Term SONIA Reference Rates

Presentation to the Working Group on Sterling Risk-Free Reference Rates

14 May 2019

REFINITIV™

Contents

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Introduction to Refinitiv

- Refinitiv is the former Financial and Risk business of Thomson Reuters

  - Formed on 1st October 2018, 55% owned by a Blackstone led consortium and 45% owned by Thomson Reuters

  - Refinitiv is one of the world's largest providers of financial markets data and infrastructure, serving over 40,000 institutions in over 190 countries

  - 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

  - Trading

  - Investment and Advisory

  - Risk

  - Wealth

  - Enterprise

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Refinitiv benchmark administration

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

All Refinitiv benchmarks are in alignment with IOSCO principles (https://www.refinitiv.com/en/financial-data/financial-benchmarks/benchmark-regulation)

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
- CDOR: contribution-based Canadian term interest rate benchmarks representing the C$100 billion Bankers' Acceptance market
- CORRA: trade-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

- Tokyo Swap Reference Rates: contribution-based JPY LIBOR and JPY TIBOR interest rate swap benchmarks
- Vietnam Dong FX and Reference Rate Benchmark: contribution-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)
- Others

Calculation agent for third-party administered benchmarks including

- BHIBOR
- BELIBOR
- CNH HIBOR
- HONIA
- SIBOR
- Others

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Key benchmark functions at Refinitiv

Governance

RBSL Board.

Risk Committee.

Internal Audit.

Oversight Committees.

Benchmark Management

Benchmark design.

Methodology drafting.

Annual reviews.

Compliance

Advice and guidance.

Regulatory relationships.

Control.

Risk Management & Control Framework

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.

Technology

Submission-based benchmarks.

Trade-based benchmarks.

Post-trade benchmarks.

Indices (equity and futures).

VWAP and equal weighted.

Distribution & Value-add

Eikon.

Elektron.

FTP.

Third party vendors.

Calculators.

Views & Analytics.

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Risk-Free Rate Term Structures Will Have A Limited Role Post Transition From LIBOR

- Derivatives market will transition to SONIA

- Floating rate debt securities have demonstrated an ability to transition to overnight risk-free reference rates (RFRs)

- Loan market most likely user of term reference rates

  o Includes corporate loans, syndicated loans and retail loans

  o Estimated size of £1 trillion (Sterling RFR Working Group, July 2018)

  o Preference for forward-looking rates

- A term RFR benchmark would also facilitate the transition from LIBOR

  o Term RFR benchmarks reverse a move away from risk-free USD T-bill benchmarks to LIBOR in the late 1980s and early 1990s (BIS, March 2019)

  o Familiarisation with new term RFR reference rates is required

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RFR Term Structures Based On OIS Quotes Are The Optimal Solution

Refinitiv's view is that term rates based on executable OIS quotes from a central limit order book (CLOB) results in the best term structure benchmarks for risk free rates

- o (the best source of price data would be executed spot-starting OIS trades but the market may not develop sufficient liquidity)

Benefits

OIS contracts have rolling terms rather than fixed calendar maturities

- o No curve modelling or interpolation required

- o Quotes reflect market expectations of all events over the term of the OIS contract including Bank of England rate decisions

Challenges

Term Structures based on OIS present technical challenges

- o Forward starting OIS are more liquid

- o Limited liquidity in spot starting OIS

- o Market structure likely to evolve further, particularly once interest rate swaps migrate from LIBOR to SONIA

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An OIS-Based Term Structure That Can Evolve With The Market Is Viable

- 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

- Certain existing users of LIBOR obtain the benefits of a term structure

- The migration to risk-free rates can be facilitated

- Future CLOB quotes in term reference rates could be added via a new tier in a waterfall of input data

- The market is presented with genuinely different approaches to the development of term structures

- Indicative OIS quotes are currently 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 <u>or</u> a median quote

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Risk free rate term structure benchmark

- Any risk free rate term structure compliant with EU BMR needs to satisfy minimum requirements

    o An active underlying market needs to be defined

    o Input data is robust and representative of the underlying market

    o A robust and transparent methodology

- We believe that OIS-based term rates can satisfy these requirements over time

    o SONIA OIS market is liquid and active: cleared GBP OIS in excess of £8.6 trillion (source: LCH)

    o Indicative quotes from a sufficient number of platforms and intermediaries can be representative of the underlying market

    o EU BMR distinguishes between readily available data and contributions solely for the purpose of determining a benchmark; input data from platforms and intermediaries would not require a contributor code of conduct

    o A robust methodology can be developed on the basis of sampling quotes over a window and either filtering and averaging or determining the median quote

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Thank you.

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# Disclaimer

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TERM SONIA REFERENCE RATES

MAY 2019

Interest Rate Swaps

As a pioneer in electronic markets, Tradeweb introduced RFQ protocol for trading Interest Rate Swaps in 2005. Since then, Tradeweb has become a leading platform for interest rate swaps trading globally.

- Full coverage of G10 currency swaps and expanding into Emerging Markets

- Swaps trading access via globally regulated venues (SEF, MTF, ETP)

- Protocols include RFQ, RFM, Click to Trade, Compression and List Trading

Interest Rate Swaps Delta
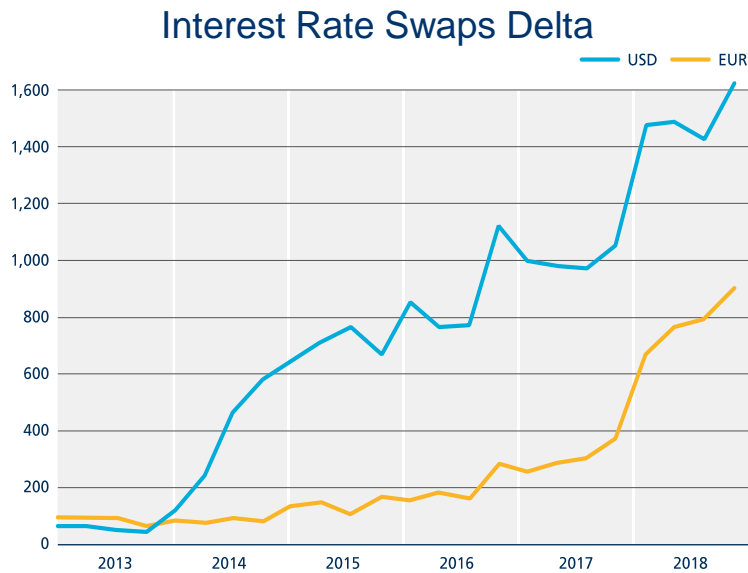
- **$150bn+** IRS Notional ADV
- **30+** liquidity providers
- **16** currencies
- **500+** institutional clients

Source: Tradeweb
Data includes total IRS delta (single leg & list trades) in €MM DV01

SONIA Swaps

- The leading electronic marketplace for sterling interest rate swaps

- Ideally positioned to assist the marketplace to transition existing Libor positions into SONIA

- Working with the buy side and dealer community to increase breadth of product offering and trading protocol flexibility for SONIA

- **18 dealers** providing pricing, **50+ clients** trading over **£575 billion** notional in 2018

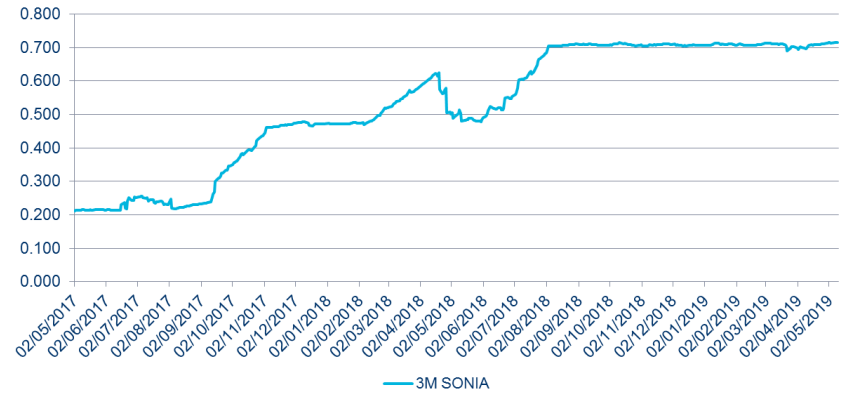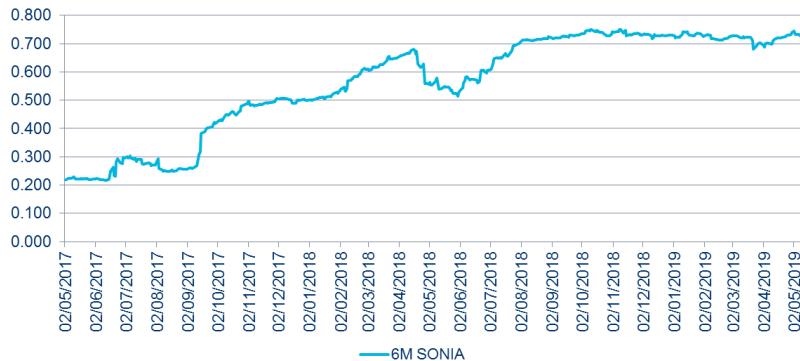| Trading Protocols |
| --- |
| RFQ |
| RFM |
| Click to Trade |
| List and Compression |

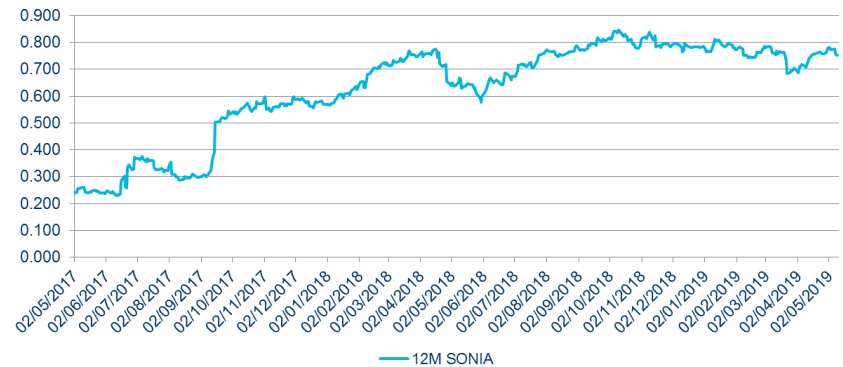# Sonia Calculations

1M SONIA
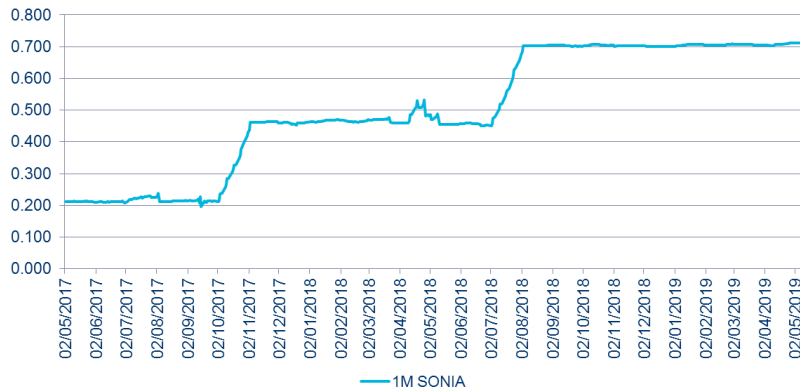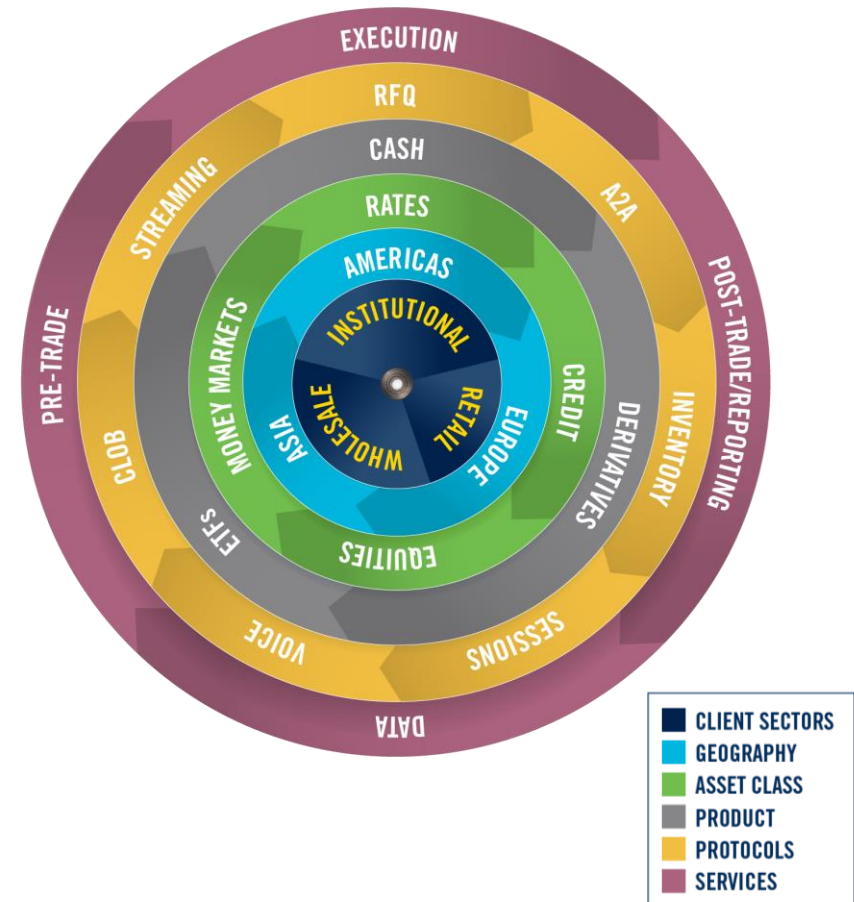
3M SONIA

6M SONIA

12M SONIA

Source: Tradeweb

APPENDIX

PEEPLE ➕ NETWORK ➕ TECHNOLOGY

- A leading, global operator of electronic marketplaces for rates, credit, money markets and equities.

- Provides access to markets, data and analytics, electronic trading, straight-through-processing and reporting for more than 40 products to clients in the institutional, wholesale and retail markets.

- Advanced technologies developed by Tradeweb enhance price discovery, order execution and trade workflows while allowing for greater scale and reduced risks in client trading operations.

Legend:
- CLIENT SECTORS
- GEOGRAPHY
- ASSET CLASS
- PRODUCT
- PROTOCOLS
- SERVICES

A Powerful Client Network

Tradeweb

OUR CLIENT NETWORK
TRUSTED RELATIONSHIPS, MANY DEVELOPED OVER 20+ YEARS

THREE CLIENT SECTORS

INSTITUTIONAL
WHOLESALE
RETAIL

2,500+ CLIENTS

60+ COUNTRIES

95% TOP 100 GLOBAL ASSET MANAGERS

80%+ TOP 25 INSURANCE COMPANIES

OFFICES IN NORTH AMERICA, EUROPE AND ASIA

54,000+ FINANCIAL ADVISORS

50+ CENTRAL BANKS

OUR DEEP POOLS OF LIQUIDITY
EFFICIENT & TRANSPARENT TRADING

FOUR ASSET CLASSES

RATES
CREDIT
EQUITIES
MONEY MARKETS

$549B/41,700+ TRADES
2018 AVERAGE DAILY VOLUME

LEADING ELECTRONIC MARKET FOR MULTIPLE PRODUCTS[1]

GOVERNMENT BONDS
TBA MBS
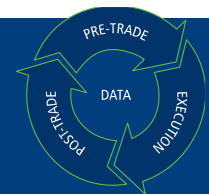**INTEREST RATE SWAPS**

40+ PRODUCTS TRADED

TECHNOLOGY—HEAVILY INTEGRATED IN CUSTOMER WORKFLOWS
FULL SPECTRUM OF TRADING PROTOCOLS BUILT ON PROPRIETARY TECHNOLOGY

SOLUTIONS SUPPORTING CLIENTS ACROSS THE WHOLE TRADE LIFECYCLE

PRE-TRADE
EXECUTION
POST-TRADE
DATA & REPORTING

VOICE • INVENTORY • REQUEST BASED • ALL-2-ALL • SESSIONS TRADING • ACTIONABLE STREAMS • ORDER BOOK

PRE-TRADE
DATA
EXECUTION
POST-TRADE

Tradeweb FTSE Gilt Closing Prices

DMO selected Tradeweb and FTSE Russell to provide the official Gilt and Treasury Bill end-of-day reference prices from July 2017

Tradeweb and FTSE Russell produce end-of-day gilt reference prices in a manner consistent with IOSCO principles

The Gilt Closing Prices are based on executable bid and offer prices published on Tradeweb's electronic trading platform

Methodology Summary

- Collection window from 16:14 to 16:16

- GEMM prices with missing attributes are excluded

- Arithmetic mean of mid-prices calculated for each GEMM

- Outliers beyond one std. dev. are removed

- Up to three remaining GEMMs removed at random (min of 10)

- Mean of remaining values calculated to 3dp (< 10yrs), or 2dp (>= 10yrs)