS Repo, STOXX, NEX, and HSG calculations



Baseline, Trimmed, STOXX GCP, and RFR Euro in 2015

Source: BrokerTec, Eurex Repo, MTS Repo, STOXX, NEX, and HSG calculations

Update on the development of a reference index for the euro repo market

ICMA European Repo and Collateral Council
General Meeting

20 March 2017

Alberto Lopez
Senior Benchmarks Officer
a.lopez@emmi-benchmarks.eu

The updated Guide to Best Practice in the European repo market

- **Mr. Sylvain Bojic,** Director, London Head of Repo, Société Générale

Regulatory update

- **Mr. David Hiscock,** Senior Director, Deputy Head, Market Practice and Regulatory Policy, International Capital Market Association

Proposed EU CCP R&R Regulation:

Preparation and prevention

- Each CCP draws up a recovery plan with measures to be taken in case of financial problems.
- National supervisors review and approve these plans.
- National authorities draw up a resolution plan for each CCP in the event of its failure.
- They can require a CCP to change specific business practices that could make resolution difficult.

Early intervention

- National authorities have powers to step in when a CCP faces financial difficulties.
- They can instruct a CCP to take actions in its recovery plan or other steps.

Resolution

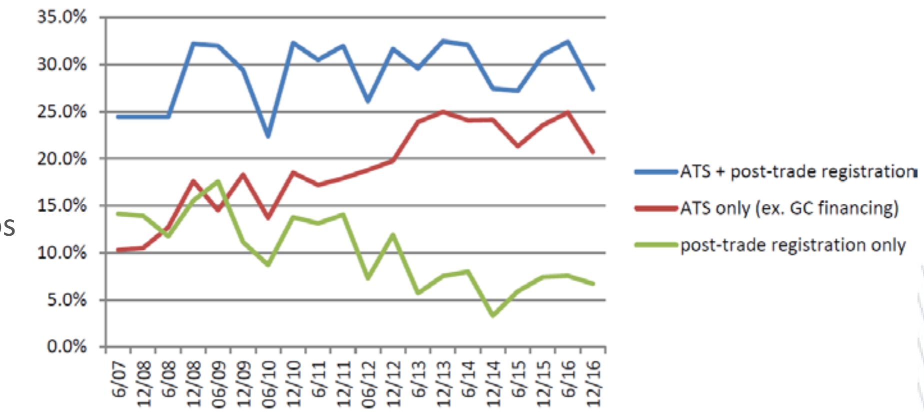
- A failing CCP can be put into resolution by national authorities when it is in the public interest.
- National authorities apply resolution tools to protect financial stability and taxpayers.
- Tools include power to restructure or sell CCPs and distribute losses among owners and participants.

COOPERATION BETWEEN SUPERVISORS

CCPs in the European Repo Market

- **CCPs clear a very significant proportion of the European repo market**
  - ICMA's semi-annual survey suggests about 30% of repos outstanding by value are CCP cleared (see chart)
  - Proportion of CCP cleared repo turnover is significantly higher since CCP cleared repos cleared are predominantly short-term: ECB money market survey suggests around 70%

Chart: Evolution of business cleared across CCPs



- Most CCP cleared repos are negotiated on automatic repo trading systems
  - Repo negotiated directly between parties or via a voice-broker can also be registered with a CCP post trade
- **CCPs are themselves important repo market participants**
  - Utilise reverse repos to safely invest cash margins received
  - In case of need, utilise repos to promptly raise cash against margin securities held

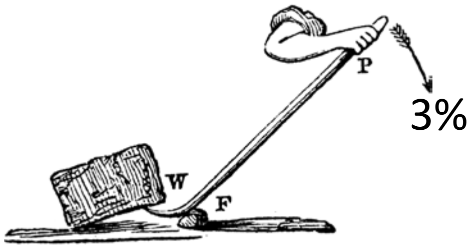
Repo Market Specificities?

- Over recent years much focus has been given to the development of a regime for CCP clearing of derivatives
  - Has now led to the important task of ensuring that there is an adequate regime in effect for CCP recovery and resolution
  - Important to keep in mind that CCPs do not only clear derivatives
- Are there repo market (and other asset class) specificities which require suitable tailoring of the proposal?
  - Variation Margin Haircutting" (VMH) is one of the tools contemplated for CCP recovery & resolution
    - In the section on "Preparation – recovery plans", the proposal states that **VMH involves "haircutting payments due to clearing participants as a result of an economic gain in a derivatives contract"**, in order to provide additional resources
    - In the section "Resolution tools and powers", the proposal states that resolution could, among other things, take the shape of "further haircuts of outgoing variation margin payments" – which is also then reflected in recital 52
    - Resolution powers are in proposed Article 48, including that the resolution authority shall have "the **power to reduce, including to reduce to zero, the amount of variation margin due to a clearing participant of a CCP under resolution**"
    - But, VMH is concerning in context of repos – where it would represent a principal loss (ie not a cut in an economic gain)
  - Regulatory netting must not be compromised as a consequence of new powers leading to qualifications in legal opinions
  - Other ???

EU Banking Prudential Requirements

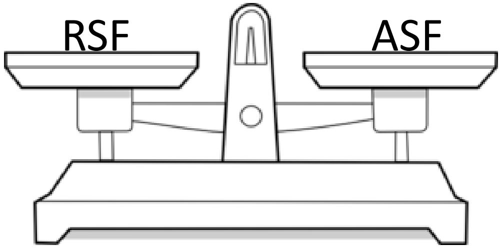
- On 23 November 2016 the Commission proposed amendments to banking prudential requirements
  - The amendments include measures that are intended to strengthen the resilience of the banking sector by introducing more risk-sensitive capital requirements

- The aim is to implement international standards into EU law, while taking into account European specificities
  - In particular, key elements within these proposals include:
    - A **binding 3% leverage ratio**, aimed to prevent institutions from excessively increasing lending compared to their capital
    - A **binding, detailed net stable funding ratio** (NSFR), requiring EU credit institutions and systemic investment firms to finance their long-term activities (assets and off-balance sheet items) with stable sources of funding (liabilities)
      - So as not to hinder the well-functioning of EU capital markets and to preserve the liquidity of sovereign bond markets, certain adjustments are proposed to the Basel NSFR standard, relating to the treatment of:
        - Derivative transactions – lower RSF factors & recognition of offset re HQLA Level 1 VM (v. BCBS cash only);
        - Short-term transactions with financial institutions – **repo asymmetry down to 5%/10%** (v. BCBS 10%/15%); and
        - High Quality Liquid Assets (HQLA) – **0% RSF for holdings of HQLA Level 1** (v. BCBS 5% RSF)



Leverage Ratio:
a reminder of the ERCC's previously stated views

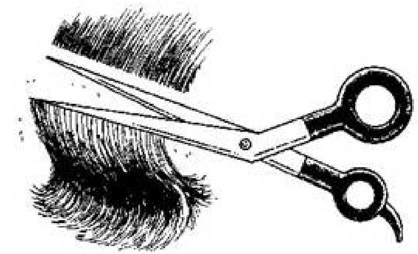
- BCBS consulted, on 6 April, on **revisions to the Basel III leverage ratio framework**
  - ICMA ERCC submitted a detailed, 6 July, response
    - Cumulative impact of the pressures being imposed on the repo market, most particularly by the leverage ratio, are such that it is already a market under significant stress
    - A number of ways in which its details could be calibrated to better smooth its effects on repo and collateral markets
    - More detailed specific treatments for special asset types such as HQLA, or in relation to desirable financing activities
    - **Suggested need to introduce specific refinements to:**
      - Exempt central bank reserves from the leverage exposure measure;
      - Exclude potential grossing up when conducting repos with central banks;
      - Eliminate double counting stemming from the required current exposure add on;
      - Reduce, or eliminate the leverage ratio impact of forward starting repos;
      - Allow for open and callable repos to be netted on the basis that they end on their earliest possible closure date
      - Ensure that detailed provisions concerning CCP activities are applied across asset classes
- EU (Capital Requirements Regulation) CRR will be updated to include applicable EU leverage ratio rules
  - Currently anticipate applicable Commission proposal in November 2016



Net Stable Funding Ratio (NSFR) :
a reminder of the ERCC's previously stated views

- BCBS NSFR standard endorsed 31 October 2014, to become a minimum standard by 1 January 2018
- EU (Capital Requirements Regulation) **CRR will be updated to include applicable EU NSFR rules**
  - Currently anticipate applicable Commission proposal in November 2016
  - Official sector, as reflected in the EBA's December 2015 report to the Commission, seemingly consider that NSFR will not have significant implementation impact – as most EU banks already appear BCBS compliant
  - On 26 May, Commission published a targeted consultation to collect further perspectives on this
    - ICMA ERCC submitted a detailed, 24 June, response
      - NSFR, if adopted exactly as per BCBS, would create significant additional stress & weaken the repo market effectiveness
      - Group level impact is very different from standalone subsidiary / business line / trading desk impacts
      - A number of ways in which its details could be calibrated to better smooth its effects on repo and collateral markets
      - Further refine the applicable ASF/RSF proportions in order to rebalance their asymmetry driven behavioural effects
      - More detailed specific treatments for special asset types such as HQLA, or in relation to desirable financing activities
      - Exempt short-term – in this context, say those of up to six months – SFTs, such as repo
      - Relax conditionality for SFT netting, and/or allowing for more offsets of "interdependent assets and liabilities"
    - **Commission will make some adaptation from Basel**, but details remain to be seen

Haircuts



- Article 29.3 in the EU SFTR anticipates possible EU introduction of specific SFT haircut rules
  - On 4 October 2016, ESMA duly published its related advisory report to the Commission, recommending to:
    - **introduce the FSB's qualitative standards** in the methodology used to calculate haircuts;
    - address the pro-cyclicality of collateral haircuts in CCPs in the context of the EMIR review;
    - **assess the possible extension of the FSB's scope for numerical haircut floors**, in particular to government bonds, and the calibration of these floors **using SFTR data which will become available in 2018**; and
    - **assess pro-cyclicality** and the potential need for further policy tools **once sufficient data becomes available**
  - By 13 October 2017, the Commission shall submit a report and any appropriate proposals on EU haircut rules

- On 16 February 2017, the ESRB published its report "*Margins and Haircuts as Macroprudential Tools*"
    - explains the need for macroprudential policies to mitigate systemic risk from excessive leverage and procyclicality in collateral requirements;
    - sets out how **margins and haircuts could, in principle, be used as macroprudential tools**;
    - identifies and sketches out a number of potential tools; and
    - highlights practical challenges in the implementation of such tools that require further work.

Re-use

- On 25 January 2017, the FSB published two new reports:
  - 1) *Re-hypothecation and Collateral Re-use: Potential Financial Stability Issues, Market Evolution and Regulatory Approaches*
  - 2) *Non-Cash Collateral Re-use: Measure and Metrics*
    - Incorporates input from early-2016 consultation and finalises the measure & metrics of non-cash collateral re-use in SFTs
    - FSB will collect from FSB members national aggregated data related to the measure and metrics from January 2020
    - FSB has concluded that **collateral reuse should be reported based on** what they term "**the approximate measure**"
      - Scope will for now be in respect of SFTs only – in the EU the SFTR is already being specified with these FSB conclusions in mind and the data required by authorities to report to the FSB should be derived from the EU SFTR data provided by firms
    - Approximate measure of collateral re-use by individual entities is calculated using data on total own assets, collateral received that is eligible for re-use, and collateral posted
      - **For a given collateral type j, collateral re-used by reporting entity i will be estimated as:**

$$collateral_{ij}^{reused} = \left(\frac{collateral_{ij}^{received.eligible\_for\_reuse}}{collateral_{ij}^{received.eligible\_for\_reuse} + assets_{ij}^{own}} \right) \times \left(collateral_{ij}^{posted} \right)$$

      - This implicitly assumes that the probability of a security being posted as collateral is independent of whether the collateral comes from an entity's own assets or from another collateralised transaction

Re-use Metrics

- Collateral re-use metrics which the FSB plans to generate with this reuse data are:
  1. collateral re-use at the jurisdiction and global level;
  2. collateral re-use rate (see example formula);
  3. share of re-used collateral
  4. concentration of re-use activities
  5. collateral circulation length; and
  6. collateral multiplier (at the global level only)

$$reuse^{rate} = \frac{collateral^{reused}}{collateral^{received,eligible\_for\_reuse}}$$

- Intention is that this will:
  - Support authorities' identification of financial stability risks arising from collateral re-use (e.g. interconnectedness, leverage and procyclicality); and
  - Inform any policy responses to addressing these risks

Revised Markets in Financial Instruments Directive (MiFID) & new Regulation (MiFIR)

- MiFID governs the provision of investment services in financial instruments by banks and investment firms and the operation of traditional stock exchanges and alternative trading venues
- MiFID was focussed on equities markets, but is now being extended to full cover non-equities markets
  - As repos are typically comprised of trades in fixed income securities, they are partially impacted by this extension of MiFID
  - In mid-2016, SFTs have been **exempted from both pre- and post-trade transparency requirements**
  - SFTs are also exempt from MiFIR transaction reporting requirements (rather being covered by SFTR reporting
    - But for now must still MiFIR transaction report repos with ESCB counterparties (as they are exempt from SFTR reporting)
  - **Best execution requirements do need to be addressed**
    - RTS 27 (re execution venues executing client orders in MiFID financial instruments) – unclear if this applies & ought not to
    - RTS 28 (re investment firms executing client orders on execution venues) – this clearly applies (but is disproportionate)
  - MiFID II states that an investment firm shall not conclude TTCAs for the purpose of securing obligations of retail clients
    - GMRA repos are TTCAs – it seems these will not therefore be allowed with retail clients
    - The definition of retail clients encompasses entities such as local authorities and municipalities – but subject to applicable procedures these types of clients may be able to elect for treatment as professional clients

CSDR Settlement Discipline

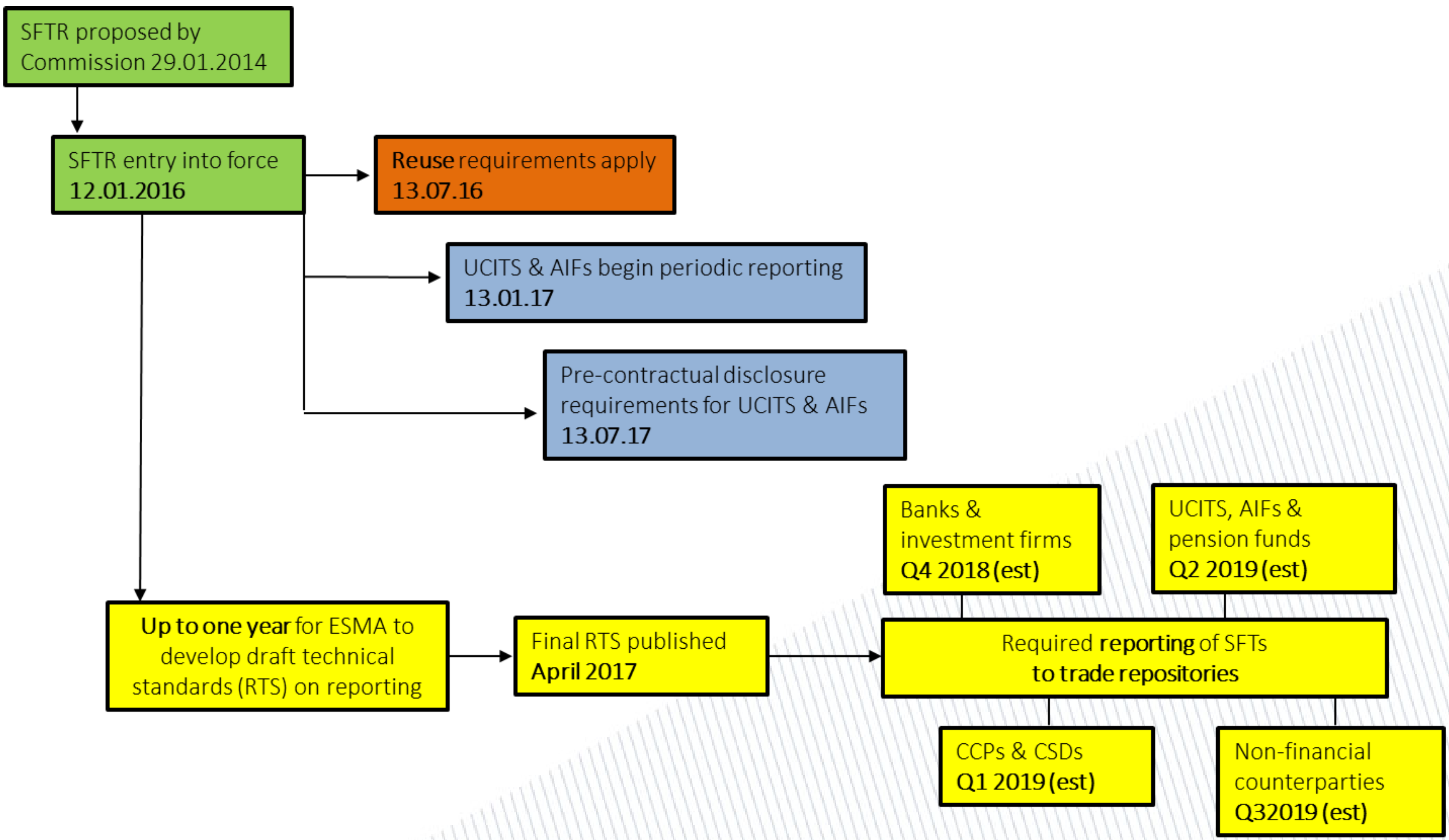
- On 10 March 2017, a package of CSDR RTS was published in the EU Official Journal, including
  - RTS for the parameters for the calculation of **cash penalties for settlement fails**
    - **CSDs will charge penalties, from 10 March 2019**, against failing participants and credit them to the failed-to participant
    - Applies to settlement fails in all transactions (**including SFTs**) in debt instruments and shares
    - Penalty rates are expressed in terms of a daily basis-point charge, applied for each business day of the fail
    - Penalty will be applied to a single reference price for the relevant security, used by all CSDs, for the given day(s) of the fail
      - Establishment of reference prices should be based on objective and reliable data and methodologies
    - Penalty rates to be applied are based on asset class; and have been determined by considering a balance between an effective deterrent to failing and minimizing negative impacts on the orderly and smooth functioning of markets
    - **For fixed income, penalty rates will be:**
      - 0.10bp for sovereign bonds (the approximate repo-rate equivalent is 0.25%)
      - 0.20bp for corporate bonds (the approximate repo-rate equivalent is 0.50%)

  - RTS for the controversial **mandatory buy-in regime was not part of the package published**
    - Expected to be approved by the co-legislators shortly and likely to come into force mid-2019

MMFs and Repos

- Incoming EU MMFs Regulation (MMFR) includes some significant points from a repo market perspective:
  - MMFR Chapter I provides that EU "MMFs shall be set up as one the following types:
    - (a) VNAV (Variable Net Asset Value Money Market Fund) MMF; (b) Public debt CNAV (Constant Net Asset Value Money Market Fund) MMF; (c) LVNAV (Low Volatility Net Asset Value Money Market Fund) MMF."
    - All these MMF types may take the form of a short-term MMF, but only VNAV MMFs can take the form of a standard MMF
  - Chapter II covers obligations concerning the investment policies of MMFs
    - Financial assets' **categories in which MMFs may invest include reverses and repos** – subject to eligibility requirements
    - Certain **activities which a MMF shall not undertake include securities lending & borrowing** agreements
    - Diversification requirements include that "The aggregate amount of cash provided to the same counterparty of a MMF in reverse repos shall not exceed 15% of its assets"
  - Chapter VII covers transparency requirements, specifically including that MMF managers shall inform their:
    - MMF investors, at least weekly of the "details of the ten largest holdings in the MMF, including the name, country, maturity and asset type, and the counterparty in the case of repos & reverses"
    - Competent authorities at least quarterly of information on the assets held in the portfolio of the MMF, including "the type of asset, including details of the counterparty in the case of derivatives, repos or reverses"

EU SFTR: Key elements and timeline



Thank you, Ladies and Gentlemen

» Contacts and information:

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- **Alexander Westphal:** Director – Market Practice and Regulatory Policy and Secretary, ICMA ERCC
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- ICMA quarterly report provides detailed updates on these matters and ICMA's broader work http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/Regulatory-Policy-Newsletter

Key challenges in repo and collateral operations

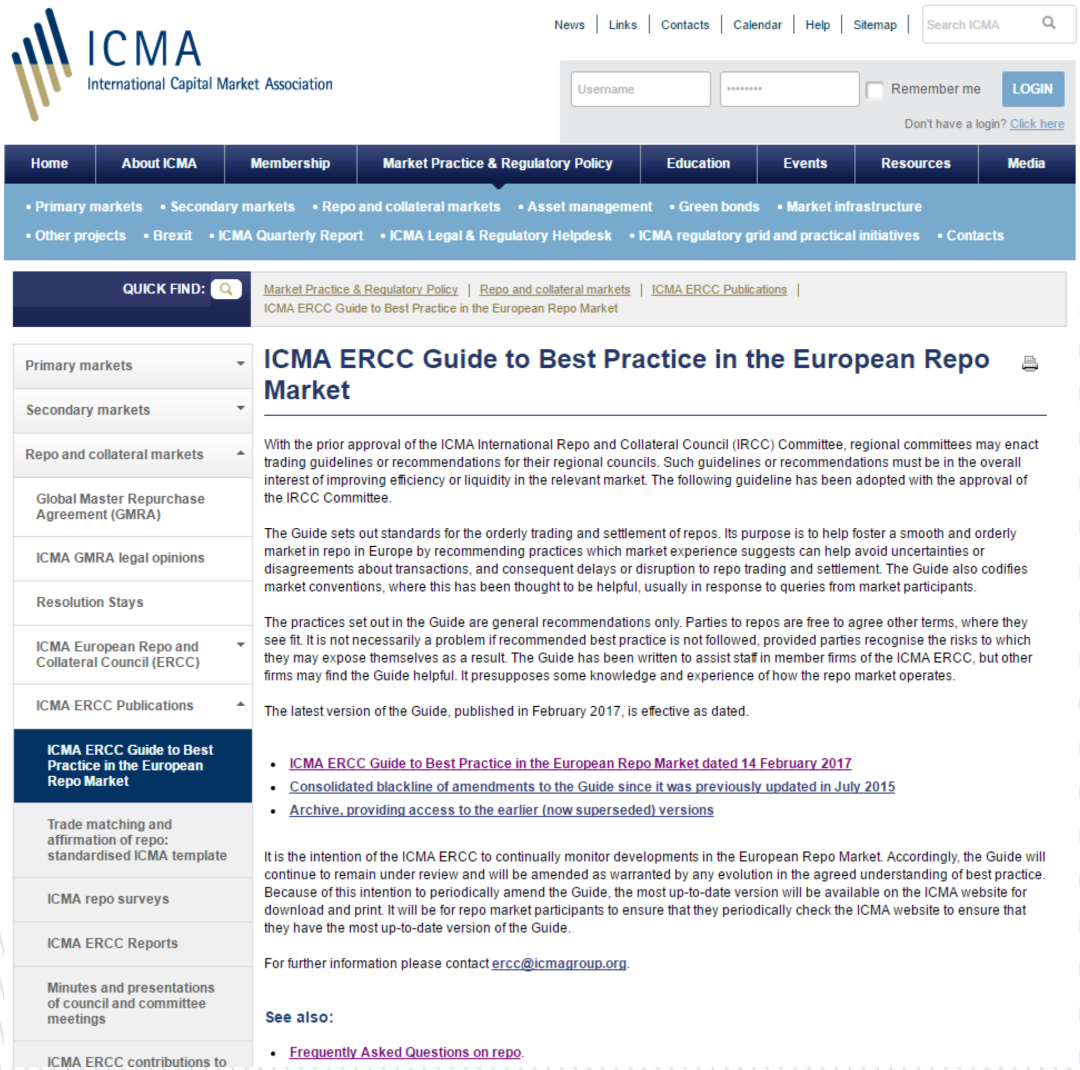
- **Mr. Nicholas Hamilton,** Co-Chair of the ERCC Operations Group

ERCC Ops focus areas:

- **SFTR implementation –** work closely with market participants and vendors to define an industry operating model to ensure successful implementation
- **Best practice** – continue to set market best practices for repo and support their consistent usage
- **Product definition and development** – work with ISLA/ISDA and others, including regulators, to establish common definitions of collateral products and identify standards or key attributes for post-trade transmission
- **Fintech** – Cross Industry WG to pull together the latest innovative/automated/robotic technology for Repo in the Post Trade environment

ERCC Repo Guide to Best Practice

- Initially published in March 2014
- Sets out detailed standards for the orderly trading and settlement of repo
- Reviewed on an ongoing basis by a dedicated ERCC working group – latest version published in February 2017
- Includes detailed guidance on confirmation and affirmation practices for repo transactions, including template forms of confirmations
- Available on the ICMA website



ERCC Ops FinTech WG

- Group formed in Sep 2016 & chaired by Sanjiv Ingle (SocGen)
- Objective: map all established & emerging FinTech solutions supporting collateral operations
- Interaction with the relevant vendors as a second step
- Work on the mapping ongoing - currently **53 solutions** covered, split in **11 categories** (e.g. matching, confirmation & allocation; workflow & communication)
- To be finalised in the course of 2017
- **Interested members are still welcome to join!**

Mapping of Ops FinTech tools

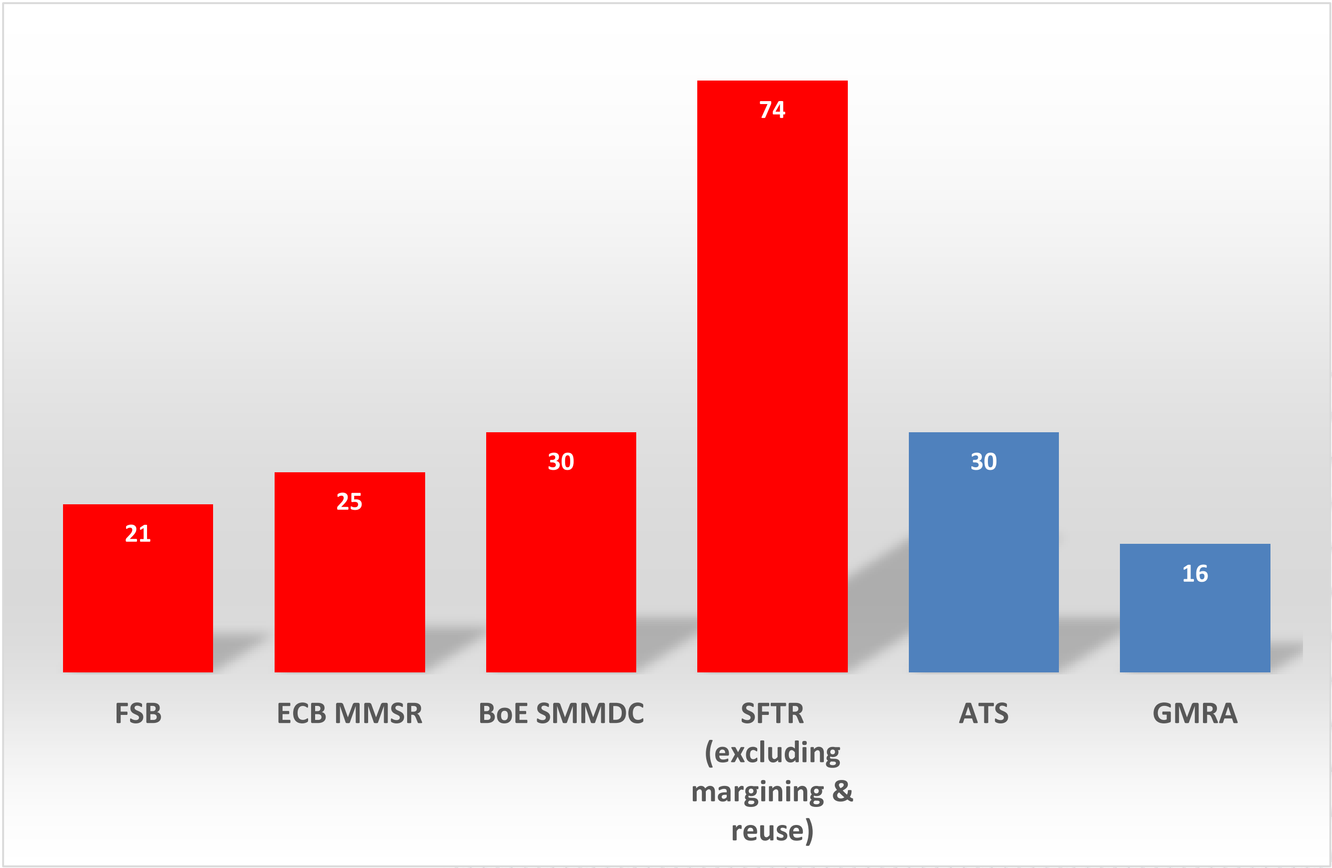
ERCC Ops FinTech WG

Last update: 15/02/2017

Category	Name of the solution	Company	Short description
Collateral management	4sight Collateral Management	Broadridge	Broadridge solution developing software for Securities Finance, Collateral Management, Synthetic Swap, Settlement and Market connectivity. Offer a F2B offering in Repo for Collateral, Lifecycle, Settlement, Billing, Fees and Reporting.
Collateral management	MX3	Murex	MX.3 centralizes collateral processing across entities and business lines for bilateral or cleared OTC, repo or securities lending, and exchange-traded derivatives products. This includes the calculation of CCP margins and bilateral BCBS/IOSCO WGMR margin rules, as well as firms' own risk methodologies.
Collateral management	Pirum	Pirum	Pirum's Collateral Management Service offers a single solution covering the calculation, agreement, and submission of daily triparty required values (RQVs) to triparty agents across all counterparties.
Exposure agreement	MarginSphere IM Exposure Manager	AcadiaSoft	AcadiaSoft Hub is the industry's only straight through margin processing solution. AcadiaSoft Hub is a one-stop solution for meeting the increased margin workload required for compliance with upcoming rules on margining non-cleared derivatives. 4 Pillars being MarginSphere, ProtoColl, Exposure Manager for IM and Service Platform.
Exposure agreement	Global Collateral Ltd	Global Collateral Ltd DTCC-Euroclear Joint Venture	Owned by DTCC. This is a scalable, robust and open industry infrastructure that streamlines collateral processing using Margin Transit Utility as the hub.
Exposure agreement	4Sight	Broadridge	Broadridge solution developing software for Securities Finance, Collateral Management, Synthetic Swap, Settlement and Market connectivity. Offer a F2B offering in Repo for Collateral, Lifecycle, Settlement, Billing, Fees and Reporting.
Exposure agreement	MarginMatrix	Allen&Overy, Deloitte	MarginMatrix codifies the laws in various jurisdictions and automates the drafting of tailored documents based on an automated legal analysis.
Matching, confirmation & allocation	Trade Match	BondLend	Trade Match provides an automated way to compare pre-settlement, trade data. It reconciles all the trade components of either the start or close leg of each trade type. Trade Match's exception management reporting prioritizes the core pending settlement risk items, helping users to reduce fails and rectify trade economic discrepancies on a real-time basis. Built using the same technology as the Next Generation Trading (NGT) platform, Trade Match provides enhanced user flexibility and configurability. It is compatible to One File connectivity and allows users the ability to send multiple files throughout the day.
Matching, confirmation & allocation	Omgeo CTM	DTCC	Omgeo Central Trade Manager (Omgeo CTM) is our strategic platform for the central matching of cross-border and domestic transactions automating the trade confirmation process across multiple asset classes.
Matching, confirmation & allocation	Trax Match Repo	MarketAxess	Trax Match Repo is a near real-time post-trade exception management tool for Securities Financing, facilitating the Trax best practice of confirming a trade within 15 minutes. Trax Match Repo helps you to: Mitigate your operational riks Improve STP and efficiency

Ops FinTech Tools | Additional solutions

SFTR reporting vs other initiatives vs current market practice



EU SFT Regulation: implementation

April 2017: SFTR draft RTS to be submitted to Commission

Q4 2017: Final SFTR RTS adopted

Q4 2018: Go live SFTR reporting (banks & investment firms)

Scenario 1: Expected

	2017				2018			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Regulatory Advocacy	ESMA RTS	Review						
	Firm/ICMA advocacy / engagement with regulators							
Vendor	Vendor Industry Exploration		Vendor Selection, Contract Signing		Onboarding			
			TPO					
Implementation		BRD		Report build		UAT		
		Data Requirement Definition		Data Landing				
			firms Operating Model		Firms Op Model Roll out		Prod Parallel	
		Industry Business Operating Model						
Industry Testing							Industry Test*	

** Remark: Given the strict reconciliation requirements (with zero tolerance), industry wide testing will be required – probably driven by vendors*

EU SFT Regulation: operational flow

E-trade / Venue

OTC

Risk Management System

- ✓ Trade Affirmation & Matching
- ✓ Platform connectivity
- ✓ Upstream Recs – Key Economics, Counterparty etc.
- ✓ SFTR Attributes – Counterparty, Loan & Collateral, Margin & Re-use

Settlement System

- ✓ Confirmation
- ✓ Market Settlements
- ✓ New initiative – GPTM platform
- ✓ Triparty Agent Collateral
- ✓ P&L/Sub Ledger Nostros
- ✓ Collateral Scheduling

Data/Warehouse/Msgs & Responses

- ✓ External / Internal
- ✓ Pre-matching
- ✓ Single pipe
- ✓ CCP connectivity
- ✓ Completeness, Accuracy & Timeliness
- ✓ Exception Management
- ✓ Messaging Standards – ISO 20022

Triparty Agent

Trade Repository

- ✓ Interoperability & Connectivity between Vendors & pipes
- ✓ Routing & Logic
- ✓ LEIs, UTI & External look ups, determination, generation
- ✓ Reference Data Validation – Client & Collateral
- ✓ Agency Lending & Triparty Data

Approved Reporting Mechanism

- ✓ FSB
- ✓ Ack/Nacks

Timelines

- ESMA RTS review, advocacy – Q217
- Industry Business Ops Model – Q417
- Plan Build & Ops Model – Q218
- Industry Testing & Parallel – Q318

*Q318 end SFTR Go live assumption

Challenges with the upcoming EU SFT Regulation

Moderator:

Mr. Richard Comotto, Senior Visiting Fellow, ICMA Centre

Panellists:

Mr. Jonathan Lee, EMEA FI Regulatory Reporting Manager, JP Morgan

Mr. John Kernan, Head of Product Management, REGIS-TR

Mr. John Abel, Co-Founder and CEO of the TR, Abide Financial

Next ERCC meeting:

- **Tuesday 14 November 2017, 14:00 – 17:00 CET**
- **Hosted by Euroclear in Brussels**