



EUROPEAN CENTRAL BANK

EUROSYSTEM

## Independent assurance report

on the European Central Bank's (ECB) statement of compliance with control processes defined in relation to governance, quality and accountability activities over the euro short-term rate (€STR) and its adherence to the International Organization of Securities Commissions (IOSCO) Principles for Financial Benchmarks

As at 15 July 2020



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# 1 €STR overview

## 1.1 Introduction

### 1.1.1 Background

The ECB is a European Union institution set up and acting under the Treaty establishing the European Community and the Statute of the European System of Central Banks (ESCB) and of the ECB (the Statute), which is annexed as Protocol (No 4) to the Treaty on European Union and the Treaty on the Functioning of the European Union<sup>1</sup>.

The ECB and the national central banks of the ESCB (NCBs) perform their respective tasks and carry out their activity in accordance with the Treaty and the Statute.<sup>2</sup> The ESCB is governed by the decision-making bodies of the ECB, the Executive Board and the Governing Council.<sup>3</sup>

On 21 September 2017 the ECB announced that it would develop and produce, by 2020, a euro unsecured overnight interest rate based on data already available to the Eurosystem, to complement existing benchmark rates produced by the private sector and serve as a backstop reference rate. The new interest rate would be based entirely on transactions in euro that are reported by banks in accordance with the ECB's money market statistical reporting (MMSR).

In June 2018 the ECB unveiled the final methodology for calculating the new rate, which would be published by October 2019. It also decided that before then, starting in the summer of 2018, it would release the time-lagged publication of daily rate, volume and dispersion data based on the main methodological features of the new rate, referred to as the pre-euro short-term rate, for information purposes.

In September 2019 the Working Group on Risk-Free Rates selected the euro short-term rate as the replacement for EONIA, which will be discontinued as of 3 January 2022.

Following the conclusion of the development work, including several public consultations and preparation of the IT systems and legal framework for providing a highly reliable and timely daily rate, the publication of the new rate started on 2 October 2019.

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<sup>1</sup> [Protocol \(No 4\) on the Statute of the European System of Central Banks and of the European central Bank \(OJ C 202, 7.6.2016, p. 230\)](#).

<sup>2</sup> Article 127 (2) and (5) of the Treaty and Articles 1 and 3 of the Statute.

<sup>3</sup> Article 8 of the Statute.

As regards the legal framework for the €STR, Guideline (EU) 2019/1265<sup>4</sup> (the Guideline) establishes the ECB's overall responsibility for the administration and oversight of the €STR and its tasks and responsibilities and that of other members of the ESCB with respect to their data inputs to the €STR determination process and related procedures. The Guideline also establishes the ECB's control framework for protecting the integrity and independence of the rate and the determination process and addressing any existing or potential conflicts of interest that might otherwise compromise its integrity and reliability.

Guidelines are ECB legal acts that are legally binding on the ESCB members whose Member State has adopted the single currency.<sup>5</sup> In particular, an ECB Guideline may impose obligations on both the ECB (as regards the overall responsibility for the determination process for the rate) and on the Eurosystem NCBs involved in the determination process (as regards data collection and quality). It also provides for the necessary binding common standards while leaving to the NCBs the possibility to take into account national specificities and organisational needs.

As the €STR is exclusively based on statistical information, to produce the €STR in accordance with the Guideline the ECB relies on the following legal instruments for collecting the necessary data and enforcing the reporting requirements:

- Article 5 of the Statute, which provides the legal basis for the collection of statistical information by the ECB, in which task the ECB is assisted by the NCBs;
- Council Regulation (EC) No 2533/1998<sup>6</sup> concerning the collection of statistical information by the ECB;
- the ECB's Money Market Statistical Regulation (MMSR Regulation)<sup>7</sup>, under which the reporting agents<sup>8</sup> are required to report statistical information, part of which is used to produce the €STR;
- the ECB's statistical non-compliance framework<sup>9</sup>.

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<sup>4</sup> [Guideline \(EU\) 2019/1265 of the European Central Bank of 10 July 2019 on the euro short-term rate \(€STR\) \(ECB/2019/19\) \(OJ L 199, 26.7.2019, p. 8\).](#)

<sup>5</sup> Article 12 of the Statute.

<sup>6</sup> Council Regulation (EC) No 2533/98 of 23 November 1998 concerning the collection of statistical information by the European Central Bank (OJ L 318, 27.11.1998, p.8), as amended by Council Regulation (EC) No 951/2009 of 9 October 2009 and by Council Regulation (EU) No 2015/373 of 5 March 2015.

<sup>7</sup> [Regulation \(EU\) No 1333/2014 of the European Central Bank of 26 November 2014 concerning statistics on the money markets \(ECB/2014/48\) \(OJ L 359 p. 97\)](#), as amended by Regulation (EU) 2015/1599 of the European Central Bank of 10 September 2015 (ECB/2015/30), by Regulation (EU) 2019/113 of the European Central Bank of 7 December 2018 (ECB/2018/33) and most recently by Regulation (EU) 2019/1677 of the European Central Bank of 27 September 2019 (ECB/2019/29).

<sup>8</sup> Referred to as "reporting institutions" in this report.

<sup>9</sup> This ECB framework comprises several legal acts and guidelines: the Regulation on the powers of the ECB to impose sanctions (ECB/1999/4 as amended by ECB/2001/4 and ECB/2014/18), the Decision on non-compliance with statistical reporting requirements (ECB/2010/10 as amended by ECB/2015/50 and ECB/2017/5), as well as internal guidelines on logging and reporting by the NCBs of non-compliance with statistical reporting requirements and calculation of sanctions.

## 1.1.2 The IOSCO Principles for Financial Benchmarks

In July 2013 the International Organization of Securities Commissions (IOSCO) issued a set of principles for financial benchmarks (the IOSCO Principles). These have since been endorsed by the Financial Stability Board (FSB), the G20's body for international coordination of financial sector policies, as part of their reform work in the aftermath of benchmark manipulation scandals.

In the years 2008-2012 cases of attempted market manipulation and false reporting of global reference rates, as well as the liquidity shortage in the interbank unsecured funding markets, resulted in a decline in the confidence of the markets in the reliability and robustness of existing interbank benchmark interest rates. Under these conditions the high level of uncertainty surrounding the integrity of these reference rates had the potential to become a serious source of vulnerability and systemic risk.

The IOSCO Principles were intended to promote the reliability of benchmark determinations, and address benchmark governance, quality and accountability mechanisms. Although they set out uniform expectations, IOSCO does not expect a one-size-fits-all method of implementation to achieve these objectives. Instead, the Principles provide a framework of standards that administrators should implement according to the specificities of each benchmark.

As a central bank, the ECB is not within scope of the IOSCO Principles<sup>10</sup>, nor is it subject to the EU Benchmark Regulation<sup>11</sup>. As Recital 7 of the Guideline indicates, the ECB already meets the principles, standards and procedures which ensure that it performs its activities in exercise of its Treaty mandated tasks with integrity and in an independent manner. Nevertheless, it was considered proper, where relevant and appropriate, for the €STR framework to be in line with international best practice for the provision of financial benchmarks, in particular with the IOSCO Principles.

The Guideline provides a clear legal framework for the determination process and thereby supports the ECB's compliance with the IOSCO Principles and enhances the transparency of the production process vis-à-vis the financial markets. The control procedures and other measures to be applied under the Guideline have been designed to be proportional to the risks posed to the new rate and its determination process.

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<sup>10</sup> See p. 4 read in line with the definition of "National Authority" on p. 36 of the IOSCO Final Report July 2013. Though the ECB is an EU Institution, the intention to exclude it by analogy is clear.

<sup>11</sup> Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds and amending Directives 2008/48/EC and 2014/17/EU and Regulation (EU) No 596/2014 (OJ L 171, 29.6.2016, p. 1).

## 1.2 Overview of the administration of the €STR

Pursuant to Article 4 of the Guideline, as administrator of the €STR the ECB has the following tasks and responsibilities in respect of the rate:

- a) definition of the underlying interest which the rate represents and the methodology;
- b) implementation of the determination process;
- c) governance of the determination process;
- d) publication of the rate.

### 1.2.1 The definition of the €STR

#### 1.2.1.1 Statement of underlying interest

The €STR is a rate which reflects the wholesale euro unsecured overnight borrowing costs of euro area banks. The rate is published for each TARGET2<sup>12</sup> business day based on transactions conducted and settled on the previous day (trade and settlement dates T) with a maturity date of T+1 and which are deemed to be executed at arm's length and thereby reflect market rates in an unbiased way.

#### 1.2.1.2 Statement of methodology

The €STR is based exclusively on transaction-by-transaction data reported in accordance with the MMSR Regulation. The MMSR Regulation specifies that data must be transmitted once per day to the ECB between 18:00 CET on the trade date and 07:00 CET on the first TARGET2 settlement day after the trade date. Subsequently, the dataset is available for the computation of the €STR.

The €STR data are taken exclusively from borrowing transactions in euro conducted with financial counterparties that banks<sup>13</sup> report in accordance with the MMSR Regulation, the concepts and definitions of which underlie the €STR conceptual framework.

Out of the potential MMSR instrument categories, the €STR is calculated using overnight unsecured fixed rate deposit transactions over €1 million. Unsecured

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<sup>12</sup> Trans-European Automated Real-time Gross Settlement Express Transfer system.

<sup>13</sup> The MMSR includes transaction level data reported currently by some 50 reporting agents (referred to as "reporting institutions" in this report). On top of unsecured interbank transactions, unsecured transactions with other financial and non-financial institutions and with the general government are also reported with a maturity of no more than 397 days. The MMSR also includes secured transactions as well as derivatives transactions (FX swaps, OIS). Therefore, the MMSR dataset contains much broader information on the market. The MMSR data have been available since the start of reporting in July 2016.

deposits are standardised and are the most frequent means of conducting arm's length transactions on the basis of a competitive procedure, thereby limiting idiosyncratic factors with the potential to influence the volatility of the rate.

The €STR is calculated for each TARGET2 day as a volume-weighted trimmed mean rounded to the third decimal.

The volume-weighted trimmed mean is calculated by:

- a) ordering transactions from the lowest rate to the highest rate;
- b) aggregating the transactions occurring at each rate level;
- c) removing the top and bottom 25% in volume terms;
- d) calculating the mean of the remaining 50% of the volume-weighted distribution of rates.

A pro rata calculation is applied to volumes that span the thresholds for trimming to ensure that exactly 50% of the total eligible volume is used in the calculation of the volume-weighted mean.

The €STR methodology and policies are published on the ECB's website.<sup>14</sup>

Pursuant to Article 15 of the Guideline, the methodology and policies will be reviewed at least annually by the ECB, after prior consultation with the Oversight Committee<sup>15</sup>, to ensure that the underlying interest is adequately measured and captured by the methodology and that the procedures and policies are effective.

## 1.2.2 Benchmark production/quality of data

The ECB has in place robust, resilient and transparent processes for the determination of the €STR.

The benchmark is based on daily confidential statistical information relating to money market transactions collected in accordance with the MMSR Regulation, which entered into force on 1 January 2015. Regular data collection started on 1 July 2016. As stated above, the €STR is based exclusively on eligible data from the unsecured market segment of the MMSR. The reporting requirements under the MMSR Regulation, as well as the current reporting population, are available on the ECB's website.

The minimum standards to be applied by the actual reporting population are established in Article 3(1) and Annex IV of the MMSR Regulation and include minimum standards for transmission, accuracy, compliance with concepts and revisions, and minimum standards for data integrity.

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<sup>14</sup> [The euro short-term rate \(€STR\) methodology and policies.](#)

<sup>15</sup> Article 9 (5) (a) of the Guideline.

- a) The minimum standards for transmission establish, among other things, that the reporting must be timely, and that the statistical reports must take their form and format from the technical requirements set by the ECB and the relevant NCB.
- b) The minimum standards for accuracy set a number of rules to ensure that the reported information is correct and complete, avoiding structural gaps, while reporting agents must be able to provide information on the developments implied by the transmitted data as well as any existing gap. Furthermore, reporting agents must respond with the required information within the deadlines set by the ECB or the relevant NCB to any communication from the ECB or the relevant NCB requesting them to confirm the accuracy of the statistical information or to answer any query regarding its accuracy.
- c) The minimum standards for conceptual compliance relate to compliance with the definitions and classifications contained in the MMSR Regulation. Furthermore, the Regulation obliges reporting agents to monitor and quantify deviations from these definitions and explain breaks.
- d) The minimum standards for revisions oblige reporting agents to follow the revision policy and procedures set by the ECB and the relevant NCB.
- e) The minimum standards for data integrity establish that statistical information must be compiled and transmitted by reporting agents in an impartial and objective matter and errors must be corrected and communicated to the ECB and relevant NCB at the earliest possible date.

Compliance with the minimum standards is regularly monitored by the ECB and NCBs. In the case of non-compliance, the respective reporting agents are contacted and asked to implement corrective measures. In case of repeated non-compliance, an infringement procedure is initiated, and sanctions may be imposed in accordance with the ECB's legal framework on non-compliance with statistical reporting requirements.<sup>16</sup>

### 1.2.2.1 Data quality management

In addition to the euro short-term rate methodology, the ECB has established and maintains certain business procedures describing the actions to be taken by the ECB and the NCBs to carry out the euro short-term rate determination process and the publication and re-publication of the euro short-term rate, and setting out post-production procedures.

The business procedures include the steps for quality processing as described in the euro short-term rate methodology to determine which transactions are eligible. As established in Article 8(4) of the Guideline, quality processing in the euro short-term rate system includes the following multiple level quality controls on the input statistical information:

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<sup>16</sup> See footnote 14.



- a) performing validation checks to ensure that the files submitted to the euro short-term rate system comply with the required technical standards to identify transactions with missing and/or possible erroneous statistical information;
- b) performing targeted quality checks of the statistical information according to pre-defined algorithms to detect outlying or unusual transactions;
- c) requesting confirmation of the accuracy of transactions from reporting agents in order to determine which transactions are eligible.

### 1.2.2.2 Involvement of the NCBs in benchmark production

The NCBs are involved in daily €STR production in several ways.

Firstly, as the ECB is assisted by the NCBs in the collection of the ESCB statistical information required for the performance of its Treaty mandated task, the MMSR input data for the €STR are collected by the NCBs or, if the NCB so decides, by the ECB.<sup>17</sup>

Secondly, NCBs that operate a local collection platform for ESCB statistical information and NCBs which have reporting agents resident in their Member State are required to establish and maintain business procedures in accordance with which they will carry out the €STR data collection, data verification and post-production procedures.<sup>18</sup> These NCBs are accordingly required to interact with the ECB and the reporting banks on the quality assurance of the data.

In addition, the ECB and NCBs operating a local collection platform are obliged to comply with certain high availability and IT service level requirements in respect of their collection platforms. The requirements are established and maintained by the ECB.<sup>19</sup> In accordance with Article 8(4) of the Guideline, the ECB is responsible for overseeing these processes as carried out by the NCBs. This oversight should enable the ECB to take reasonable steps to avoid undue operational risk related to the NCBs' participation in the benchmark determination process.

### 1.2.2.3 Non-application of expert judgment

“Expert Judgment”, as defined in the IOSCO Principles, is not used in the determination of the €STR.

According to the IOSCO Principles, Expert Judgment is the “exercise of discretion by an Administrator or Submitter with respect to the use of data in determining a Benchmark. Expert Judgment includes extrapolating values from prior or related transactions, adjusting values for factors that might influence the quality of data such

<sup>17</sup> Article 5 of the ESCB Statute and Articles 3(1) and (3) of the MMSR Regulation.

<sup>18</sup> Articles 5 and 6(3) of the Guideline.

<sup>19</sup> Articles 5(3) and 9 of the Guideline.

as market events or impairment of a buyer or seller's credit quality, or weighting firm bids or offers greater than a particular concluded transaction.”

The ECB exercises no discretion in respect of the use of the data. All data corresponding to transactions correctly reported under the MMSR Regulation and eligible to compute the €STR under the Methodology are used to calculate the €STR. No estimation procedure is applied. No extrapolation from prior or related transactions is considered. No adjustment to reported values on the basis of market event, impairment of a buyer or seller's credit quality is applied. Bids and offers are not part of the MMSR data reporting.

Data reception, quality checks, filtering and rate calculation are automatically performed on the basis of pre-programmed algorithms. All €STR processes are strictly defined in internal guidelines, with discretion playing no role in the €STR determination process. Any manual involvement is rare and used only in exceptional circumstances, as defined in the Methodology, and performed according to pre-established parameters, with no room for discretion.

#### 1.2.2.4 Non-applicability of parts of the IOSCO Principles relating to Submissions

The €STR is an observable and entirely transaction-based, as opposed to submissions-based, benchmark.<sup>20</sup> It is exclusively based on borrowing transactions in euro which are conducted with financial counterparties that banks report in accordance with the MMSR Regulation (see Sections 3.2 and 4 of the Methodology).

Accordingly, any part of the Principles referring to benchmarks based on Submissions is not applicable to the €STR.

#### 1.2.3 Governance and oversight

The process for determining the €STR is subject to a control framework which has several components. Firstly, and at the higher level of principles, it comprises the Eurosystem Ethics Framework and the Code of Conduct for high-level ECB Officials.<sup>21</sup> In addition, it comprises business procedures that ensure the integrity and quality of the rate and the determination process as well as arrangements that ensure that the complaints and audit procedures are effective for the risk management of the rate and of the determination process. The quality of the rate is further ensured by a multiple level quality control of the input statistical information.

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<sup>20</sup> According to the IOSCO Principles “*Submission(s) are prices, estimates, values, rates or other information that is provided by a Submitter to an Administrator for the purposes of determining a Benchmark. This excludes data sourced from Regulated Markets or Exchanges with mandatory post-trade transparency requirements.*”

<sup>21</sup> See Guideline (EU) 2015/855 of the European Central Bank of 12 March 2015 laying down the principles of a Eurosystem Ethics Framework (ECB/2015/11) (OJ L 135, 2.6.2015, p.23). The Code of Conduct can be consulted [here](#).

The ECB has established an internal Oversight Committee to review, challenge and report on all aspects of the determination process, including the high availability and IT service level requirements and the business procedures referred to in the Guideline.<sup>22</sup>

The Oversight Committee acts as an advisory body to the Executive Board and the Governing Council. It meets as and when the Chair considers it necessary or appropriate, but at least every four months. The list of members and the criteria for selection and replacement of its members are approved by the Governing Council.

The Oversight Committee is responsible for periodically reviewing the definitions and the methodology, keeping itself informed of any risks to the determination process, and for overseeing any material changes to the methodology and the policies and procedures on the possible cessation of the rate. Moreover, it is responsible for assessing the need for additional safeguards in respect to any conflicts of interest and, if necessary, for investigating complaints.

In the interests of transparency, the ECB has also set up a complaints procedure mechanism whereby written complaints about any aspect of the determination process may be submitted by post or email. The ECB is committed to responding fairly, consistently and in a timely manner to all reasonable complaints.

Finally, in addition to this independent external assurance of the ECB's statement of compliance with the IOSCO Principles, the €STR determination process is subject to internal audits in accordance with the relevant Audit Charter, namely the ECB Audit Charter or the Audit Charter for the Eurosystem/ESCB and the Single Supervisory Mechanism, in line with Article 12(1) of the Guideline.

#### 1.2.4 Publication

In accordance with the published methodology and policies, the ECB publishes the €STR with three decimal places on the next TARGET2 business day following the date of the transaction (i.e. trade date +1). Together with the €STR, the following related information is published:

- total nominal value of transactions before trimming in € millions;
- number of banks reporting transactions before trimming;
- number of transactions before trimming;
- percentage of total nominal amount reported by the five largest contributing banks that day, as a whole number;
- calculation method: normal or contingency;
- rates at the 25th and 75th percentiles with two decimal places;

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<sup>22</sup> See Article 9(1) and also Articles 5(3) and 6(3) of the Guideline.

- publication type: normal or republication.

The €STR is published at 08:00 CET on each TARGET2 business day, starting on 2 October 2019. If errors are detected following standard publication that affect the published €STR by more than 2 basis points, the €STR is revised and republished on the same day at 09:00 CET. No changes may be made to the €STR after that time.

### 1.2.5 Contingency arrangements

In accordance with the published methodology and policies, a contingency procedure is triggered in the event of a situation of data insufficiency. The contingency procedure will be triggered where the number of reporting banks is less than 20 or five banks account for 75% or more of total transaction volumes.

These two criteria are intended to address, among others, cases where (i) there is a genuine lack of data or (ii) systems break down, preventing a sufficient data feed, thereby impairing the calculation of a representative transaction-based rate.

### 1.2.6 Impact of COVID-19

At the time of issuing this report, coronavirus (COVID-19) has become a global pandemic. Since the start of the coronavirus outbreak, the ECB has moved promptly and deliberately to assure full operational capabilities as well as employee health and safety. The ECB implemented remote working to limit the risk of spreading infection and the determination process was exercised in accordance with official guidance and requirements as well as ECB rules. The ECB's business continuity plans have worked as planned and there has been no impact on the effective discharge of the ECB's responsibilities as the administrator of the €STR.

## 2 ECB's statement of adherence

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### **Statement of adherence**

We confirm on behalf of the European Central Bank (ECB) that the ECB is solely responsible for and has designed and implemented specific activities (the Relevant Activities) to adhere to the Principles for Financial Benchmarks published by the International Organization of Securities Commissions (the Principles) with respect to the European Central Bank's €STR benchmark described on pages 18 – 51, as at 15 July 2020.

The accompanying description in "Section 4: Principles and responses" fairly presents the details of the IOSCO Principles for Financial Benchmarks together with the Relevant Activities we have placed in operation to address those Principles, as at 15 July 2020.

The Executive Board of the European Central Bank is, and shall be, responsible for this statement of adherence and the design and operation of the Relevant Activities referred to in the first paragraph above, which are set out under "ECB's response" in "Section 4: Principles and responses". Specifically, the Executive Board is responsible for establishing appropriate internal controls to ensure continued compliance with the Principles.

Yours sincerely,



Isabel Schnabel  
Member of the ECB's Executive Board



Werner Bier  
Deputy Director General Statistics

For and on behalf of the European Central Bank  
24 September 2020

### 3 Independent practitioner's assurance report



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**Independent Practitioner's Assurance Report to the European Central Bank (the Company) in respect of the description by management of the governance, quality and accountability activities (the Relevant Activities) placed in operation over the €STR to address the International Organization of Securities Commissions (IOSCO) Principles for Financial Benchmarks as at 15 July 2020.**

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We have carried out a reasonable assurance engagement in respect of the Relevant Activities in place as at 15 July 2020 described in the "ECB's response" column on pages 18-51 in "Section 4: Principles and responses" in response to the Principles for Financial Benchmarks published by the International Organization of Securities Commissions (the Principles) for the €STR described in "Section 1: €STR overview" of the "*Independent assurance report on the European Central Bank (ECB) statement of compliance with control processes defined in relation to governance, quality and accountability activities over the euro short-term rate (€STR) and its adherence to the International Organization of Securities Commissions (IOSCO) Principles for Financial Benchmarks*" (the Report).

This report is made solely for the use and benefit of the ECB's Executive Board in connection with Principle 17 of the Principles, as well as Article 12(2) of the Guideline. Our work has been undertaken in accordance with our agreement dated 30 March 2020, so that we might state to those charged with governance those matters we are required to state in an independent practitioner's assurance report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Company and the ECB's Executive Board for our work, for this report, or for the conclusion we have formed, save where expressly agreed in writing.

***Respective responsibilities of the ECB's Executive Board and the Practitioner***

The ECB's Executive Board is responsible for ensuring that the ECB designs, implements, operates and monitors activities to ensure compliance with policies and procedures that adhere to the Principles. They are also responsible for preparing the ECB's statement of adherence to the Principles, set out on pages 12-13 and supported by the responses to the Principles in Section 4 of the report.

Our responsibilities are to undertake a reasonable assurance engagement and report in connection with the Relevant Activities in the ECB's responses to the Principles in Section 4 of this report as at 15 July 2020.

We report to you whether, in our opinion, based on the results of our work (which is further described below) the ECB's description of the Relevant Activities placed in operation over the €STR described in "Section 1: €STR overview" to demonstrate its adherence to the Principles in Section 4 is fairly stated, in all material respects as at 15 July 2020.

***Our approach***

We conducted our engagement in accordance with International Standard on Assurance Engagements 3000 (Revised) - Assurance Engagements Other Than Audits or Reviews of Historical Financial Information (ISAE





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3000), issued by the International Auditing and Assurance Standards Board. We performed a reasonable assurance engagement as defined in the IAASB's International Framework for Assurance Engagements.

The objective of a reasonable assurance engagement is to obtain such appropriate evidence as we consider sufficient to enable us to express an assurance conclusion as to whether, on the basis of our procedures, the ECB's description of the Relevant Activities placed in operation as at 15 July 2020, as set out in Section 4, is fairly stated, in all material respects and that policies existed, in line with what has been described in ECB management's responses, as at 15 July 2020.

We examined, on a test basis, evidence relevant to assessing the Relevant Activities in response to the Principles. Our procedures are described in the "Practitioner's testing" column in Section 4 of the Report.

Assessing the suitability of design or operating effectiveness of the Relevant Activities is outside the scope of this engagement; accordingly, we do not express an opinion thereon.

While the Relevant Activities and related Principles may be informed by the need to satisfy legal or regulatory requirements, our scope of work and our conclusions do not constitute assurance over compliance with those applicable laws and regulations.

### ***Our independence and quality control***

We complied with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

We also apply International Standard on Quality Control 1 and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

### ***Inherent limitations***

Controls and processes are subject to inherent limitations and, accordingly, errors or irregularities may occur and not be detected. As such, our procedures cannot guarantee protection against (among other things) fraudulent collusion especially on the part of those holding positions of authority or trust. Furthermore, our conclusion is based on historical information and the projection of any information or conclusions in the attached report to any future periods would be inappropriate.

### ***Opinion***

Based on the results of our procedures, in our opinion, in all material respects, the ECB's description of Relevant Activities in "Section 4: Principles and responses", is fairly stated, as at 15 July 2020.

### **Emphasis of matters**

Without modifying our Opinion, we refer to the following matters as described in “Section 4: Principles and responses”:

- As described in Principle 4, the ECB’s legacy whistleblowing mechanism does not include all facets of an effective whistleblowing system.
- As described in Principle 12, the ECB has described its approach to consultation over material changes to the design and methodology of the €STR, however the decision on whether or not to consult on a material change will ultimately be at the discretion of the ECB.

### **Other information**

The ECB is responsible for the other information, comprising “Section 1: €STR overview” on pages 2-11, the description of the “Context” for each Principle in “Section 4: Principles and responses” and the description of the ECB’s response in Section 5. Other information is presented by the ECB to provide additional information and context to the Report. Our opinion on the ECB’s description of Relevant Activities does not cover such other information and we do not express any form of assurance opinion thereon. Our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the ECB’s description of Relevant Activities on pages 18-51 in Section 4 of the Report or our knowledge obtained in the course of our work. If we become aware of any apparent material misstatements or inconsistencies, we consider the implications for our report.

Frankfurt am Main, 25 September 2020

PricewaterhouseCoopers GmbH  
Wirtschaftsprüfungsgesellschaft



Christoph Theobald  
Wirtschaftsprüfer  
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## 4 Principles and responses

The table below sets out the response of the ECB in terms of how it adheres to each of the Principles. Within the “ECB’s response” column of each Principle’s table, the ECB has provided context for its responses to that Principle. The “Context” sections are italicised and are not subject to the independent assurance. The ECB has also described its Relevant Activities after the context and categorised each relevant activity as either (1) a policy statement [PS], that is, largely static documentation; or (2) a process or control activity [PCA], that is, a dynamic activity operating on a regular basis.

The accompanying “Practitioner’s testing” column summarises the work performed by PwC to validate that the policy statements and process and control activities, summarised by the ECB, are reflective of working practices. This supports the assurance opinion as documented in the independent practitioner’s assurance report included in Section 3 of this report.

The validation approach taken by the assurance provider is summarised below:

	Practitioner’s testing
Policy statements [PS]	Tested for existence of the policy or methodology in line with what has been described in the ECB’s response as at 15 July 2020.
Process & control activities [PCA]	Tested a sample of one to determine whether the PCA was placed in operation as at 15 July 2020.

### Principle 1 – Overall Responsibility of the Administrator

IOSCO Principle 1	ECB’s response	Practitioner’s testing
<p>The Administrator should retain primary responsibility for all aspects of the Benchmark determination process. For example, this includes:</p> <p>a) Development: The definition of the Benchmark and Benchmark Methodology;</p> <p>b) Determination and Dissemination: Accurate and timely compilation and publication and distribution of the Benchmark;</p> <p>c) Operation: Ensuring appropriate transparency over significant decisions affecting the compilation of the Benchmark and any related determination process, including contingency measures in the event of absence of or insufficient inputs, market stress or disruption, failure of critical infrastructure, or other relevant factors; and</p> <p>d) Governance: Establishing credible and transparent governance, oversight and accountability procedures for the Benchmark determination process,</p>	<p><b>Context</b></p> <p><i>The ECB is the Administrator of the €STR. It is responsible for the development, determination and provision of the rate as well as its publication, operation and governance. Article 4 of the Guideline sets out these tasks and responsibilities.</i></p> <p><i>Input data are gathered via existing MMSR regulatory reporting files, either directly from the banks or indirectly via the NCBs via their local collection platforms. Article 3 of the MMSR Regulation sets out the requirements for the collection of the reporting files from the reporting institutions and Article 5 of the Guideline sets out the requirements for the transmission of the input data to the €STR.</i></p>	
	<p><b>Relevant Activities</b></p> <p>[PS1] In response to (a) of this Principle, Article 4(2)(a) of the Guideline states that the ECB is responsible for defining the “underlying interest” which the €STR represents and the Methodology.</p>	<p>[PS1] With respect to (a), PwC inspected the Guideline and confirmed that Article 4(2)(a) of the Guideline states that the ECB is responsible for defining the “underlying interest” which the €STR represents and the Methodology.</p>

IOSCO Principle 1	ECB's response	Practitioner's testing
<p>including an identifiable oversight function accountable for the development, issuance and operation of the Benchmark.</p>	<p>[PS2] In addition, Article 2(2) of the Guideline defines the €STR.</p> <p>For additional information in relation to the responsibility of the ECB for the development of the €STR, please see the responses to Principle 5 – Internal Oversight, Principle 6 – Benchmark Design, Principle 10 – Periodic Review and Principle 12 – Changes to the Methodology.</p>	<p>[PS2] PwC inspected the Guideline and confirmed that Article 2(2) of the Guideline defines the €STR.</p> <p>For details of the testing performed on the responsibility of the ECB for the development of the €STR, see the responses to Principle 5 – Internal oversight, Principle 6 - Benchmark Design, Principle 10 - Periodic Review and Principle 12 - Changes to the Methodology below.</p>
	<p>[PS3] In response to (b) of this Principle, the ECB is solely responsible for the determination and dissemination of the €STR rate, as described in Article 4 of the Guideline and Section 2 of the Methodology.</p>	<p>[PS3] With respect to (b), PwC inspected the Methodology and confirmed that Articles 4 of the Guideline and Section 2 of the Methodology describe how the ECB is solely responsible for the determination and dissemination of the €STR rate.</p>
	<p>[PCA1] Every quarter the ECB publishes summary information on errors larger than 0.1 basis points that were detected after the standard publication and did not meet the re-publication criteria (Section 7 of the Methodology).</p>	<p>[PCA1] For details of the testing performed on the publication of summary information on errors larger than 0.1 basis points, see the response to Principle 9 – Transparency of Benchmark Determinations.</p>
	<p>[PS4] In response to (c) of this Principle, all significant decisions that the ECB takes in its capacity as Administrator, such as changes to the Methodology, the triggering of the contingency procedure and the cessation of the rate's publication, as well as any other operational matters, policies and procedures concerning the rate and the determination process, are made public (Articles 4(2)(b)(iii) and (d), 6(2) and 10 of the Guideline). The contingency measures are described in detail in Section 6 of the Methodology.</p>	<p>[PS4] With respect to (c), PwC inspected the Guideline and Methodology respectively and confirmed that Articles 4(2) (b) (iii) and (d), 6(2) and 10 of the Guideline provide that all significant decisions that the ECB takes in its capacity as Administrator are made public and that Section 6 of the Methodology describes the contingency measures.</p>
	<p>[PSS5] Certain tasks and responsibilities with respect to data collection are assigned to NCBs operating a local collection platform (LCP) and to NCBs with one or more reporting agents located in their Member State (Article 5 of the Guideline). The tasks of NCBs with only one reporting agent may be taken over by the ECB at the request of the NCB concerned (Article 5 (2a) of the Guideline).</p> <p>In addition, please see the response to Principle 2 – Oversight over Third Parties for details on the activities relating to oversight of these operations and Principle 15 – Internal Controls over Data Collection for details on the activities relating to data quality.</p>	<p>[PSS5] PwC inspected the Guideline and confirmed that Article 5 provides that certain tasks and responsibilities with respect to data collection are assigned to NCBs operating a local collection platform (LCP) and to NCBs with one or more reporting agents located in their Member State.</p> <p>Further, PwC inspected Article 5(2a) and noted that the tasks of NCBs with only one reporting agent may be taken over by the ECB at the request of the NCB concerned.</p> <p>For details of the testing performed on the oversight of the NCBs' operations see the response to Principle 2 – Oversight over Third Parties.</p> <p>For details of the testing performed on the relevant activities relating to data inputs see the response to Principle 15 – Internal Controls over Data Collection.</p>
	<p>[PS6] In response to (d) of this Principle, the ECB has a governance framework for the €STR, and an internal oversight function in the form of an Oversight Committee set up to review, challenge and report on all aspects of the determination process, and to advise the ECB's decision-making bodies (the Executive Board and the Governing Council) on the operation of the determination process, and all other matters relevant to the €STR (Articles 8 and 9 of the Guideline).</p> <p>In addition, please see the response to Principle 5 – Internal Oversight for details on the activities performed by the Oversight function.</p>	<p>[PS6] With respect to (d), PwC inspected the Guideline and confirmed that Articles 8 and 9 describe how the ECB has a governance framework for the €STR, and an internal oversight function in the form of an Oversight Committee set up to review, challenge and report on all aspects of the determination process, and to advise the ECB's decision-making bodies on the operation of the determination process, and all other matters relevant to the €STR.</p> <p>For details of the testing performed on the activities performed by the Oversight function, see the response to Principle 5 – Internal Oversight.</p>

## Principle 2 – Oversight of Third Parties

IOSCO Principle 2	ECB's response	Practitioner's testing
<p>Where activities relating to the Benchmark determination process are undertaken by third parties - for example collection of inputs, publication or where third-party acts as Calculation Agent - the Administrator should maintain appropriate oversight of such third parties. The Administrator (and its oversight function) should consider adopting policies and procedures that:</p> <ol style="list-style-type: none"> <li>Clearly define and substantiate through appropriate written arrangements the roles and obligations of third parties who participate in the Benchmark determination process, as well as the standards the Administrator expects these third parties to comply with;</li> <li>Monitor third parties' compliance with the standards set out by the Administrator;</li> <li>Make Available to Stakeholders and any relevant Regulatory Authority the identity and roles of third parties who participate in the Benchmark determination process; and</li> <li>Take reasonable steps, including contingency plans, to avoid undue operational risk related to the participation of third parties in the Benchmark determination process.</li> </ol> <p>This Principle does not apply in relation to a third party from whom an Administrator sources data if that third party is a Regulated Market or Exchange.</p>	<p><b>Context</b></p> <p><i>The ECB is responsible for all aspects of the administration of the €STR. As regards data collection and data quality assurance, the ECB is assisted by the NCBs as provided for in Article 5 of the Guideline.</i></p> <p><i>Generally, pursuant to Article 5 of the Statute, in order to undertake the tasks of the ESCB, the ECB is assisted by the NCBs in collecting the necessary statistical information either from competent national authorities or directly from economic agents.</i></p> <p><i>The NCBs are members of the ESCB (Eurosystème) and therefore subject to the ECB legal acts, guidelines and instructions that are necessary to ensure the performance of the tasks entrusted to the ESCB under the EU Treaties and the Statute.</i></p> <p><i>As part of the Guideline the ECB has in place mechanisms of control and written arrangements for the oversight of the NCBs in performing their contributions to the determination process.</i></p> <p><i>In line with the general rule that Eurosystem tasks shall not be outsourced, the Guideline does not permit the €STR-related tasks and responsibilities referred to in Articles 4 and 5 of the Guideline to be outsourced to a third party.</i></p>	
	<p><b>Relevant Activities</b></p>	
	<p>[PS1] In response to (a) of this Principle, Article 5 of the Guideline defines the duties of the NCBs with respect to operating a local collection platform and the high-level standards with which they must comply, including timeliness of the provision of data.</p>	<p>[PS1] With respect to (a), PwC inspected the Guideline and confirmed that Article 5 of the Guideline defines the duties of the NCBs with respect to operating a local collection platform and the high-level standards with which they must comply, including timeliness of the provision of data.</p>
	<p>[PS2] In addition, the quality of such data and the standards with which the NCBs must comply with are described in more detail in the internal Eurosystem guidelines, including:</p> <ul style="list-style-type: none"> <li>requirements to verify reported data;</li> <li>requirements in relation to high availability of the systems, maintenance activities, incident response and resolution, and regular reporting.</li> </ul>	<p>[PS2] PwC inspected the internal Eurosystem guidelines and noted that the internal Eurosystem guidelines state that the NCBs must comply with data quality standards, including:</p> <ul style="list-style-type: none"> <li>requirements to verify reported data;</li> <li>requirements in relation to high availability of the systems, maintenance activities, incident response and resolution, and regular reporting.</li> </ul>
	<p>[PS3] In response to (b) of this Principle, the internal Eurosystem Guidelines established in accordance with Article 6(3) of the Guideline specify requirements for the NCBs to ensure the systems are available (i.e. IT business availability) and operating to the agreed level. The same internal guidelines define the service thresholds that must be met by the NCBs and require them to report incidents.</p>	<p>[PS3] With respect to (b), PwC inspected the internal Eurosystem Guidelines and confirmed that in accordance with Article 6(3), they specify requirements for the NCBs to ensure the systems are available (i.e. IT business availability) and operating to the agreed level. The same internal guidelines define the service thresholds that must be met by the NCBs and require them to report incidents.</p>
	<p>[PCA1] Quarterly service level reports are received from the NCBs which provide a list of targets not met, IT incidents and corrective actions. The reports are made available to the Oversight Committee before each meeting.</p> <p>The ECB also carries out quality checks on the data provided by the NCBs on a daily basis prior to use in the determination of the €STR. For more information see</p>	<p>[PCA1] For a sample NCB, PwC obtained the service level report and checked that it provided a list of targets not met, IT incidents and corrective actions. Furthermore, PwC inspected the Oversight Committee presentation following the provision of the service level report and checked that the report was made available to the Oversight Committee.</p> <p>For details of the testing performed on the</p>

IOSCO Principle 2	ECB's response	Practitioner's testing
	Principle 15 – Internal Controls over Data Collection.	quality checks on the data provided by the NCBs, see the response to Principle 15 – Internal Controls over Data Collection.
	[PS4] In response to (c) of this Principle, the ECB publishes on its <a href="#">official website</a> a list of the NCBs which operate an LCP.	[PS4] With respect to (c), PwC inspected the ECB's official website and confirmed that the list of the NCBs which operate an LCP is publicly available.
	[PS5] In response to (d) of this Principle, Section 6 of the Methodology sets out the contingency plan that would be activated if there were fewer than 20 banks submitting (or if five banks accounted for 75% or more of total transaction volumes). This would include instances where the data had not been received by the LCPs.  The associated PCA in relation to the contingency mechanism can be found in Principle 15 – Internal Controls over Data Collection.	[PS5] With respect to (d), PwC inspected the Methodology and confirmed that Section 6 sets out the contingency plan that would be activated if there were fewer than 20 banks submitting (or if five banks accounted for 75% or more of total transaction volumes).  For details of the testing performed on the contingency calculation, see the response to Principle 15 – Internal Controls over Data Collection.
	[PS6] In line with the Eurosystem Business Continuity Management Policy, the ECB and NCBs are required to implement a business continuity framework which provides that, in case of a disruption, time critical Eurosystem products can be delivered within pre-established timelines and at predetermined levels. The associated Guiding Principles require that the capabilities are tested on an annual basis, unless specific reasons prevail.	[PS6] PwC inspected the Eurosystem Business Continuity Management Policy and checked that it mandates the implementation of a business continuity framework, which provides that time critical Eurosystem products can be delivered within pre-established timelines and at predetermined levels. Furthermore, PwC inspected the associated Guiding Principles and checked that they require annual testing, unless specific reasons prevail.
	[PCA2] The ECB's Business Continuity Plan is tested annually.	[PCA2] PwC inspected the ECB's Business Continuity Plan test results and confirmed that the test had been performed in the preceding 12 months.

## Principle 3 – Conflicts of Interest

IOSCO Principle 3	ECB's response	Practitioner's testing
<p>To protect the integrity and independence of Benchmark determinations, Administrators should document, implement and enforce policies and procedures for the identification, disclosure, management, mitigation or avoidance of conflicts of interest. Administrators should review and update their policies and procedures as appropriate.</p> <p>Administrators should disclose any material conflicts of interest to their users and any relevant Regulatory Authority, if any.</p> <p>The framework should be appropriately tailored to the level of existing or potential conflicts of interest identified and the risks that the Benchmark poses and should seek to ensure:</p> <ol style="list-style-type: none"> <li>Existing or potential conflicts of interest do not inappropriately influence Benchmark determinations;</li> <li>Personal interests and connections or business connections do not compromise the Administrator's performance of its functions;</li> <li>Segregation of reporting lines within the Administrator, where appropriate, to clearly define responsibilities and prevent unnecessary or undisclosed conflicts of interest or the perception of</li> </ol>	<p><b>Context</b></p> <p><i>The ECB is committed to promoting integrity, good corporate governance and the highest ethical standards.</i></p> <p><i>ECB high-level officials and staff members are required to perform their duties impartially and with integrity and behave in a manner befitting the character of the ECB as an institution of the European Union.</i></p> <p><i>A verification exercise was conducted by the ECB when the NCBs were implementing the provisions of Guideline ECB/2015/11 verifying that their implementation was in line with the scope and the spirit of that Guideline and that all criteria set out therein were fulfilled.</i></p> <p><i>Given that the €STR tasks are Eurosystem tasks undertaken by the ECB with the assistance of the NCBs, this framework applies equally to the €STR determination process, and for its fulfilment the Eurosystem central banks are obliged to adopt internal rules (Article 2 of Guideline ECB/2015/11).</i></p> <p><i>The Code of Conduct for high-level ECB Officials (Code of Conduct) provides a set of principles and ethical rules to guide the conduct of the ECB's decision makers and other high-level officials, taking into account the ECB's status as a central</i></p>	

IOSCO Principle 3	ECB's response	Practitioner's testing
<p>such conflicts;</p> <p>d) Adequate supervision and sign-off by authorized or qualified employees prior to releasing Benchmark determinations;</p> <p>e) The confidentiality of data, information and other inputs submitted to, received by or produced by the Administrator, subject to the disclosure obligations of the Administrator;</p> <p>f) Effective procedures to control the exchange of information between staff engaged in activities involving a risk of conflicts of interest or between staff and third parties, where that information may reasonably affect any Benchmark determinations; and</p> <p>g) Adequate remuneration policies that ensure all staff who participate in the Benchmark determination are not directly or indirectly rewarded or incentivized by the levels of the Benchmark.</p> <p>An Administrator's conflict of interest framework should seek to mitigate existing or potential conflicts created by its ownership structure or control, or due to other interests the Administrator's staff or wider group may have in relation to Benchmark determinations. To this end, the framework should:</p> <p>a) Include measures to avoid, mitigate or disclose conflicts of interest that may exist between its Benchmark determination business (including all staff who perform or otherwise participate in Benchmark production responsibilities), and any other business of the Administrator or any of its affiliates; and</p> <p>b) Provide that an Administrator discloses conflicts of interest arising from the ownership structure or the control of the Administrator to its Stakeholders and any relevant Regulatory Authority in a timely manner.</p>	<p>bank, a banking supervisor and an EU institution.</p> <p>The €STR Guideline applies the Code of Conduct also to the members of the Oversight Committee, who are all high-level Eurosystem staff apart from the Chair, who is a member of the Executive Board and of the Governing Council of the ECB.</p> <p>The Code of Conduct contains specific rules for the management of conflicts of interest (as referred to in Article 7.2 of Guideline ECB/2015/11), including in relation to post-employment activities, private financial transactions and relations with interest groups. It foresees the publication of Declarations of Interests and monthly calendars and includes measures for pursuing cases of non-compliance.</p> <p>The Implementation Practices of the Eurosystem Ethics Framework, dated 12 March 2015 (<a href="#">link</a>), especially Principles Nos 10 and 11, as well as the ECB Staff Rules, are also relevant for the management of conflicts of interest in the context of the €STR.</p> <p>As regards the part of this Principle on requirements concerning the mitigation of existing or potential conflicts created by the Administrator's ownership structure or control, it should be noted that the ECB is a public institution (having no affiliates or parent company) tasked with a specific mandate under the EU Treaties. It does not have a corporate structure spanning multiple legal entities and differing business operations. While the €STR is used by different divisions within the ECB (e.g. for policy setting), it is not used in the conduct of business or commerce.</p> <p>In addition, we note that the determination process is highly automated, and that human interventions, which are rarely needed, are performed according to rules which do not allow for Expert Judgment or discretion. As a result, the risk of manipulation of the benchmark is significantly lessened. See Section 1 for more information on Expert Judgment in the context of the ECB's administration of the €STR benchmark.</p> <p>The ECB does not consider there to be any material conflicts of interest requiring disclosure.</p>	
	<b>Relevant Activities</b>	
	<p>[PS1] The Guideline provides in its Article 8(3) that the members of the bodies and staff involved in the €STR determination process are to comply with the rules on conflicts of interest established by the Eurosystem Ethics Framework and the Code of Conduct for high-level ECB Officials.</p>	<p>[PS1] PwC inspected the Public Guideline and confirmed that Article 8(3) provides that the members of the bodies and staff involved in the €STR determination process are to comply with the rules on conflicts of interest established by the Eurosystem Ethics Framework or, where relevant, the Code of Conduct for high-level ECB Officials.</p>
	<p>[PS2] The Eurosystem Ethics Framework, which is contained in Guideline (EU) 2015/855 (ECB/2015/11), is a general framework which includes the requirement to manage conflicts of interest when central banks perform Eurosystem tasks.</p>	<p>[PS2] PwC inspected the Eurosystem Ethics Framework, which is contained in Guideline ECB/2015/11, and confirmed that it is a general framework which includes the requirement to manage conflicts of interest when central banks perform Eurosystem tasks.</p>
	<p>[PS3] Guideline ECB/2015/11 and the Code of Conduct include policies and procedures for the identification, reporting, disclosure, management, mitigation and avoidance of conflicts of interest in respect</p>	<p>[PS3] PwC inspected the Ethics Framework and the Code of Conduct and confirmed that Articles 7.2 and 11 to 18 include policies and procedures for the identification, reporting, disclosure,</p>

IOSCO Principle 3	ECB's response	Practitioner's testing
	<p>of all Eurosystem tasks, including the €STR. They cover staff conflicts of interest, also in respect of gifts and hospitality, external activities (including after leaving the ECB), procurement, recruitment, interacting with third parties, and private financial activities. In particular, the management of conflicts of interest is covered in Articles 9 and 10 of Guideline ECB/2015/11, Section 0.2 of the Staff Rules and in Articles 7.2 and 11 to 18 of the Code of Conduct.</p>	<p>management, mitigation and avoidance of conflicts of interest in respect of all Eurosystem tasks, including the €STR. They cover staff conflicts of interests, also in respect of gifts and hospitality, external activities (including after leaving the ECB), procurement, recruitment, interacting with third parties, and private financial activities.</p>
	<p>[PS4] In response to (a) of this Principle, Article 9 of Guideline ECB/2015/11 sets out the ECB's obligations with regard to avoiding situations of conflict of interest for staff members and candidates for appointment arising from previous occupational activities or from personal relationships.</p>	<p>[PS4] With respect to (a), PwC inspected Guideline ECB/2015/11 and confirmed that Article 9 sets out the ECB's obligations with regard to avoiding situations of conflict of interest for staff members and candidates for appointment arising from previous occupational activities or from personal relationships.</p>
	<p>[PSS] In addition, Guideline ECB/2015/11 and the ECB Staff Rules include procedures that allow for the identification of conflicts of interest as well as mechanisms for the disclosure and management of conflicts of interest (Article 9 of Guideline ECB/2015/11, Sections 0.2 and 0.4 of the Staff Rules).</p>	<p>[PSS] PwC inspected the Eurosystem Ethics Framework and the ECB Staff Rules and confirmed that Article 9 of the Guideline and Sections 0.2 and 0.4 of the Staff Rules include procedures that allow for the identification of conflicts of interest as well as mechanisms for the disclosure and management of conflicts of interest.</p>
	<p>[PCA1] The Eurosystem Ethics Framework is reviewed by the Governing Council at least once every three years.</p>	<p>[PCA1] PwC obtained and inspected evidence of the most recent review of the European Ethics Framework which has commenced in 2019 and remained underway as at 15 July 2020.</p>
	<p>[PS6] In response to (b) of this Principle, the Staff Rules refer to specific conflicts of interest. In particular, Part 0.2 of the Staff Rules sets out provisions on Independence, Part 0.3 on Professional Standards, Part 0.4 on Private Financial Transactions and Part 0.7 on Implementation. The professional duties in the Staff Rules refer to all ECB tasks, and hence also the €STR, in line with Guideline ECB/2015/11.</p>	<p>[PS6] With respect to (b), PwC inspected the Staff Rules and confirmed that Part 0.2 sets out provisions on Independence, Part 0.3 on Professional Standards, Part 0.4 on Private Financial Transactions and Part 0.7 on Implementation. The professional duties in the ECB Staff Rules refer to all ECB tasks, including the €STR, in line with Guideline ECB/2015/11.</p>
	<p>[PS7] In addition:</p> <ul style="list-style-type: none"> <li>• Section 0.2.1.2 of the Staff Rules defines conflict of interest as well as personal interest.</li> <li>• Section 0.2.1.1 establishes that members of staff must avoid conflicts of interest when performing their professional duties.</li> <li>• Section 0.2.1.3 sets out the procedure for reporting conflicts of interest when performing professional duties, involving management and the Compliance &amp; Governance Office (CGO).</li> <li>• Section 0.2.1.4 establishes the obligation to check the existence of conflicts of interest before a candidate's appointment.</li> <li>• Section 0.2.2 sets out the rules regarding gifts and hospitality, including the prohibition of payment from third parties for the performance of professional duties as well as post-employment restrictions.</li> </ul>	<p>[PS7] PwC inspected the Staff Rules and confirmed the following:</p> <ul style="list-style-type: none"> <li>• Section 0.2.1.2 of the Staff Rules defines conflict of interest as well as personal interest.</li> <li>• Section 0.2.1.1 establishes that members of staff must avoid conflicts of interest when performing their professional duties.</li> <li>• Section 0.2.1.3 sets out the procedure for reporting conflicts of interest when performing professional duties, involving management and the Compliance &amp; Governance Office (CGO).</li> <li>• Section 0.2.1.4 establishes the obligation to check the existence of conflicts of interest before a candidate's appointment.</li> <li>• Section 0.2.2 sets out the rules regarding gifts and hospitality, including the prohibition of payment from third parties for the performance of professional duties as well as post-employment restrictions.</li> </ul>
	<p>[PCA2] Checks for conflicts of interest are carried out by the CGO prior to the approval of any staff appointments to roles outside the ECB.</p>	<p>[PCA2] PwC obtained an extract of recent external staff appointment requests from the CGO and checked the status of these requests to confirm associated approvals were provided. Further, PwC noted that approval for the most recent request for an</p>



IOSCO Principle 3	ECB's response	Practitioner's testing
		external role appointment had not yet been granted and remained under review.
	[PS8] As set out in Section 0.4.1.3 of the Staff Rules, members of staff are prohibited from using or attempting to use inside information to further their own or another's private interests. Members of staff are specifically prohibited from taking advantage of inside information in any private financial transaction or in recommending or advising against such transactions.	[PS8] PwC inspected the Staff Rules and confirmed that Section 0.4.1.3 provides that members of staff are prohibited from using or attempting to use inside information to further their own or another's private interests. Members of staff are specifically prohibited from taking advantage of inside information in any private financial transaction or in recommending or advising against such transactions.
	[PCA3] Members of staff provide the CGO with a current list of (a) their bank accounts, including shared accounts, custody accounts, credit card accounts and accounts with stockbrokers; and (b) any powers of attorney which third parties have conferred on them in connection with their bank accounts, including custody accounts. Members of staff are then subject to annual compliance checks on their financial transactions as determined by the CGO via a risk-based sampling approach. For those not selected in the sample, staff must annually self-declare that their financial transactions have been conducted in accordance with the rules.	[PCA3] PwC performed the following procedures: <ul style="list-style-type: none"> <li>observed the mechanism for submitting employee financial accounts and relationships to the CGO on an ongoing basis;</li> <li>selected a staff member and obtained evidence of his declaration of bank accounts and powers of attorney;</li> <li>obtained and inspected evidence that the compliance review had been completed for those staff members selected in the risk-based sample by way of a summary report being made available to the ECB Audit Committee;</li> <li>selected a sample member of the €STR production team, and inspected evidence that they had provided the CGO with their self-declaration in the preceding 12 months.</li> </ul>
	[PCA4] Finally, members of the ECB's decision-making bodies and other high-level ECB officials (e.g. business area heads and staff members of the Oversight Committee) have the obligation to declare annually any potential conflict of interest to the Ethics Committee or the CGO, which assesses these declarations.	[PCA4] For a sample member of the Oversight Committee, PwC inspected and checked that they had made their potential conflicts of interest declaration available to the Ethics Committee or the CGO in the preceding year.
	[PS9] In response to (c) of this Principle, there are segregated reporting lines within the ECB, i.e. Benchmark Production within Statistics, Legal Services and Market Operations. The €STR determination process is the responsibility of the ECB's statistical function, which has professional independence in line with the Public commitment on European Statistics by the ESCB. The statistical function is separate from the ECB's economics and market operations functions and its legal function. Therefore, these functions have separate reporting lines, as shown in the ECB organisational chart.	[PS9] With respect to (c), PwC inspected the organisation chart for the ECB and confirmed that there are segregated reporting lines within the ECB. The ECB statistical function, which has professional independence in line with the Public commitment on European Statistics by the ESCB and is responsible for the €STR determination process, is separate from the ECB's economics and market operations functions and its legal function.
	[PCA5] In response to (d) of this Principle, if a manual intervention on the automated determination process is required, it follows a rule-based approach and staff have no room to deviate from the procedures defined in the business procedures.	[PCA5] With respect to (d), PwC made appropriate inquiries that there had been no instances of manual intervention on the automated determination process since the launch of the €STR benchmark. Accordingly, no testing of the implementation of the PCA could be performed.
	[PCA6] All manual interventions are subject to a system-enforced dual approval.	[PCA6] Using a test environment mirroring production, PwC checked that manual interventions in the €STR system are subject to a system-enforced dual approval.
	[PCA7] The daily operator monitors the functioning of the €STR system and the integrity of the information. Negative approval is given by not intervening. The result of each day's production run is	[PCA7] PwC observed the daily operator monitoring the €STR rate calculation and publication process and checked that the €STR end day production report was generated automatically and that it

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	summarised in an automated report which is made available to management and the responsible member of the Executive Board. The report includes information relating to the composition of the input data, which flags were raised and whether there were any manual interventions.	included information relating to the composition of the input data and the flags raised. Further, PwC confirmed that the report was made available to management and the responsible member of the Executive Board.
	[PS10] In response to (e) and (f) of this Principle, all data collected for the purposes of the €STR determination consist of unsecured market segment statistical information (Section 4 of the Methodology), and hence are covered by the confidentiality regime in Council Regulation (EC) No 2533/98 (see Article 8 thereof).	[PS10] With respect to (e) and (f), PwC inspected Section 4 of the methodology and confirmed that the €STR is based on unsecured market segment statistical information. PwC also inspected Council Regulation 2533/98 and confirmed that Article 8 provides that statistical information which is necessary for the tasks of the ESCB to be performed is confidential.
	[PS11] Members of the ECB's decision-making bodies and staff of the ECB and other ESCB NCBs are required, even after their duties have ceased, not to disclose information of the kind covered by the obligation of professional secrecy (Article 37.1 of the Statute).	[PS11] PwC inspected the Statute and confirmed that Article 37.1 provides for confidentiality protection generally by establishing that members of the ECB's decision-making bodies and staff of the ECB and other ESCB NCBs are required, even after their duties have ceased, not to disclose information of the kind covered by the obligation of professional secrecy.
	[PS12] Furthermore, confidentiality is provided for by the Staff Rules and more generally by Article 37 of the Statute, which covers professional secrecy. In particular, Section 0.3.1 of the Staff Rules establishes that the members of staff must comply with the ECB's rules on the management and confidentiality of documents.  Confidentiality is also inherent as a result of the restriction of access to the €STR calculation system. For more information in relation to logical access management controls, see the response to Principle 4 – Control Framework for Administrators.	[PS12] PwC inspected the Staff Rules and confirmed that Section 0.3.1. requires members of staff to comply with the ECB's rules on the management and confidentiality of documents and, in particular, seek authorisation to disclose information within and outside the ECB, where necessary.  For details of the testing performed over logical access management controls, see the response to Principle 4 – Control Framework for Administrators.
	[PS13] In response to (g) of this Principle, ECB staff are not remunerated as a result of the level of the €STR benchmark. Members of staff are remunerated in line with Part 3 of the Staff Rules, Conditions of Employment Part 1(3) and "Conditions of Employment for Staff of the ECB Annex 1 - Salary Structure".	[PS13] With regard to (g) PwC inspected the Staff Rules, Conditions of Employment Part 1(3) and "Conditions of Employment for Staff of the ECB Annex 1 - Salary Structure" and confirmed that the documents outline that remuneration of ECB staff has nothing to do with the level of the €STR benchmark.
	[PS14] Section 0.2.2 of the Staff Rules establishes detailed rules on the receipt of gifts and hospitality.	[PS14] PwC inspected the Staff Rules and confirmed that Section 0.2.2 establishes detailed rules on the receipt of gifts and hospitality.
	With regard to the second set of recommendations of Principle 3 concerning the mitigation of existing or potential conflicts of interest created by the Administrator's ownership structure or controlling interests, please refer to the <b>Context</b> of this Principle.	

## Principle 4 – Control Framework for Administrators

IOSCO Principle 4	ECB's response	Practitioner's testing
An Administrator should implement an appropriate control framework for the process of determining and distributing the Benchmark. The control framework should be appropriately tailored to the materiality of the potential or existing conflicts of interest identified the extent of the use of	<b>Context</b> <i>The control framework governing the €STR is established and controlled by the ECB which is, as provided in Article 9 of the Statute, an independent EU institution with legal personality in accordance with Article 107(2) of the Treaty.</i>	

IOSCO Principle 4	ECB's response	Practitioner's testing
<p>discretion in the Benchmark setting process and to the nature of Benchmark inputs and outputs. The control framework should be documented and available to relevant Regulatory Authorities, if any. A summary of its main features should be Published or Made Available to Stakeholders.</p> <p>This control framework should be reviewed periodically and updated as appropriate. The framework should address the following areas:</p> <p>a) Conflicts of interest in line with Principle 3 on conflicts of interests;</p> <p>b) Integrity and quality of Benchmark determination:</p> <p>i) Arrangements to ensure that the quality and integrity of Benchmarks is maintained, in line with Principles 6 to 15 on the quality of the Benchmark and Methodology;</p> <p>ii) Arrangements to promote the integrity of Benchmark inputs, including adequate due diligence on input sources;</p> <p>iii) Arrangements to ensure accountability and complaints mechanisms are effective, in line with Principles 16 to 19; and</p> <p>iv) Providing robust infrastructure, policies and procedures for the management of risk, including operational risk.</p> <p>c) Whistleblowing mechanism:</p> <p>Administrators should establish an effective whistleblowing mechanism to facilitate early awareness of any potential misconduct or irregularities that may arise. This mechanism should allow for external reporting of such cases where appropriate.</p> <p>d) Expertise:</p> <p>i) Ensuring Benchmark determinations are made by personnel who possess the relevant levels of expertise, with a process for periodic review of their competence; and</p> <p>ii) Staff training, including ethics and conflicts of interest training, and continuity and succession planning for personnel.</p> <p><b>Where a Benchmark is based on Submissions:</b> Administrators should promote the integrity of inputs by:</p> <p>a) Ensuring as far as possible that the Submitters comprise an appropriately representative group of participants taking into consideration the underlying Interest measured by the Benchmark;</p> <p>b) Employing a system of appropriate measures so that, to the extent possible, Submitters comply with the Submission guidelines, as defined in the Submitter Code of Conduct and the Administrators' applicable quality and integrity standards for Submission;</p> <p>c) Specifying how frequently Submissions should be made and specifying that inputs or Submissions should be made for every Benchmark</p>	<p>Article 8(2) of the Guideline sets out the components of the control framework.</p> <p>The €STR determination process is subject to a control framework comprising:</p> <ol style="list-style-type: none"> <li>1. the Eurosystem Ethics Framework;</li> <li>2. the Code of Conduct for high-level ECB Officials;</li> <li>3. business procedures for ensuring the integrity and quality of the rate and the determination process;</li> <li>4. arrangements to ensure the effectiveness of the complaints and audit procedures.</li> </ol> <p>Regarding the part of this Principle referring to benchmarks based on Submissions, please note that this is not applicable to the €STR, as explained in Section 1 of this report.</p> <p>In addition, please refer to the ESMA Q&amp;A (ESMA70-145-11) of 11 December 2019 stating that banks providing data to the ECB in accordance with the MMSR Regulation should not be considered supervised contributors under the Benchmark Regulation ((EU) 2016/1011) (the BMR) as the BMR's definition of "contribution of input data" is not met.</p> <p>Regarding whistleblowing, the ECB has mechanisms in place for the internal reporting of illegal activity, breaches of professional duties or inappropriate conduct. These apply to staff working on the €STR as well as on any other ECB activity.</p> <p>These procedures provide for the reporting of fraud, corruption and other illegal activities detrimental to the European Communities' financial interests the reporting of allegations of harassment to Human Resources and the reporting of any type of misconduct to any ECB manager, who is under a duty to accordingly inform his or her senior management. Although whistle-blowers are protected against retaliation, they may request anonymity. Depending on the case, the follow-up to such reporting may include an internal administrative inquiry, disciplinary follow-up and reporting to national criminal authorities for their investigation and follow-up if there is a suspicion of a criminal offence. These reporting channels are open to ECB staff, irrespective of the type of their employment with the ECB, as well as persons working for the ECB other than on an employment contract.</p> <p>At the present time Administrative Circular 01/2006 explicitly allows for anonymous reporting; an on-line IT tool allowing for anonymous reporting will be available as of October 2020. In this regard, it is worth mentioning that the ECB is currently working on the enhancement of the whistleblowing framework. In addition to the provision of an internal IT tool (mentioned above) this includes i) reinforcement of the rules regarding protection of whistle-blowers, ii) development of a specific policy against retaliation, and iii) specific procedures for the handling of reports concerning high-level Officials.</p> <p>For the time being, external reporting via a dedicated on-line IT tool is only available via the SSM whistleblowing platform. This</p>	

IOSCO Principle 4	ECB's response	Practitioner's testing
<p>determination; and</p> <p>d) Establishing and employing measures to effectively monitor and scrutinize inputs or Submissions. This should include pre-compilation or pre-publication monitoring to identify and avoid errors in inputs or Submissions, as well as ex-post analysis of trends and outliers.</p>	<p><i>mechanism, put in place to implement Article 23 of the SSM Regulation<sup>23</sup>, provides specifically for the reporting of breaches of relevant European Union law committed by a supervised bank, national supervisor or the ECB itself. It also allows anonymous reporting. As far as non-SSM related reports are concerned, a dedicated and centralised on-line IT tool is not yet available. However, external (non-SSM related) reports reach the ECB via several channels and are followed up on accordingly.</i></p> <p><i>In addition, with regards to external reporting, observations from persons that are not ESCB staff or members of bodies can be reported via the complaints mechanism under Article 11 of the Guideline. Finally, it should also be noted that the reporting institutions for the €STR under the MMSR Regulation are supervised entities which are subject to financial market legislation to protect the integrity of the financial market as well as to national measures implementing EU Directive 2019/1937 on the protection of persons who report breaches of Union law.</i></p> <p><i>For more information, see Section 5: ECB's response to matters.</i></p> <p><i>Finally, with respect (d)(ii) the €STR is highly automated and uses a non-complex methodology without the use of discretion. As a result, IOSCO's requirement for formal succession planning is considered disproportionate in this instance. Nevertheless, the €STR team comprises multiple staff members trained across responsibilities and therefore key person risk is significantly reduced.</i></p>	
	<p><b>Relevant Activities</b></p>	
	<p>[PS1] In accordance with Article 9(5)(h) of the Guideline, the Control Framework is overseen by the Oversight Committee.</p>	<p>[PS1] PwC inspected the Guideline and confirmed that Article 9(5)(h) states that the Control Framework is overseen by the Oversight Committee.</p>
	<p>[PCA1] The Control Framework covers the following components, which are reviewed on an annual basis by the ECB:</p> <ul style="list-style-type: none"> <li>• relevant policies, procedures, guidelines and other material developed to govern the determination of the €STR;</li> <li>• appropriate training requirements for staff;</li> <li>• control activities to monitor risks in the administration of the €STR, including over the use of systems.</li> </ul>	<p>[PCA1] PwC obtained and inspected the ECB Control Framework and checked that it summarised the following components:</p> <ul style="list-style-type: none"> <li>• relevant policies, procedures, guidelines and other material developed to govern the determination of the €STR;</li> <li>• appropriate training requirements for staff;</li> </ul> <p>control activities to monitor risks in the administration of the €STR, including over the use of systems.</p> <p>In addition, PwC inspected evidence that the Control Framework had been reviewed by the ECB in the preceding 12 months.</p>
	<p>[PCA2] A summary of the Control Framework is made available to stakeholders by way of this audited report.</p>	<p>[PCA2] This report is evidence that the summary is made available to stakeholders.</p>
	<p>In response to (a) of this Principle, the Control Framework contains the relevant responses to Principle 3 to ensure conflicts of interest are appropriately managed.</p>	<p>With respect to (a), PwC inspected the Control Framework and confirmed that it included the relevant controls responding to Principle 3. See the response to Principle 3 – Conflicts of Interest, for details on the testing of the associated controls.</p>

<sup>23</sup> Council Regulation (EU) No 1024/2013 of 15 October 2013 conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions (OJ L 287, 29.10.2013, p. 63).

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	<p>In response to (b)(i) of this Principle, the Control Framework contains the relevant responses to Principles 6-15 to ensure the quality and integrity of the €STR.</p> <p>In addition, given the significant level of automation and reliance on systems to ensure the quality and integrity of the €STR, the Control Framework includes the information technology general controls (ITGCs) that are in place for the €STR system across the following areas:</p> <ul style="list-style-type: none"> <li>logical access management;</li> <li>change management;</li> <li>computer operations.</li> </ul>	<p>With respect to (b)(i), PwC inspected the Control Framework and confirmed that relevant controls responding to Principles 6-15 are included in the Control Framework. Please see the response to Principles 6-15 for information on the testing of the associated controls.</p>
	<p>More specifically, the following ITGCs are in place:</p> <p><b>Logical access management</b></p> <ul style="list-style-type: none"> <li>[PCA3] Access requests to the €STR system are approved by the relevant line manager prior to access being granted.</li> <li>[PCA4] User accounts belonging to leavers are automatically disabled when their records update in the HR system.</li> <li>[PCA5] Access rights to the €STR system are reviewed and approved by the relevant line managers at least annually to ensure access remains commensurate with staff members' job responsibilities. Discrepancies are investigated and resolved.</li> </ul>	<p>PwC also performed the following tests on the ITGCs, specifically:</p> <p><b>Logical access management</b></p> <ul style="list-style-type: none"> <li>[PCA3] PwC selected a sample new joiner to the €STR production team and checked that his rights to the €STR system had been approved by the relevant line manager before he was granted access.</li> <li>[PCA4] PwC selected a sample leaver based on the HR system records and checked that his access to the €STR system was automatically disabled when his records updated in the HR system.</li> <li>[PCA5] PwC obtained the ongoing review of access rights, as at 15 July 2020, to the €STR system within its first year of operation. PwC selected a discrepancy and checked that it had been investigated and resolved.</li> </ul>
	<p><b>Change management</b></p> <ul style="list-style-type: none"> <li>[PCA6] Changes to the €STR system are tested and approved prior to being migrated into production.</li> <li>[PCA7] Personnel granted access in order to develop application changes do not have access to the production environment. Operations personnel oversee the application of any changes in production, which requires specific approval by the system owner.</li> </ul>	<p><b>Change management</b></p> <ul style="list-style-type: none"> <li>[PCA6] PwC selected a sample change to the €STR system and checked that the change had been tested and approved prior to being migrated into production.</li> <li>[PCA7] For the change selected above, PwC checked that the developer did not have access to the production environment. PwC also checked that the change was applied by operations personnel who had obtained specific approval from the system owner.</li> </ul>
	<p><b>Computer operations</b></p> <ul style="list-style-type: none"> <li>[PCA8] Systems are backed up on a daily basis.</li> <li>[PCA9] Failed jobs and errors identified are monitored by the relevant team. "Failure Tickets" are automatically recorded in the incident management tool based on predefined criteria and investigated by the relevant support team.</li> <li>[PCA10] Incidents are assigned a priority based on their business criticality and are resolved in good time.</li> </ul>	<p><b>Computer operations</b></p> <ul style="list-style-type: none"> <li>[PCA8] For a sample date, PwC checked that the systems were backed up successfully.</li> <li>[PCA9] For a sample failed job, PwC checked that a ticket was automatically recorded in the incident management tool and investigated by the relevant support team.</li> <li>[PCA10] For a sample incident, PwC checked that it was resolved in good time according to the priority assigned.</li> </ul>
	<p>In response to (b)(ii) of this Principle, the €STR is calculated using input data sourced from third parties. See the response to Principle 2 for more information on oversight of third-party data collectors. To ensure the integrity of the data inputs, controls are in place to review movements and outliers. See Principle 15 for more information.</p>	<p>With respect to (b)(ii), please see the response to Principle 2 – Oversight of Third Parties for details on the testing of the oversight activities that were performed and Principle 15 – Internal Controls over Data Collection for the testing of validation controls.</p>

IOSCO Principle 4	ECB's response	Practitioner's testing
	In response to (b)(iii) of this Principle, the Control Framework contains the relevant responses to Principles 16-19 to ensure accountability and complaints mechanisms are effective.	With respect to (b)(iii), PwC inspected the Control Framework and confirmed that it included relevant controls responding to Principles 16-19. For information on the testing of the associated controls, please see the responses to Principles 16-19.
	[PS2] In response to (b)(iv) of this Principle, €STR managers are responsible and accountable for managing the operational risks related to the administration of the benchmark, including the integrity and quality of the determination process, as stated in the ECB Operational Risk Management Policy.	[PS2] PwC inspected the ECB Operational Risk Management Policy and confirmed that €STR managers are responsible and accountable for managing the operational risks related to the administration of the benchmark.
	[PCA11] The ECB has an entity-wide risk register, which the €STR team contributes to and reviews on at least an annual basis.	[PCA11] PwC inspected €STR-specific risk assessments performed by the €STR team in the preceding 12 months. PwC also inspected the entity-wide risk register and checked it included risks impacting the €STR.
	[PS3] In response to (c) of this Principle, the ECB Staff Rules state that members of staff must comply with reporting lines and that if they consider that an instruction they have received is irregular, they must inform their line managers of their concerns (Section 0.3.3.1). In addition, the rules state that if they consider that the reaction of the line manager is not sufficient, staff members are to address their concerns to the Director General, Director or their Deputy.	[PS3] With respect to (c), PwC inspected the ECB Staff Rules and confirmed that Section 0.3.3.1 states that members of staff must comply with reporting lines and that if they consider that an instruction they have received is irregular, they must inform their line managers of their concerns. In addition, the rules state that if they consider that the reaction of the line manager is not sufficient, staff members are to address their concerns to the Director General, Director or their Deputy.
	<p>[PS4] In addition, the ECB has specific (whistleblowing) procedures in place which provide a framework for the internal reporting of illegal activity, breaches of professional duties and inappropriate conduct by its staff:</p> <ol style="list-style-type: none"> <li>1. Administrative Circular 01/2006 on internal administrative inquiries;</li> <li>2. Decision (EU) 2016/456 of 4 March 2016 concerning the terms and conditions for European Anti-Fraud Office investigations of the European Central Bank, in relation to the prevention of fraud, corruption and any other illegal activities affecting the financial interests of the Union (ECB/2016/3);</li> <li>3. Article 0.5 of the Staff Rules on dignity at work.</li> </ol>	[PS4] PwC obtained and inspected the documentation specified by the ECB and checked that it provides a framework for the internal reporting of illegal activity, breaches of professional duties and inappropriate conduct by its staff.
	<p>[PS5] The ECB whistleblowing mechanism does not currently have formal provision for:</p> <ul style="list-style-type: none"> <li>• fully operationalised anonymous reporting;</li> <li>• corrective measures;</li> <li>• external reporting.</li> </ul> <p>Additional information on the enhancements to the mechanism that are being prepared has been provided in Section 5: ECB's response to matters.</p>	[PS5] PwC inquiries confirmed the absence of the elements noted by the ECB as at 15 July 2020. For more information see Section 5: ECB's response to matters.
	[PS6] Also, should external service providers identify evidence that gives rise to suspicions of a breach of professional duties or a breach of contractual duties, they must report such potential breach together with the supporting documentation to the Compliance & Governance Office (Section 0.4.3.5).	[PS6] PwC inspected the ECB Staff Rules and confirmed that Section 0.4.3.5 states that should external service providers identify evidence that gives rise to suspicions of a breach of professional duties or a breach of contractual duties, they must report such potential breach together with the supporting documentation to the Compliance & Governance Office.
	[PCA12] Such situations as those	[PCA12] PwC made appropriate inquiries

IOSCO Principle 4	ECB's response	Practitioner's testing
	described above are reported at the next available Oversight Committee, or earlier if severity requires.	and confirmed that there had been no instances of members receiving irregular instructions or suspicions of a breach of professional duties or a breach of contractual duties reported by external service providers. Accordingly, no testing of the implementation of the PCA could be performed.
	<p>[PS7] In response to (d)(i) of this Principle, the ECB Staff Rules (Part 1a.1.1) require the selection of members of staff to be based upon a comparison of the merits of the candidates against the requirements of the position and must result in the appointment of individuals with the highest levels of ability, efficiency and integrity.</p> <p>For details about the nomination of members of the Oversight Committee, please refer to Principle 5 – Internal Oversight.</p>	<p>[PS7] With respect to (d), PwC inspected the ECB Staff Rules and confirmed that Part 1a.1.1 provides that the selection of members of staff must be based upon a comparison of the merits of the candidates against the requirements of the position and must result in the appointment of individuals with the highest levels of ability, efficiency and integrity.</p> <p>Please refer to Principle 5 – Internal Oversight for the testing performed regarding the nomination of members of the Oversight Committee.</p>
	[PCA13] Staff members are subject to (a) an interim review to assess the reviewee's professional development and the progress made towards their assigned annual objectives and (b) an annual review to assess the reviewee's performance relative to the required competencies and skills, the assigned objectives and professional development activities.	[PCA13] PwC selected a sample staff member of the €STR team and checked that the selected staff member was subject to (a) an interim review to assess the reviewee's professional development and the progress made towards her assigned annual objectives and (b) an annual review to assess the reviewee's performance relative to the required competencies and skills, the assigned objectives and professional development activities.
	[PCA14] In response to (d)(ii) of this Principle, all staff involved in the €STR production process participate in training cycles in addition to regular meetings to discuss the issues identified. Individual training is provided to new members of the €STR production team. General training for all €STR team members is provided at least on an annual basis.	[PCA14] PwC selected a sample staff member of the €STR production team and inspected the training record of the staff member and his day-to-day calendar and checked that staff members participate in training cycles in addition to regular meetings to discuss the issues identified.
	[PCA15] New ECB staff members are required to complete an e-learning course on the Ethics Framework within the first month of service.	[PCA15] For the sample referenced above, PwC inspected the relevant e-learning certificates and checked that the staff member had completed an e-learning course on the Ethics Framework within the first month of service.
	In response to the requirements of this Principle in relation to Submissions, please see the <b>Context</b> section.	

## Principle 5 – Internal Oversight

IOSCO Principle 5	ECB's response	Practitioner's testing
<p>Administrators should establish an oversight function to review and provide challenge on all aspects of the Benchmark determination process. This should include consideration of the features and intended, expected or known usage of the Benchmark and the materiality of existing or potential conflicts of interest identified.</p> <p>The oversight function should be carried out either by a separate committee, or other appropriate governance arrangements. The oversight function and its composition should be appropriate to provide effective scrutiny of the Administrator. Such oversight function could consider groups of Benchmarks by type or asset class, provided that it</p>	<p><b>Context</b></p> <p><i>The ECB has established a dedicated internal Oversight Committee, acting as an advisory body to the Executive Board and the Governing Council, to review and report on all aspects of the €STR determination process.</i></p> <p><i>The Oversight Committee falls under the current business of the ECB. The Executive Board is responsible for the ECB's current business under Article 11.6 of the Statute.</i></p> <p><i>With regard to (b)(iii) of this Principle, Expert Judgment is not applied in the determination of the €STR. For more information see Section 1 of this report.</i></p> <p><i>With regard to the requirements relating to</i></p>	

IOSCO Principle 5	ECB's response	Practitioner's testing
<p>otherwise complies with this Principle.</p> <p>An Administrator should develop and maintain robust procedures regarding its oversight function, which should be documented and available to relevant Regulatory Authorities, if any. The main features of the procedures should be Made Available to Stakeholders. These procedures should include:</p> <p>a) The terms of reference of the oversight function;</p> <p>b) Criteria to select members of the oversight function;</p> <p>c) The summary details of membership of any committee or arrangement charged with the oversight function, along with any declarations of conflicts of interest and processes for election, nomination or removal and replacement of committee members.</p> <p>The responsibilities of the oversight function include:</p> <p>a) Oversight of the Benchmark design:</p> <p>i) Periodic review of the definition of the Benchmark and its Methodology;</p> <p>ii) Taking measures to remain informed about issues and risks to the Benchmark, as well as commissioning external reviews of the Benchmark (as appropriate);</p> <p>iii) Overseeing any changes to the Benchmark Methodology, including assessing whether the Methodology continues to appropriately measure the underlying Interest, reviewing proposed and implemented changes to the Methodology, and authorising or requesting the Administrator to undertake a consultation with Stakeholders where known or its Subscribers on such changes as per Principle 12; and</p> <p>iv) Reviewing and approving procedures for termination of the Benchmark, including guidelines that set out how the Administrator should consult with Stakeholders about such cessation.</p> <p>b) Oversight of the integrity of Benchmark determination and control framework:</p> <p>i) Overseeing the management and operation of the Benchmark, including activities related to Benchmark determination undertaken by a third party;</p> <p>ii) Considering the results of internal and external audits, and following up on the implementation of remedial actions highlighted in the results of these audits; and</p> <p>iii) Overseeing any exercise of expert judgment by the Administrator and ensuring Published Methodologies have been followed.</p> <p><b>Where conflicts of interests may arise in the Administrator due to its ownership structures or controlling interests, or due to other activities conducted by any entity owning or controlling the Administrator or by the Administrator or any of its affiliates:</b> the Administrator should establish an independent oversight function which includes a balanced representation of a range of Stakeholders where known,</p>	<p><i>conflicts of interest that may arise within the Administrator due to its ownership structures or controlling interests, such conflicts of interest are not considered possible in the context of the €STR and the ECB.</i></p> <p><i>Regarding the part of this Principle referring to benchmarks based on Submissions, please note that this is not applicable to the €STR, as explained in Section 1 of this report.</i></p> <p><b>Relevant Activities</b></p> <p>[PS1] The main features of the operation of the Oversight Committee are set out in Article 9 of the Guideline.</p> <p>[PS2] In response to (a) of this Principle, Article 9(1) of the Guideline states that the obligation of the Oversight Committee is to review, challenge and report on all aspects of the €STR determination process, and that it is to act as an advisory body to the ECB's decision-making bodies.</p> <p>[PS3] Article 9(5) lists the responsibilities of the Oversight Committee:</p> <ol style="list-style-type: none"> <li>1. to periodically review the definition of the underlying interest which the euro short-term rate represents and the euro short-term rate methodology;</li> <li>2. to keep itself duly informed of any risks to the euro short-term rate determination process, by activities such as commissioning external reviews;</li> <li>3. to oversee any material changes to the euro short-term rate methodology, including assessing whether it continues to appropriately measure the underlying interest as stated in the euro short-term rate methodology;</li> <li>4. to review proposed and implemented material changes and proposed policies and procedures on the possible cessation of the euro short-term rate, and request the ECB to consult with stakeholders prior to implementing such material changes or adopting such policies or procedures in accordance with Article 14;</li> <li>5. to assess the need for additional safeguards in respect of any conflicts of interest beyond those safeguards required under Article 8(3);</li> <li>6. if necessary, to investigate complaints made pursuant to Article 11;</li> <li>7. to propose amendments to the control framework to the Executive Board and the Governing Council;</li> <li>8. to oversee the integrity of the €STR determination process and the control framework by activities such as overseeing the administration and operation of the euro short-term rate; considering the results of internal and external audits; following up on the implementation of remedial actions highlighted by audits carried out pursuant to Article 12; and ensuring the euro short-term rate methodology has been followed;</li> <li>9. to investigate and report to the Executive Board and the Governing Council on alleged breaches of obligations under the high availability</li> </ol>	<p>[PS1] PwC inspected the Guideline and confirmed that Article 9 sets out the main features of the operation of the Oversight Committee.</p> <p>[PS2] With respect to (a), PwC inspected the Guideline and confirmed that Article 9(1) states that the obligation of the Oversight Committee is to review, challenge and report on all aspects of the €STR determination process, and that it is to act as an advisory body to the ECB's decision-making bodies.</p> <p>[PS3] PwC inspected the Guideline and confirmed that Article 9(5) lists the responsibilities of the Oversight Committee as represented in the "ECB's response" column.</p>



IOSCO Principle 5	ECB's response	Practitioner's testing
<p>Subscribers and Submitters, which is chosen to counterbalance the relevant conflict of interest.</p> <p><b>Where a Benchmark is based on Submissions:</b> the oversight function should provide suitable oversight and challenge of the Submissions by:</p>	<p>and IT service level requirements and the business procedures referred to in Articles 5(3) and 6(3);</p> <p>10. to propose any measure, when deemed necessary, to protect the integrity, robustness and accuracy of the €STR.</p>	
<p>a) Overseeing and challenging the scrutiny and monitoring of inputs or Submissions by the Administrator. This could include regular discussions of inputs or Submission patterns, defining parameters against which inputs or Submissions can be analysed, or querying the role of the Administrator in challenging or sampling unusual inputs or Submissions;</p>	<p>[PS4] In response to (b) and (c) of this Principle, Article 9(2) of the Guideline describes how membership of the Oversight Committee is comprised and how its members are selected.</p>	<p>[PS4] With respect to (b) and (c), PwC inspected the Guideline and confirmed that Article 9(2) describes how membership of the Oversight Committee is comprised and how its members are selected.</p>
<p>b) Overseeing the Code of Conduct for Submitters;</p>	<p>[PCA1] ECB members are selected at the level of Director Generals of business areas responsible for market operations/risk management or equivalent. NCB members are nominated by their Member of the Governing Council and are rotated every two years. The names are then proposed to the ECB Executive Board for endorsement and approved by the ECB Governing Council.</p>	<p>[PCA1] PwC selected an NCB member of the Oversight Committee and checked that he had been nominated by a member of the relevant NCB Governing Council in the preceding two years. PwC also selected an ECB member of the Oversight Committee and checked that the nomination of both members was endorsed by the ECB Executive Board and approved by the ECB Governing Council.</p>
<p>c) Establishing effective arrangements to address breaches of the Code of Conduct for Submitters; and</p>	<p>[PCA2] Summary minutes of the Oversight Committee's meetings are published on the ECB's website, including the names and roles of attendees.</p>	<p>[PCA2] PwC inspected the ECB's website and checked that for the most recent Oversight Committee meeting, summary minutes were published on the ECB's website, including the names and roles of attendees.</p>
<p>d) Establishing measures to detect potential anomalous or suspicious Submissions and in case of suspicious activities, to report them, as well as any misconduct by Submitters of which it becomes aware to the relevant Regulatory Authorities, if any</p>	<p>[PCA3] Prior to the inaugural meeting, the Governing Council approved the list of members and the criteria for the future selection and replacement of members.</p>	<p>[PCA3] PwC inspected the evidence of the Governing Council's approval of the Oversight Committee members and checked that prior to the inaugural meeting the Governing Council approved the list of members and the criteria for the future selection and replacement of members.</p>
	<p>[PS5] Article 9(8) of the Guideline provides that all decisions are taken by the Members of the Oversight Committee by way of consensus.</p>	<p>[PS5] PwC inspected the Guideline and confirmed that Article 9(8) provides that all decisions should be taken by the Members of the Oversight Committee by way of consensus.</p>
	<p>[PS6] Staff members involved in the €STR determination process are not permitted to be members of the Oversight Committee (Article 9(2) of the Guideline).</p>	<p>[PS6] PwC confirmed that Article 9(2) states that staff members involved in the €STR determination process are not permitted to be members of the Oversight Committee.</p>
	<p>[PCA4] Members submit declarations of any potential conflicts of interest upon their appointment. The declarations are published on the <a href="#">ECB's website</a>.</p>	<p>[PCA4] PwC inspected the ECB's website and checked that members of the Oversight Committee had submitted declarations of any potential conflicts of interest upon their appointment and that these declarations were published on the ECB's website.</p>
	<p>In respect to the oversight responsibilities, please see below.</p> <p>[PS7] In response to (a)(i), Article 9(5)(a) of the Guideline sets out that the Oversight Committee has the responsibility to periodically review the definition of the rate and its methodology.</p> <p>For more information on periodic review, please see the response to Principle 10.</p>	<p>[PS7] With respect to (a)(i), PwC inspected the Guideline and confirmed that Article 9(5)(a) explains that the Oversight Committee has the responsibility to periodically review the definition of the rate and its methodology.</p>
	<p>[PS8] In response to (a)(ii), Article 9(5)(b) establishes that the Oversight Committee has the task of keeping itself informed about any risks relevant to the €STR determination process, by activities such as commissioning external reviews.</p> <p>For more information on external reviews and audits, please see the response to Principle 17.</p>	<p>[PS8] With respect to (a)(ii), PwC inspected the Guideline and confirmed that Article 9(5)(b) establishes that the Oversight Committee has the task of keeping itself informed about any risks relevant to the €STR determination process, by activities such as commissioning external reviews.</p>

IOSCO Principle 5	ECB's response	Practitioner's testing
	<p>[PS9] In response to (a)(iii), Article 9(5)(c) and (d) provide that the Oversight Committee is responsible for:</p> <ul style="list-style-type: none"> <li>overseeing any material changes to the methodology, including on whether the rate remains representative; and</li> <li>reviewing any proposed and implemented material changes and policies.</li> </ul> <p>For more information on how changes to the methodology are managed, please see the response to Principle 12.</p>	<p>[PS9] With respect to (a)(iii), PwC inspected the Guideline and confirmed that Article 9(5)(c) and (d) provides that the Oversight Committee is responsible for:</p> <ul style="list-style-type: none"> <li>overseeing any material changes to the methodology, including on whether the rate remains representative; and</li> <li>reviewing any proposed and implemented material changes and policies.</li> </ul>
	<p>[PS10] In response to (a)(iv), Article 9(5)(d) also provides that the Oversight Committee is responsible for the review of proposed and implemented material changes and proposes policies and procedures on the possible cessation of the €STR, and can request the ECB to consult with stakeholders prior to implementing such material changes or adopting such policies or procedures in accordance with Article 14.</p> <p>For more information on our undertakings in relation to cessation, please see the response to Principle 13.</p>	<p>[PS10] With respect to (a)(iv), PwC inspected the Guideline and confirmed that Article 9(5)(d) provides that the Oversight Committee is responsible for the review of proposed and implemented material changes and proposed policies and procedures on the possible cessation of the €STR, and can request the ECB to consult with stakeholders prior to implementing such material changes or adopting such policies or procedures in accordance with Article 14.</p>
	<p>[PS11] In response to (b)(i), Article 9(5)(h) provides that the Oversight Committee is responsible for overseeing the integrity of the methodology and the control framework by carrying out activities such as overseeing the administration and operation of the rate determination procedure.</p> <p>For further information on the oversight of NCBs operating collection platforms, please see the response to Principle 2.</p> <p>[PS12] In addition, in accordance with Article 9(5)(j) the Oversight Committee is responsible for proposing any measure, when deemed necessary, to protect the integrity of the rate.</p>	<p>[PS11 &amp; 12] With respect to (b)(i), PwC inspected the Guideline and confirmed that Article 9(5)(h) and Article 9(5)(j) respectively provide that it is the responsibility of the Oversight Committee to:</p> <ul style="list-style-type: none"> <li>oversee the integrity of the methodology and the control framework by carrying out activities such as overseeing the administration and operation of the rate determination procedure; and</li> <li>propose any measure, when deemed necessary, to protect the integrity of the rate.</li> </ul> <p>For details on the testing performed regarding NCBs operating collection platforms, please see Principle 2 – Oversight of Third Parties.</p>
	<p>[PS13] In response to (b)(ii), Article 9(5)(h) establishes that the Oversight Committee is responsible for considering the results of internal and external audits.</p> <p>For more information on how audits and audit results are managed, please see the response to Principle 17.</p>	<p>[PS13] With respect to (b)(ii), PwC inspected the Guideline and confirmed that Article 9(5)(h) establishes that the Oversight Committee is responsible for considering the results of internal and external audits.</p>
	<p>In response to (b)(iii), please see the <b>Context</b> section above with respect to Expert Judgment.</p>	
	<p>[PCA5] The Oversight Committee meets at least every four months to execute its responsibilities in relation to the above.</p>	<p>[PCA5] PwC inspected the ECB's website and checked that the Oversight Committee had met in the preceding four months.</p>
	<p>In response to the requirements of this Principle in relation to conflicts of interests that may arise in the Administrator due to its ownership structures or controlling interests, please see the <b>Context</b> section above.</p>	
	<p>In response to requirements of this Principle in relation to Submissions, please see the <b>Context</b> section above.</p>	

## Principle 6 – Benchmark Design

IOSCO Principle 6	ECB's response	Practitioner's testing
<p>The design of the Benchmark should seek to achieve and result in an accurate and reliable representation of the economic realities of the Interest it seeks to measure and eliminate factors that might result in a distortion of the price, rate, index or value of the Benchmark.</p> <p>Benchmark design should take into account the following generic non-exclusive features, and other factors should be considered, as appropriate to the particular Interest:</p> <ol style="list-style-type: none"> <li>Adequacy of the sample used to represent the Interest;</li> <li>Size and liquidity of the relevant market (for example whether there is sufficient trading to provide observable, transparent pricing);</li> <li>Relative size of the underlying market in relation to the volume of trading in the market that references the Benchmark;</li> <li>The distribution of trading among Market Participants (market concentration); and</li> <li>Market dynamics (e.g., to ensure that the Benchmark reflects changes to the assets underpinning a Benchmark).</li> </ol>	<p><b>Context</b></p> <p><i>The Methodology has been designed to provide an accurate and reliable representation of the market /economic realities of the underlying interest that it measures.</i></p> <p><i>The determination and dissemination methodology, as well as other areas in this regard, are summarised in the Methodology. Specific elements referred to in this Principle are addressed in the documentation on the two public consultations conducted by the ECB for the development of a euro unsecured overnight interest rate, available on the ECB's website:</i></p> <ul style="list-style-type: none"> <li><a href="#">First public consultation on developing a euro unsecured overnight interest rate (the First Public Consultation)</a>, which contains the full consultation details, and the <a href="#">summary of responses on first public consultation</a>;</li> <li><a href="#">Second public consultation on developing a euro unsecured overnight interest rate (the Second Public Consultation)</a>, which contains the full consultation details, and the <a href="#">summary of responses on second public consultation</a>.</li> </ul> <p><i>The €STR is equipped to replace EONIA in those markets where EONIA is currently used, especially in the euro OIS and other euro denominated derivative markets. For that purpose, the €STR design ensures that sufficient volume is taken into account in the calculation of the €STR by selecting the tenor (overnight) and the instrument (deposits) with the highest volumes in the unsecured segment and including transactions conducted with financial counterparties. As a result, €STR volumes are of a larger order of magnitude than EONIA previous volumes.</i></p> <p><i>As the €STR is an interest-rate benchmark, its design, unlike that of a fixed income or equity benchmark, does not need to take into account changes to underlying assets.</i></p>	
	<p><b>Relevant Activities</b></p>	
	<p>[PS1] The underlying interest represented by the €STR is the wholesale euro unsecured overnight borrowing costs of euro area banks as described in Article 3 of the Guideline and Section 3.1. of the Methodology.</p>	<p>[PS1] PwC inspected the Guideline and the Methodology and confirmed that Article 3 of the Guideline and Section 3.1 of the Methodology describes the underlying interest represented by the €STR as the wholesale euro unsecured overnight borrowing costs of euro area banks.</p>
	<p>[PS2] In response to (a) of this Principle, page 9 of the First Public Consultation on developing a euro unsecured overnight interest rate details how the ECB used historical TARGET2 data and conducted an investigation to determine that the MMSR sample is a sufficiently adequate representation of the market, that is, 62% of the euro area interbank borrowing market.</p>	<p>[PS2] With respect to (a), PwC inspected the First Public Consultation and confirmed that page 9 details how the ECB used historical TARGET2 data and conducted an investigation to determine that the MMSR sample is a sufficiently adequate representation of the market, that is, 62% of the euro area interbank borrowing market.</p>
	<p>[PS3] In response to (b) and (c) of this Principle, page 6 of the First Public Consultation refers to data demonstrating that the unsecured overnight money market averages around €55 billion or 50% of total borrowing turnover in all</p>	<p>[PS3] With respect to (b) and (c), PwC inspected the First Public Consultation and confirmed that page 6 refers to data demonstrating that the unsecured overnight money market averages around €55 billion or 50% of total borrowing</p>

IOSCO Principle 6	ECB's response	Practitioner's testing
	instruments and with all counterparty types.	turnover in all instruments and with all counterparty types.
	[PS4] The €STR average daily volume from inception until 15 July 2020 was €37 billion.	[PS4] PwC also inspected the ECB's Statistical Data Warehouse (SDW) website and confirmed that the €STR average daily volume from inception until 15 July 2020 was €37 billion.
	[PS5] In response to (d) of this Principle, page 17 of the First Public Consultation concluded that the top ten banks account for around 70% of the borrowing transactions of MMSR banks with financial corporations (this includes interbank borrowing transactions), and there are significant contributions in terms of volumes from outside the top 15 banks. As per the ECB's website, the €STR benchmark incorporates transaction data from around 50 banks, to mitigate the risk of market concentration.	[PS5] With respect to (d), PwC inspected the First Public Consultation and confirmed that page 17 concludes that the top ten banks account for around 70% of the borrowing transactions of MMSR banks with financial corporations (this includes interbank borrowing transactions), and there are significant contributions in terms of volumes from outside the top 15 banks. PwC also inspected the ECB's website and confirmed that transactional data from 49 banks were being included as at 15 July 2020.
	[PS6] Furthermore, Section 6 of the €STR Methodology specifies that the contingency procedure is automatically triggered if the number of reporting banks is less than 20, or if five banks account for 75% or more of the total volume of transactions.	[PS6] PwC inspected the Methodology and confirmed that Section 6 states that the contingency procedure is triggered if there are concerns in relation to market concentration, for example if the number of reporting banks is less than 20, or if five banks account for 75% or more of the total volume of transactions.
	Please see the response to Principle 15 for PCAs relating to checks on the sufficiency of input data.	Please see the response to 15 – Internal Controls over Data Collection for information about the testing of checks on the sufficiency of input data.
	In response to (e) of this Principle, although the €STR is not an equity or fixed income benchmark, as stated in the <b>Context</b> section above, a review of the underlying market is performed by the Oversight Committee at least every four months. Please see the response to Principle 10 for further information.	With respect to (e), please see the response to Principle 10 – Periodic Review for information on the testing of reviews of the Methodology performed by the Oversight Committee.
	[PCA1] The benchmark includes data from reporting agents resident in ten euro area countries, which incorporates underlying market dynamics.	[PCA1] PwC observed the daily operator monitoring the €STR rate calculation and publication process and inspected the underlying data files for a sample determination date and checked that the €STR benchmark includes data from reporting agents resident in ten euro area countries (Belgium, Germany, Ireland, Greece, Spain, France, Italy, Netherlands, Austria and Finland).

## Principle 7 – Data Sufficiency

IOSCO Principle 7	ECB's response	Practitioner's testing
<p>The data used to construct a Benchmark determination should be sufficient to accurately and reliably represent the Interest measured by the Benchmark and should:</p> <p>a) Be based on prices, rates, indices or values that have been formed by the competitive forces of supply and demand in order to provide confidence that the price discovery system is reliable; and</p> <p>b) Be anchored by observable transactions entered into at arm's length between buyers and sellers in the market for the Interest the Benchmark measures in order for it to</p>	<p><b>Context</b></p> <p><i>The €STR is anchored by observable transactions that are priced based on the competitive forces of supply and demand and conducted at arm's length.</i></p> <p><i>Section 4 of the Methodology states that the €STR is based exclusively on the eligible data from the unsecured market segment of the MMSR.</i></p> <p><i>€STR inputs are considered sufficient to produce the benchmark, unless the conditions for the contingency arrangements are fulfilled. In that event, a pre-determined contingency procedure will be automatically triggered. For further information related to the contingency</i></p>	

IOSCO Principle 7	ECB's response	Practitioner's testing
<p>function as a credible indicator of prices, rates, indices or values.</p> <p>This Principle requires that a Benchmark be based upon (i.e., <i>anchored in</i>) an active market having observable Bona Fide, Arms-Length Transactions. This does not mean that every individual Benchmark determination must be constructed solely of transaction data. Provided that an active market exists, conditions in the market on any given day might require the Administrator to rely on different forms of data tied to observable market data as an adjunct or supplement to transactions. Depending upon the Administrator's Methodology, this could result in an individual Benchmark determination being based predominantly, or exclusively, on bids and offers or extrapolations from prior transactions. This is further clarified in Principle 8.</p> <p>Provided that subparagraphs (a) and (b) above are met, Principle 7 does not preclude Benchmark Administrators from using executable bids or offers as a means to construct Benchmarks where anchored in an observable market consisting of <i>Bona Fide</i>, Arms-Length transactions.</p> <p>This Principle also recognizes that various indices may be designed to measure or reflect the performance of a rule-based investment strategy, the volatility or behaviour of an index or market or other aspects of an active market. Principle 7 does not preclude the use of non-transactional data for such indices that are not designed to represent transactions and where the nature of the index is such that non-transactional data is used to reflect what the index is designed to measure. For example, certain volatility indices, which are designed to measure the expected volatility of an index of securities transactions, rely on non-transactional data, but the data is derived from and thus "anchored" in an actual functioning securities or options market.</p>	<p><i>procedure please see Section 6 of the Methodology and our response in respect of Principle 8.</i></p> <p><b>Relevant Activities</b></p> <p>[PS1] In response to (a) of this Principle, the €STR inputs are based on statistical data on direct counterparty transactions from the competitive market as entered into by the largest euro area banks compiled in accordance with the MMSR Regulation (Section 4 of the Methodology).</p> <p>[PS2] Intragroup transactions are explicitly excluded by the MMSR Regulation (Annex 2, Part 2.3 of the MMSR Regulation).</p> <p>[PS3] In response to (b) of this Principle, the transactions are between lenders and borrowers acting freely and directly on the market. The €STR inputs are based on unsecured deposits which are standardised and are the most frequent means of conducting arm's length transactions on the basis of a competitive procedure, thereby limiting idiosyncratic factors potentially influencing the volatility of the rate (Section 3.2 of the €STR Methodology).</p> <p>[PCA1] Only data meeting the requirements described above are used in the daily benchmark calculation.</p>	<p>[PS1] With respect to (a), PwC inspected the Methodology and confirmed that Section 4 states that the €STR inputs are based on statistical data on direct counterparty transactions from the competitive market as entered into by the largest euro area banks compiled in accordance with the MMSR Regulation.</p> <p>[PS2] PwC inspected the MMSR Regulation and confirmed that Annex 2, Part 2.3 explicitly excludes intra-group transactions.</p> <p>[PS3] With respect to (b), PwC inspected the Methodology and confirmed that Section 3.2 states that the €STR inputs are based on unsecured deposits.</p> <p>[PCA1] For a selected date, PwC inspected the €STR inputs and checked that they were based on unsecured deposits between direct counterparties.</p>

## Principle 8 – Hierarchy of Data Inputs

IOSCO Principle 8	ECB's response	Practitioner's testing
<p>An Administrator should establish and Publish or Make Available clear guidelines regarding the hierarchy of data inputs and exercise of expert judgment used for the determination of Benchmarks. In general, the hierarchy of data inputs should include:</p> <ol style="list-style-type: none"> <li>Where a Benchmark is dependent upon Submissions, the Submitters' own concluded arms-length transactions in the underlying interest or related markets;</li> <li>Reported or observed concluded Arm's-length Transactions in the underlying interest;</li> <li>Reported or observed concluded Arm's-length Transactions in related markets;</li> <li>Firm (executable) bids and offers; and</li> <li>Other market information or expert judgments.</li> </ol>	<p><b>Context</b></p> <p><i>The €STR is exclusively based on data on transactions reported under the MMSR Regulation, as set out in Section 4 of the Methodology.</i></p> <p><i>For more information on the data reporting for the €STR not constituting benchmark Submissions, please refer to the description of the €STR determination process in Section 1 of this report.</i></p> <p><i>As indicated above in response to Principle 7(a), intra-group transactions are excluded from reporting, so that only arm's length transactions are reported. Furthermore, as indicated above in response to Principle 7(b), the €STR inputs are based on unsecured deposits which are standardised and are the most frequent means of conducting arm's length transactions on the basis of a competitive procedure.</i></p>	

IOSCO Principle 8	ECB's response	Practitioner's testing
<p>Provided that the Data Sufficiency Principle is met (i.e., an active market exists), this Principle is not intended to restrict an Administrator's flexibility to use inputs consistent with the Administrator's approach to ensuring the quality, integrity, continuity and reliability of its Benchmark determinations, as set out in the Administrator's Methodology. The Administrator should retain flexibility to use the inputs it believes are appropriate under its Methodology to ensure the quality and integrity of its Benchmark. For example, certain Administrators may decide to rely upon expert judgment in an active albeit low liquidity market, when transactions may not be consistently available each day. IOSCO also recognizes that there might be circumstances (e.g., a low liquidity market) when a confirmed bid or offer might carry more meaning than an outlier transaction. Under these circumstances, non-transactional data such as bids and offers and extrapolations from prior transactions might predominate in a given Benchmark determination.</p>	<p><i>Bids, offers and any other market information are not considered.</i></p> <p><i>Expert Judgment is not applied in the determination of the €STR. For more information see Section 1 of this report.</i></p>	
	<b>Relevant Activities</b>	
	<p>[PS1] The €STR is exclusively based on transactions reported under the MMSR Regulation (see Section 4 of the Methodology).</p>	<p>[PS1] PwC inspected the methodology document and confirmed that Section 4 states that the €STR is exclusively based on transactions reported under the MMSR Regulation.</p>
	<p>[PCA1] Only transactions are used in the daily benchmark determination.</p>	<p>[PCA1] For a selected date, PwC inspected the €STR inputs and confirmed they were based on transactions.</p>
	<p>[PS2] As set out in Section 6 of the Methodology, the contingency calculation automatically applies in the following cases: (a) the number of reporting agents is less than 20, or (b) five banks account for 75% or more of total transaction volumes.</p> <p>If one of the criteria above is met, the contingency calculation will automatically activate using the standard methodology based on the (insufficient) daily transactions. Then a volume-weighted average is calculated using the resulting rate and that of the day before. The contingency calculation is considered in more detail in the response to Principle 15 – Internal Controls over Data Collection.</p>	<p>[PS2] PwC inspected the Methodology and confirmed that Section 6 explains that the contingency calculation automatically applies in the following cases: (a) the number of reporting agents is less than 20, or (b) five banks account for 75% or more of total transaction volumes.</p> <p>For details on the testing performed on the automated contingency calculation, please see the response to Principle 15 – Internal Controls over Data Collection.</p>
	<p>[PS3] If there happens to be a change in ECB's key interest rates the data from yesterday's calculation will be adjusted according to the procedure set out in the Methodology (Section 6.2).</p>	<p>[PS3] PwC inspected the Methodology and confirmed that Section 6.2 explained that if there happens to be a change in the ECB's key interest rates the data from yesterday's calculation will be adjusted.</p>
	<p>[PCA2] Any use of this contingency methodology is disclosed to the public as part of the publication of the rate.</p>	<p>[PCA2] PwC made appropriate inquiries and checked that there had been no use of the contingency methodology since the inception of the €STR. Accordingly, no testing of the implementation of the PCA could be performed.</p>
<p>[PS4] Section 6.2 of the Methodology specifies that if the ECB does not publish the €STR by 09:00 CET, the rate of the previous TARGET2 business day applies (modified as described above if a change in policy rates occurred on that day).</p>	<p>[PS4] PwC inspected the Methodology and confirmed that Section 6.2 specified that if the ECB does not publish the €STR by 09:00 CET, the rate of the previous TARGET2 business day applies (modified as described above if a change in policy rates occurred on that day).</p>	

## Principle 9 – Transparency of Benchmark Determinations

IOSCO Principle 9	ECB's response	Practitioner's testing
<p>The Administrator should describe and publish with each Benchmark determination, to the extent reasonable without delaying an Administrator publication deadline:</p> <p>a) A concise explanation, sufficient to facilitate a Stakeholder's or Market Authority's ability to understand how the determination was developed, including, at a minimum, the size and liquidity of the market being assessed (meaning the number and volume of transactions submitted), the range and average volume and range and average of price, and indicative percentages of each type of market</p>	<p><b>Context</b></p> <p><i>The €STR is published at 08:00 CET on each TARGET2 business day based on transactions conducted and settled on the previous TARGET2 business day.</i></p> <p><i>For example, the €STR published on 2 October 2019 – the start date – reflected trading activity on 1 October 2019.</i></p> <p><i>The €STR is published on the ECB's website, via the ECB's Market Information Dissemination (MID) platform and in the ECB's Statistical Data Warehouse (SDW). The MID platform is the main publication channel for the €STR.</i></p> <p><i>Section 5.1 of the Methodology sets out</i></p>	

IOSCO Principle 9	ECB's response	Practitioner's testing
<p>data that have been considered in a Benchmark determination; terms referring to the pricing Methodology should be included (i.e., <i>transaction-based, spread-based or interpolated/extrapolated</i>);</p> <p>b) A concise explanation of the extent to which and the basis upon which expert judgment if any, was used in establishing a Benchmark determination.</p>	<p><i>the details of the standard daily publication arrangements of the €STR, which ensure the transparency of the benchmark determinations.</i></p> <p><i>For b) of this Principle please note that Expert Judgment is not applied in the determination of the €STR. For more information, please refer to our interpretation of Expert Judgment in the context of the €STR determination, which is detailed in Section 1 of this report.</i></p>	
	<p><b>Relevant Activities</b></p>	
	<p>[PCA1] In response to (a) of this Principle, the ECB publishes the €STR with three decimal places at 08:00 CET on the next TARGET2 business day, together with the following related information:</p> <ul style="list-style-type: none"> <li>total nominal value of transactions before trimming in EUR millions;</li> <li>number of banks reporting transactions before trimming;</li> <li>number of transactions before trimming;</li> <li>percentage of total nominal amount reported by the five largest contributing banks that day, as a whole number;</li> <li>calculation method: normal or contingency;</li> <li>rates at the 25th and 75th percentiles with two decimal places;</li> <li>publication type: standard or republication.</li> </ul>	<p>[PCA1] PwC inspected a sample €STR publication and checked that the ECB publishes the €STR with three decimal places at 08:00 CET on the next TARGET2 business day, together with the following related information:</p> <ul style="list-style-type: none"> <li>total nominal value of transactions before trimming in EUR millions;</li> <li>number of banks reporting transactions before trimming;</li> <li>number of transactions before trimming;</li> <li>percentage of total nominal amount reported by the five largest contributing banks that day, as a whole number;</li> <li>calculation method: normal or contingency;</li> <li>rates at the 25th and 75th percentiles with two decimal places;</li> <li>publication type: standard or republication.</li> </ul>
	<p>[PCA2] In addition, the ECB publishes summary information quarterly on errors larger than 0.1 basis points that were detected after the standard publication and did not meet the republication criteria. Please see the response to Principle 10 for more information on error reporting.</p>	<p>[PCA2] PwC inspected the errors summary report for the most recent quarter and checked that the ECB published summary information on errors larger than 0.1 basis points that were detected after the standard publication and did not meet the republication criteria.</p>
	<p>In response to (b) of this Principle, please see the <b>Context</b> section.</p>	

## Principle 10 – Periodic Review

IOSCO Principle 10	ECB's response	Practitioner's testing
<p>The Administrator should periodically review the conditions in the underlying Interest that the Benchmark measures to determine whether the Interest has undergone structural changes that might require changes to the design of the Methodology. The Administrator also should periodically review whether the Interest has diminished or is non-functioning such that it can no longer function as the basis for a credible Benchmark.</p>	<p><b>Context</b></p> <p><i>The Methodology is reviewed regularly to ensure that the underlying interest is adequately measured and captured and that the procedures and policies are effective (Section 8 of the Methodology).</i></p> <p><i>Articles 9(5)(a) and 15(2) of the Guideline concern the obligations of the ECB as regards the review of the Methodology.</i></p>	
<p>The Administrator should Publish or Make Available a summary of such reviews where material revisions have been made to a Benchmark, including the rationale for the revisions.</p>	<p>[PS1] The review of the appropriateness of the Methodology to measure the underlying interest, as reflected in the market and the Methodology, is a formal task of the Oversight Committee (Article 9(5) of the Guideline).</p>	<p>[PS1] PwC inspected the Guideline and confirmed that Article 9(5) states that the review of the appropriateness of the Methodology to measure the underlying interest, as reflected in the market and Methodology, is a formal task of the Oversight Committee.</p>
	<p>[PCA1] The Oversight Committee reviews</p>	<p>[PCA1] PwC inspected the summary of the</p>

IOSCO Principle 10	ECB's response	Practitioner's testing
	the appropriateness of the Methodology to measure the underlying interest at least every four months. The result is presented in the Market and Methodology report, which is reviewed at Oversight Committee meetings.	most recent meeting of the ECB €STR Oversight Committee and checked that the Oversight Committee reviews the appropriateness of the Methodology to measure the underlying interest at least every four months.
	[PCA2] The review of the Methodology follows the ECB's usual procedures for signing off documents: any change is first proposed by the responsible business area (DG Market Operations), for review by the Oversight Committee, before being submitted to the Executive Board, which proposes the change for adoption by the Governing Council prior to it being published on the ECB's website. Even if there are no changes made to the policy post-review, the Governing Council's decision will be published.	[PCA2] PwC made appropriate inquiries to confirm that there had been no propositions of changes to the methodology since the inception of the €STR. Accordingly, no testing of the implementation of the PCA could be performed.
	[PCA3] In addition to the reviews by the Oversight Committee, the Governing Council is presented each year with a report on any changes in the underlying market which may require changes to the €STR or the Methodology.  If the outcome of any review leads to a material revision having to be made to the €STR, the ECB's change and consultation process is followed. Please see the response to Principle 12 for more information.	[PCA3] PwC made appropriate inquiries to confirm that there had been no reports presented to the Governing Council since the inception of the €STR and that the annual report will be prepared later this year. Accordingly, no testing of the implementation of the PCA could be performed.  PwC made appropriate inquiries to confirm that there had been no changes to the €STR underlying market that would have required changes to the €STR or the Methodology. Accordingly, no testing of the implementation of the PCA could be performed.  Please see the response to Principle 12 - Changes to Methodology for information about the testing of change and consultation processes.
	[PCA4] Should a material change be made as a result of an internal review, a summary of the review will be made available to stakeholders.	[PCA4] PwC made appropriate inquiries to confirm that there had been no material changes as a result of an internal review. Accordingly, no testing of the implementation of the PCA could be performed.



## Principle 11 – Content of the Methodology

IOSCO Principle 11	ECB's response	Practitioner's testing
<p>The Administrator should document and Publish or Make Available the Methodology used to make Benchmark determinations. The Administrator should provide the rationale for adopting a particular Methodology. The Published Methodology should provide sufficient detail to allow Stakeholders to understand how the Benchmark is derived and to assess its representativeness, its relevance to particular Stakeholders, and its appropriateness as a reference for financial instruments.</p> <p>At a minimum, the Methodology should contain:</p> <ul style="list-style-type: none"> <li>a) Definitions of key terms;</li> <li>b) All criteria and procedures used to develop the Benchmark, including input selection, the mix of inputs used to derive the Benchmark, the guidelines that control the exercise of expert judgment by the Administrator priority given to certain data types, minimum data needed to determine a Benchmark, and any models or extrapolation methods;</li> <li>c) Procedures and practices designed to promote consistency in the exercise of expert judgment between Benchmark determinations;</li> <li>d) The procedures which govern Benchmark determination in periods of market stress or disruption, or periods where data sources may be absent (e.g., theoretical estimation models);</li> <li>e) The procedures for dealing with error reports, including when a revision of a Benchmark would be applicable;</li> <li>f) Information regarding the frequency for internal reviews and approvals of the Methodology. Where applicable, the Published Methodologies should also include information regarding the procedures and frequency for external review of the Methodology;</li> <li>g) The circumstances and procedures under which the Administrator will consult with Stakeholders, as appropriate; and</li> <li>h) The identification of potential limitations of a Benchmark, including its operation in illiquid or fragmented markets and the possible concentration of inputs.</li> </ul> <p><b>Where a Benchmark is based on Submissions, the additional Principle also applies:</b></p> <p>The Administrator should clearly establish criteria for including and excluding Submitters. The criteria should consider any issues arising from the location of the Submitter, if in a different jurisdiction to the Administrator. These criteria should be available to any relevant Regulatory Authorities, if any, and Published or Made Available to Stakeholders. Any provisions related to changes in composition, including notice periods should be made clear.</p>	<p><b>Context</b></p> <p><i>The Methodology is available on the ECB's website (Article 6(2) of the Guideline).</i></p> <p><i>The rationale underpinning the Methodology is set out in Section 3.2 thereof (see also Article 6(1) of the Guideline), which explains why MMSR unsecured fixed rate deposit transactions are considered to best reflect the market that the rate is designed to measure.</i></p> <p><i>For the relevant requirements within (b) and (c) of this Principle relating to Expert Judgment, please note that Expert Judgment is not applied in the determination of the €STR. For more information, refer to our interpretation of Expert Judgment in the context of the €STR determination, which is detailed in Section 1 of this report.</i></p> <p><i>Regarding the part of this Principle referring to benchmarks based on Submissions, please note that this is not applicable to the €STR, as explained in Section 1 of this report.</i></p>	
	<p><b>Relevant Activities</b></p>	
	<p>[PS1] The Methodology is made available on the ECB's website and can be accessed from the ECB's main €STR web page.</p>	<p>[PS1] PwC inspected the ECB's website and confirmed that the Methodology is publicly available on the ECB's main €STR web page.</p>
	<p>[PS2] The rationale underpinning the Methodology is set out in Section 3.2 thereof. This section explains why the MMSR unsecured fixed rate deposit transactions are considered to best reflect the market that the rate is designed to measure.</p>	<p>[PS2] PwC inspected the Methodology and confirmed that Section 3.2 explains the rationale for using the MMSR unsecured fixed rate deposit transactions.</p>
	<p>[PS3] In response to (a) of this Principle, Article 2 of the Guideline complements the Methodology and defines key terms used in both documents.</p>	<p>[PS3] With respect to (a), PwC inspected the Guideline and confirmed that Article 2 defines key terms used in both documents.</p>
	<p>[PS4] In response to (b) of this Principle, as regards input selection, Section 3.2 of the Methodology states that all data are sourced from reporting institutions in accordance with the MMSR Regulation. Reporting institutions are selected by the ECB Governing Council pursuant to Article 2 of the MMSR Regulation. The full list of reporting institutions can be found on the ECB's main €STR web page.</p>	<p>[PS4] With respect to (b), PwC inspected the Methodology and confirmed that Section 3.2 states that all data are sourced from reporting institutions in accordance with the MMSR Regulation. Further, PwC inspected the MMSR Regulation and confirmed that Article 2 provides that reporting instructions are selected by the ECB Governing Council. PwC confirmed that the full list of reporting institutions can be found on the ECB's main €STR web page.</p>
	<p>[PCA1] The €STR calculation system does not incorporate a mix of inputs, nor apply a hierarchy, model or extrapolation method.</p> <p>No Expert Judgment is applied in the €STR determination process (see also Section 1 of this report). Please see the response to Principle 6 for more information on data inputs.</p>	<p>[PCA1] For a selected date, PwC recalculated the daily benchmark rate and checked that the published rate is calculated in accordance with the Methodology and that therefore the €STR calculation does not incorporate a mix of inputs, nor apply a hierarchy, model or extrapolation method.</p>
	<p>In response to (c) of this Principle, please see the <b>Context</b> section above.</p>	
	<p>[PS5] In response to (d) of this Principle, the Contingency Arrangements in the Methodology (Section 6) specify how the €STR is determined if the data sufficiency</p>	<p>[PS5] With respect to (d), PwC inspected the Methodology (Section 6) and confirmed that the Contingency Arrangements specify how the €STR is determined if the</p>

IOSCO Principle 11	ECB's response	Practitioner's testing
	<p>criteria are not met.</p> <p>Please see the response to Principle 9 for more information on the contingency methodology.</p>	<p>data sufficiency criteria are not met.</p> <p>Please see the response to Principle 9 – Transparency over Benchmark Determinations for information on the testing of the contingency methodology.</p>
	<p>[PCA2] Any use of the contingency procedures will be reported to the Oversight Committee.</p>	<p>[PCA2] PwC made appropriate inquiries and checked that there has been no usage of the contingency procedures since the inception of the €STR benchmark. Accordingly, no testing of the implementation of the PCA could be performed.</p>
	<p>[PS6] In response to (e) of this Principle, Section 7 of the Methodology includes the policy for handling data errors.</p> <p>For information on error reporting please see the response to Principle 9.</p>	<p>[PS6] With respect to (e), PwC inspected the Methodology and confirmed that Section 7 includes the policy for handling data errors.</p> <p>For details of the testing performed over the publication of summary information on errors, see Principle 9 – Transparency of Benchmark Determinations.</p>
	<p>Regarding (f) of this Principle, please see the response to Principles 10 and 17.</p>	<p>With respect to (f), please see the response to Principle 10 – Periodic Review and Principle 17 - Audits for details on testing.</p>
	<p>In response to (g) of this Principle, a material change would trigger a public consultation. For information on what would constitute a material change and the procedures followed please see the response to Principle 12.</p>	<p>With respect to (g), please see the response to Principle 12 – Changes to Methodology for details on the testing of public consultations and material changes.</p>
	<p>[PS7] In response to (h) of this Principle, as with any benchmark, the ECB publicly acknowledges that there may be limitations arising from circumstances outside its control as the benchmark's administrator.</p>	<p>[PS7] With respect to (h), PwC inspected the ECB's main €STR web page and confirmed that the ECB publicly acknowledges that there may be limitations arising from circumstances outside its control as the benchmark's administrator.</p>
	<p>In response to the requirements of this Principle in relation to Submissions, please see the <b>Context</b> section.</p>	

## Principle 12 – Changes to the Methodology

IOSCO Principle 12	ECB's response	Practitioner's testing
<p>An Administrator should Publish or Make Available the rationale of any proposed material change in its Methodology, and procedures for making such changes. These procedures should clearly define what constitutes a material change, and the method and timing for consulting or notifying Subscribers (and other Stakeholders where appropriate, taking into account the breadth and depth of the Benchmark's use) of changes.</p> <p>Those procedures should be consistent with the overriding objective that an Administrator must ensure the continued integrity of its Benchmark determinations. When changes are proposed, the Administrator should specify exactly what these changes entail and when they are intended to apply.</p> <p>The Administrator should specify how changes to the Methodology will be scrutinized, by the oversight function.</p> <p>The Administrator should develop Stakeholder consultation procedures in relation to changes to the Methodology that are deemed material by the oversight</p>	<p><b>Context</b></p> <p><i>Prior to the implementation of a material change, a consultation with the stakeholders takes place in accordance with the conditions outlined in Article 14 of the Guideline.</i></p> <p><i>The ECB publishes the launch of a consultation procedure and holds it reasonably in advance of the implementation of the material change.</i></p> <p><i>Any material change to the methodology will be reflected in the Methodology, which is a public document available on the ECB's website.</i></p> <p><b>Relevant Activities</b></p> <p>[PS1] Article 2 (24) of the Guideline defines "material change" as "any change to the €STR Methodology or determination process which could have an impact on the interest of stakeholders".</p> <p>[PS2] Material changes are further clarified on the ECB's main €STR web page as changes in the scope of eligible</p>	<p>[PS1] PwC inspected the Guideline and confirmed that Article 2 (24) defines a material change as "any change to the €STR Methodology or determination process which could have an impact on the interest of stakeholders".</p> <p>[PS2] PwC inspected the ECB's main €STR web page and confirmed that it further clarifies material changes as</p>

IOSCO Principle 12	ECB's response	Practitioner's testing
function, and that are appropriate and proportionate to the breadth and depth of the Benchmark's use and the nature of the Stakeholders. Procedures should:	transactions, the calculation formula, or the contingency arrangements which mean that the index performance or published values would be affected.	changes in the scope of eligible transactions, the calculation formula, or the contingency arrangements which mean that the index performance or published values would be affected.
a) Provide advance notice and a clear timeframe that gives Stakeholders sufficient opportunity to analyse and comment on the impact of such proposed material changes, having regard to the Administrator's assessment of the overall circumstances; and	[PS3] The Oversight Committee has the task of overseeing any material changes to the Methodology (Article 9(5)(c) of the Guideline).	[PS3] PwC Inspected the Guideline and confirmed that Article 9(5)(c) explains that the Oversight Committee has the task of overseeing any material changes to the methodology.
b) Provide for Stakeholders' summary comments, and the Administrator's summary response to those comments, to be made accessible to all Stakeholders after any given consultation period, except where the commenter has requested confidentiality.	[PS4] The Oversight Committee is responsible for scrutinising proposed changes and advising the Governing Council of any material changes to the Methodology that might be necessary (Article 9(1) of the Guideline).	[PS4] PwC inspected the Public Guideline and confirmed that Article 9(1) explained that the Oversight Committee is responsible for scrutinising proposed changes and advising the Governing Council of any material changes to the Methodology that might be necessary.
	[PCA1] Oversight Committee recommendations are made in writing to the Executive Board and Governing Council, who will take the decision to put the proposed material change out for consultation. Deliberations and decisions are recorded in minutes.	[PCA1] PwC made appropriate inquiries to confirm that there had been no recommendations by the Oversight Committee to the Executive Board and Governing Council to consider material changes to the Methodology since the inception of the €STR. Accordingly, no testing of the implementation of the PCA could be performed.
	[PS5] In response to (a) of this Principle, as described on the ECB's website, a public consultation is announced on the website for all material changes. To the extent that it is possible or practicable, consultations are open for responses for a period of at least six weeks.	[PS5] With respect to (a), PwC inspected the ECB's main €STR web page and confirmed that it states that a public consultation is announced on the website for all material changes and that to the extent that it is possible or practicable, consultations are open for responses for a period of at least six weeks.
	[PS6] The ECB will always seek to consult on potential material changes via a six-week consultation; however it is ultimately at the discretion of the ECB (Article 14 (1) of the Guideline) to decide on the need for a consultation. Additional information has been provided in Section 5: ECB's response to matters.	[PS6] PwC inspected the Guideline and confirmed that consultations for material changes are subject to the ECB's discretion and therefore there is discretion as to whether to consult on material changes or not. See Section 5: ECB's response to matters for more information.
	[PCA2] Proposed changes and consultation responses are scrutinised by the Oversight Committee. A summary of the comments received and the ECB's responses to these are published on the €STR web page, along with the results.	[PCA2] PwC made appropriate inquiries to confirm that there have been no material changes since the inception of the €STR. Accordingly, no testing of the implementation of the PCA could be performed.
	[PCA3] In response to (b) of this Principle, proposed changes and consultation responses are scrutinised by the Oversight Committee. A summary of the comments received and the ECB's responses to these are published on the ECB's website, as along with the final result.	[PCA3] With respect to (b), PwC made appropriate inquiries to confirm that there had been no instances of proposed changes and no changes to the Methodology since the inception of the €STR. Accordingly, no testing of the implementation of the PCA could be performed.

## Principle 13 – Transition

IOSCO Principle 13	ECB's response	Practitioner's testing
Administrators should have clear written policies and procedures, to address the need for possible cessation of a Benchmark, due to market structure change, product definition change, or any other condition which makes the Benchmark no longer representative of its intended Interest. These policies and procedures should be proportionate to the	<p><b>Context</b></p> <p><i>Article 10 of the Guideline provides that the ECB must adopt clear written policies and procedures on the possible cessation of the €STR, owing to a situation, or any other condition, which makes the €STR no longer representative of the underlying interest.</i></p> <p><i>In accordance with the same Article, these</i></p>	

IOSCO Principle 13	ECB's response	Practitioner's testing
<p>estimated breadth and depth of contracts and financial instruments that reference a Benchmark and the economic and financial stability impact that might result from the cessation of the Benchmark. The Administrator should take into account the views of Stakeholders and any relevant Regulatory and National Authorities in determining what policies and procedures are appropriate for a particular Benchmark.</p> <p>These written policies and procedures should be Published or Made Available to all Stakeholders.</p> <p>Administrators should encourage Subscribers and other Stakeholders who have financial instruments that reference a Benchmark to take steps to make sure that:</p> <p>a) Contracts or other financial instruments that reference a Benchmark, have robust fall-back provisions in the event of material changes to, or cessation of, the referenced Benchmark; and</p> <p>b) Stakeholders are aware of the possibility that various factors, including external factors beyond the control of the Administrator, might necessitate material changes to a Benchmark.</p> <p>Administrators' written policies and procedures to address the possibility of Benchmark cessation could include the following factors, if determined to be reasonable and appropriate by the Administrator:</p> <p>a) Criteria to guide the selection of a credible, alternative Benchmark such as, but not limited to, criteria that seek to match to the extent practicable the existing Benchmark's characteristics (e.g., credit quality, maturities and liquidity of the alternative market), differentials between Benchmarks, the extent to which an alternative Benchmark meets the asset/liability needs of Stakeholders, whether the revised Benchmark is investable, the availability of transparent transaction data, the impact on Stakeholders and impact of existing legislation;</p> <p>b) The practicality of maintaining parallel Benchmarks (e.g., where feasible, maintain the existing Benchmark for a defined period of time to permit existing contracts and financial instruments to mature and publish a new Benchmark) in order to accommodate an orderly transition to a new Benchmark;</p> <p>c) The procedures that the Administrator would follow in the event that a suitable alternative cannot be identified;</p> <p>d) In the case of a Benchmark or a tenor of a Benchmark that will be discontinued completely, the policy defining the period of time in which the</p>	<p><i>policies and procedures are published on the ECB's website.</i></p> <p><i>Pursuant to Article 9(5)(d) of the Guideline, the Oversight Committee is responsible for reviewing policies and procedures on the possible cessation of the €STR. It may request the ECB to consult stakeholders before adopting the policies in accordance with the conditions set out in Article 14.</i></p> <p><i>It should be noted that the €STR is based on daily statistical information which the reporting institutions are required to report to the ESCB, and that the ECB regularly conducts reviews of the Methodology to ensure that the underlying interest of the €STR is adequately represented by the rate. It is therefore highly unlikely that a situation could arise in which the option of ceasing production of the €STR would need to be considered.</i></p> <p><i>Moreover, the €STR was conceived as a fall-back rate for the event of there not being a sufficiently reliable benchmark for the euro money market. Thus, it is considered inappropriate to recommend or guide the selection by market participants of alternative benchmark(s).</i></p> <p><i>The ECB's cessation policy and procedures for the €STR should, however, be helpful to supervised entities in meeting their contingency planning obligations in line with Article 28(2) of the BMR.</i></p>	
	<b>Relevant Activities</b>	
<p>a) Criteria to guide the selection of a credible, alternative Benchmark such as, but not limited to, criteria that seek to match to the extent practicable the existing Benchmark's characteristics (e.g., credit quality, maturities and liquidity of the alternative market), differentials between Benchmarks, the extent to which an alternative Benchmark meets the asset/liability needs of Stakeholders, whether the revised Benchmark is investable, the availability of transparent transaction data, the impact on Stakeholders and impact of existing legislation;</p>	<p>[PS1] The ECB Policy and Procedure for Cessation of the €STR (the Cessation Policy) summarises and clarifies the ECB's consideration of and approach to any potential termination of the benchmark.</p>	<p>[PS1] PwC obtained and inspected the ECB Policy and Procedure for Cessation of the €STR and confirmed that it summarises and clarifies the ECB's consideration of and approach to any potential termination of the benchmark.</p>
<p>b) The practicality of maintaining parallel Benchmarks (e.g., where feasible, maintain the existing Benchmark for a defined period of time to permit existing contracts and financial instruments to mature and publish a new Benchmark) in order to accommodate an orderly transition to a new Benchmark;</p>	<p>[PCA1] The Cessation Policy is made publicly available on the ECB's website.</p>	<p>[PCA1] PwC inspected the ECB's main €STR web page and checked that the ECB Policy and Procedure for Cessation of the €STR document is publicly available.</p>
<p>c) The procedures that the Administrator would follow in the event that a suitable alternative cannot be identified;</p>	<p>[PS2] In response to (a) of this Principle, the ECB reminds its users on the €STR web page of its website that they are responsible for establishing their own fall-back provisions in the event of material changes to, or cessation of, the €STR benchmark.</p>	<p>[PS2] With respect to (a), PwC inspected the ECB's main €STR web page and confirmed that the ECB reminds its users that they are responsible for establishing their own fall-back provisions in the event of material changes to, or cessation of, the €STR benchmark.</p>
<p>d) In the case of a Benchmark or a tenor of a Benchmark that will be discontinued completely, the policy defining the period of time in which the</p>	<p>[PS3] In response to (b) of this Principle, the ECB reminds its users on the €STR web page of its website that, as with any benchmark, there may be limitations arising from circumstances beyond the administrator's control.</p>	<p>[PS3] With respect to (b), PwC inspected the ECB's main €STR web page and confirmed that the ECB reminded its users that, as with any benchmark, there may be limitations arising from circumstances beyond the administrator's control.</p>
<p>In the case of a Benchmark or a tenor of a Benchmark that will be discontinued completely, the policy defining the period of time in which the</p>	<p>In response to the second set of recommendations regarding factors to include in the cessation policy and procedures:</p> <p>For (a), (b) and (c), the ECB has determined that these requirements are not appropriate in the context of the ECB and the €STR. Please see the <b>Context</b> section above for more information.</p>	

IOSCO Principle 13	ECB's response	Practitioner's testing
<p>Benchmark will continue to be produced in order to permit existing contracts to migrate to an alternative Benchmark if necessary; and</p> <p>e) The process by which the Administrator will engage Stakeholders and relevant Market and National Authorities, as appropriate, in the process for selecting and moving towards an alternative Benchmark, including the timeframe for any such action commensurate with the tenors of the financial instruments referencing the Benchmarks and the adequacy of notice that will be provided to Stakeholders.</p>	<p>[PS4] For (d) and (e), given the very existence of the Guideline – itself a legal mandate – setting out the ECB's responsibilities for administering the €STR (Article 1) it is not possible for the €STR to be terminated at short notice.</p> <p>Furthermore, a cessation of the €STR would be considered a material change and the process to be followed would mirror any other material change, including time frame and consultation procedures. Please see the response to Principle 12 for more details on material changes.</p>	<p>[PS4] With respect to (d) and (e), PwC inspected the Guideline and confirmed it is published in the Official Journal of the European Union and is issued in reference to the Treaty on the Functioning of the European Union. Article 1 states that the ECB is responsible for the administration and publication of the €STR rate.</p> <p>For the procedures to be followed in case of a cessation of the €STR, please see the response to Principle 12 – Changes to the Methodology.</p>

## Principle 14 – Submitter Code of Conduct

IOSCO Principle 14	ECB's response	Practitioner's testing
<p><b>Where a Benchmark is based on Submissions, the following additional Principle also applies:</b></p> <p>The Administrator should develop guidelines for Submitters ("Submitter Code of Conduct"), which should be available to any relevant Regulatory Authorities, if any and Published or Made Available to Stakeholders.</p> <p>The Administrator should only use inputs or Submissions from entities which adhere to the Submitter Code of Conduct and the Administrator should appropriately monitor and record adherence from Submitters. The Administrator should require Submitters to confirm adherence to the Submitter Code of Conduct annually and whenever a change to the Submitter Code of Conduct has occurred.</p> <p>The Administrator's oversight function should be responsible for the continuing review and oversight of the Submitter Code of Conduct.</p> <p>The Submitter Code of Conduct should address:</p> <ol style="list-style-type: none"> <li>The selection of inputs;</li> <li>Who may submit data and information to the Administrator;</li> <li>Quality control procedures to verify the identity of a Submitter and any employee(s) of a Submitter who report(s) data or information and the authorization of such person(s) to report market data on behalf of a Submitter;</li> <li>Criteria applied to employees of a Submitter who are permitted to submit data or information to an Administrator on behalf of a Submitter;</li> <li>Policies to discourage the interim withdrawal of Submitters from surveys or Panels;</li> <li>Policies to encourage Submitters to submit all relevant data; and</li> <li>The Submitters' internal systems and controls, which should include: <ol style="list-style-type: none"> <li>Procedures for submitting inputs, including Methodologies to determine the type of eligible inputs, in line with the Administrator's Methodologies;</li> </ol> </li> </ol>	<p><b>Context</b></p> <p><i>Given that this Principle refers only to benchmarks based on Submissions, please note this is not applicable to the €STR, as explained in Section 1 of this report.</i></p> <hr/> <p><b>Relevant Activities</b></p> <p>Not applicable. Please see the <b>Context</b> section for more details.</p>	<p>No testing performed given that the Principle is not applicable.</p>

IOSCO Principle 14	ECB's response	Practitioner's testing
<ul style="list-style-type: none"> <li>ii) Procedures to detect and evaluate suspicious inputs or transactions, including inter-group transactions, and to ensure the Bona Fide nature of such inputs, where appropriate;</li> <li>iii) Policies guiding and detailing the use of expert judgment, including documentation requirements;</li> <li>iv) Record keeping policies;</li> <li>v) Pre-Submission validation of inputs, and procedures for multiple reviews by senior staff to check inputs;</li> <li>vi) Training, including training with respect to any relevant regulation (covering Benchmark regulation or any market abuse regime);</li> <li>vii) Suspicious Submission reporting;</li> <li>viii) Roles and responsibilities of key personnel and accountability lines;</li> <li>ix) Internal sign off procedures by management for submitting inputs;</li> <li>x) Whistle blowing policies (in line with Principle 4); and</li> <li>xi) Conflicts of interest procedures and policies, including prohibitions on the Submission of data from Front Office Functions unless the Administrator is satisfied that there are adequate internal oversight and verification procedures for Front Office Function Submissions of data to an Administrator (including safeguards and supervision to address possible conflicts of interests as per paragraphs (v) and (ix) above), the physical separation of employees and reporting lines where appropriate, the consideration of how to identify, disclose, manage, mitigate and avoid existing or potential incentives to manipulate or otherwise influence data inputs (whether or not in order to influence the Benchmark levels), including, without limitation, through appropriate remuneration policies and by effectively addressing conflicts of interest which may exist between the Submitter's Submission activities (including all staff who perform or otherwise participate in Benchmark Submission responsibilities), and any other business of the Submitter or of any of its affiliates or any of their respective clients or customers.</li> </ul>		

## Principle 15 – Internal Controls over Data Collection

IOSCO Principle 15	ECB's response	Practitioner's testing
<p>When an Administrator collects data from any external source the Administrator should ensure that there are appropriate internal controls over its data collection and transmission processes. These controls should address the process for selecting the source, collecting the data and protecting the integrity and confidentiality of the data. Where Administrators receive data from employees of the Front Office Function, the Administrator should seek</p>	<p><b>Context</b></p> <p><i>Article 8(4) of the Guideline and Section 4 of the Methodology describe the data quality management process.</i></p> <p><i>In addition, Annex IV of the MMSR Regulation sets out the minimum standards that reporting agents must fulfil when reporting data in order to fulfil the ECB's reporting requirements. Paragraph 1 of Annex IV provides the minimum standards for transmission, which must be</i></p>	

IOSCO Principle 15	ECB's response	Practitioner's testing
<p>corroborating data from other sources.</p>	<p><i>timely and have the form and format required by the ECB and the relevant NCBs.</i></p> <p><i>Pursuant to Annex IV of the MMSR Regulation, data integrity is required of the data inputs, which must therefore be compiled in an impartial and objective manner.</i></p> <p><i>The ECB's €STR system has a number of automated checks and controls to confirm the validity and integrity of the data being received. The following controls over data collection are conducted in the context of the €STR:</i></p> <ol style="list-style-type: none"> <li><i>1. On all received reports and transactions, automated checks are conducted to verify that the reports and data are compliant with the technical requirements as set out in the MMSR Regulation (see Annex IV). The checks are performed on each report and transaction upon reception in the €STR system.</i></li> <li><i>2. An automated set of targeted data quality checks is carried out daily in the early morning before publication to decide, in respect of each transaction, whether the technical and content requirements for use in the compilation process are fulfilled.</i></li> <li><i>3. Plausibility checks are applied to €STR eligible transactions, which are then followed up on and confirmed with reporting agents before the calculation of the €STR.</i></li> </ol> <p><i>That being said, the ECB is not a financial market regulator and it does not control the process by which the MMSR data inputs are compiled within the reporting banks. Unlike commercially produced IBORs relying on Submissions from panel banks (e.g. EURIBOR, LIBOR etc.) the €STR is based exclusively on statistical information reported under the MMSR Regulation.</i></p> <p><i>Regarding the part of this Principle referring to benchmarks based on Submissions, please note this is not applicable to the €STR, as explained in Section 1 of this report.</i></p> <p><i>€STR is exclusively compiled on the basis of MMSR data. No additional data is reported by employees of the Front Office function.</i></p>	
	<p><b>Relevant Activities</b></p>	
	<p>[PCA1] The following data collection controls are considered key in the context of the €STR. Automated controls validate that:</p> <ul style="list-style-type: none"> <li>• the transactions contained in the reported files are unsecured transactions;</li> <li>• only data provided by a valid reporting agent that belongs to the reporting population are accepted by the system;</li> <li>• the reported transactions are not duplicated by checking the proprietary transaction identifier against previously reported transactions and against transactions reported at the same time;</li> <li>• the counterparty sector classification is formally correct, by checking against</li> </ul>	<p>[PCA1] PwC used a test environment, mirroring production, to check the effective operation of the following automated controls:</p> <ul style="list-style-type: none"> <li>• reported files do not include secured transactions;</li> <li>• only data provided by a reporting agent that belongs to the reporting population are accepted by the system;</li> <li>• reported transactions are not duplicated;</li> <li>• the counterparty sector classification is formally correct;</li> <li>• the reported denomination of the transaction is €;</li> <li>• the reported transactions' trade date is</li> </ul>

IOSCO Principle 15	ECB's response	Practitioner's testing
	<p>Regulation (EU) No 549/2013<sup>24</sup> (ESA2010) applicable sector classification;</p> <ul style="list-style-type: none"> <li>the reported denomination of the transaction is €;</li> <li>the reported trade date of the transactions is valid;</li> <li>potential erroneously reported transactions that may affect the genuine path of the rate are identified for investigation.</li> </ul>	<p>valid;</p> <ul style="list-style-type: none"> <li>potential erroneously reported transactions that may affect the genuine path of the rate are identified for investigation.</li> </ul>
	<p>[PCA2] Where an automated control identifies an exception, the respective reports and/or transactions are automatically flagged by the system for further investigation by the operators.</p>	<p>[PCA2] PwC made appropriate inquiries to confirm that there had been no instances where these controls had identified an exception, halting the automated process. Accordingly, no testing of the implementation of the PCA could be performed.</p>
	<p>[PCA3] The contingency calculation is automatically triggered if the number of reporting banks is less than 20, or if five banks account for 75% or more of the total volume of transactions.</p> <p>Should a check result in an error, the operator follows the incident management process, as described in Principle 4.</p>	<p>[PCA3] PwC observed and inspected the ECB's use of the contingency procedures on mock data and checked that the contingency calculation is automatically triggered by the €STR system if the number of reporting banks is less than 20 or if five banks account for 75% or more of the total volume of transactions.</p> <p>Please see the response to Principle 4 – Control Framework for Administrators, for further information on the incident management process.</p>
	<p>[PCA4] A summary report of each day's €STR production process is made available, and any checks which failed are highlighted to management.</p>	<p>[PCA4] PwC inspected the end of €STR production process summary report and checked that it is automatically produced and made available, and that any failed checks are highlighted to management.</p>

## Principle 16 – Complaints Procedures

IOSCO Principle 16	ECB's response	Practitioner's testing
<p>The Administrator should establish and Publish or Make Available a written complaints procedures policy, by which Stakeholders may submit complaints including concerning whether a specific Benchmark determination is representative of the underlying Interest it seeks to measure, applications of the Methodology in relation to a specific Benchmark determination(s) and other Administrator decisions in relation to a Benchmark determination.</p> <p>The complaints procedures policy should:</p> <ol style="list-style-type: none"> <li>Permit complaints to be submitted through a user-friendly complaints process such as an electronic Submission process;</li> <li>Contain procedures for receiving and investigating a complaint made about the Administrator's Benchmark determination process on a timely and fair basis by personnel who are independent of any personnel who may be or may have been involved in the subject of</li> </ol>	<p><b>Context</b></p> <p><i>Article 11 of the Guideline sets out the terms under which complaints about aspects of the determination process may be submitted to the ECB and the general principles and processes that govern the processing of such complaints by the ECB. Article 11 also covers possible complaints concerning the NCBs that participate in the data collection. Complaints are handled following an internal complaints procedure, which is confidential.</i></p> <p><b>Relevant Activities</b></p> <p>[PS1] Article 11 of the Guideline establishes the Complaints Procedure by which any person can submit a written complaint.</p> <p>[PS2] In response to (a) of this Principle, complaints about any aspect of the €STR rate determination process may be submitted either by post or via a dedicated email address (Article 11(1) of the Guideline).</p> <p>[PS3] In response to (b) of this Principle, in</p>	<p>[PS1] PwC inspected the Guideline and confirmed that Article 11 establishes the complaints procedure by which any person can submit a written complaint.</p> <p>[PS2] With respect to (a), PwC inspected the Guideline and confirmed that Article 11(1) states that complaints about any aspect of the €STR rate determination process may be submitted either by post or via a dedicated email address.</p> <p>[PS3] With respect to (b), PwC inspected</p>

<sup>24</sup> Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013 on the European system of national and regional accounts in the European Union (OJ L 174, 26.6.2013, p. 1).



IOSCO Principle 16	ECB's response	Practitioner's testing
<p>the complaint, advising the complainant and other relevant parties of the outcome of its investigation within a reasonable period and retaining all records concerning complaints;</p> <p>c) Contain a process for escalating complaints, as appropriate, to the Administrator's governance body; and</p> <p>d) Require all documents relating to a complaint, including those submitted by the complainant as well as the Administrator's own record, to be retained for a minimum of five years, subject to applicable national legal or regulatory requirements.</p> <p>Disputes about a Benchmarking determination, which are not formal complaints, should be resolved by the Administrator by reference to its standard appropriate procedures. If a complaint results in a change in a Benchmark determination, that should be Published or Made Available to Subscribers and Published or Made Available to Stakeholders as soon as possible as set out in the Methodology.</p>	<p>accordance with Article 11(2) of the Guideline, the ECB is committed to responding fairly, consistently and in a timely manner to all reasonable complaints.</p>	<p>the Guideline and confirmed that Article 11(2) states that the ECB is committed to responding fairly, consistently and in a timely manner to all reasonable complaints.</p>
	<p>[PCA1] Complaints are assessed and investigated by staff members unrelated to the complaint. The ECB is committed to sending an acknowledgment of receipt of any authentic complaint submitted in relation to the €STR within two weeks from such receipt.</p> <p>Please see the response to (d) of this Principle for more details regarding the retention of records concerning complaints.</p>	<p>[PCA1] PwC made appropriate inquiries to confirm that no complaints had been reported to the ECB about any aspect of the €STR determination process since the inception of the €STR benchmark. Accordingly, no testing of the implementation of the PCA could be performed.</p>
	<p>[PS4] In response to (c) of this Principle, in accordance with Article 11(2) of the Guideline, if necessary the complaint will be escalated to the Oversight Committee.</p>	<p>[PS4] With respect to (c), PwC inspected the Guideline and confirmed that Article 11(2) states that a complaint may be escalated to the Oversight Committee if the ECB considers it necessary.</p>
	<p>[PS5] The investigation of complaints falls within the tasks of the Oversight Committee in accordance with Article 9(5)(f) of the Guideline.</p>	<p>[PS5] PwC also confirmed that Article 9(5)(f) states that the investigation of complaints falls within the tasks of the Oversight Committee.</p>
	<p>[PS6] In response to (d) of this Principle, in accordance with Article 11(5) of the Guideline, the ECB retains the documents relating to a complaint for a minimum of five years from the date of receipt of the complaint.</p> <p>For details on the five-year archiving requirements for complaints, please see the response to Principle 18 – Audit Trail.</p>	<p>[PS6] With respect to (d), PwC inspected the Guideline and confirmed that Article 11(5) states that the ECB retains the documents relating to a complaint for a minimum of five years from the date of receipt of the complaint.</p> <p>For information on the testing performed regarding the requirements to archive complaints submitted via email and post, please see the response to Principle 18 – Audit Trail.</p>
	<p>[PCA2] In addition, there is a separate <a href="#">online form</a>, available on the ECB's website, via which queries other than complaints can be submitted and communicated.</p> <p>If a complaint results in a change to the €STR Methodology, the process for changing methodology outlined in Principle 12 will be followed in accordance with ECB internal procedures.</p> <p>If a complaint results in a change to the calculated rate, the policy on handling errors is followed in accordance with Section 7 of the Methodology. See the response to Principle 11 for more information.</p>	<p>[PCA2] PwC inspected the ECB's website and checked that there was a separate online form via which queries other than complaints could be submitted and communicated.</p> <p>Please see the response to Principle 12 – Changes to Methodology for further information on the testing of the change process.</p> <p>Please see the response to Principle 11 for more information on the testing of error handling.</p>

## Principle 17 – Audits

IOSCO Principle 17	ECB's response	Practitioner's testing
<p>The Administrator should appoint an independent internal or external auditor with appropriate experience and capability to periodically review and report on the Administrator's adherence to its stated criteria and with the Principles. The frequency of audits should be proportionate to the size and complexity of the Administrator's operations.</p> <p>Where appropriate to the level of existing or potential conflicts of interest identified by the Administrator (except for Benchmarks that are otherwise regulated or supervised by a National Authority other than a relevant Regulatory Authority), an Administrator should appoint an</p>	<p><b>Context</b></p> <p><i>In compliance with this Principle, both internal and external audits are conducted in the context of the €STR</i></p> <p><i>Article 12 of the Guideline covers issues relevant for the audits to be conducted in the context of the administration of the €STR. As set out in that Article, the internal audit is conducted in accordance with the ECB Audit Charter.</i></p> <p><i>The ECB considers that it already meets principles, standards and procedures which ensure that it can carry out its activities with integrity and in an independent manner. There is therefore no existing or potential conflict of interest that</i></p>	

IOSCO Principle 17	ECB's response	Practitioner's testing
<p>independent external auditor with appropriate experience and capability to periodically review and report on the Administrator's adherence to its stated Methodology. The frequency of audits should be proportionate to the size and complexity of the Administrator's Benchmark operations and the breadth and depth of Benchmark use by Stakeholders.</p>	<p><i>requires the appointment of an independent external auditor.</i></p> <p><i>Notwithstanding the above, in accordance with Article 12(2) of the Guideline the ECB has appointed an external auditor to independently assess the framework used by the ECB to administer the €STR for compliance with the IOSCO Principles for Financial Benchmarks.</i></p> <p><i>In accordance with Article 12(2) and 13(2), the compliance statement will be periodically reviewed by the ECB and by an external auditor.</i></p>	
	<b>Relevant Activities</b>	
	<p>[PS1] The Oversight Committee oversees the integrity and operation of the €STR, considering the results of internal and external audits and following up on the implementation of remedial actions highlighted by audits in accordance with Article 9(5)(h) of the Guideline.</p>	<p>[PS1] PwC inspected the Guideline and confirmed that Article 9(5)(h) states that the Oversight Committee oversees the integrity and operation of the €STR, considering the results of internal and external audits and following up on the implementation of remedial actions highlighted by audits.</p>
	<p>[PCA1] The ECB internal audits are performed as specified in the ECB's audit plan, as approved by the Governing Council.</p>	<p>[PCA1] PwC obtained the ECB's audit plan approved by the Governing Council and checked that the most recent €STR internal audit was performed as specified in the audit plan.</p>
	<p>[PS2] Article 12(2) of the Guideline mandates that the ECB must appoint an external auditor to independently assess the framework used by the ECB to administer the euro short-term rate for compliance with the IOSCO Principles.</p>	<p>[PS2] PwC inspected the Guideline and confirmed that Article 12(2) mandates that the ECB must appoint an external auditor to independently assess the framework used by the ECB to administer the euro short-term rate for compliance with the IOSCO Principles.</p>
	<p>[PCA2] An external auditor has been appointed to review and report on the Administrator's adherence to its stated criteria and to the Principles.</p>	<p>[PCA2] With respect to the external audit review of the ECB's adherence to its stated criteria and to the IOSCO Principles, Section 3 of this report evidences this activity.</p>
	<p>[PS3] Article 13(2) of the Guideline mandates that the statement of compliance with the IOSCO Principles should be periodically reviewed by the ECB.</p>	<p>[PS3] PwC inspected the Guideline and confirmed that Article 13(2) mandates that the statement of compliance with the IOSCO Principles should be periodically reviewed by the ECB.</p>
	<p>[PS4] The €STR is audited in accordance with the ECB Audit Charter or the Audit Charter for the Eurosystem/ESCB and the Single Supervisory Mechanism (see Article 12(1) of the Guideline).</p>	<p>[PS4] PwC inspected the Guideline and confirmed that Article 12(1) indicates that the €STR is audited in accordance with the ECB Audit Charter or the Audit Charter for the Eurosystem/ESCB and the Single Supervisory Mechanism.</p>
	<p>[PCA3] Targeted audits of the €STR or its associated infrastructure are performed by the ECB's Directorate Internal Audit according to a risk-based approach.</p>	<p>[PCA3] PwC inspected evidence provided by the Directorate Internal Audit confirming that the €STR is subject to the ECB's audit programme according to its risk-based approach. In addition, PwC inspected evidence of two audits having taken place in relation to aspects of €STR operations since €STR development commenced.</p>
	<p>[PCA4] An external auditor has been appointed to review and report on the Administrator's adherence to its stated Methodology.</p>	<p>[PCA4] PwC reperformed the calculation of the €STR independently on a sample date using raw input data, in accordance with the Methodology, the results of which matched the formally published rate.</p>

## Principle 18 – Audit Trail

IOSCO Principle 18	ECB's response	Practitioner's testing
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Independent assurance report on the ECB's statement of compliance with control processes defined in relation to governance, quality and accountability activities over the €STR and its adherence to the IOSCO Principles for Financial Benchmarks – Principles and responses

IOSCO Principle 18	ECB's response	Practitioner's testing
<p>Written records should be retained by the Administrator for five years, subject to applicable national legal or regulatory requirements on:</p> <ul style="list-style-type: none"> <li>a) All market data, Submissions and any other data and information sources relied upon for Benchmark determination;</li> <li>b) The exercise of expert judgment made by the Administrator in reaching a Benchmark determination;</li> <li>c) Other changes in or deviations from standard procedures and Methodologies, including those made during periods of market stress or disruption;</li> <li>d) The identity of each person involved in producing a Benchmark determination; and</li> <li>e) Any queries and responses relating to data inputs.</li> </ul> <p>If these records are held by a Regulated Market or Exchange the Administrator may rely on these records for compliance with this Principle, subject to appropriate written record sharing agreements.</p> <p><b>When a Benchmark is based on Submissions, the following additional Principle also applies:</b></p> <p>Submitters should retain records for five years subject to applicable national legal or regulatory requirements on:</p> <ul style="list-style-type: none"> <li>a) The procedures and Methodologies governing the Submission of inputs;</li> <li>b) The identity of any other person who submitted or otherwise generated any of the data or information provided to the Administrator;</li> <li>c) Names and roles of individuals responsible for Submission and Submission oversight;</li> <li>d) Relevant communications between submitting parties;</li> <li>e) Any interaction with the Administrator;</li> <li>f) Any queries received regarding data or information provided to the Administrator;</li> <li>g) Declaration of any conflicts of interests and aggregate exposures to Benchmark related instruments;</li> <li>h) Exposures of individual traders/desks to Benchmark related instruments in order to facilitate audits and investigations; and</li> <li>i) Findings of external/internal audits, when available, related to Benchmark Submission remedial actions and progress in implementing them.</li> </ul>	<p><b>Context</b></p> <p><i>In accordance with Article 12(3) of the Guideline the ECB and the NCBs hold all documentation, statistical information, reports, other information (including information relating to any exclusion of transactions), analyses and complaints relevant to the €STR determination process, as well as the identities of the reporting agents, for at least five years.</i></p> <p><i>For (b) of this Principle please note that Expert Judgment is not applied in the determination of the €STR. For more information refer to our interpretation of Expert Judgment in the context of the €STR determination, which is detailed in Section 1 of this report.</i></p> <p><i>Regarding the part of this Principle referring to benchmarks based on Submissions, please note this is not applicable to the €STR, as explained in Section 1 of this report.</i></p> <p><b>Relevant Activities</b></p> <p>[PS1] In response to (a) of this Principle, Article 12(3) of the Guideline states that the ECB must hold all documentation, statistical information, reports, other information (including information relating to any exclusions of transactions), analyses and complaints relevant to the euro short-term rate determination process, as well as the identities of the reporting agents, for at least five years.</p> <p>The records are retained as follows:</p> <p>[PCA1] The ECB retains all statistical information relied upon for the benchmark determination, including data reported under the MMSR Regulation, within the €STR system, for a period of at least five years.</p> <p>[PCA2] The ECB permanently retains all important €STR documentation, including documentation related to the Committees, Executive Board and Governing Council decisions, within the Information Sharing System (DARWIN).</p> <p>[PCA3] The ECB permanently retains all emails relating to the production of the €STR by way of the shared €STR inbox.</p> <p>[PCA4] The ECB retains all complaints and queries (including those received via post, which are digitally scanned) within a folder in DARWIN configured to five-year retention.</p> <p>In response to (b) and the exercise of Expert Judgment, please see the <b>Context</b> section of this Principle.</p> <p>In response to (c) of this Principle, during times of market stress, the Contingency Methodology is applied automatically. Manual deviations from standard procedures or the Methodology are not expected. Please see the <b>Context</b> section of this Principle.</p> <p>[PCA5] In response to (d) of this Principle, the €STR system logs the username of anyone who has made any manual action as well as the date and time of the action performed. These logs are retained for a minimum period of five years.</p>	<p>[PS1] With respect to (a) PwC inspected the Guideline and checked that Article 12(3) states that the ECB must hold all documentation, statistical information, reports, other information (including information relating to any exclusions of transactions), analyses and complaints relevant to the euro short-term rate determination process, as well as the identities of the reporting agents, for at least five years.</p> <p>With respect to record retention:</p> <p>[PCA1] PwC inspected the €STR system and checked that the MMSR input data have been being retained since the inception of the rate.</p> <p>[PCA2] PwC inspected the relevant folder within DARWIN and checked that the retention setting was set to permanent and that it contained documentation dated prior to the inception of the €STR.</p> <p>[PCA3] PwC inspected the shared €STR inbox and checked that it contained emails dated prior to the inception of the €STR.</p> <p>[PCA4] PwC inspected the relevant folder within DARWIN and checked it was configured to five-year retention.</p> <p>[PCA5] With respect to (d), PwC observed an €STR team member performing manual actions and checked that the €STR system logged the username, the date and the time of the actions. With respect to the log retention, PwC inspected the €STR system and checked that the system logs have</p>

IOSCO Principle 18	ECB's response	Practitioner's testing
		been retained since the inception of the rate.
	[PCA6] When actions are taken by either the ECB or the NCBs, relevant commentary and/or evidence is attached to justify the actions taken. These are also stored in the €STR system and retained for a minimum period of five years.	[PCA6] PwC inspected the logs of the €STR system and confirmed that a sample action taken included commentary and/or evidence for the action. As above, PwC inspected the €STR system and checked that these logs have been retained since the inception of the rate.
	[PCA7] In response to (e) of this Principle, any queries and responses relating to data inputs are saved in the €STR system as an attachment when an action is taken and retained for a minimum period of five years.	[PCA7] With respect to (e), PwC inspected the saved attachments of the €STR system on the inception date of the rate and confirmed that they were available.
	For the requirements relating to Submissions, please see the <b>Context</b> section.	

## Principle 19 – Cooperation with Regulatory Authorities

IOSCO Principle 19	ECB's response	Practitioner's testing
Relevant documents, Audit Trails and other documents subject to these Principles shall be made readily available by the relevant parties to the relevant Regulatory Authorities in carrying out their regulatory or supervisory duties and handed over promptly upon request.	<p><b>Context</b></p> <p><i>The €STR is not subject to the Benchmark Regulation ((EU) 2016/1011 (BMR) and neither the ECB nor the NCBs are regulated thereunder, as central banks are excluded from its scope of application (see Article 2(2a) of the BMR).</i></p> <p><i>However, the ECB maintains regular contact with the financial market regulators, including via its membership as an observer on relevant expert committees, for example the Working group on euro area risk-free rates and the European Commission's European Securities Committee.</i></p> <p><i>It should also be noted that the ECB is obliged to cooperate in good faith in the event of an investigation of fraud by the competent EU authorities.</i></p> <p><i>Further to the judgment of the Court of Justice of the European Union in Case C-11/00, Commission of the European Communities v European Central Bank, the ECB follows the European Regulation concerning investigations conducted by the European Anti-Fraud Office (OLAF) provided this does not impair the independent performance of its ESCB tasks. In that regard the ECB has taken the necessary steps to adapt its internal rules and procedures to the legal framework in line with the said judgment and has adopted the necessary measures to ensure close coordination with OLAF in the fight against fraud.</i></p> <p><i>More information on the case is available <a href="#">here</a>.</i></p>	
	<b>Relevant Activities</b>	
	Not applicable. Please see the <b>Context</b> section for more details.	No testing performed given that the Principle is not applicable.

# 5

# ECB's response to matters

Extract of the IOSCO Principle	Matter noted by practitioner	ECB's response
<p><b>Principle 4 – Control Framework for Administrators</b></p> <p>The framework should address the following areas:</p> <p>...</p> <p>c) Whistleblowing mechanism:</p> <p>Administrators should establish an effective whistleblowing mechanism to facilitate early awareness of any potential misconduct or irregularities that may arise. This mechanism should allow for external reporting of such cases where appropriate.</p> <p>...</p>	<p>In the course of executing our procedures, it was noted that the ECB's current whistleblowing mechanism does not include all facets of an effective whistleblowing mechanism. Specifically:</p> <ul style="list-style-type: none"> <li>• provision for fully anonymous and confidential whistleblowing reports to be made;</li> <li>• formal facilitation of corrective measures;</li> <li>• formal facilitation of external reporting should this be required.</li> </ul>	<p>The ECB has mechanisms in place for the internal reporting of illegal activity, breach of professional duties or inappropriate conduct; these apply to staff working on the €STR as they do to any other ECB activity. As demonstrated in PS4 of Principle 4, these procedures are contained in:</p> <ol style="list-style-type: none"> <li>1. Administrative Circular 01/2006 on internal administrative inquiries;</li> <li>2. Decision (EU) 2016/456 (ECB/2016/3) of 4 March 2016 concerning the terms and conditions for European Anti-Fraud Office investigations of the European Central Bank, in relation to the prevention of fraud, corruption and any other illegal activities affecting the financial interests of the Union (ECB/2016/3);</li> <li>3. Article 0.5 of the Staff Rules on dignity at work.</li> </ol> <p>To further strengthen the existing procedures, as at 15 July 2020, the ECB is developing an enhanced whistleblowing framework which will facilitate, among other things, anonymous and confidential reporting by any person working for the ECB; the facilitation of protective and corrective measures; and the ability for external reporting of whistleblowing where and if necessary.</p> <p>The updates to the ECB's existing whistleblowing mechanism are expected to be ratified and implemented by October 2020.</p> <p>Any potential misconduct or irregularities can also be externally reported through the mechanisms available at the reporting institution and/or by filing a complaint under Article 11.1 of the Guideline. Further information regarding how complaints can be submitted is provided on the <a href="#">€STR web page</a>.</p> <p>See also the <b>Context</b> section for Principle 4.</p>
<p><b>Principle 12 – Changes to the Methodology</b></p> <p>The Administrator should develop Stakeholder consultation procedures in relation to changes to the Methodology that are deemed material by the oversight function, and that are appropriate and proportionate to the breadth and depth of the Benchmark's use and the nature of the Stakeholders. Procedures should:</p> <ol style="list-style-type: none"> <li>i) Provide advance notice and a clear timeframe that gives Stakeholders sufficient opportunity to analyse and comment on the impact of such proposed material changes, having regard to the Administrator's assessment of the overall circumstances; and</li> </ol> <p>...</p>	<p>In the course of executing our procedures, it was noted that the ECB has described its approach to consultation over material changes to the design and methodology of the €STR, but notes that the decision on whether or not to consult on a material change is at the discretion of the Governing Council.</p> <p>As a result, it is not necessarily always possible for stakeholders to have advance notice and a clear time frame to analyse and comment on the impact of such proposed material changes.</p>	<p>It is necessary for the ECB Governing Council to be able to maintain its discretion not to consult publicly in cases where it considers it impracticable or unreasonable to do so given the circumstances.</p> <p>In making such a decision it will take into account the views of the Oversight Committee.</p> <p>Where it is practicable to do so without putting at risk the interest of the Eurosystem it can be expected that stakeholders will be consulted on a material change to the methodology within a clear and reasonable time frame. Further information regarding how public consultations are conducted is provided on the <a href="#">€STR web page</a>.</p>

## References<sup>25</sup>

Protocol on the Statute of the European System of Central Banks and of the European Central Bank ([OJ C 202](#), 7.6.2016, p.230)

Guideline (EU) 2019/1265 of the European Central Bank of 10 July 2019 on the euro short-term rate (€STR) (ECB/2019/19) ([OJ L 199](#), 26.7.2019, p.8) (the Guideline)

[The euro short-term rate \(€STR\) methodology and policies](#), ECB, Frankfurt am Main, June 2018 (the Methodology)

Regulation (EU) No 1333/2014 of the European Central Bank of 26 November 2014 concerning statistics on the money markets (ECB/2014/48) ([OJ L 359](#), 16.2.2014, p.97)

Council Regulation (EC) No 2533/98 of 23 November 1998 concerning the collection of statistical information by the European Central Bank ([OJ L 318](#), 27.11.1998, p.8)

Reporting Instructions for the electronic transmission of money market statistical reporting (MMSR) - [version 3.2](#), ECB, Frankfurt am Main, 15 November 2019

European Central Bank Regulation (EC) No 2157/1999 of 23 September 1999 on the powers of the European Central Bank to impose sanctions (ECB/1999/4) ([OJ, L 264](#), 12.10.1999, p.21)

Decision (EU) 2010/469 of the European Central Bank of 19 August 2010 on non-compliance with statistical reporting requirements (ECB/2010/10) ([OJ L 226](#), 28.8.2010, p.48)

[Administrative Circular 01/2006 on internal administrative inquiries](#), ECB, Frankfurt am Main, 21 March 2006<sup>26</sup>

Decision (EU) 2016/456 of the European Central Bank of 4 March 2016 concerning the terms and conditions for European Anti-Fraud Office investigations of the European Central Bank, in relation to the prevention of fraud, corruption and any other illegal activities affecting the financial interests of the Union (ECB/2016/3) ([OJ L 79](#), 30.3.2016, p.34)

Consolidated version of the Treaty on European Union ([OJ C 202](#), 7.6.2016, p.13)

Consolidated version of the Treaty on the Functioning of the European Union ([OJ C 326](#), 26.10.2012, p.47)

Code of Conduct for high-level European Central Bank Officials ([OJ C 89](#), 8.3.2019, p.2) (referred to in Principle 3 – Context)

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<sup>25</sup> These links are to the current legal instruments and materials relevant to this report as at 15 July 2020.

<sup>26</sup> Please note this is an unofficial, consolidated version provided for information only.

Guideline (EU) 2015/855 of the European Central Bank of 12 March 2015 laying down the principles of a Eurosystem Ethics Framework (ECB/2015/11) ([OJ L 135](#), 2.6.2015, p.23)

[European Central Bank Staff Rules](#), ECB, Frankfurt am Main, 1 January 2016

[Questions and Answers on the Benchmarks Regulation \(BMR\)](#), European Securities and Markets Authority, 11 December 2019

Directive (EU) 2019/1937 of the European Parliament and of the Council of 23 October 2019 on the protection of persons who report breaches of Union law ([OJ L 305](#), 26.11.2019, p.17)

[First ECB public consultation on developing a euro unsecured overnight interest rate](#), ECB, Frankfurt am Main, November 2017 and [summary of responses](#)

[Second ECB public consultation on developing a euro unsecured overnight interest rate](#), ECB, Frankfurt am Main, March 2018, which contains the full consultation details, and [summary of responses](#)

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