€STR Forward Looking Term Structure

Presentation to the Working Group on Euro Risk-Free Rates
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16 October 2019
Introduction to Refinitiv

• Refinitiv is the former Financial and Risk business of Thomson Reuters
  o Formed on 1st October 2018, 55% owned by a Blackstone led consortium and 45% owned by Thomson Reuters
  o Refinitiv is one of the world’s largest providers of financial markets data and infrastructure, serving over 40,000 institutions in over 190 countries
  o Refinitiv provides leading data and insights, trading platforms, and open data and technology platforms that connect a thriving global financial markets community - driving performance in trading, investment, wealth management, regulatory compliance, market data management, enterprise risk and fighting financial crime

• Refinitiv is organised into five divisions
  o Trading
  o Investing and Advisory
  o Risk
  o Wealth
Refinitiv benchmark administration

Refinitiv is the administrator for 34 benchmarks and the calculation agent for a further 67 benchmarks


Refinitiv Benchmark Services (UK) Limited (“RBSL”), a wholly owned subsidiary of Refinitiv, is an authorized benchmark administrator and has been regulated in the UK by the Financial Conduct Authority since 2014

Benchmarks administered by RBSL under EU BMR

- WM/Reuters FX benchmarks: 4pm Closing Spot FX rate benchmarks for 155 currencies
  - Data sourced from three platform
- CDOR: contribution-based Canadian term interest rate benchmarks representing the C$100 billion Bankers' Acceptance market
- CORRA: broker contribution-based overnight Canadian interest rate benchmark representing the GC repo market
- SAIBOR: contribution-based Saudi Arabian term interest rate benchmarks representing the interbank deposit market

Benchmarks and indices administered under the IOSCO principles include

- Vietnam Dong FX and Reference Rate Benchmark: post-trade based FX forward and implied interest rate benchmarks
- US Constant Maturity Mortgage (CMM) Index: price assessment-based constant 30 day MBS TBA rates
- TRYFIX: broker-based implied Turkish interest rate benchmarks (FX forward based)
- Tokyo Swap Reference Rates: contribution-based JPY LIBOR and JPY TIBOR interest rate swap benchmarks
- Others

Calculation agent for third-party administered benchmarks including

- BELIBOR
- CNH HIBOR
- HONIA
- SIBOR
- SOR
- Others
An OIS-based term structure that can evolve with the market is the best solution

• As a **first step**, development of term reference rates using *indicative* OIS prices are an important step in the progress towards OIS CLOBs and the availability of executable quotes for term reference rates
  
  o Certain existing users of EURIBOR obtain the benefits of a term structure
  
  o The migration to risk-free rates can be facilitated

• As a **second step** in 2020, CLOB quotes in term reference rates could be added via a new tier in a waterfall of input data

• Indicative OIS quotes can be available from two sources
  
  o Dealer to client trading platforms
  
  o Interdealer brokers

• Robustness suggests combining data from as many sources as possible
  
  o Key design challenge in handling data from dealer to client platforms and interdealer brokers in an equivalent manner
  
  o Random sampling of mingled data over a window followed by filtering and averaging or a median quote
  
  o Possibility to add other data to inform quality control and in-house expert judgement

• We recommend adding traded OIS in a **third step** only after markets have become sufficiently liquid
Illustrative benchmark calculation process

Calculation:
receives a number of order books snaps during a specific time window; selects quotes; calculates benchmarks. Refinitiv already obtain

Pre-publication quality control:
comparisons with related markets and other data sources, e.g. dealer to client, indicative quotes, futures, Refinitiv Super RICs. We will review if and how Refinitiv staff can employ expert judgement.

Publication

Surveillance and Monitoring:
Nasdaq SMARTS. Alerts developed by CMCRC. Dedicated resources.

Related markets / quotes

*NDA’s in place with two brokers, one in negotiation
## Refinitiv has developed a strong governance structure and culture

### Governance
- RBSL Board
- Dedicated Risk Manager
- Risk Committee
- Audit Committee
- Oversight Committees

### Benchmark Management
- Benchmark design
- Methodology drafting
- Annual reviews

### Compliance
- Dedicated compliance officer
- Advice and guidance
- Regulatory relationships
- Control

### Risk Management & Control Framework
- Dedicated regulatory oversight staff
- Second line of defence
- Risk management framework
- Real-time and periodic control of adherence to EU BMR
- Conduct risk

### Quality Control
- Pre-calculation
- Pre-publication
- Post-publication

### Surveillance and Monitoring
- Uses Nasdaq SMARTS
- Covers 26 benchmarks
- Between 6 and 13 scenarios, and up to 21 alerts

### Calculation
- Data collection via Refinitiv products
- Calculation systems and operations
  - Submission-based benchmarks
  - Post-trade benchmarks
  - VWAP and equal weighted

### Distribution & Value-add
- Eikon
- Elektron
- FTP
- Third party vendors
- Calculators
- Views & Analytics
Process to develop a risk free rate terms structure

- Develop prototype based on indicative data / broker curves
- Obtain feedback on multiple methodology options shared in a consultation paper
- Publish final methodology and publish indicative reference rate
- Client outreach on commercial terms
- Publish risk free rate term structure benchmark / fall-back
Thank you
Appendix
Refinitiv rates and indices will facilitate transition to risk free rates

- OIS-based term rates and swap rates
- Compound RFR indices
- Realised Rate (1W, 1M, 3M, 6M, 12M)
  - Central bank / official methodology
  - Multiple other options / versions
- In advance (extrapolated) realised rates (1W, 1M, 3M, 6M, 12M); (current and 30 day average)
  - Central bank / official methodology
  - Multiple other options / versions
- Calculated or contributed Fixed Leg Swap Rates
  - RFR to fixed
  - Term Rate to fixed
- Acquire / on-board all of the above if administered by a third party
- Switch over Implied Interest Rates (THBFX, VNDFX, TRYFIX, etc) from LIBOR to Term Rates
Planned Refinitiv services to facilitate transition to RFR

- IR reform landing page on EIKON (done)
- Accurately reflect coupons for FRNs backwards
- Refinitiv bond calculators to support new RFR and RFR term rates in bonds
- Refinitiv analytics, e.g., spreads calculations, zero curves, forward curves
- Acquire / on-board new content sets such as cleared swaps, futures, options created by exchanges on new RFR
- Expose new curves in all existing Eikon calcs for discounting & calculating forward cashflows
- Curve Builder App :
  - deliver a tool to let our customers build new reference rate curves based on our data, based on SOFRA, SONIA, OIS or ESTER. We have the Curve Analytics but not a tool in Eikon. Planned in 2020 with the new Curve Builder App.
  - offer a tool to view & compare existing LIBOR / Euribor curves vs the new SOFR / Ester curves: view basis between curves or review any scenario effect, across multiple curves at once (shift constituents, shift zero rates...). Mainly requested by Quants, Rates Sales and Corporates.
- Scenario analysis report to calculate the impact of switching from LIBOR curves to new curves for FRN, OTC rates derivatives LIBOR holders; Impacts to LIBOR bonds e.g. called, convert to straight, change floater program
- Evaluated pricing service to adjust methodologies
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