

Economic and Finance statistics



Block 4: Micro data for financial statistics

Part 4, Section 2 – Euro short-term rate (€STR)

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Overview

Part 1: Introduction to financial micro statistics - Benefits, challenges and key aspects

Part 2: Security-by-Security databases (SBS)

Part 3: Loan-by-loan data – The example of Anacredit

Part 4: MMSR, €STR and yield curve

Section 1: Money market statistical reporting (MMSR)

Section 2: Euro short-term rate (€STR)

Section 3: Yield curve

Introduction to euro short-term rate (€STR)

What are benchmark rates? Why are they important?

- Benchmark rates are regularly updated interest rates that are publicly accessible and can be **used as reference for financial contracts** such as mortgages, bank overdrafts, derivatives and other transactions
- Benchmark rates are widely used across the economy
 - Banks use them when borrowing from or lending to individuals or corporate clients, e.g. on mortgages
 - Many entities use benchmark rates to value items on their balance sheets
 - Reference rate for securities with variable rate and for derivatives (swaps, options, forwards, ...)



Introduction to euro short-term rate (€STR)

What is the issue with benchmark rates?

“...suspicions that the small group of banks which supply the BBA with Libor quotes have understated true borrowing rates ...” Financial Times, 2 June 2008

Regulators addressed the issue

- at global level, the International Organization of Securities Commissions (IOSCO) published the “Principles for financial benchmarks” in July 2013
- At EU level, the European Parliament and Council approved the “Regulation (EU) 2016/1011 on indices used as benchmarks in financial instruments and contracts” in June 2016

establishing minimum standards for financial benchmarks

Introduction to euro short-term rate (€STR)

What does it have to do with statistics?

The minimum standards for financial benchmarks addressed several aspects like **governance, audit, methodology, operational procedures**, in particular benchmarks should ideally

- accurately reflect the economic features of the underlying
- ensure the authenticity and volume of the input data used for the calculation
- be transparent on the calculation methodology

therefore, being difficult to manipulate

Risk-free-rates (RFRs) benchmarks, benchmark interest rates that are solely based on observable transactions. On the contrary, Interbank offered rates (IBORs) based on quotations submitted by panel banks need to be reformed or discontinued

MMSR data meet the requirements to calculate a RFR!



Euro short-term rate (€STR) methodology

Which data are used to produce €STR?

As described in the [€STR methodology and policies](#), the €STR is a rate administered by the ECB, which reflects the wholesale euro unsecured overnight borrowing costs of euro area banks, exclusively based on

- borrowing transactions
- in overnight unsecured fixed rate deposits
- over € 1 million
- denominated in euro
- conducted with financial counterparties (not only banks)
- that banks report in accordance with **MMSR Regulation**

Euro short-term rate (€STR) checking

How is €STR quality ensured?

The minimum standards for accuracy set a number of **rules** to ensure that the reported information is correct and complete, as established in MMSR Regulation

The data quality management process includes, **before** the publication:

- a set of **technical checks** which verify that the submitted data complies with the structure and formats required for the MMSR
- a set of targeted data **quality checks** to decide which transactions, if any, should be excluded from the calculation of the €STR

Plus **further checks after** the publication, also as part of MMSR statistical production, e.g. for detecting systematic patterns

Euro short-term rate (€STR) calculation

How is €STR finally calculated?

The euro short-term rate (€STR) is **calculated** as a

- volume weighted trimmed mean
- ordering transactions by rate and removing the top and bottom 25% in volume
- rounded to the third decimal

A **contingency calculation** procedure is in place in case of low number of contributors or concentration of volume in few reporters

€STR is published each **TARGET2 open day at 08:00** a.m. (with potential republication at 09:00 a.m.) since 2 October 2019 through the Market Information and Dissemination system, the website and the Statistical Data Warehouse

Euro short-term rate (€STR) trimming

How does the trimming work?

Step 1 Aggregation of transaction volumes by rate level			Step 2 Calculation of percentiles on the basis of volumes			Step 3 Prorating of volumes spanning trimming thresholds			
Transaction rate	Transaction volume	Total volume by rate level	Rate level	Total volume by rate level	Percentiles based on volumes	Rate level	Total volume by rate level	Percentiles based on volumes	Volume (% of total volume)
0.10	325	650	0.10	650	100%	0.10	650	100%	3,250 (25%)
0.10	325	975	0.15	975	95%	0.15	975	95%	
0.15	625		0.25	1,300	88%	0.25	1,300	88%	
0.15	300								
0.15	50	1,300	0.30	2,600	78%	0.30	325	78%	6,500 (50%)
0.25	1,300								
0.30	1,900								
0.30	150								
0.30	150	2,600	0.30	2,600	78%	0.30	2,275	75%	6,500 (50%)
0.30	400								
0.35	2,500								
0.35	750								
0.40	2,050	3,250	0.40	2,600	33%	0.40	975	33%	3,250 (25%)
0.40	550								
0.45	650								
0.45	275								
0.45	50	975	0.50	650	5%	0.50	650	5%	3,250 (25%)
0.50	650								
0.50	650								
0.50	650								
0.50	650	650	Total volume:		13,000	Total volume:		13,000	

Volume eligible for calculation of trimmed mean

Euro short-term rate (€STR) publication

How is €STR published?



The screenshot shows the ECB website's 'Euro short-term rate (€STR)' page. The header includes the ECB logo, navigation links (About, Media, Explainers, Research & Publications, Statistics, Monetary Policy, The euro, Payments & Markets, Careers), and a language selector set to 'EN'. The breadcrumb trail reads: Home > Statistics > Financial markets and interest rates > Euro short-term rate (€STR). The main heading is 'Euro short-term rate (€STR)', followed by social media sharing icons for Twitter, Facebook, LinkedIn, Email, and Print. The text explains that the €STR is published daily based on TARGET2 transactions and was first published on October 2, 2019.

Euro short-term rate (€STR)

The euro short-term rate (€STR) is published on each TARGET2 business day based on transactions conducted and settled on the previous TARGET2 business day.

The ECB published the €STR for the first time on 2 October 2019, reflecting trading activity on 1 October 2019.

The ECB does not charge for the €STR or license its use.

Euro short-term rate (€STR) publication

How is it published?

Euro short-term rate (€STR)

last update: 09 June 2021 08:00

Rate

-0.563

Reference date

08-06-2021

Volume (EUR millions)

43660

Number of active banks

32

Number of transactions

456

Share of volume of the five largest active banks

62%

Rate at 25th percentile of volume

-0.58

Rate at 75th percentile of volume

-0.55

Publication type

standard

Calculation method

normal

Euro short-term rate (€STR) publication

And longer series?

Euro short-term rate (€STR)

Select period of interest

Tuesday, October 1, 2019

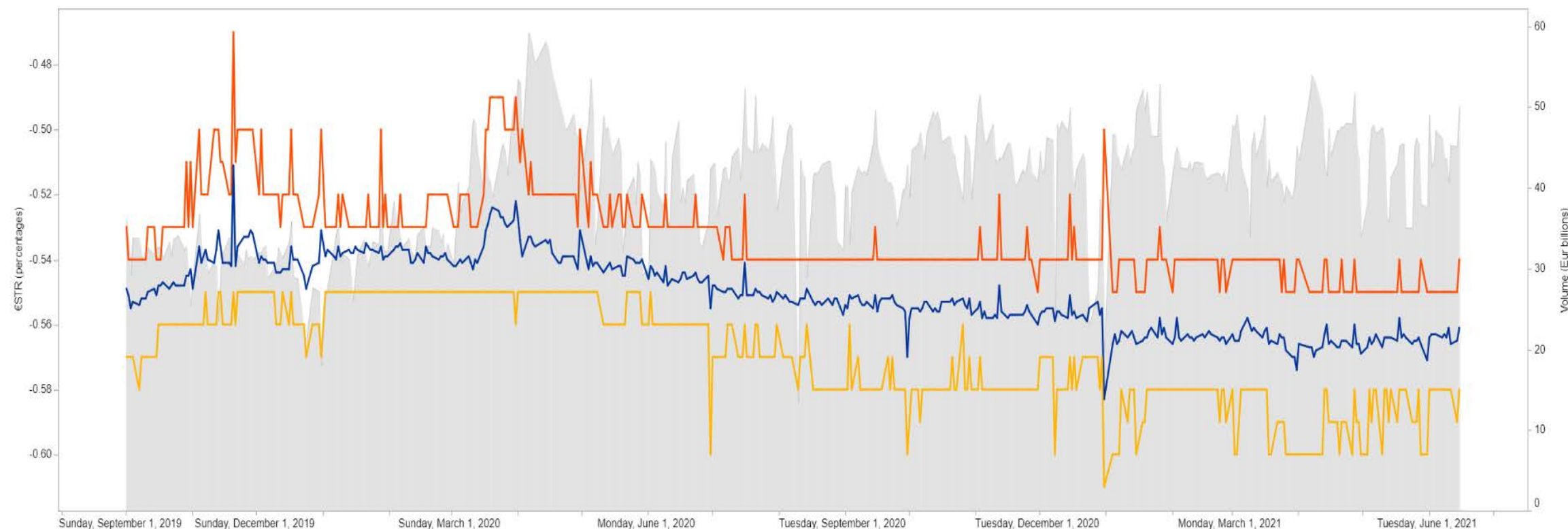
Wednesday, June 16, 2021

Rate at 25th percentile (left)

€STR rate (left)

Rate at 75th percentile (left)

Total reported volume (right)



Compounded €STR average rates and index

What is C-€STR?

The **compounded €STR average rate** is calculated, adjusting for weekends and TARGET2 closing days, by using the daily €STR for a period of time (1 week, 1 month, 3 months, 6 months, 12 months)

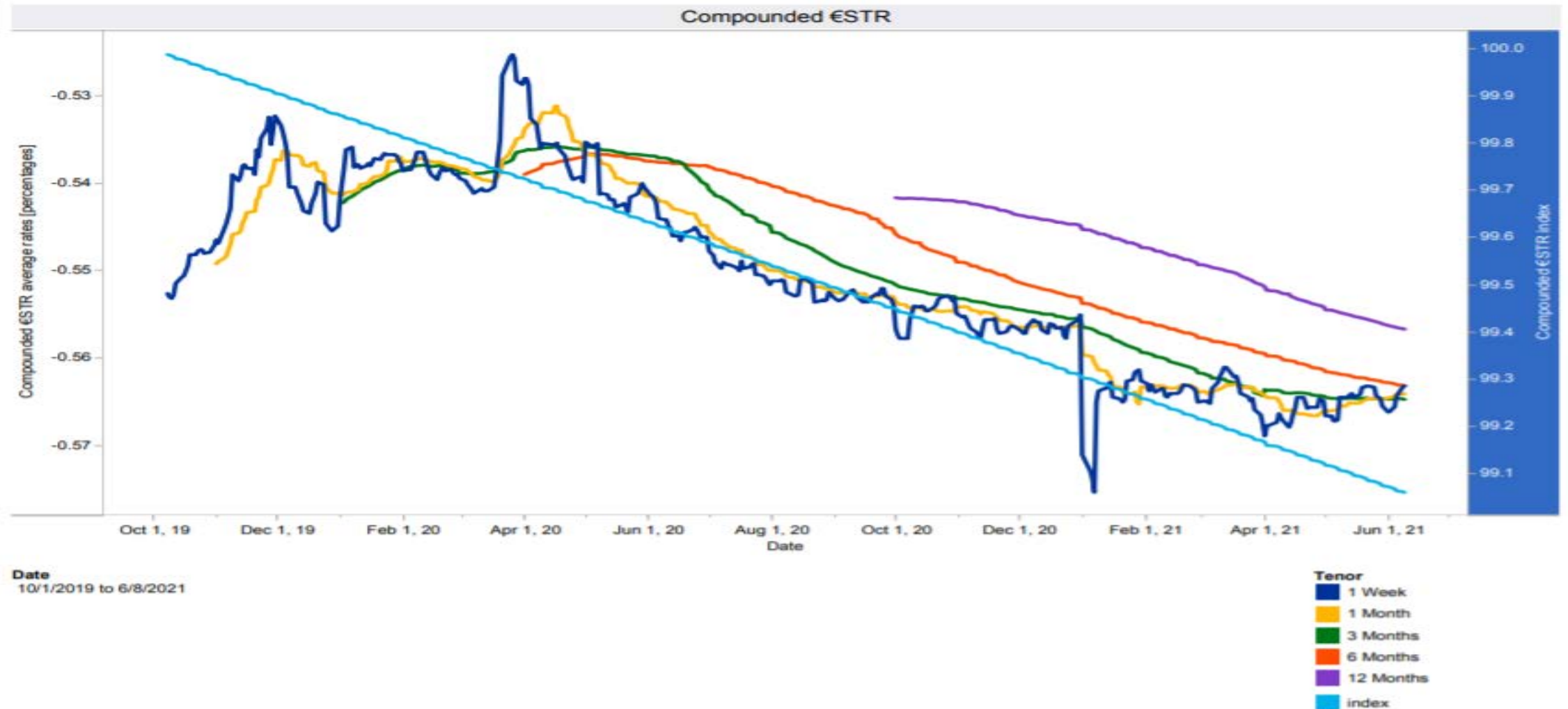
The compounded €STR index represents the evolving daily value of a **notional instrument that accrues compounded interest** on an initial sum of €100 starting on 1 October 2019, which was the first trade date of the €STR

The compounded €STR is intended to encourage wider use of the €STR for financial contracts and support the use of EURIBOR €STR-based fall back rates

It is produced in line with the C-€STR “Calculation and publication rules” and published every Target2 open day at 9:15 a.m.

Compounded €STR average rates and index

And the series?



Transition from EONIA to €STR

What is EONIA? Why is it being replaced by €STR?

The euro overnight index average (EONIA) is a benchmark rate representing the rate at which banks of sound financial standing in the EU and EFTA lend funds in the (unsecured) interbank money market in euro

EONIA is a widely **used reference rate** in some euro area financial markets, e.g. in the money market

EONIA will be discontinued by end-2021 as it cannot be reformed to comply with the new requirement for financial benchmarks

- As of 2 October 2019 EONIA changed the calculation way to €STR +8.5 basis points
- As of 3 January 2022 EONIA will cease to be published, only €STR will remain



€STR in the international context

What other comparable overnight RFR exist at global level?

Currency	Risk-Free Rate	Administrator
USD	Secured Overnight Financing Rate (SOFR)	Federal Reserve
GBP	Sterling Overnight Index Average (SONIA)	Bank of England
EUR	Euro Short-Term Rate (€STR)	European Central Bank
CHF	Swiss Average Rate Overnight (SARON)	SIX Swiss Exchange
JPY	Tokyo Overnight Average Rate (TONA)	Bank of Japan

Thank you

Happy to receive any question or comment at the Q&A session on 13 July, 14 c.t.



EMOS core module on economic and finance statistics

Annex – Complementary reading

Where to find additional information?

Web pages

Euro short-term rate (€STR)

https://www.ecb.europa.eu/stats/financial_markets_and_interest_rates/euro_short-term_rate/html/index.en.html

Euro short-term rate (€STR) overview

https://www.ecb.europa.eu/stats/financial_markets_and_interest_rates/euro_short-term_rate/html/eurostr_overview.en.html

Euro short-term rate (€STR) questions and answers

https://www.ecb.europa.eu/stats/financial_markets_and_interest_rates/euro_short-term_rate/html/eurostr_qa.en.html

Annex – Complementary reading

Where to find additional information?

Web pages

Insights into euro area statistics - The euro short-term rate (€STR) is the euro overnight money market interest rate

<https://www.euro-area-statistics.org/statistics-insights/the-euro-short-term-rate-str-is-the-euro-overnight-money-market-interest-rate?lg=en>

What are benchmark rates, why are they important and why are they being reformed?

https://www.ecb.europa.eu/explainers/tell-me-more/html/benchmark_rates_ga.en.html?utm_source=ecb_linkedin

Annex – Complementary reading

Where to find additional information?

Articles and documents

- Deutsche Bundesbank (2020), New benchmark rates, new challenges: introducing the €STR in the euro area, Monthly Report, March
- European Central Bank (2021), The euro short-term rate (€STR) methodology and policies, Frankfurt am Main, March
- European Central Bank (2021), Compounded €STR average rates and index: calculation and publication rules, Frankfurt am Main, March
- Schrimpf, A., Sushko, V. (2019), Beyond LIBOR: a primer on the new reference rates, BIS Quarterly Review, March