Euro risk-free interest rates: the transition from EONIA to €STR

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Abstract

The decline in the trading volume of unsecured transactions following the financial crisis led to a loss in EONIA's representativeness.[1] Moreover, the manipulation of some of the main benchmark rates, such as LIBOR, and the sanctions imposed by the authorities, resulted in a large number of institutions stopping their voluntary contributions to these and other benchmarks, such as EONIA. In this situation, the need for appropriate and reliable benchmark rates became clear. This article describes the key features of the new euro risk-free interest rate, known as the euro short-term rate (€STR), and why it was created. In addition, the article gives an account of the progress made by the working group on euro risk-free rates and the transition required to gradually replace EONIA, which has until now served as the benchmark for many money market contracts and as an indicator for monetary policy decisions in the Eurosystem.

1 Introduction

The worldwide scandals caused by the manipulation of major benchmark rates such as LIBOR, and the sanctions imposed on a number of financial institutions, led to a sharp fall in the number of institutions contributing voluntarily to these benchmarks, thus making them less representative. In Europe, in addition to the manipulation detected in LIBOR rates, the fall in voluntary contributions had an impact both on EURIBOR and EONIA, compounded by the very significant decline in money market activity as a result of the subprime crisis. The fragile nature of indices based on voluntary contributions from credit institutions and, in the case of EURIBOR, on quotes and not on actual transactions, revealed the need for a uniform set of rules and a more rigorous, mandatory methodology largely based on actual transactions.

Until then, EONIA had served as an implicit benchmark for the monetary policy of the European Central Bank (ECB), allowing to gauge the impact of Governing Council decisions on changes in key ECB interest rates. The importance of this rate also stemmed from its use as a benchmark in a large volume of financial contracts. To address the decline in the volume and in the number of institutions contributing to EONIA, the ECB decided to provide the market with a new benchmark rate to support the short-term euro money market. To this end, in September 2017 it announced the creation of the €STR, taking on the role of its administrator.

1 EONIA: euro overnight index average.

At the same time, a number of European organisations set up a working group to identify and recommend risk-free rates for the euro area that could serve as an alternative to the benchmarks used until then in a variety of financial instruments and contracts. In turn, the group was tasked with developing a plan for the transition of new and legacy contracts to risk-free rates. The group recommended that the €STR be used as the risk-free rate for the euro area and has since focused its efforts on planning for a smooth transition from EONIA to the €STR and on creating the conditions for a liquid derivatives market based on risk-free rates. The group's objectives also include ensuring that stakeholders coordinate and communicate well with each other.

This article focuses on the progress made since the ECB announced that it would create a new index until it was published for the first time in October 2019. The authors give a detailed account of the stages of the transition from EONIA to the €STR and underline the main challenges ahead to successfully complete the transition by January 2022, when EONIA will cease to be published.

2 Market context: Manipulation of benchmarks and financial crisis

Between 2013 and 2016, the European Commission imposed fines totalling more than €2,000 million on nine financial institutions, following an investigation by the EU competition authorities into the alleged manipulation of EURIBOR (the euro interbank market benchmark rate[2]) by some of the institutions making up the panel of over 40 contributing banks.[3] According to the Commission, the sanctioned institutions had infringed Article 101 of the Treaty on the Functioning of the European Union,[4] which regulates the rules on competition applying to EU undertakings.

EURIBOR was calculated as the average of the interest rates published daily by a panel of banks responsible for offering the quoted rates for different maturities in the unsecured segment. The resulting rates for each maturity in the euro money market were the average of the quoted rates, following elimination of the highest and lowest 15% of quotes. In the case of EURIBOR, the highest and lowest 25% of daily quotes were eliminated and, consequently, only 50% of the information reported was used to calculate the benchmark.

The lack of objectivity in the calculation of the benchmark, which was not based on actual transactions but on the voluntary contributions of credit institutions, which submitted the rate at which they would be prepared to lend to other financial institutions, along with the absence of effective controls, meant that some participants

2 EURIBOR has now been reformed to encompass a broader segment of the money market and is no longer limited to the interbank market. See EURIBOR reform.

3 See EURIBOR panel banks.

4 See Treaty on the Functioning of the European Union.

were able to manipulate prices to their own benefit. The mechanism was straightforward, since agents from the different panel banks agreed on the quote submissions, thus changing the value of EURIBOR at their convenience.

The manipulation of benchmarks was not limited to EURIBOR or the EU, but was preceded by similar cases in other jurisdictions. In 2012, Barclays reached an agreement with the UK and US authorities, namely, the Financial Stability Authority (FSA) and the Federal Reserve System (FED), to pay a fine of USD 450 million for having rigged LIBOR information between 2005 and 2009, for its own benefit. This marked the first in a series of investigations over the next few years which led to sanctions being imposed on a number of financial institutions for manipulating LIBOR for different currencies.

As a result, many of the banks which voluntarily contributed to these rates stopped doing so, thus drastically reducing the number of EURIBOR and EONIA panel banks. At present, a total of 18 banks remain on the EURIBOR panel, after 26 banks stopped contributing, mostly between 2012 and 2016.

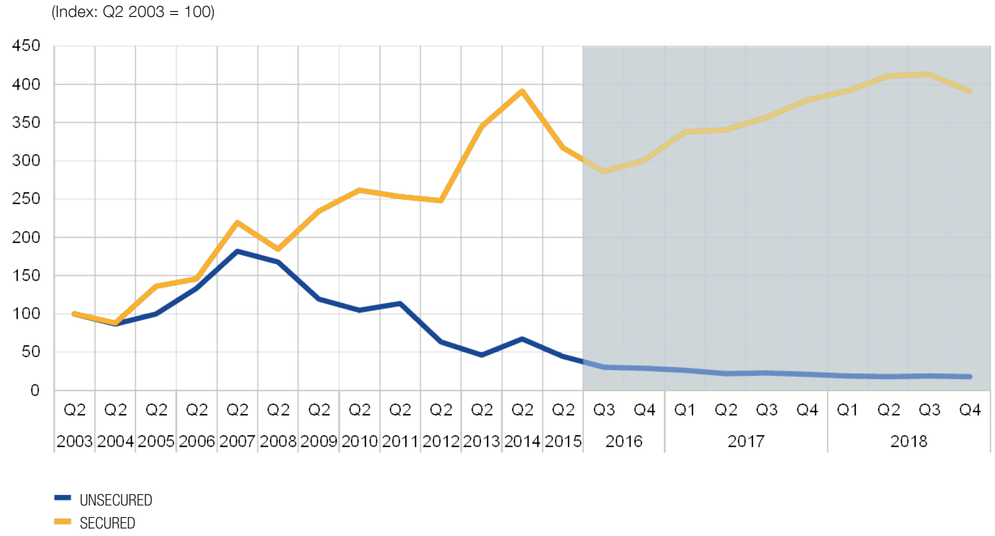
On 9 August 2007, BNP Paribas Investment Partners announced the suspension of redemptions and share subscriptions in three of its investment funds, since it had become impossible to calculate their net asset value owing to the absence of market prices and the loss of liquidity of the assets in its portfolios. These funds invested in instruments referencing the US mortgage market. This episode marked the beginning of the great financial crisis and set the stage for the collapse of the investment bank Lehman Brothers and the start of a long period of distrust among financial institutions, which would lead to a diminished interbank market.

The subprime mortgage crisis affected the solvency of many financial institutions, leading to a loss of confidence among them, reflected in the diminished volume of the unsecured interbank market (see Chart 1). From then on, collateralised loans would become the norm and their terms would be shortened. This had a direct impact on interbank market benchmark rates which, faced with a declining number of actual transactions as the crisis worsened, began to rely increasingly on the subjective assessment of agents who contributed daily to their calculation, submitting quotes for different maturities, for a market with an ever-lower number of transactions.

The financial crisis, which began in 2007 in the United States and would culminate in the collapse of Lehman Brothers in September 2008, led to the sovereign debt crisis, as the lack of confidence in banks' solvency had also spread to other sovereign states.

Against this background, and given the doubts raised about the integrity of the benchmark rates, the G20 commissioned the Financial Stability Board (hereafter, FSB) to undertake a review and a reform of the main benchmarks, to ensure that they were robust and reliable, and thus avoid cases of manipulation in the future.

Chart 1
TRADING IN THE UNSECURED AND SECURED SEGMENTS



SOURCE: European Central Bank. *Euro Money Market Study 2018.*
NOTE: Data to 2015 drawn from the *Euro Money Market Survey* and data from mid-2016 on (shown in light blue), from *Money Market Statistical Reporting.* A sample of 38 banks was used.

The FSB set up a high-level working group made up of regulators and central banks, known as the Official Sector Steering Group (hereafter, OSSG), and tasked it with coordinating the reviews of existing interest rate benchmarks, ensuring their consistency, and studying the feasibility of introducing new benchmarks. The FSB decided that the OSSG's initial review would focus on the most widely used benchmarks in the market, LIBOR, EURIBOR and TIBOR, because of their importance for financial stability.

In turn, the OSSG formed a group of market participants, with a view to involving the private sector, which would study the feasibility of implementing new indices and analyse the implications of a transition to these new benchmarks. The OSSG decided to form five currency sub-groups (US dollar, euro, pound sterling, Swiss franc and yen), to ensure that the recommendations of the group of market participants took into account the characteristics of each jurisdiction, as regards their market structure, institutions, and regulatory and supervisory frameworks.

In July 2013, the International Organisation of Securities Commissions (hereafter, IOSCO) published a report in which it proposed a series of principles to guide the development of financial benchmarks. This report was drafted by a working group set up following the manipulation incidents, which had exposed the shortcomings of the benchmarks.[5]

5 See IOSCO principles for financial benchmarks.

In July 2014, the FSB published an initial report setting out its recommendations for financial benchmarks,[6] drawing on the IOSCO principles, establishing a series of common international standards on governance, quality, methodology and accountability for benchmarks. The main recommendations are as follows:

— Calculating the “ibor” and other benchmark rates in unsecured lending markets on the basis of actual transactions, as far as possible.

— Improving processes and controls relating to the submission of data by participating institutions.

— Identifying or developing alternative risk-free benchmark rates.

— Encouraging the development of, or transition to, derivatives markets referencing alternative indices.

Since the publication of its initial report, the FSB has periodically published other reports on the progress made on implementing these recommendations.

3 European benchmark regulation

In the wake of the benchmark manipulation scandals, and given the importance of using sound and reliable benchmarks for a large volume of financial contracts traded daily worldwide, the authorities of the main economies decided that specific, strict and uniform regulations were needed to ensure the integrity and accuracy of those benchmarks. The IOSCO principles served as the basis for developing a European regulation on benchmark rates.

In June 2016, *the Official Journal of the European Union* published Regulation (EU) 2016/1011, applicable from 1 January 20187, on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds. The regulation aimed to ensure the reliability of benchmarks and to minimise conflicts of interest in the benchmark determination process in the European Union.

The new regulation addresses the development of benchmarks and the contribution of data to calculate them, and is therefore binding for both benchmark administrators and the entities contributing input data. All supervised entities in the European Union should use benchmarks authorised by the regulation.

6 See FSB report on reforming major interest rate benchmarks.

7 See Benchmark Regulation (BMR).

In addition, the regulation distinguishes between indices, benchmarks and critical benchmarks. An index is any figure that is published regularly and that is determined by the application of a formula or method of calculation, on the basis of the value of one or more underlying assets. A benchmark should, in addition, be used to determine the value or amount payable under a financial instrument or a financial contract, or to measure the performance of an investment fund. Critical benchmarks are particularly important for financial stability and, consequently, are subject to stricter rules.[8] EURIBOR and EONIA were designated as critical benchmarks in August 2016[9] and June 2017, respectively.[10]

All entities that provide an index that is considered a benchmark under the regulation must ensure that it complies with all the requirements and that it has been expressly authorised by the corresponding national competent authority. Additionally, all market participants that use a benchmark must ensure that it has been determined by a duly authorised administrator.[11]

Although the regulation became effective on 1 January 2018, a series of transitional provisions were established to allow for the determination and use of previously existing benchmarks until 1 January 2020.

As neither EONIA nor EURIBOR fulfilled the requirements of the new regulation, a reform was undertaken to bring them into line with the new provisions before the transitional period ended. The calculation methodology of EURIBOR was changed to comply with the regulation and its administrator, the European Money Market Institute (EMMI), received authorisation from the Belgian Financial Services and Markets Authority in July 2019.[12] As the same could not be done for EONIA, given the small volume of transactions in the overnight unsecured interbank market, it was decided to stop its publication and to replace it with the €STR, a new, more representative, benchmark rate based on deposit transactions. A transitional period was established during which both benchmarks would coexist, and EONIA's calculation methodology was changed to meet the regulation requirements during that period.[13]

In parallel, on 13 September 2018, the working group on euro risk-free rates recommended the use of the €STR as the euro area benchmark rate, and expressed its support for the transition from EONIA to the new benchmark.

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8 Benchmarks can be divided into those that are critical, significant and non-significant. The first category are those that have an impact on financial stability and are therefore subject to stricter rules and have their own college of supervisors. The provisions of the regulation relating to critical benchmarks have been applicable since 2016.

9 See Regulation on critical benchmarks.

10 See amended Regulation on critical benchmarks.

11 See official register of authorised administrators.

12 See authorisation of EURIBOR by the FSMA.

13 See authorisation of EONIA by the FSMA.

In December 2019, the transitional provisions relating to critical and third country benchmarks were extended for another two years, until 31 December 2021.

In addition to the European reform undertaken pursuant to the Regulation, other changes affecting benchmark rates have taken place worldwide. Jurisdictions that have also adopted benchmarks based on deposit market transactions include the United Kingdom, with SONIA (Sterling Overnight Index Average) and Japan, with TONA (Tokyo Overnight Average Rate). However, some countries have opted for benchmarks based on secured transactions, for example, the United States, with SOFR (Secured Overnight Financing Rate) and Switzerland, with SARON (Swiss Average Rate Overnight).

4 Creation of the €STR: new overnight benchmark rate

On 21 September 2017, following a decision by its Governing Council, the ECB made two important announcements.[14] First, it undertook to publish a new euro short-term interest rate based on data already available to the Eurosystem, to complement existing benchmark rates produced by the private sector. Second, it launched a working group led by the private sector, whose key mission was to identify and recommend risk-free interest rates that could serve as an alternative to existing benchmarks, and to prepare for the transition to these rates. The working group would comprise credit institutions, and also representatives from the FSMA (Belgian Financial Services and Markets Authority), the ESMA (European Securities and Markets Authority), the European Commission and the ECB itself, providing the Secretariat. The most significant characteristics of this working group (Working group on euro risk-free rates, WG RFR) are described in section 5.

4.1 Design of the euro short-term rate (€STR)

The ECB led the process of creating this benchmark against a background of profound benchmark regulation reforms, as mentioned above. The importance of the new interest rate known as the "euro short-term rate" (€STR) stems, on one hand, from the decisive role of money market interest rates in the transmission of monetary policy decisions and, on the other, from the pivotal function it must adopt as a benchmark for instruments and contracts traded on financial markets.

Initially, the €STR was not intended to replace any of the existing indices, rather to complement them. Since EONIA did not meet the benchmark regulation requirements owing to the limited number of transactions on which its calculation was based and

14 See ECB announcement on the development of an overnight interest rate.
See joint announcement on the launch of a working group on risk-free interest rates.

to the concentration of volumes in a small number of contributors, the EMMI tried to bring it into line with the requirements of the new European Benchmark Regulation (hereafter, BMR). However, in May 2018, the EMMI confirmed that an EONIA rate conforming to the new requirements could not be produced. Consequently, in the following months, EONIA was to gradually be replaced with the €STR, until its full phase-out at the end of 2021. Both interest rates would coexist for a time in order to enable a smooth transition for new and legacy contracts. In September 2018, the WG RFR recommended that the €STR be used as the benchmark rate for the euro area, and has since focused on supporting the transition from EONIA to the €STR.

The information used to calculate the €STR should be based on data available to the Eurosystem. Specifically, and pursuant to Regulation (EU) No 1333/2014 of the ECB of 26 November 2014 concerning statistics on the money markets,[15] the ECB started, in July 2016, to collect data on all the short-term euro transactions in these markets. Those with reporting obligations are credit institutions whose total main balance sheet assets exceed 0.35% of the total balance sheet assets of all the monetary financial institutions in the Eurosystem. These institutions must submit, on a daily basis, data to the national central bank or to the ECB on all the money market transactions concluded on the previous business day.[16] This information goes into a new statistical, detailed and harmonised dataset referred to as Money Market Statistical Reporting (MMSR[17]). In April 2020, the panel of reporting entities comprised 50 credit institutions.

The ECB, as the €STR administrator, has led the process to design this benchmark through internal and external working groups, and has gathered market feedback through two public consultations, the results of which were published in February[18] and May[19] 2018.

After assessing the different options and analysing the responses received, the ECB decided that the €STR would be an unsecured deposit rate which reflects the borrowing costs on the euro wholesale market. The transactions are overnight and are conducted at arm's length by MMSR panel banks with their counterparties. Specifically, they are deposit-raising transactions conducted with deposit-taking institutions (except for transactions conducted with central banks for monetary policy purposes), money market funds, investment funds, captive financial institutions and money lenders, insurance companies, pension funds and other financial corporations.

According to the findings of the public consultations, the features of the new benchmark rate were well received by market participants, who also noted the

15 See Regulation concerning statistics on the money markets.

16 Specifically, secured, unsecured, foreign exchange swap and overnight index swap transactions, excluding intragroup transactions.

17 Information on the MMSR is available here.

18 See responses to the first public consultation on the overnight interest rate.

19 See responses to the second public consultation on the overnight interest rate.

€STR's suitability as a benchmark to be adopted in contracts and valuations which had until then referenced EONIA.

At end-June 2018, the ECB published the calculation methodology for the €STR,[20] which is published at 08:00 on each TARGET2 business day.[21] For the benchmark to be considered valid, certain minimum market activity criteria must be met. Specifically, there must be at least 20 contributing banks and the volume of the five largest contributors must not exceed 75% of the value of the transactions included in the daily calculation. If any of the minimum criteria are not met on a given day, contingency procedures will be applied. These basically consist of calculating the volume-weighted average of a given day's rate and that of the previous day, making the necessary adjustments if the key interest rate has changed between those two days. In the event that the ECB, as the calculation agent, receives new data immediately after publication of the €STR, or detects errors which would make the rate vary by more than 2 bp, a new rate would be published before 09:00 on the same day. Although the ECB is not subject to the BMR, as it is a central bank whose integrity and independence are assumed, its legal framework is consistent with the best practices established in the regulation and in the IOSCO principles.

Although the ECB is the €STR administrator and is responsible for its publication, Eurosystem central banks are the main point of contact with counterparties in the daily benchmark determination process, mainly for the verification of data provided by banks. Using the infrastructure created for MMSR, central banks that have not delegated this responsibility to the ECB, collect data daily and submit them to the ECB. In a subsequent data-editing stage, all the central banks with reporting agents in their jurisdictions are responsible for checking the accuracy of the data received and preventing the inclusion of values that do not conform to the usual standards.[22]

4.2 Main differences between EONIA and €STR

One of the key differences between the €STR and EONIA is that the former represents the interest on borrowing transactions, while the latter is an interbank lending rate. Both of them are unsecured.

All the transactions on which calculation of EONIA was based related to the interbank market, while the €STR is based on transactions between reporting agents and a wide range of counterparties from the wholesale market, as discussed in the previous section.

20 See €STR methodology.

21 See TARGET2 long-term calendar.

22 In March 2020, an amendment was published to the Guideline on the €STR whereby Eurosystem national central banks may delegate their data-checking tasks, providing that they have only one reporting agent in their jurisdiction and that the central bank in question does not operate a local data collection platform.

Table 1
CHARACTERISTICS OF €STR AND EONIA

Benchmark	€STR	EONIA
Maturity	1 day (overnight)	1 day (overnight)
Source	Actual transactions	Actual transactions
Instrument	Deposits	Deposits
Cost of liquidity	Borrowing	Lending
Counterparties	Wholesalers	Banks
Contributors	Required by regulation	Voluntary
Administrator	ECB	EMMI
Publication	D + 1 (08:00 h)	D (19:00 h)

SOURCE: Banco de España.

As Chart 2 shows, the €STR has lower values than EONIA, for two fundamental reasons. First, due to the nature of their business, credit institutions borrow at a lower rate than that at which they lend; second, because the counterparties with which the €STR calculation panel banks can operate may include non-banks or non-residents that do not have access to the Eurosystem's deposit facility, meaning that trading is feasible beyond the interest rate "corridor" defined by the ECB's standing facilities.[23]

As mentioned in earlier sections, institutions contributed to EONIA voluntarily, while those contributing to the €STR are obliged to do so under the MMSR regulation.

Lastly, another difference is that the EMMI published EONIA daily, at the close of business, based on the day's transactions, while the ECB, as the €STR administrator, publishes the rate before 09:00 each day, based on eligible transactions concluded on the previous business day.

Table 1 shows a comparison between the two interest rates.

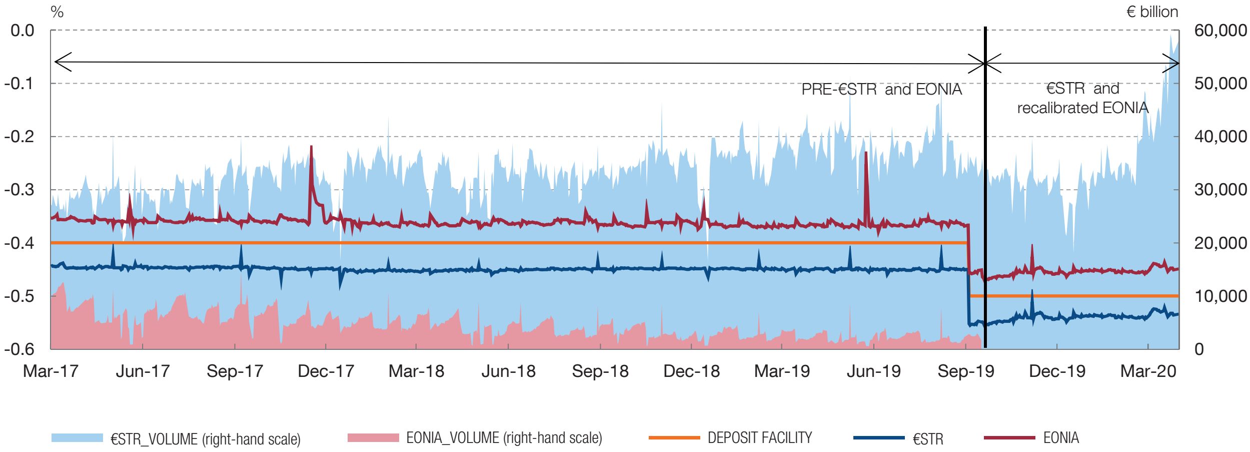
4.3 Pre-€STR

Before the launch of the €STR and as a result of the two public consultations conducted in 2018, it became clear that institutions needed a preliminary benchmark, referred to as the pre-€STR.[24] The new data helped to reduce market uncertainty and allowed participants to familiarise themselves with the statistical properties of the new benchmark and to adapt their processes to the transition to the new rate.

23 The ECB offers counterparties two standing facilities: the marginal lending facility, which provides credit against the presentation of collateral, and the deposit facility, in which banks may voluntarily deposit their surplus liquidity. The interest rates on these facilities provide a ceiling and a floor for the overnight interbank market rate.

24 See press release on the pre-€STR.

Chart 2
EONIA AND €STR: INTEREST RATES AND VOLUMES



SOURCES: European Central Bank and Banco de España calculations.

However, the publication of the pre-€STR was purely informative and the data were under no circumstances to be used as a benchmark in any financial contract.

Calculation of the pre-€STR was also based on MMSR data, using the same methodology as that defined for the €STR. In the summer of 2018, the ECB published a data series going back to 15 March 2017 and announced that, from that date, it would publish daily data in its Statistical Data Warehouse,[25] once each minimum reserve maintenance period had concluded (see Chart 2).

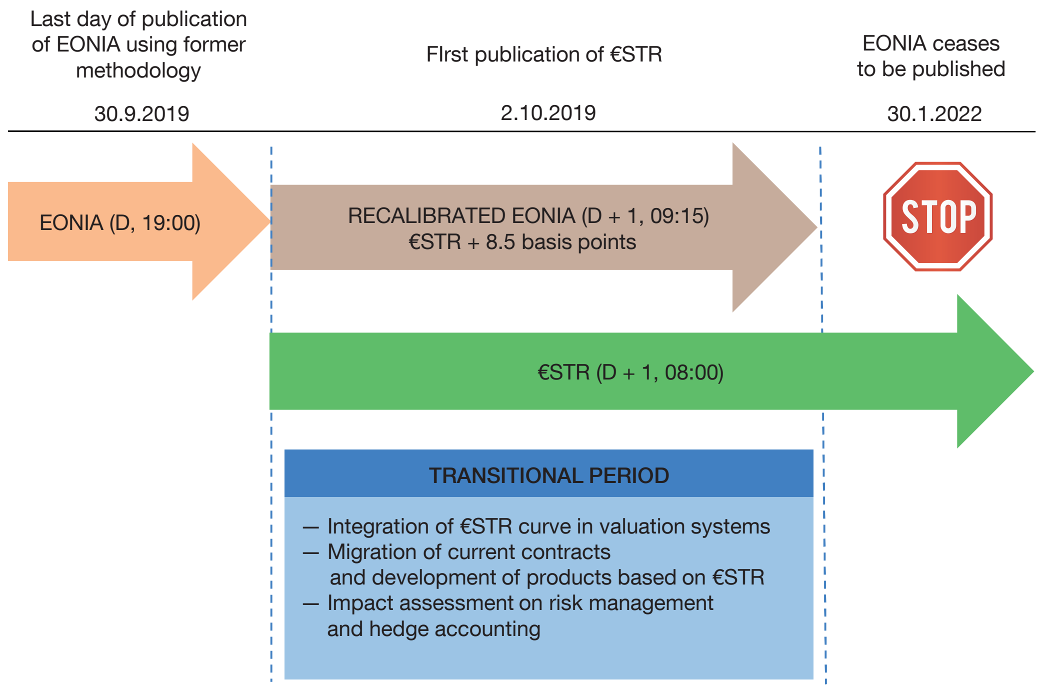
4.4 Launch of the €STR and new methodology for EONIA

After several months of internal testing, the ECB finally published the €STR for the first time on its website[26] on 2 October 2019, based on transactions conducted on the previous day. Since then, the rate has been published without having to apply contingency arrangements or to subsequently revise data leading to a correction of the first €STR data published that day, always based on the previous business day's trading activity.

In order to explore the possible transition paths from EONIA to €STR, the WG RFR conducted a survey among market participants. The feedback received[27] reveals a preference for restricting the use of EONIA until it is definitively phased out on

25 ECB's Statistical Data Warehouse.
26 See daily publication of the €STR.
27 See feedback on the WG report on the transition from EONIA to €STR.

Figure 1
TIMELINE OF TRANSITION FROM EONIA TO €STR



SOURCES: European Central Bank and own preparation.

3 January 2022. Additionally, following a public consultation, in March 2019 the WG RFR recommended that the EMMI, as the administrator of EONIA, modify the calculation methodology for the transition period, so that it consisted of the €STR plus a spread. In response, the EMMI announced that it would start using the methodology recommended by the WG RFR following the first publication of the €STR. Thus, the €STR and EONIA, recalibrated using the new methodology, will coexist during the transitional period. This will allow users with contracts referencing EONIA and maturing beyond 31 December 2021 to adapt their methodology to the €STR, both from an operational standpoint, and from a legal, accounting and risk management perspective. (See Figure 1)

The ECB calculated the fixed spread for the recalibration of the new EONIA following the WG RFR's recommendations. These consisted of calculating a simple average of the spreads observed over a one-year period, from 17 April 2018 to 16 April 2019, but excluding the lowest and highest 15% of observations so as to avoid unwanted outliers in the series. In May 2019, coinciding with the EMMI's announcement of the change in EONIA's methodology, the ECB announced that the fixed spread would be 8.5 bp[28] (0.085%), applicable from 2 October 2019 until 3 January 2022. The recalibrated EONIA is published daily at 09.15.

28 See press release on the spread between €STR and EONIA.

5 Working group for the study of risk-free interest rates

As noted above, in September 2017 the ECB, the FSMA, the ESMA and the EC established the WG RFR, led by the private sector, to identify and recommend alternative risk-free rates for the euro. Such rates will additionally serve as a basis for constructing forward curves that could be used as alternatives to the benchmark rates used in a variety of financial instruments and contracts in the euro area. The WG RFR has also created a transition plan for legacy contracts referencing the previously used benchmarks.

5.1 Composition and work streams

The working group is made up of 26 credit institutions, including 21 voting members and five non-voting members, together with another two institutions as invitees. A further four institutions (the FSMA, ESMA, ECB and EC) have observer status.[29] The ECB is tasked with coordinating the Secretariat. The working group's structure has changed over time, and new subgroups have been created to address needs as they have arisen, be they preparing and selecting the appropriate benchmark rate, drafting recommendations, or defining possible calculation methodologies for the forward curve and fallback rates.

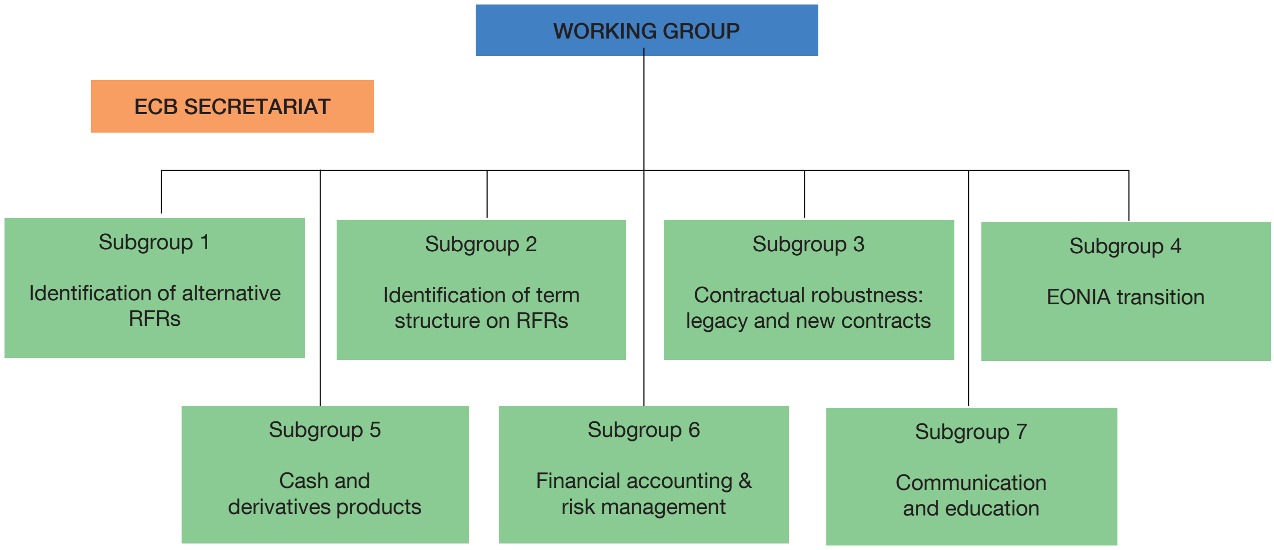
Three work streams related primarily to the development of the €STR were initially defined: identification of risk-free rates, methodological matters and matters related to compliance with the IOSCO principles and the BMR. This structure was expanded in February 2020 to encompass a total of seven work streams, with varying levels of activity as and when required. Each subgroup has been assigned specific terms of reference, such as ensuring the robustness of legacy and new contracts, the transition of cash and derivatives contracts, and risk management and financial accounting; a final subgroup is tasked with communicating and raising awareness of the work required to ensure a smooth transition (see Figure 2).

5.2 Guidance of the WG RFR for the transition of contracts and products referencing EONIA to the €STR

In order to minimise disruption to the market and consumers and to safeguard the continuity of contracts, the WG RFR has launched a transition path to move from EONIA to the €STR through various approaches, with the aim of addressing the legal implications for new and legacy contracts. The working group has also published various reports setting out its recommendations for the change in the benchmark from contrasting standpoints with a view to standardising the transition to the €STR for the market.

29 See composition of the WG RFR.

Figure 2
STRUCTURE OF THE WG RFR AND ITS SUBGROUPS



SOURCES: European Central Bank and own preparation.

The working group published a legal action plan[30] in July 2019, following a consultation of market participants. Among other considerations, the working group recommends, whenever feasible, avoiding entering into new contracts referencing EONIA, in particular those maturing after 31 December 2021. Furthermore, in contracts referencing EONIA and maturing after the discontinuation of this rate, the working group recommends replacing the benchmark rate as soon as possible or embedding fallback provisions. Additionally, for transparency purposes, the working group recommends that contracts signed before October 2019 include a clause acknowledging the change in methodology and clarifying that references to EONIA shall be understood to be references to EONIA as changed, unless otherwise agreed by the parties. Although such acknowledgement is not strictly necessary for ensuring the transition, it enhances transparency.

Since 1999 EONIA has been widely used both as a reference rate and as a collateral remuneration and cash flow discounting rate for financial products. Consequently, the working group considered its report on the impact of the transition on cash and derivatives products, published in August 2019, to be a key milestone.[31] The report highlights the need for market participants to adapt their IT systems and review the current documentation, processes and procedures, product structures and terms of application of all contracts. The report takes a highly practical approach, presenting recommendations for dealing with the change in EONIA's publication time (from

30 See WG recommendations on the legal action plan.

31 See report on the impact of the transition on cash and derivatives products.

19:00 on T to 09:15 on T+1) and the period of transition from the recalibrated EONIA to €STR (between 2 October 2019 and 3 January 2022). It also sets out alternative proposals from operational and financial product valuation standpoints, based on general market practices, and analyses the implications for EONIA-based valuation models.

This report was updated in February 2020[32] to provide guidance on how to ensure a liquid €STR cash and derivatives products market. Transferring the liquidity already present in EONIA market to products referencing the €STR is considered essential. The report provides clarification around some topics that have been discussed since the July report and stresses that continuing to reference EONIA in contracts with maturities beyond January 2022 entails significant risks; planning a smooth transition for each product is therefore recommended.

In October 2019, the working group issued its recommendations on the risk management implications of the transition from EONIA to the €STR and the introduction of fallbacks for EURIBOR based on a €STR-based term structure.[33] This report includes an analysis of the major risks identified, as summarised in Figure 3, and an assessment of their impact, focusing chiefly on interest rate risk, their implications for valuation and regulatory aspects. Although EURIBOR will continue to be provided under its reformed methodology, its use needs to comply with the requirements of the BMR. As a contingency measure to avoid financial instability, the BMR requires EU supervised entities to produce and maintain robust detailed plans setting out the main actions they will take in the event that a benchmark changes or ceases to be provided, including fallbacks. This means that supervised entities must include a fallback rate for EURIBOR in their written plans and contracts where feasible and appropriate. The report focuses mainly on the risk management implications for banks and on the various challenges facing the asset management and insurance sectors. The recommendations should be considered in conjunction with EONIA to €STR legal action plan and the report on the impact of the transition on cash and derivatives products referred to above.

Furthermore, in November 2019, the WG RFR issued its recommendations on the financial accounting implications of the transition from EONIA to the €STR and the introduction of fallbacks for EURIBOR based on a €STR-based term structure.[34] This report highlights the possible impacts and focuses on the implications for hedge accounting.

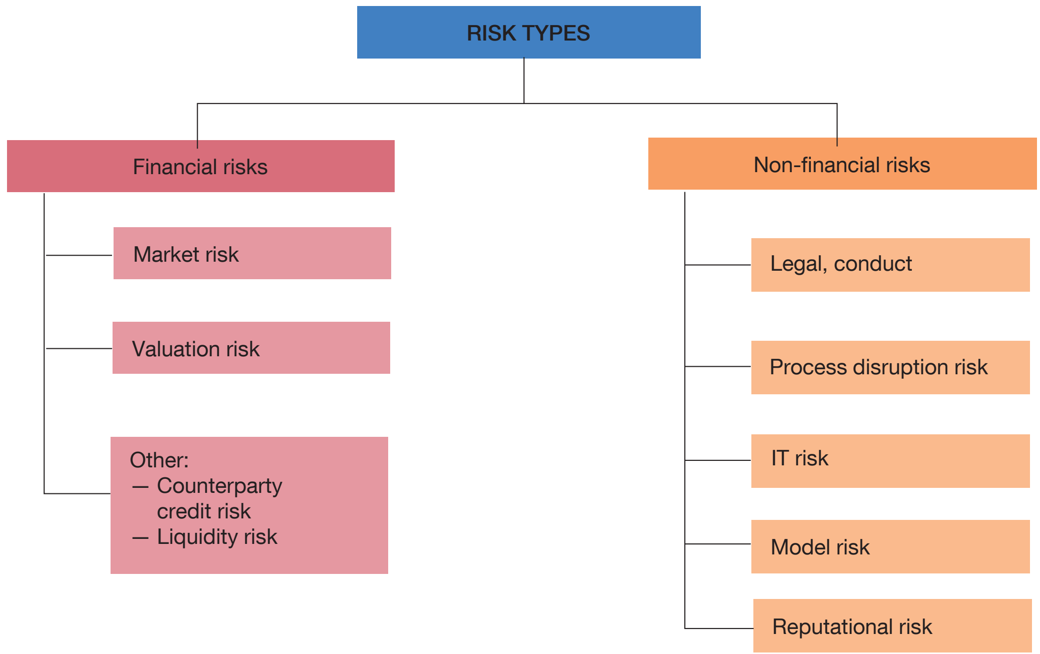
Lastly, also in November 2019, the working group published guidance for entities so that they have comprehensive detailed plans in the event that a benchmark changes

32 See additional considerations to the report by the WG RFR on cash and derivatives products.

33 See report on the risk management implications of the transition from EONIA to the €STR.

34 See report on the financial accounting implications of the transition from EONIA to the €STR and the introduction of fallbacks.

Figure 3
RISK TYPES IDENTIFIED BY THE WG RFR



SOURCES: European Central Bank and own preparation.

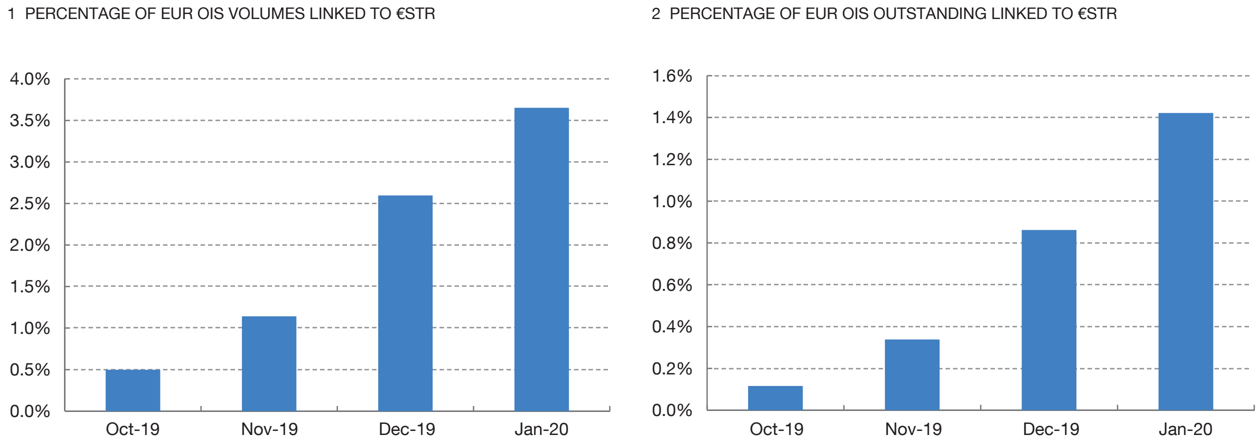
or ceases to be provided[35] (requirement of the BMR). The report describes the €STR fallback arrangements when this index is used as a benchmark in contracts. Two options are analysed: (i) including, as a fallback for the €STR, one of the alternative rates that were considered in the public consultation before the €STR was selected as the new risk-free rate,[36] or (ii) taking into account the reviews of the €STR that the ECB will conduct on a regular basis, as well as the policies and procedures to be followed in the event of the possible cessation of the €STR. The working group ultimately concluded that the second option, combined with the recommendations included in EONIA legal plan,[37] provided sufficient contingency as fallback measures for the €STR.

6 Challenges going forward: the development of €STR-based markets and the introduction of fallbacks in contracts

All of the foregoing recommendations from the WG RFR will have to lead to concrete action by the entities concerned. Although the competent authorities (the ECB,[38] together with the National Securities Market Commission (CNMV) and the Banco de

35 See report on €STR fallback arrangements.
36 See public consultation on the new euro risk-free rates.
37 See WG legal action plan from EONIA to €STR.
38 In its role as supervisor of significant institutions.

Chart 3
GRADUAL INCREASE IN OIS REFERENCING THE €STR



SOURCE: European Central Bank, based on data published by LCH.

España in the case of Spanish entities) can instigate and ease the way for a smooth transition, it is market agents who must implement the necessary changes and adapt to regulation in the most efficient manner possible.

Among the most pressing challenges is the development of a liquid, robust derivatives market based on the new overnight interest rate €STR, by harnessing the markets and infrastructure already in place for EONIA. Significant progress has been made in this regard in recent months. At end-2019, two of the largest clearing houses in the European Union, LCH and Eurex Clearing, announced that they would begin to clear €STR-based derivatives. This became a reality in October 2019, when the first swaps benchmarked to €STR were cleared by LCH.[39] This market is beginning to be developed, as shown by the gradual increase in the volume of interest rate derivatives benchmarked to €STR[40] (see Chart 3).

Furthermore, the WG RFR has encouraged central counterparties to make headway on two very important aspects: collateral remuneration and the use of a discounting curve, both based on the €STR. At present, counterparties trading OTC[41] derivatives through a clearing house may post collateral in the form of euro-denominated liquidity, which uses EONIA as the collateral remuneration rate, meaning that the discounting curve used for calculating the present value of these contracts is based on this interest rate. However, both LCH and Eurex Clearing have already announced their intention to benchmark the discounting curve used for pricing their OTC

39 See LCH's press release on clearing €STR swaps.

40 See IRS turnover.

41 Over-the-counter; bilateral operations tailored to parties on the basis of their interests, unlike standardised trades listed on organised markets.

derivatives to the €STR.[42] Other clearing houses have followed their lead[43] and all central counterparties are expected to switch to the new index on the same date, in theory on 27 July 2020.

In October 2019 the International Swaps and Derivatives Association (ISDA)[44] published two documents setting out definitions for using the €STR as a floating rate in derivatives contracts and for embedding €STR-based fallbacks into derivatives which reference EONIA.[45]

The European Investment Bank issued its first €STR benchmark on the primary market[46] in October 2019, comprising a three-year bond with a nominal amount of €1 billion and a variable coupon of €STR + 200 basis points. This first operation has been followed by other variable-rate issuances referencing the €STR by commercial banks.

Furthermore, in December 2019 RepoClear, an LCH Group company, announced that it had cleared the first variable-rate repo referencing the €STR on the secured money market.

Another aspect of particular importance is that of fallbacks for contracts referencing EONIA and EURIBOR. Article 28(2) of the BMR requires entities to have written plans setting out the specific actions that they would take in the event that a benchmark ceases to be provided. Such plans must include alternative benchmarks that could be used to substitute the primary rate. In the case of EONIA, the working group only recommended the €STR as the fallback rate.

The development of a €STR-based term structure serving as a fallback for EURIBOR at its different time horizons is particularly significant. In this case, using a forward curve or a €STR-based temporary structure is recommended and the matter is being examined from two different approaches. First, in March 2019 the working group issued a recommendation for the development of a €STR forward curve based on OIS quotes, and invited benchmark administrators to present their proposals on this matter.[47] Five administrators[48] responded to the invitation and presented their proposals in October 2019.

Second, in August 2019, the working group presented an analysis of the viable methodologies based on the realised €STR for constructing a term structure.[49] Both

42 See Eurex circular on discounting switch on OTC market.

43 See CME proposal on the discounting change in derivatives.

44 See ISDA website.

45 See ISDA €STR-based fallbacks.

46 See EIB €STR benchmark bond issuance.

47 See call for expressions of interest from benchmark administrators to present their candidacy for developing a forward-looking curve.

48 The administrators were: EMMI, FTSE Russell, ICE, Refinitiv and IHS Markit.

49 See the analysis of the viable methodologies based on the realised €STR in order to construct a term structure.

approaches, i.e. using methodologies that include expectations (forward looking) and those based on realised rates (backward looking), are currently under consideration in order to determine which is the most appropriate for cash and derivatives products referencing the €STR.

7 Conclusions

Developments over the last decade in relation to the main benchmarks have prompted arrangements and legislation to be put in place geared towards preventing, as far as possible, manipulation of indices. The sharp decline in the trading of some instruments and dysfunctional money markets triggered by the financial crisis which began in 2007 led to a loss of representativeness for EONIA as a reference in ECB decision-making.

Both developments have resulted in the creation of the €STR, a new overnight benchmark rate for the unsecured market administered by the ECB.

In parallel, a group of supra-national institutions and a sizeable delegation of private credit institutions at European level established a working group, with the help of the ECB, in order to identify risk-free rates and plan the smooth transition of markets and contracts thereto.

The period of transition from EONIA to the €STR is still ongoing, with just over a year and a half to go until the last day of publication of EONIA (3 January 2022). Among the most pressing matters is the legal transition of legacy contracts referencing EONIA, in particular those maturing after December 2021. EONIA will also need to be gradually replaced by the €STR in all new contracts.

The transition of contracts referencing EONIA to the new interest rate presents fundamental implications for various matters, such as accounting by entities and (financial and non-financial) risk management.

Of vital importance at present is the development of €STR-based markets and financial products that also help to create a forward curve. Moreover, numerous efforts are under way to introduce fallbacks in contracts referencing the €STR and EURIBOR.

The transition to new reference interest rates is a reality and is leading to a huge collaborative effort between national authorities and financial market participants, along with international authorities and organisations, in order to ensure a smooth transition and minimise risks as far as possible, specifically those that could affect financial stability. Thanks to the efforts of the WG RFR, the active participation of the various market agents, and the involvement of national competent authorities, notable progress has been made in the transition from EONIA to the €STR, although there is admittedly a long way to go until it can be considered to have been completed.

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