Eonia / Euribor
Past, Present and Future
Milan, 13th June 2017

Sascha Weil
Head of € Funding and Short Term Investments
Agenda

1. Euribor’s dilemma
   - Regulatory Challenges
   - EMMIs Pre-Live Verification (PLV)
   - Market Reactions
   - Depth (or death?) of Interbank Money Markets
   - Euribor Hybrid Model

2. EONIA’s dilemma
   - Panel bank decline
   - Lending or borrowing – where lies the truth?
   - Comparison to other benchmarks
Euribor’s dilemma

**Background**

- Departure of panel banks from 44 banks in 2012 down to 20 banks in 2017
- Definition challenge
  - *Euribor® is the rate at which Euro interbank term deposits are offered by one prime bank to another prime bank within the EMU zone, and is calculated at 11:00 a.m. (CET) for spot value (T+2).*
- Regulatory challenge
  - Basel III head winds
    - RWA
    - Leveraged Balance Sheet
    - LCR / NSFR
- Behavioral challenge
  - Benchmark Users: what is the downside to not participate? ‘Free lunch mentality’
  - Benchmark Contributors: what is the upside to participate? Unbalanced Risk/Reward?
- Transactional / Data challenge
  - Money Market Statistical Reporting (MMSR) into PLV
  - Discounting wholesale liquidity pockets outside of banking
Liquidity Surplus is causing the tightening the basis
Is FRA/OIS still fit for purpose as a bellwether of Interbank Markets?

Source: Bloomberg.
Short end FRA/OIS trades in negative terrain
Is each benchmark definition fit for purpose?

Source: Bloomberg.
PLV Announcement on 4th May: Open interest declines
Market expectation has been disappointed…?

Source: Bloomberg.
Lower Fixing expected?
Euribor/OIS Price action (Intraday) June IMM on 4th May 2017

Source: Bloomberg (EUFOSC1).
Regulatory headwinds hamper interbank funding market
Is this expected to change?
Dipping your Interbank toe into a ‘new’ pond of liquidity …

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td></td>
<td>31-Mar-17</td>
<td>30-Apr-17</td>
<td>Change</td>
</tr>
<tr>
<td>NEU CP</td>
<td>280,5</td>
<td>277,6</td>
<td>-2,9</td>
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<tr>
<td>Bank issuers</td>
<td>209,3</td>
<td>202,9</td>
<td>-6,4</td>
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<tr>
<td>Corporate and public issuers</td>
<td>66,1</td>
<td>69,9</td>
<td>3,8</td>
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<td>Securitization vehicles</td>
<td>5,1</td>
<td>4,8</td>
<td>-0,3</td>
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<tr>
<td>NEU MTN</td>
<td>46,4</td>
<td>47,5</td>
<td>1,1</td>
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<tr>
<td>Total</td>
<td>326,9</td>
<td>325,1</td>
<td>-1,8</td>
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NEU CP (＝ former French CD)

Every little bit helps…
Who is willing to support EMMI’s Hybrid Model?

- The new EU Benchmark Regulation comes into play from 1st Jan 2018
  - Implementation of governance systems and other controls to ensure integrity and reliability of in-scope benchmarks
- There are fixed (and floating) transactions within the market, what is holding us back from using them both?
- Don’t be afraid to re-invent the benchmark
  - Further encouragement per country to join the Benchmark panel required
    - Operational and legal costs to stay within the panel
    - Make participation an honour, not a burden.
    - How to incentivize a bank to stay in or re-join?
    - Banks evaluate risk of spreads and Risk/Reward
    - Focus on ‘the right’ Money Market players across the full curve
  - Seamless transition to new benchmark & methodology required
  - Euribor contract frustration needs to be avoided
- Euribor @ Hybrid Model
  - **Definition:** Hybrid /ˈhaɪbrɪd/ “a thing made by combining two different element”
  - **Definition:** Cost of Funds / Waterfall “…describes a development method that is linear, sequential, a life cycle”
- Are market users fully aware of their most active benchmark, its contingency and fallback procedures?
  - 1mth Euribor i.e. for Internal transfer pricing?
  - 3mth Euribor i.e. for CCY swaps?
  - 6mth Euribor i.e. for asset swaps?
  - 12mth Euribor i.e. for retail mortgages?
The future of EUR LIBOR as per IBA

- Financial Stability Board recommendation in 22 July 2014 to “Reform Major Benchmarks Interest Rates”
- LIBOR introduction of new submission methodology
  - Submissions will be non-subjective and fully transaction-based wherever feasible
  - IBA will implement a uniform submission methodology for LIBOR panel banks
  - IBA will publish a single, clear, comprehensive and robust LIBOR definition
    - Waterfall:
      - Level 1: Volume Weighted Average Price (VWAP) in unsecured deposits, CP’s and CD’s
      - Level 2: Transaction derived data including time-weighted historical transactions for market movements and interpolation
      - Level 3: If insufficient data in L1 and L2, internally approved procedure with IBA
EUR LIBOR submissions are derived by …
Expert judgement appears essential for most tenors

Source: https://www.theice.com/iba/historical-data.
Observations regarding European benchmark submissions
Grouping submissions by country at 12mth Point

*Euribor® is the rate at which Euro interbank term deposits are offered by one prime bank to another prime bank within the EMU zone, and is calculated at 11:00 a.m. (CET) for spot value (T+2).*

- Large spread in submissions
- Is the European geography fairly reflected, concentration issues?
- Do banks use consistent and similar methodologies?
- Do banks differentiate between LCR efficient cash in their submission (60% or 100% outflow?)

<table>
<thead>
<tr>
<th>Country</th>
<th>Average Submission of panel banks</th>
<th>12mth Euribor</th>
<th>Submission / Libor</th>
<th>Generic 12mth Government Yield</th>
<th>12mth Germany</th>
<th>Government / Libor</th>
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</thead>
<tbody>
<tr>
<td>France</td>
<td>-0.194</td>
<td>-0.131</td>
<td>-0.063</td>
<td>-0.550</td>
<td>-0.750</td>
<td>0.200</td>
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<td>Belgium</td>
<td>-0.140</td>
<td>-0.131</td>
<td>-0.009</td>
<td>-0.567</td>
<td>-0.750</td>
<td>0.183</td>
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<tr>
<td>Luxembourg</td>
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<td>-0.131</td>
<td>-0.009</td>
<td></td>
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<tr>
<td>Netherlands</td>
<td>-0.130</td>
<td>-0.131</td>
<td>0.005</td>
<td>-0.680</td>
<td>-0.750</td>
<td>0.070</td>
</tr>
<tr>
<td>Spain</td>
<td>-0.130</td>
<td>-0.131</td>
<td>0.001</td>
<td>-0.320</td>
<td>-0.750</td>
<td>0.430</td>
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<tr>
<td>Italy</td>
<td>-0.126</td>
<td>-0.131</td>
<td>0.005</td>
<td>-0.320</td>
<td>-0.750</td>
<td>0.430</td>
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<tr>
<td>Greece</td>
<td>-0.120</td>
<td>-0.131</td>
<td>0.011</td>
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</tr>
<tr>
<td>UK</td>
<td>-0.120</td>
<td>-0.131</td>
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<td>Germany</td>
<td>-0.090</td>
<td>-0.131</td>
<td>0.041</td>
<td>-0.750</td>
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<tr>
<td>Portugal</td>
<td>-0.070</td>
<td>-0.131</td>
<td>0.061</td>
<td>-0.230</td>
<td>-0.750</td>
<td>0.520</td>
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</table>

Source: Bloomberg, per 30th May 2017.
EONIA compared to international peers

Background:

- **Definition challenge:** EONIA (Euro OverNight Index Average) is computed as a weighted average of all overnight unsecured lending transactions in the interbank market, undertaken in the European Union and European Free Trade Association (EFTA) countries by the Panel Banks.

- Departure of panel banks, 80% of daily transactions are coming from 5 banks.

- EONIA volume dropping on German bank holidays below €1bln, is EONIA really a Pan-European Benchmark?

- Does the definition of lending transactions reflect the market considering individual ways passing on regulatory costs?

- EONIA in comparison to global peers

<table>
<thead>
<tr>
<th>EUR</th>
<th>GBP</th>
<th>USD</th>
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<tbody>
<tr>
<td>Index</td>
<td>Index</td>
<td>Index</td>
</tr>
<tr>
<td>EUORDEPO Index</td>
<td>UKBRBASE INDEX</td>
<td>FDTR INDEX</td>
</tr>
<tr>
<td>Eureonia INDEX</td>
<td>SONIO/N INDEX</td>
<td>FDFD INDEX</td>
</tr>
</tbody>
</table>

Source: Bloomberg.
OIS vs. Benchmark Rate

Source: Bloomberg.
EUR overnight fixing

- Since May 2017 additional two banks left the EONIA panel
- Could the future o/n Benchmark be moving from lending to borrowing?
- Could ECB make all MMSR data anonymously available to EMMI?
- Could a value date approach instead of trade date approach increase volumes considerably?
- Would banks create an underlying swap market on the ECB?
- Could the ECB take a similar approach as taken by BOE and FED creating their own benchmarks?
Summing up

- Euribor is a systemic relevant Benchmark tied to c.€105tr in contracts
- Reduced number of panel banks (20) providing Euribor submissions could create challenges for the actual or perceived credibility of the benchmark
- EONIA volumes are shrinking
  - 2017 average below €10bn
  - Top 5 banks contribute >80% of the volume*
  - Record low volume of €836m on 2nd June 2017
- A change to the benchmark definitions would help to maintain their credibility and relevance
- Collective interest in robust Interest Rate benchmarks for the functioning of markets and transition of monetary policies
- Mandatory contribution is not a long term solution – once triggered it begins the process of the wind down of the benchmark

*Source: Eonia consultation paper 2016
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- Representing the Firm in certain industry trade groups;
- Participating in consultations initiated by regulatory and supervisory bodies