

Interest rates reform and the impacts for the insurance



INSTITUT DES
ACTUAIRES

SECTIONS VIRTUAL
COLLOQUIUM | 2020



**Eléonore Haguët-Trouplin,
BNP Paribas Cardif**

**Patrice Odo,
Caisse des dépôts et consignations**

May 11th – May 15th 2020

About the speaker



Éléonore Haguet-Trouplin

- Actuary in risk management
- After several years of life insurance consulting, I joined BNP Paribas Cardif to study the resilience of the company in the face of financial risks. I have been a member of the Finance and Asset Management Commission of the French Institute of actuaries for three years.

BNP Paribas Cardif



**BNP PARIBAS
CARDIF**

About the speaker



Patrice Odo

- Actuary
- With almost 15 years of experience in finance, I am responsible for monitoring portfolio management within the Financial Department of Savings Funds in order to manage the portfolio of assets linked to regulated deposits. I have been a member of the Finance and Asset Management Commission of the French Institute of actuaries for three years.

Caisse des dépôts et consignations

Agenda

1. **Interbank rates**
2. **The need for a reform**
3. **The European reform**
4. **The other countries**
5. **The regulatory reform in insurance**
6. **Be continued...**

Agenda

1. **Interbank rates**
2. The need for a reform
3. The European reform
4. The other countries
5. The regulatory reform in insurance
6. Be continued...

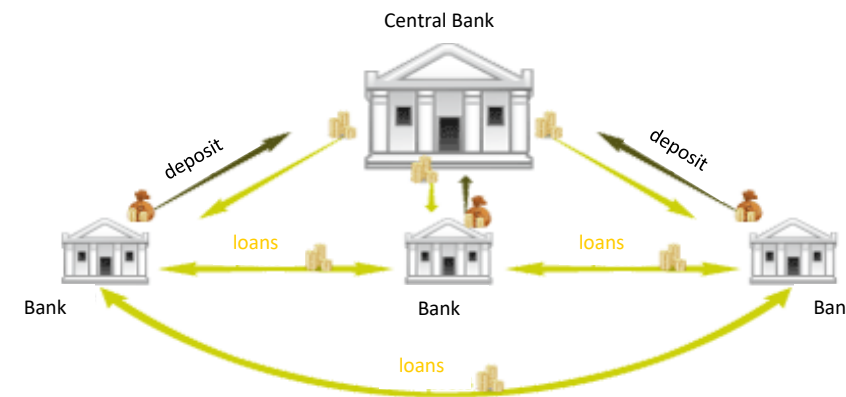
Interbank rates

What is an interbank rate?

Interbank rates are rates at which banks agree to lend money to each other.

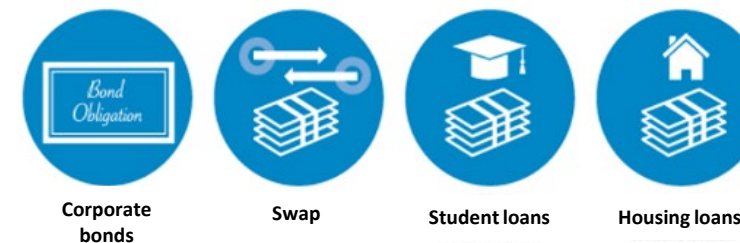
IBOR rates = Interbank Offered Rates

Ex : LIBOR, EURIBOR, EONIA



What's the point?

All the economy is based on IBOR rates:

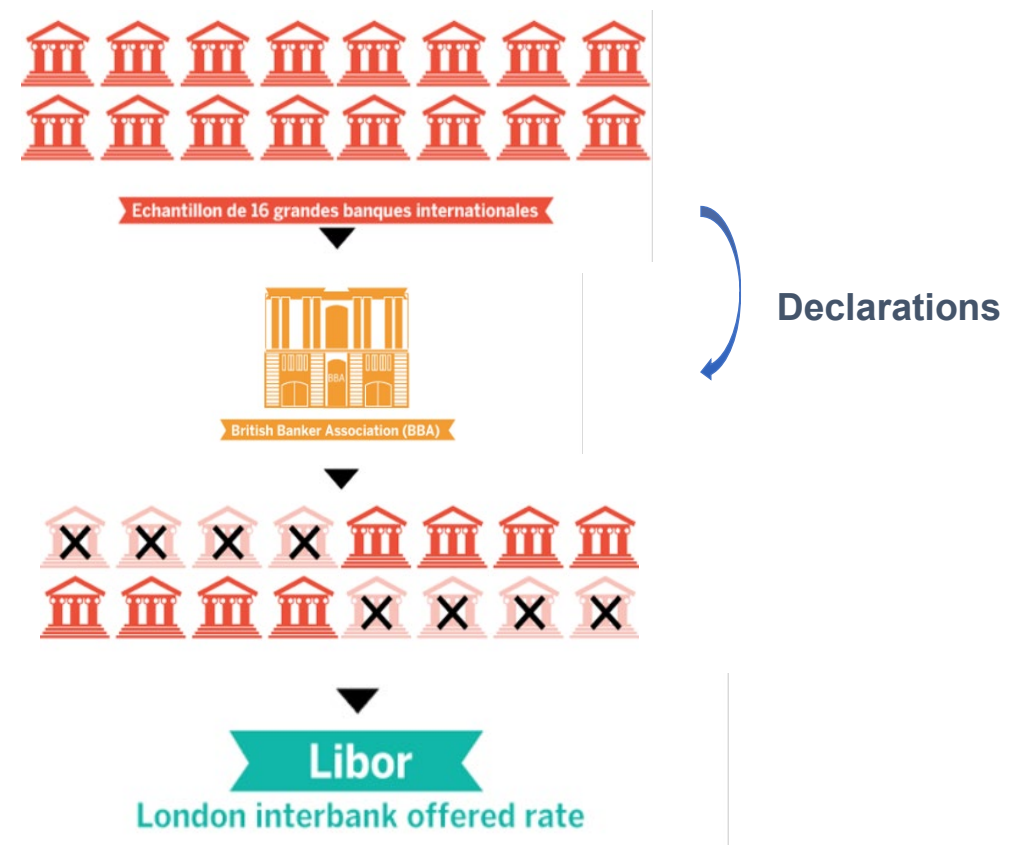


The volume dependent on these financial instruments is about **€180 trillion** for the EURIBOR and the volume is about **USD 300 trillion** for the LIBOR.

Interbank rates

How are they determined?

1. A panel of contributing banks
2. An agency collects contributions
3. Elimination of extreme rates
4. Daily average of remaining rates



Source : article of the monde 2015 « Pourquoi des traders ont manipulé le taux interbancaire Libor ? »

Agenda

1. Interbank rates
- 2. The need for a reform**
3. The European reform
4. The other countries
5. The regulatory reform in insurance
6. Be continued...

Which are the problems with current rates?

Manipulation scandals:

The guardian:



Libor scandal: the bankers who fixed the world's most important number

Financial Times:

Two former star traders jailed in Euribor rigging case

Former Barclays and Deutsche Bank staff sentenced in Serious Fraud Office case



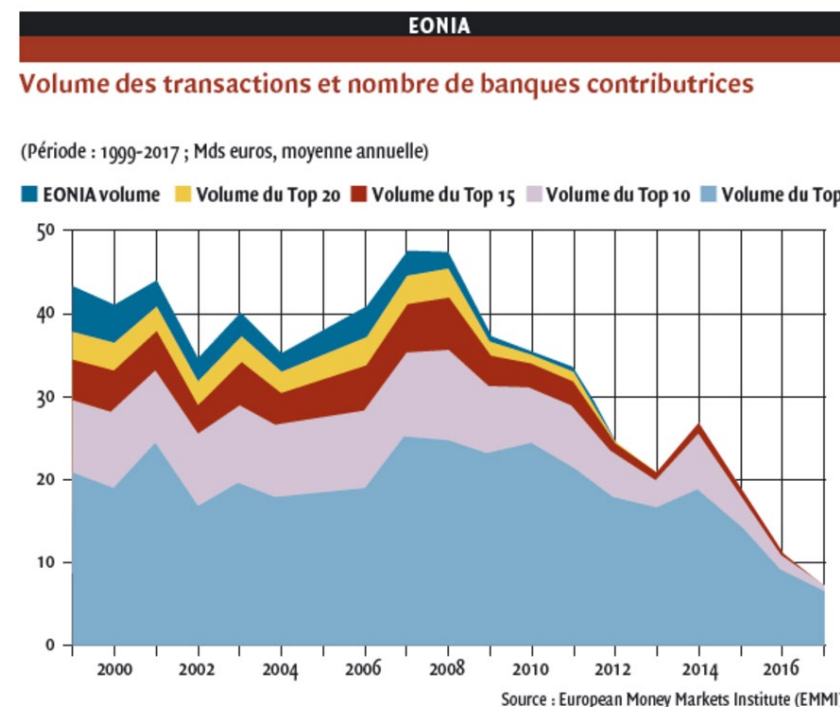
UK companies

British banks pay £12bn in penalties

Lenders under pressure from shareholders to control regulatory costs

Libor, 'the rate at which banks do not lend to each other'

Traded volumes deteriorate considerably after the subprime crisis:



Need for reform: The Benchmark Reglement



European benchmark adopted in June 2016



Definition of new requirements for benchmarks

Main missions:



LIMIT CONFLICTS OF INTEREST



PROTECT USERS



RESTORING CONFIDENCE

People concerned:



ADMINISTRATORS



CONTRIBUTORS



USERS (INSURERS)

Main rules

1. Volumes of real transactions

2. Implementation of fallback solutions

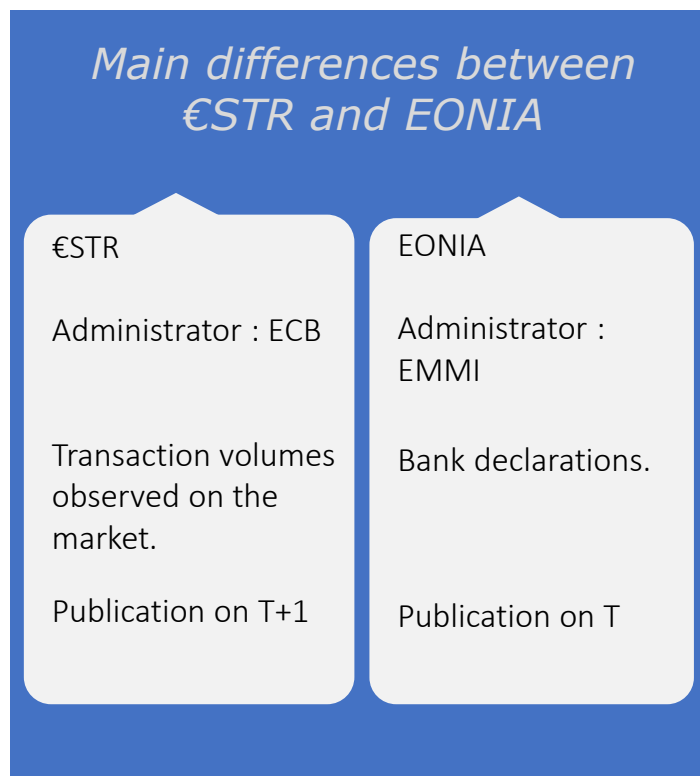


The EURIOBOR, LIBOR and EONIA don't comply the Regulation.

Agenda

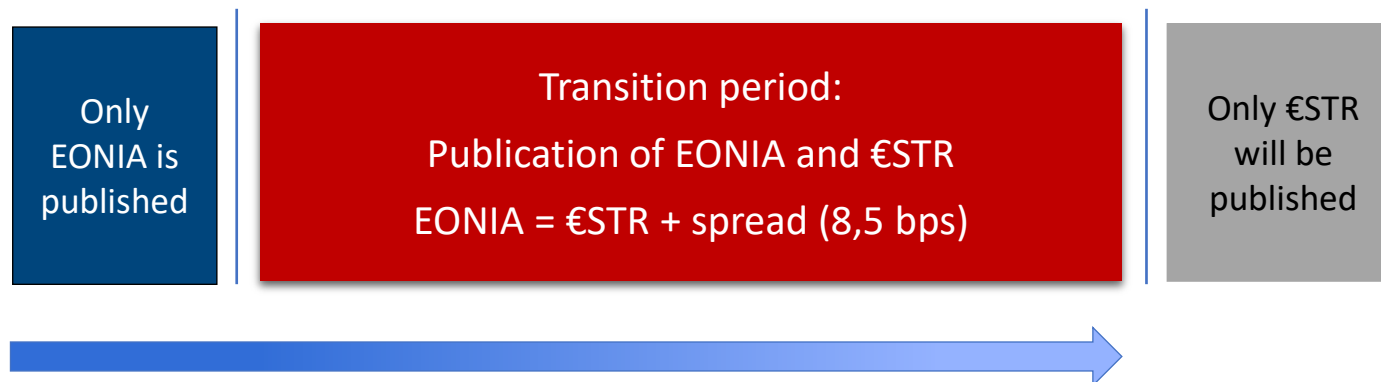
1. Interbank rates
2. The need for a reform
3. **The European reform**
4. The other countries
5. The regulatory reform in insurance
6. Be continued...

The €STR Reform



2nd of October 2019

2nd of January 2022

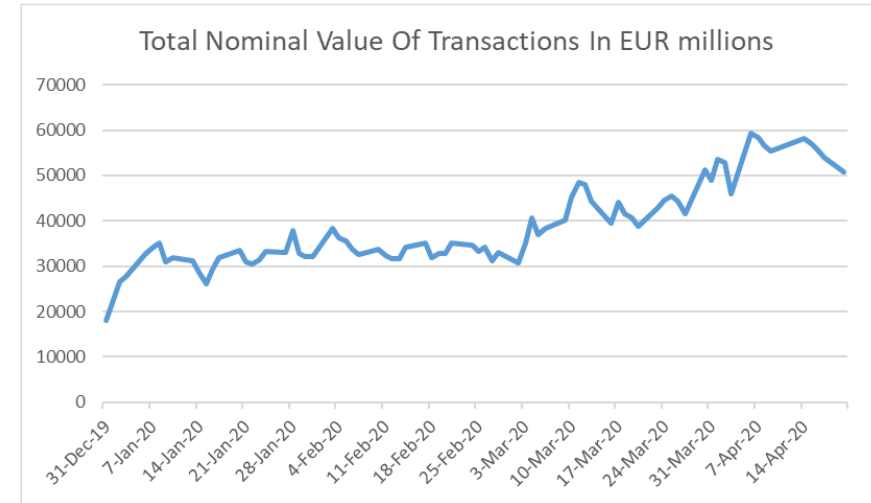


Actions to be implemented to ensure the transition :

- ✓ Integration of the €STR curve in valuation models
- ✓ Modification of existing contracts (fallback clauses)
- ✓ Information systems migration
- ✓ Accounting impacts and on risk management strategy
- ✓ Others.

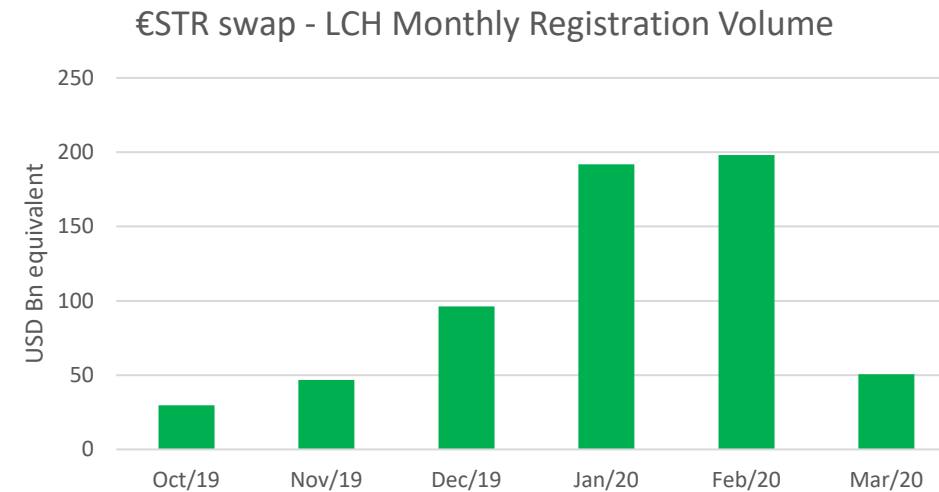
€str vs Covid19

✓ **Total Volume use to determine €str rate:**
increased strongly as €str rate is based on deposit rates.



Source: BCE

✓ **€str linked swap:**
Market players reduced OIS swap linked to €str



Source: LCH

EURIBOR® hybrid methodology

☐ Level 1:

Contribution based solely on transactions in the Underlying Interest at the Defined Tenor from the prior TARGET day, using a formulaic approach provided by EMMI.



☐ Level 2:

Contribution based on transactions in the Underlying Interest across the money market maturity spectrum and from recent TARGET days, using a defined range of formulaic calculation techniques provided by EMMI.



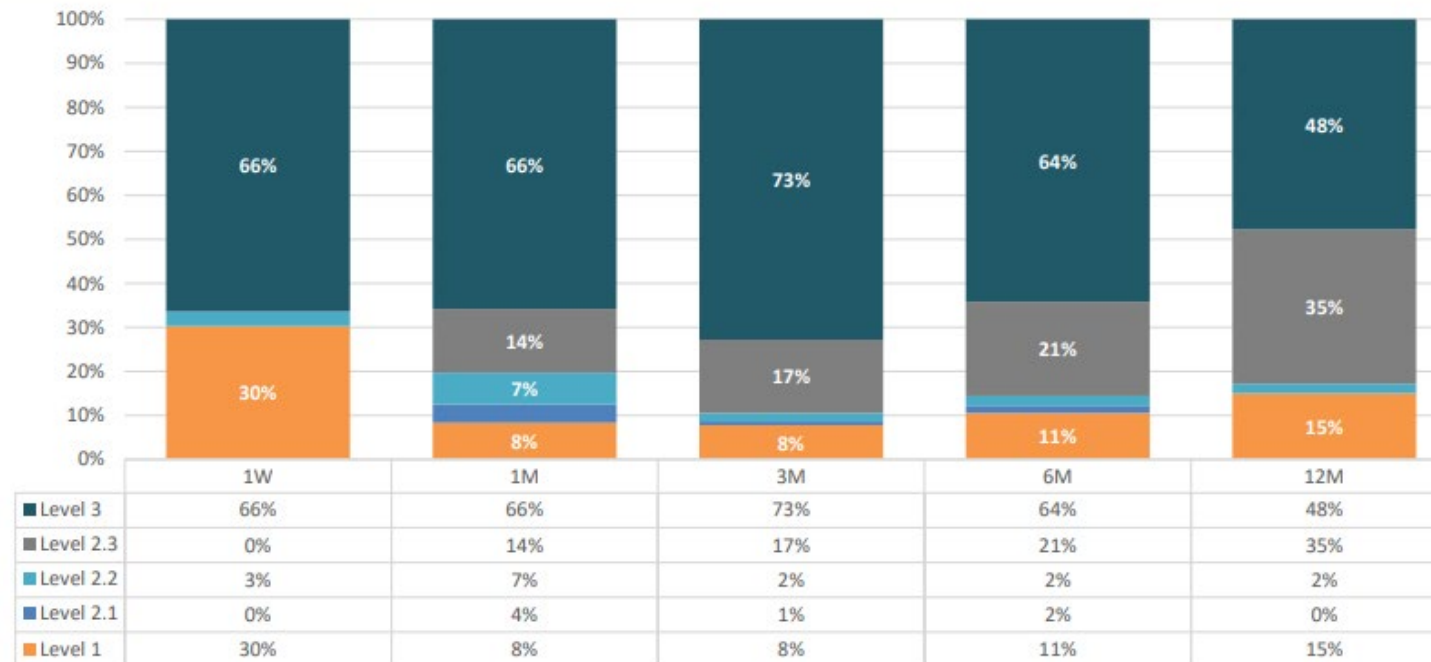
☐ Level 3:

Contribution based on transactions in the Underlying Interest and/or other data from a range of markets closely related to the unsecured euro money market, using a combination of modelling techniques and/or the Panel Bank's judgment.

EURIBOR® hybrid methodology have to be improved

February 2020

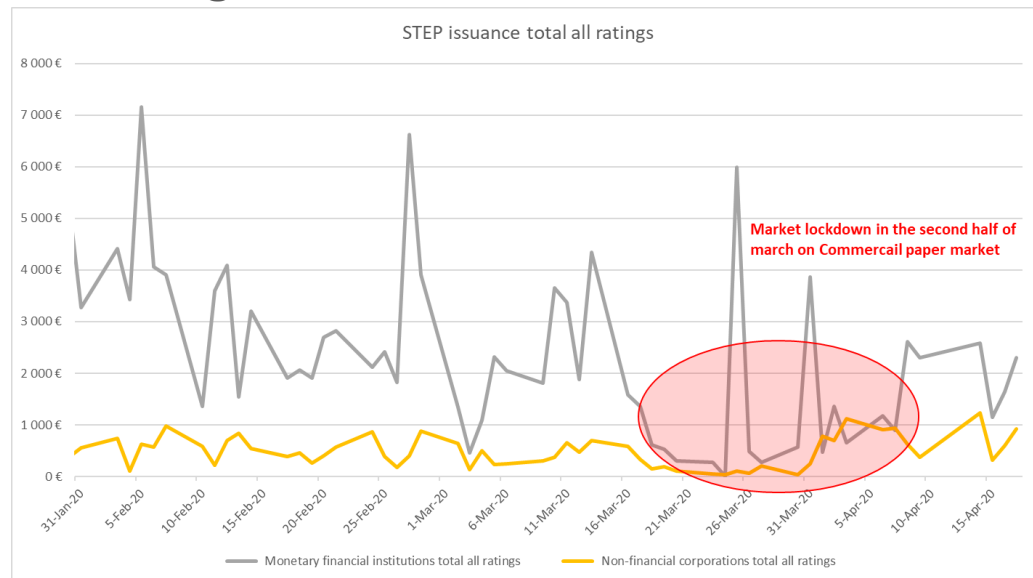
Use of each level¹ of the hybrid methodology, broken down by tenor



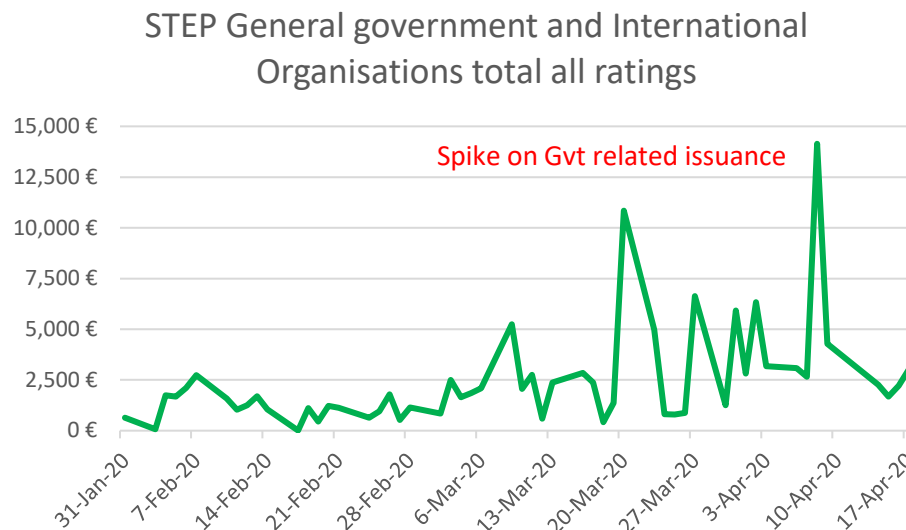
¹ For a description of each level, see the notes section below.

EURIBOR® hybrid methodology have to be improved

- During time of crisis Level 3 should be very volatile



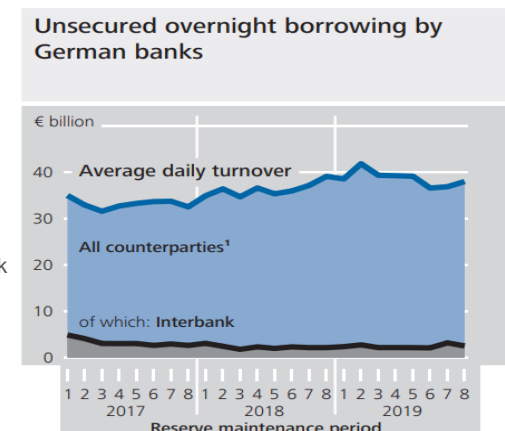
Source: BCE – STEP Data



Source: BCE – STEP Data

- Interbank market could be very difficult to follow .

In MMSR data in Germany, the share of the market accounted for by interbank transactions is now only just under 7%



Source: Deutsche Bundesbank
 Monthly Report March 2020

Agenda

1. Interbank rates
2. The need for a reform
3. The European reform
4. **The other countries**
5. The regulatory reform in insurance
6. Be continued...

US: SOFR_{average} and SOFR_{index}

Since March 2, 2020, the Federal Reserve Bank of New York (New York Fed) publishes 30-, 90-, and 180-day SOFR Averages as well as a SOFR Index

SOFR Averages:

Specifically, the SOFR Averages will be calculated as:

$$SOFR\ Average = \left[\prod_{i=1}^{d_b} \left(1 + \frac{SOFR_i \times n_i}{360} \right) - 1 \right] \times \frac{360}{d_c}$$

Where:

- $SOFR_i$ = SOFR applicable on business day i
- n_i = number of calendar days for which $SOFR_i$ applies (often 1 day, or 3 days for typical weekend)
- d_c = the number of calendar days in the calculation period (that is, 30-, 90-, or 180- calendar days)
- d_b = the number of business days in the calculation period
- i denotes a series of ordinal numbers representing each business day in the calculation period

Source: FED

SOFR Index:

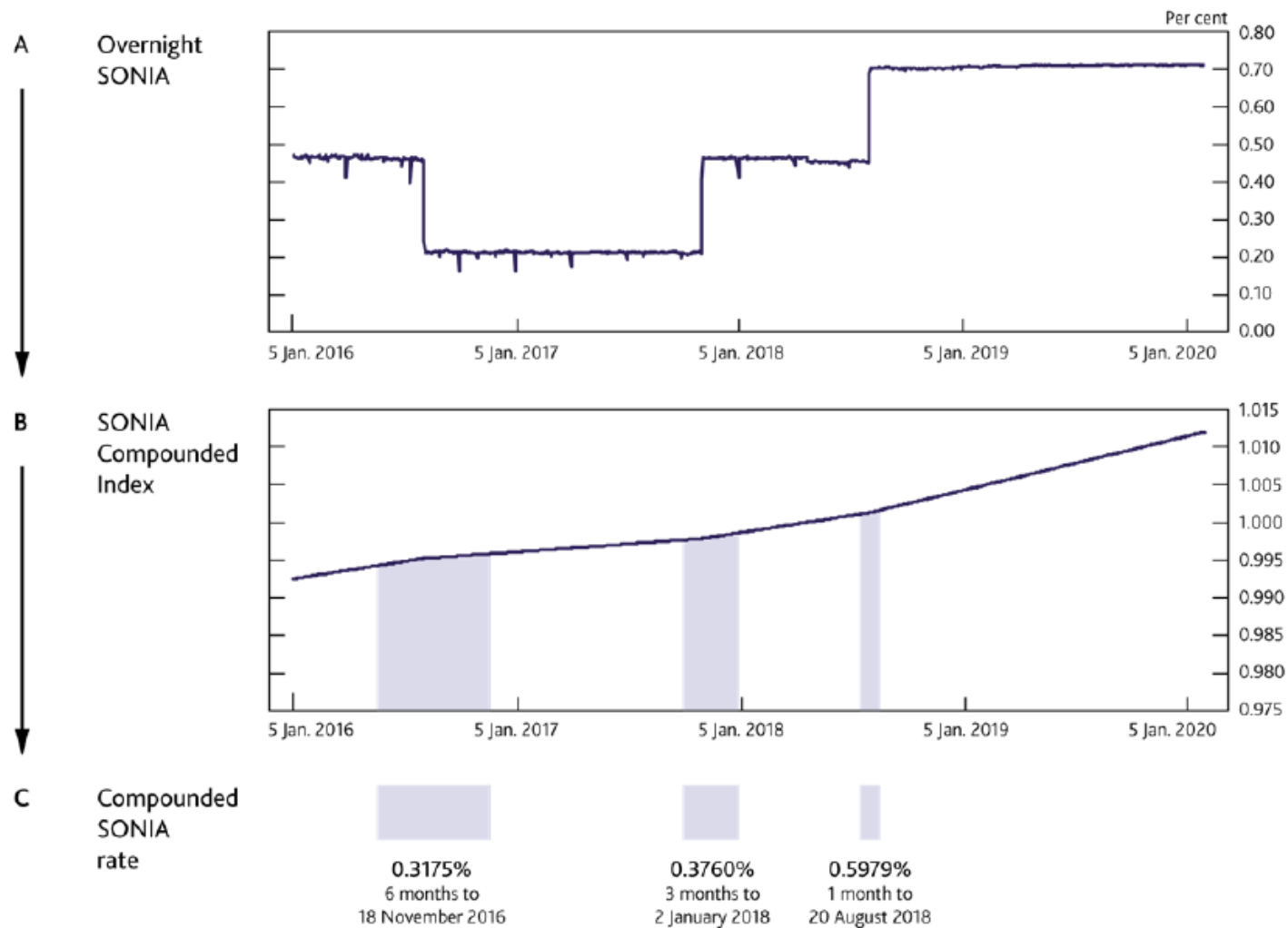
The SOFR Index will measure the cumulative impact of compounding the SOFR on a unit of investment over time, with the initial value set to 1.00000000 on April 2, 2018, the first value date of the SOFR. As a result, the first official published SOFR index value will reflect the effect of compounding the SOFR each business day since April 2, 2018 through March 2, 2020. Specifically, the SOFR Index will be calculated as:

$$SOFR\ Index = \begin{cases} 1.00000000, & i = \text{April 2, 2018} \\ \prod_{\text{April 2, 2018}}^i \left(1 + \frac{SOFR_i \times n_i}{360} \right), & i > \text{April 2, 2018} \end{cases}$$

Where:

- $SOFR_i$ = SOFR applicable on business day i
- n_i = number of calendar days for which $SOFR_i$ applies
- i represents a series of ordinal numbers representing each business day in the calculation period

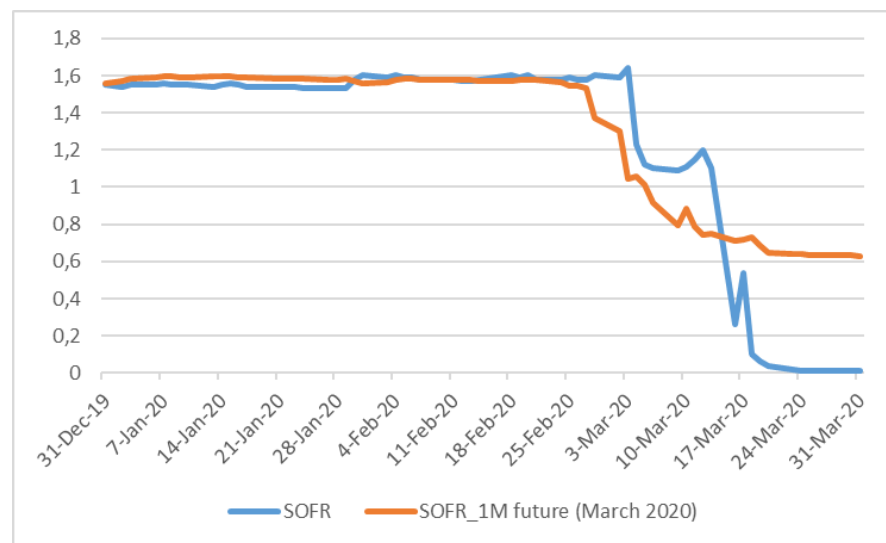
UK: SONIA_{index}



Source: Bank of England Turbo-charging sterling LIBOR transition: why 2020 is the year for action – and what the Bank of England is doing to help

SOFR_{index} and SONIA_{index}

- This period of uncertainty remind us that ex-ante rate and realized rate could be wide especially with credit risk.



Source: Bloomberg - CME

- SOFR_{index} and SONIA_{index} seems to be useful for that

Historical spread ?

- Eonia spread vs €STR has been fixed at 8,5pb based on the basis of daily Eonia and pre-€STR data from 17 April 2018 to 16 April 2019
- But can we use spread to adjust Euribor vs €str or Libor vs Sonia?

ISDA proposed a 5 year period for Libor fallback but recent crisis could introduce a permanent spread that have to be discuss.

€str 1Yr swap vs Euribor_{3month} 1Yr swap



Agenda

1. Interbank rates
2. The need for a reform
3. The European reform
4. The other countries
5. **The regulatory reform in insurance**
6. Be continued...

Regulatory developments

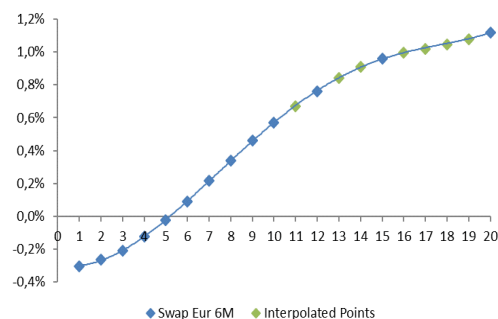
Under Solvency II, the technical provisions are based on the Best Estimate:

$$BE = \frac{1}{1000} \times \sum_{i=1}^{1000} \sum_{t=1}^{40} \frac{Cash_flow_{i,t}}{(1 + r_{i,t})^t}$$

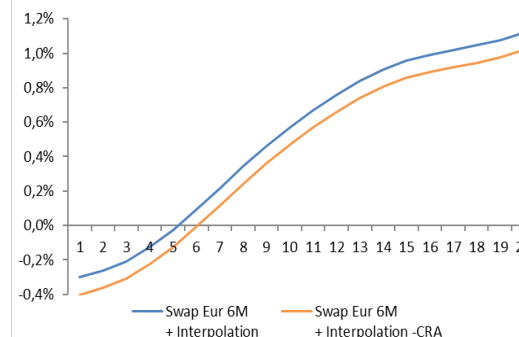
The rate curve of insurers $r_{i,t}$ is given by the EIOPA and is determined from **6 months Euribor swap rates** with an interpolation for missing durations (1).

Then, the curve is retreated of the default risk that is contained in derivatives derived from IBOR rates: **the Credit Risk Adjustment (CRA)** (2).

1. Interpolation of the Euribor swap rate



2. Application of the Credit Risk Adjustment



Calculus of the CRA :

Difference between IBOR rate and EONIA rate for same maturities.

The value is between 10 and 35 bps.

The rate curve used by insurers, based on IBOR rates and EONIA, is impacted by the reform.

Regulatory developments



For the first time, EIOPA has launched a public consultation the February 6th 2020 on the IBOR transition. Participants has to respond until the 30th of April 2020. **New deadline with Covid-19: the 30th of June 2020.**

The focus of this paper is to identify the issues within the **EIOPA Risk Free Rate (RFR)** environment.

The old rates will need to be replace by the new ones. EIOPA wants to adopt a **common approach** across the EU to the transition to the new rates.

- **Old rates:** Interbank Offered Rates (IBORs) ➡ Need a CRA to retreat the default risk
- **New rates:** Over-Night Index Average rates (OIS) ➡ No need a CRA : risk free rate

➡ The first result for the EIOPA RFR would be the end of the CRA according to the new rates.



The new rates have to respect the **Deep Liquid Transparent (DLT) methodology** before they can be included in the EIOPA RFR production.

Impact on the RFR structure



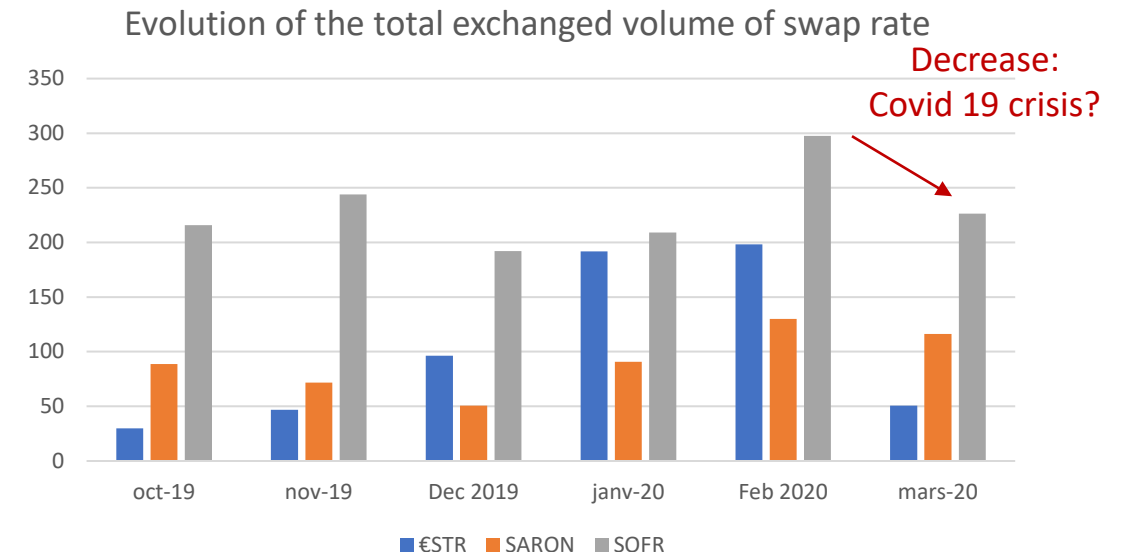
Which are criteria that the new IOS have to respect for the **DLT methodology**?

- ✓ The average daily notional amount traded at least € 50 000 000,
- ✓ The average daily number of trades is at least 10.



Currently **none of the new OIS based curves** can be considered DLT according to EIOPA's criteria.

This can change rapidly with the development of the derivatives market but we observe a **decrease on exchanged OIS swap rate with the Covid-19 crisis.**



Source: <https://www.lch.com/services/swapclear/volumes/rfr-volumes>

Agenda

1. Interbank rates
2. The need for a reform
3. The European reform
4. The other countries
5. The regulatory reform in insurance
6. **Be continued...**

To follow



- Discount rate used by CPP have to be replace
 - **LCH, Eurex and CME will use €str instead of Eonia on 22nd June 2020***
 - CME Group is targeting October 2020 to switch from daily effective federal funds rate (EFFR) to SOFR for US Swaps
- €str compounded rate ?
- EIOPA transition
- Accounting implication for IASB
 - Publication Phase 1 :Sept 2019
 - **Publication Phase 2: Aug 2020**

*Delay may apply according to last ECB working group minute: https://www.ecb.europa.eu/paym/initiatives/interest_rate_benchmarks/WG_euro_risk-free_rates/shared/pdf/20200407/2020_04_07_WG_on_Euro_RFR_meeting_minutes.pdf

Thank you for your attention



Contact details :

ELEONORE HAGUET-TROUPLIN

eleonore.haguet-trouplin@bnpparibas.com

PATRICE ODO

patrice.odo@caissedesdepots.fr

<https://www.actuarialcolloquium2020.com/>

Disclaimer:

The views or opinions expressed in this presentation are those of the authors and do not necessarily reflect official policies or positions of the Institut des Actuares (IA), the International Actuarial Association (IAA) and its Sections.

While every effort has been made to ensure the accuracy and completeness of the material, the IA, IAA and authors give no warranty in that regard and reject any responsibility or liability for any loss or damage incurred through the use of, or reliance upon, the information contained therein. Reproduction and translations are permitted with mention of the source.

Permission is granted to make brief excerpts of the presentation for a published review. Permission is also granted to make limited numbers of copies of items in this presentation for personal, internal, classroom or other instructional use, on condition that the foregoing copyright notice is used so as to give reasonable notice of the author, the IA and the IAA's copyrights. This consent for free limited copying without prior consent of the author, IA or the IAA does not extend to making copies for general distribution, for advertising or promotional purposes, for inclusion in new collective works or for resale.