



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

ECB Money Market Contact Group

12 December 2016

Overview

A New Repo Index: background and highlights

B 2015 Euro Repo Market Analysis

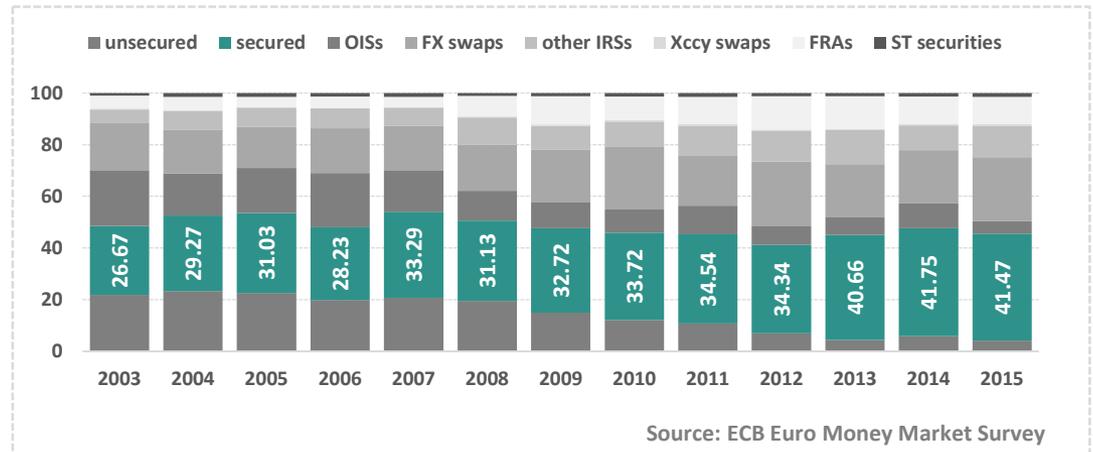
C December 2015 Public Consultation

D Exploring determination methodologies

E Next steps

- In September 2013, EMMI and the European Repo (and Collateral) Council launched a Secured Benchmark Task Force to ascertain the feasibility of a transaction-based reference rate for the euro repo market (the New Repo Index):
 - ✓ By thoroughly analyzing the financial market segment on which the reference rate would be based, by collecting empirical evidence to assess data sufficiency;
 - ✓ By developing an index that reflects market conditions across the whole euro area.

- While EMMI and the Task Force acknowledged the challenge given the liquidity structure of the Euro repo markets, extracting information from the deepest and most liquid segment was considered a worthwhile goal.



2014

Establishing the Underlying Interest

The Secured Benchmark Task Force meets with ATs, Clearing Houses, and existing Index Providers covering the European repo market.

The Secured Benchmark Task Force meets and recommends EMMI to underpin the benchmark on on-screen euro repo transactions executed on European ATs and cleared through qualified CCPs.

2015

Euro Repo Market Analysis

Three major European ATs provide 9 years of individual repo transaction data to EMMI to guide and inform the Task Force on the New Repo Index development work.*

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.

2016

Exploring Determination Methodologies

EMMI starts (and concludes) its work on the development of a methodology for the New Repo Index.

* The initial analysis of the data was performed by Angelo Ranaldo and Jan Wrampelmeyer (HSG).

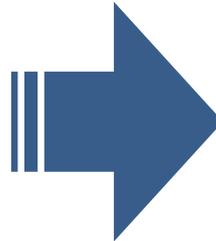
Data observations

There is sufficient data to construct a transaction-based index for short maturities, but for longer maturities the data seems insufficient

Every platform plays a dominating role for different segments of the market

Different rate patterns can be observed depending on: collateral type, GC or special repo

There are seasonalities (e.g. year-, quarter-, month-end, and end of ECB maintenance period)



Conclusions

It is feasible to create a **robust, transaction-based** pan-European benchmark on one-day tenors

Reliable representation of the secured money market

Capturing and encompassing different market segments

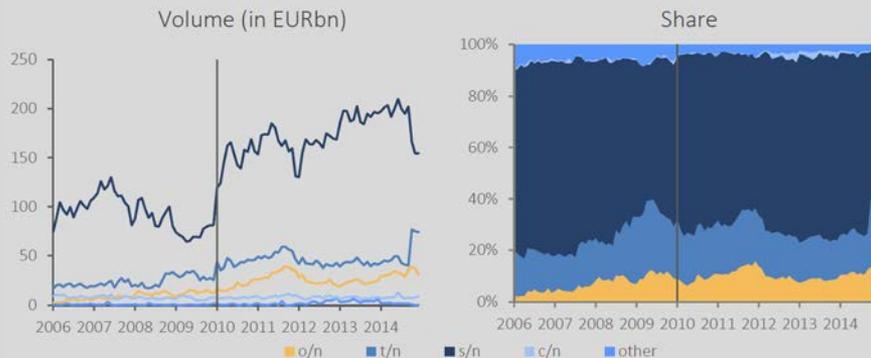
Reflecting common trends across the whole secured money market

Reflecting the seasonalities and patterns in the data

Some characteristics of the data: maturities

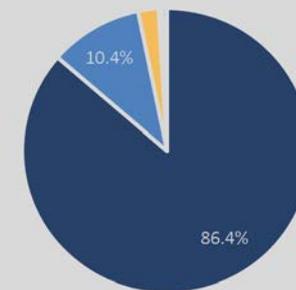
- The analysis indicated that around 95% of repos in the sample were traded with one-day maturities.
- One-day repos are available for every day in the sample. One-week repos are also available every day, but the number of transactions is very low on a considerable amount of days.
- One-day tenors are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

Volume and share of different one-day repos

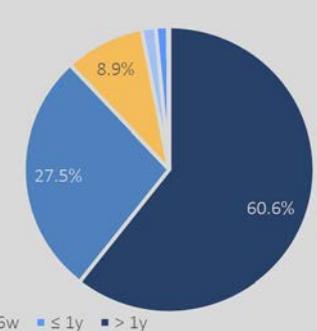


Share of different term types for repos longer than one day

All: Number of transactions



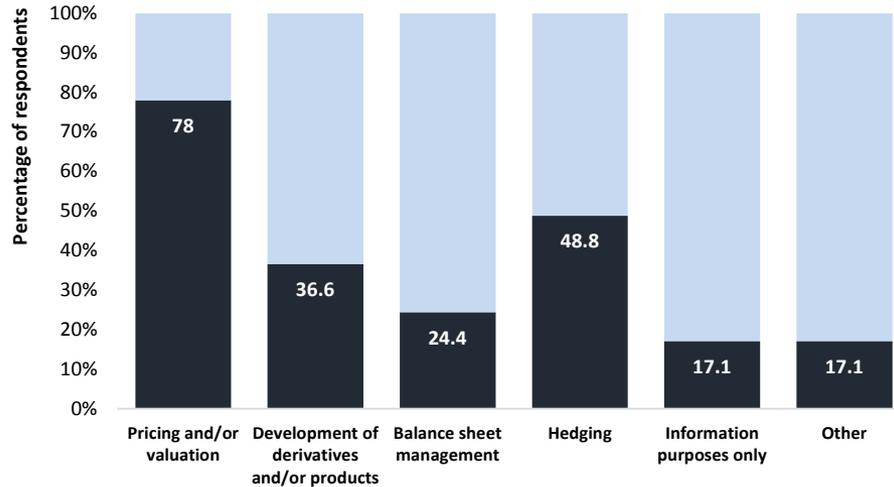
All: Volume



Some characteristics of the data: floating rate

- 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.)

1
Potential need and use of a pan-European repo benchmark



- Pricing and valuation seem to be the most foreseeable potential uses of the New Index.
- A number of respondents indicated that the New Repo Index could be regarded as a possible substitute of the Eonia index.
- Other possible uses are as benchmark of historical performance and internal transfer pricing.

2
Underlying transactions supporting the determination of the index

Preference for transactions underlying the index consisting of: anonymous ATS executed and OTC's (i.e. voice-brokered and bilateral) euro repo trades centrally **cleared through a qualifying CCP** made against ECB eligible collateral.

*While EMMI acknowledges the market's appetite for an index whose underlying data includes all ATS executed, voice-brokered, and bilateral transactions cleared through qualifying CCPs, due to data availability issues, the preliminary design of the benchmark will be focused on **anonymous ATS executed trades, cleared through qualifying CCPs.***

- The development work* of the determination methodology for the New Repo Index was done using the transaction data contributed by the three European ATs 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)

