

# REPORT ON COMPLIANCE WITH THE IOSCO PRINCIPLES FOR FINANCIAL BENCHMARKS

January 1-March 31, 2023



# BORSA İSTANBUL

Notice: Access to assurance report with respect to the Statement of Compliance with the IOSCO Principles for Financial Benchmarks of Borsa İstanbul A.Ş. prepared by PwC Türkiye.

This PDF file (the "Document") consists of the independent practitioner's assurance report (the "Assurance Report"), prepared by PwC Bağımsız Denetim ve SMMM A.Ş. ("PwC Türkiye") in accordance with International Standard on Assurance Engagements 3000 "Assurance Engagements other than Audits or Reviews of Historical Financial Information" (ISAE 3000 (revised)), and of the Statement of Compliance of Borsa İstanbul A.Ş. (the "Company") with the Principles for Financial Benchmarks published by the International Organization of Securities Commissions (IOSCO) in July 2013 for the period from 1 January 2023 to 31 March 2023 (the "Report").

The Document was prepared for the use and benefit of the management of the Company on the basis of an engagement letter between the Company and PwC Türkiye that stipulates certain restrictions with respect to disclosing the Document to third parties.

In connection with your interest in the Company, the Company has asked PwC Türkiye to agree to the Company providing you with an electronic copy of the Document. PwC Türkiye is prepared to agree to such provision on condition that you accept the following terms:

1. PwC Türkiye is under no obligation to update (and has not updated) the Document for any events which may have occurred subsequent to that date even if they could have a significant impact on the content of the Document. Nor has PwC Türkiye undertaken any assurance procedures on the subject matter subsequent to 31 March 2023 or followed up on the resolution of any exceptions identified (if any). It is also not PwC Türkiye's function or responsibility to provide to you any information that may have come to PwC Türkiye's attention at any point after the date of the Assurance Report, whether or not disclosed to or discussed with or reported to the Company.
2. PwC Türkiye, its partners and other employees do not accept or assume responsibility to anyone other than the addressee(s) of the Assurance Report for the Assurance Report or the work performed in connection with the Document and the conclusions formed. The work was undertaken, and the Assurance Report was issued, on agreed terms of engagement between PwC Türkiye and the Company, in order that PwC Türkiye might report to the addressee(s) those matters on which it agreed to report and for no other purpose.
3. The Document was not prepared, and PwC Türkiye's work in connection with the Assurance Report was not planned or executed in contemplation of your interest in the Document or for your purposes. Therefore, items of possible interest to you may not have been specifically addressed for the purposes of PwC Türkiye's work and/or the Report. PwC Türkiye does not warrant or represent that the Information (as defined below) is appropriate for your interests or purposes. For the purposes of this agreement, the expression the "Information" shall mean the Document, all work done by PwC Türkiye in connection with the Document and in connection with the terms of engagement pursuant to which the Assurance Report was produced as well as any explanations and other information that PwC Türkiye may give or has given to you or the Company in respect of this work, including the Assurance Report, and shall include also parts thereof.
4. For the foregoing reasons, the Information cannot in any way serve as a substitute for other enquiries and procedures and your own judgements that you would (or should) undertake or make for the purpose of satisfying yourself regarding any matters of interest to you. If, notwithstanding the terms of this agreement, you do rely upon the Information for any purpose whatsoever, you will do so entirely at your own risk.
5. PwC Türkiye, its partners and other employees have no liability to you, whether in contract or in tort (including without limitation negligence) or under the principle of reliance or for any loss or damage suffered or costs incurred by you, arising out of or in connection with the Information, its provision to you or its use or reliance thereon by you. You will not bring any actions, proceedings or claims against PwC Türkiye, its partners or other employees relating to the provision of the Information to you or your use of, or your reliance on, the Information.
6. Our report should not be used by other parties, and we do not, in giving our opinion, accept or assume responsibility or liability for any other purpose or to any other parties to whom our report may be shown or into whose hands it may come.
7. You will indemnify and hold harmless PwC Bağımsız Denetim ve SMMM A.Ş. (PwC Türkiye), its partners and other employees from any claim and costs related to claims occasioned thereby by any party which arises because of, or is connected with, their obtaining Information from you.
8. This agreement sets out the entire agreement between you and PwC Türkiye in relation to your access to the Information. It replaces all prior agreements or understandings (if any) between you and PwC Türkiye in that regard.

# Contents

1. Independent Practitioner’s Assurance Report.....	2
2. Management’s Statement of Compliance .....	4
3. Borsa İstanbul Organization and Business .....	5
3.1. Overview of Business and Operations.....	5
3.1.1 The List of Borsa İstanbul Financial Benchmarks Compliant with IOSCO Principles.....	6
4. Individual Principles and Responses.....	8
4.1. Borsa İstanbul’s Statement of Compliance with the IOSCO Principles for Financial Benchmarks: Individual Principles and Responses.....	8
4.1.1. Principle 1: Overall Responsibility of the Administrator .....	9
4.1.2. Principle 2: Oversight of Third Parties.....	10
4.1.3. Principle 3: Conflicts of Interest for Administrators .....	11
4.1.4. Principle 4: Control Framework.....	13
4.1.5. Principle 5: Internal Oversight .....	15
4.1.6. Principle 6: Benchmark Design .....	17
4.1.7. Principle 7: Data Sufficiency .....	17
4.1.8. Principle 8: Hierarchy of Data Inputs .....	18
4.1.9. Principle 9: Transparency of Benchmark Determinations .....	19
4.1.10. Principle 10: Periodic Review.....	20
4.1.11. Principle 11: Content of Methodology .....	20
4.1.12. Principle 12: Changes to Methodology.....	22
4.1.13. Principle 13: Transition.....	23
4.1.14. Principle 14: Submitter Code of Conduct.....	24
4.1.15. Principle 15: Internal Controls over Data Collection.....	25
4.1.16. Principle 16: Complaints Procedures .....	26
4.1.17. Principle 17: Audits .....	26
4.1.18. Principle 18: Audit Trail .....	27
4.1.19. Principle 19: Cooperation with Regulatory Authorities.....	28
<i>ABBREVIATIONS.....</i>	<i>29</i>

# 1. Independent Practitioner's Assurance Report

---



## **Independent practitioner's reasonable assurance report on Borsa İstanbul A.Ş.'s Statement of Compliance with the IOSCO Principles for Financial Benchmarks**

To the Board of Directors of Borsa İstanbul A.Ş.

### **Scope**

We have undertaken a reasonable assurance engagement of the accompanying Borsa İstanbul A.Ş.'s ("Borsa İstanbul") Statement of Compliance with the International Organization of Securities Commissions ("IOSCO") Principles for Financial Benchmarks set out on page 4 in Section 2 and responses to the individual IOSCO Principles provisions described in the "Borsa İstanbul's Response" column on pages 9-28 in Section 4, throughout the period from 1 January 2023 to 31 March 2023.

### **Responsibilities of Borsa İstanbul**

Borsa İstanbul is responsible for designing, implementing and monitoring the procedures and processes that achieve compliance with the IOSCO Principles for Financial Benchmarks as well as for preparing the Management's Statement of Compliance with the above Principles/Regulation set out on page 4 in Section 2, and the responses to the individual IOSCO Principles provisions set out on pages 9-28 in Section 4.

### **Our Responsibilities**

Our responsibility is to express a reasonable assurance opinion on Borsa İstanbul's IOSCO Compliance Statement based on evidence we have obtained. We conducted our engagement in accordance with International Standard on Assurance Engagements 3000 "Assurance Engagements other than Audits or Reviews of Historical Financial Information" (ISAE 3000 (revised)).

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, Management's Statement of Compliance set out in Section 2, and the responses to the individual IOSCO Principles provisions set out in Section 4, is fairly stated, in all material respects throughout the period from 1 January 2023 to 31 March 2023. Our examination included obtaining through observation, inspection, representation, inquiry and examination, on a sample basis, of the evidence supporting the assertions necessary for rendering our opinion. Our procedures are described in "Procedure performed by PwC Türkiye and their results" Section 4.

Our engagement did not include an examination of adherence to the Financial Benchmark Methodology of any individual Financial Benchmark administered by Borsa İstanbul.



### ***Our Independence and Quality Management***

We have complied with the independence and other ethical requirements of the International Code of Ethics for Professional Accountants (including International Independence Standards) issued by the International Ethics Standard Board for Accountants (IESBA Code), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

The firm applies International Standard on Quality Management 1, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

### ***Inherent Limitations***

Our examination procedures are subject to inherent limitations and, accordingly, errors or irregularities may occur and not be detected. Such procedures cannot guarantee protection against fraudulent collusion or misrepresentation especially on the part of those holding positions of authority or trust, and our work was not specifically designed to detect fraud, deliberate misstatement or criminal acts. Furthermore, our opinion is based on historical information and the projection of any information or conclusions to any future periods is inappropriate. The IOSCO Compliance Statement of Borsa İstanbul and our assurance report cannot in any way serve as a substitute for enquiries or other procedures that third parties would or should undertake and judgements, they should make for the purpose of satisfying themselves regarding any matters of interest to them. To the extent permitted by law, PwC Türkiye, its members, employees do not accept or assume any liability, responsibility or duty of care for any consequences of anyone third party acting, or refraining to act, in reliance on the information contained in this report or for any decision based on it.

### ***Conclusion***

In our opinion, based on the results of our procedures, the IOSCO Compliance Statement of Borsa İstanbul for the period from 1 January 2023 to 31 March 2023, including the responses to the individual IOSCO Principles for Financial Benchmarks set out in Section 4, is fairly stated, in all material respects.

### ***Use of Our Report***

This report is intended for the use of Borsa İstanbul. It may also be provided, in full only and accompanied by the IOSCO Compliance Statement of Borsa İstanbul to which it relates, to the existing and prospective customers of Borsa İstanbul and to the relevant regulatory authorities, without giving rise to any liability or duty on our part to such parties. Our report should not be used by other parties, and we do not, in giving our opinion, accept or assume responsibility or liability for any other purpose or to any other parties to whom our report may be shown or into whose hands it may come.

PwC Bağımsız Denetim ve Serbest Muhasebeci Mali Müşavirlik A.Ş.

Zeynep URAS  
11.05.2023

## 2. Management's Statement of Compliance

---

As Directors of Borsa İstanbul, we are responsible for ensuring that Borsa İstanbul complies with the Principles for Financial Benchmarks published by the International Organization of Securities Commissions (IOSCO) as of 31 December 2022, and

This includes responsibility for designing, implementing and monitoring compliance with policies and procedures that achieve compliance with the IOSCO Principles. We are also responsible for preparing a statement of compliance with the IOSCO Principles, including our responses to the individual IOSCO Principles, which is free of misstatement, whether due to fraud or error. It also includes selecting the criteria against which to measure the fair assertion of the statement of compliance.

We confirm that Borsa İstanbul has designed and implemented specific activities to comply with the IOSCO Principles for all Borsa İstanbul administered Financial Benchmarks.

We have evaluated the effectiveness of Borsa İstanbul's governance and processes regarding the International Standard on Assurance Engagements 3000 "Assurance Engagements other than Audits or Reviews of Historical Information" (ISAE 3000 (revised)) and the IOSCO Principles.

We have prepared the accompanying description Section 4 to set out the details of Borsa İstanbul's compliance with the IOSCO Principles (Section 4), together with the related activities in operation throughout the period from 1 January 2023 to 31 March 2023 with respect to the IOSCO Principles.

We confirm that to the best of our knowledge and belief the accompanying description in Section 4 are fairly stated in that it presents the activities undertaken by Borsa İstanbul to achieve compliance with the IOSCO Principles. The criteria we used in making this assertion were that the accompanying description:

Presents how Borsa İstanbul's policies and processes with respect to its compliance with the IOSCO Principles were designed, implemented and operating effectively throughout the period from 1 January 2023 to 31 March 2023 with respect to the IOSCO Principles.

Does not omit or distort information relevant to the scope of Borsa İstanbul's policies and processes being described throughout the period from 1 January 2023 to 31 March 2023 with respect to the IOSCO Principles, while acknowledging that the description is prepared to meet the common needs of a broad range of users and may not therefore include every aspect of Borsa İstanbul's procedures and processes that individual users may consider important in their own particular environment and circumstances.

Levent BİLGİN  
Endeks Direktörü  
11.05.2023

Murat BULUT  
Genel Müdür Yardımcısı  
11.05.2023

## 3. Borsa İstanbul Organization and Business

### 3.1. Overview of Business and Operations

#### About Borsa İstanbul

With its roots dating back to 1873, Borsa İstanbul A.Ş. is the regulated market of Türkiye. Extending from Dersaadet Tahvilat Borsası to formerly known İstanbul Menkul Kıymetler Borsası - İMKB (İstanbul Stock Exchange) in 1985, Borsa İstanbul adopted a new vision in 2012 by completing its horizontal integration (merger with derivatives and precious metals exchanges) and vertical integration (majority shareholder status at İstanbul Settlement and Custody Bank (Takasbank) and Central Securities Depository of Türkiye (MKK)). Pursuant to Article 138 of the enacted Capital Markets Law No. 6362 (CML) published in the Official Gazette on December 30, 2012, Borsa İstanbul A.Ş. was formed for the purpose of serving as a securities exchange. Accordingly, Borsa İstanbul Exchange Group structure, providing access to Turkish capital markets with a wide range of financial services, was established. With an integrated business model, Borsa İstanbul Exchange Group offers listing, trading, settlement and custody operations of capital markets instruments, notably equities, derivative products, fixed-income securities, precious metals and diamonds and Islamic finance products.

In an effort to harmonize the Turkish capital markets regulation with the EU *acquis* and improve the integration of the Turkish capital markets with the global markets and enhance competitiveness thereof, Turkish law maker enacted the CML as a reform making law, bringing about not only liberalization of the activity of running organized markets, but also re-structuring and re-branding of İMKB as Borsa İstanbul.

Borsa İstanbul brings together all the exchange operations in the Turkish capital markets under a single roof. Its Articles of Association was prepared by the Capital Markets Board of Türkiye, and following its approval by the Minister in charge, it was registered on April 3, 2013, thereby receiving a foundation and operation permit; and eventually completing the process of re-branding of İMKB as Borsa İstanbul. Established on the basis of CML, Borsa İstanbul is subject to private law. Borsa İstanbul is a self-regulatory entity.

Borsa İstanbul is a regulated market of Türkiye and is subject to regulation by the CMB. It has received a positive assessment from the European Securities and Markets Authority (ESMA), the EU's securities market regulator, and is listed as third-country trading venue ([TCTV](#)) that meets the post-trade transparency requirements under MiFID II and MiFIR.

The main purpose and field of activity of Borsa İstanbul is described as follows: "In accordance with the provisions of the Law and the related legislation, to ensure that capital markets instruments, foreign currencies, precious metals and gems, and other contracts, documents, and assets approved by the Capital Markets Board of Türkiye are traded subject to free trade conditions in a facile and secure manner, in a transparent, efficient, competitive, fair and stable environment; to create, establish and develop markets, sub-markets, platforms, systems and other organized market places for the purpose of matching or facilitating the matching of the buy and sell orders for the above mentioned assets and to determine and announce the discovered prices; to manage and/or operate the aforementioned or other exchanges or markets of other exchanges; and to carry out the other activities listed in its Articles of Association."

In line with the activities, Borsa İstanbul calculates variety of indices and rates to follow the movements of markets, to be an underlying asset for the financial products, and to be used as a benchmark for collective investment instruments.

Within this framework, Borsa İstanbul calculates;

- Stock Indices, designed to measure the market performance of stocks trading on Equity Market,
- BIST-KYD Indices, designed to track the returns of variety of financial instruments such as debt securities, gold, bank deposit, profit share and mutual funds,
- Risk Control Indices, for the investors who want to limit the volatility of their investment on an equity index and/or a market,
- Leveraged and Short Indices, to reflect the performance of the reference index (underlying index) with a certain leverage ratio in the same direction or in the opposite direction,
- Gold Denominated Indices, to measure daily returns of gold prices and daily returns of gold bonds and gold denominated lease certificates issued by Ministry of Treasury and Finance and Ministry of Treasury and Finance Asset Leasing Company,
- TLREF Turkish Lira Overnight Reference Rate and BIST TLREF Index, which is created in order to track the returns of TLREF rate that is calculated by using the overnight repo transactions, that are secured by TL denominated government debt securities and realized on Borsa İstanbul Repo-Reverse Repo Market,
- TLREFK Turkish Lira Overnight Participation Reference Rate and BIST TLREFK Index, which is created in order to track the returns of TLREFK rate that is calculated by using the return rates that are realized on Borsa İstanbul Committed Transactions Market,
- Customized Stock Indices, designed to suit clients' unique mandates or investment strategies.

More information is available on [Borsa İstanbul official website](#).

### 3.1.1 The List of Borsa İstanbul Financial Benchmarks Compliant with IOSCO Principles

This Statement of Compliance relates to the Borsa İstanbul Financial Benchmarks listed below as of the date of this report. US Dollar and Euro versions of all TL denominated indices listed below are also compliant with the IOSCO Principles.

#### BIST Stock Indices (\*)

Code	Name in Turkish	Name in English
XU100	BIST 100	BIST 100
XU050	BIST 50	BIST 50
XU030	BIST 30	BIST 30
XLBNK	BIST LIKIT BANKA	BIST LIQUID BANKS
X10XB	BIST BANKA DISI LIKIT 10	BIST LIQUID 10 EX BANKS
XUTUM	BIST TUM	BIST ALL SHARES
X030EA	BIST 30 ESIT AGIRLIKLI GETIRI	BIST 30 EQUAL WEIGHTED RETURN
XK030EA	BIST KATILIM 30 ESIT AGIRLIKLI GETIRI	BIST PARTICIPATION 30 EQUAL WEIGHTED RETURN
XYLDZ	BIST YILDIZ	BIST STARS
XBANA	BIST ANA	BIST MAIN
XHARZ	BIST HALKA ARZ	BIST IPO
XKOBI	BIST KOBİ SANAYİ	BIST SME INDUSTRIAL
XTMTU	BIST TEMETTU	BIST DIVIDEND
XTM25	BIST TEMETTU 25	BIST DIVIDEND 25
XKTUM	BIST KATILIM TUM	BIST PARTICIPATION ALL SHARES
XK100	BIST KATILIM 100	BIST PARTICIPATION 100
XK050	BIST KATILIM 50	BIST PARTICIPATION 50
XK030	BIST KATILIM 30	BIST PARTICIPATION 30
XSRDK	BIST KATILIM SÜRDÜRÜLEBİLİRLİK	BIST PARTICIPATION SUSTAINABILITY
XKTMT	BIST KATILIM TEMETTU	BIST PARTICIPATION DIVIDEND
XKURY	BIST KURUMSAL YÖNETİM	BIST CORPORATE GOVERNANCE
XUSRD	BIST SÜRDÜRÜLEBİLİRLİK	BIST SUSTAINABILITY
XSD25	BIST SÜRDÜRÜLEBİLİRLİK 25	BIST SUSTAINABILITY 25
XUSIN	BIST SİNAI	BIST INDUSTRIALS
XUHIZ	BIST HİZMETLER	BIST SERVICES
XUMAL	BIST MALİ	BIST FINANCIALS
XBANK	BIST BANKA	BIST BANKS
XUTEK	BIST TEKNOLOJİ	BIST TECHNOLOGY
XTKJS	BIST TEKNOLOJİ AĞIRLIK SINIRLAMALI	BIST TECHNOLOGY CAPPED

(\*): Both total return and price versions of these indices are compliant with the IOSCO Principles.



**BIST-KYD Indices**

<b>Name of the Index Family in Turkish</b>	<b>Name of the Index Family in English</b>
BIST-KYD DIBS ENDEKSLERİ	BIST-KYD GDS INDICES
BIST-KYD TUFE ENDEKSI	BIST-KYD CPI INDEXED GOVERNMENT BOND INDICES
BIST-KYD KIRA SERTİFİKALARI ENDEKSLERİ	BIST-KYD LEASE CERTIFICATE INDICES
BIST-KYD KAMU KIRA SERTİFİKALARI USD ENDEKSLERİ	BIST-KYD GOVERNMENT LEASE CERTIFICATES USD INDICES
BIST-KYD OSBA ENDEKSLERİ	BIST-KYD CORPORATE BOND INDICES
BIST-KYD KAMU EUROBOND ENDEKSLERİ	BIST-KYD GOVERNMENT EUROBOND INDICES
BIST-KYD OSBA EUROBOND ENDEKSLERİ	BIST-KYD CORPORATE EUROBOND INDICES
BIST-KYD REPO ENDEKSLERİ	BIST-KYD REPO INDICES
BIST-KYD ALTIN FİYAT ENDEKSLERİ	BIST-KYD GOLD PRICE INDICES

**BIST Gold Denominated Indices**

<b>Code</b>	<b>Name in Turkish</b>	<b>Name in English</b>
ALTSPT	BIST SPOT ALTIN	BIST SPOT GOLD
ALTKST	BIST ALTINA DAYALI KIRA SERTİFİKASI	BIST GOLD DENOMINATED LEASE CERTIFICATE
ALTTHV	BIST ALTIN TAHVİLİ	BIST GOLD BOND
ATKMP	BIST ALTIN	BIST GOLD

**Reference Rate**

<b>Code</b>	<b>Name in Turkish</b>	<b>Name in English</b>
TLREF	TURK LIRASI GECELIK REFERANS FAİZ ORANI	TURKISH LIRA OVERNIGHT REFERENCE RATE
BISTTLREF	BIST TLREF ENDEKSI	BIST TLREF INDEX

## **4. Individual Principles and Responses**

---

### **4.1. Borsa İstanbul's Statement of Compliance with the IOSCO Principles for Financial Benchmarks: Individual Principles and Responses**

The information presented in Section 4 below sets out the response of Borsa İstanbul in terms of how it meets the objectives and functions of the IOSCO Principles for Financial Benchmarks (Section 4). The accompanying "Work performed by PwC Türkiye" summarizes the work performed by PwC Türkiye to validate that the relevant processes and procedures described in Borsa İstanbul's response are fairly stated and were effectively performed in the period under examination. This section supports PwC Türkiye assurance report of Report.

As part of the examination of Borsa İstanbul's responses, PwC Türkiye has performed a variety of tests to provide reasonable assurance that the IOSCO, including the responses to the individual IOSCO Principles, set out in Section 4, is fairly stated, in all material respects and that Borsa İstanbul's procedures and processes with respect to its compliance with the IOSCO Principles were designed, and implemented and operating effectively throughout the period from 1 January 2023 to 31 March 2023.

## A. GOVERNANCE

### IOSCO Principle

A Benchmark should have appropriate governance arrangements in place to protect the integrity of the Benchmark and to address conflicts of interests.

### Borsa İstanbul's Response

To protect the integrity of its Financial Benchmarks, Borsa İstanbul maintains a sound and efficient governance and Control Framework to manage quality of the Financial Benchmark and address potential conflicts of interests.

Borsa İstanbul, enacts "The Directive", which was created to regulate the procedures and principles regarding the creation, calculation, publication, operations, audit and administration of Financial Benchmarks in compliance with the IOSCO Principles. The Directive is based on Article 29/A of "The Regulation on Principles of Foundation, Activities, Operations and Audit of Exchanges and Market Operators" and Article 32/A of "Borsa İstanbul A.Ş. Regulation on Principles Relating to Exchange Activities", which are enacted by CMB.

Besides, based on the aforementioned Directive, Borsa İstanbul has published "The Management Procedure", "The Conflicts of Interest Procedure", "The Whistleblowing Procedure" and "The Complaint Procedure". All of these regulations create an overarching regulatory framework for Borsa İstanbul's Financial Benchmarks, focusing on the governance arrangements, accountability and the quality of the Financial Benchmark and the Methodology.

Aforementioned [regulations, directive and procedures](#) are publicly available on Borsa İstanbul official website.

#### 4.1.1. Principle 1: Overall Responsibility of the Administrator

### IOSCO Principle 1

The Administrator should retain primary responsibility for all aspects of the Benchmark determination process. For example, this includes:

Development: The definition of the Benchmark and Benchmark Methodology;

Determination and Dissemination: Accurate and timely compilation and publication and distribution of the Benchmark;

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

Governance: Establishing credible and transparent governance, oversight and accountability procedures for the Benchmark determination process, including an identifiable oversight function accountable for the development, issuance and operation of the Benchmark.

### Borsa İstanbul's Response

Borsa İstanbul maintains responsibility over all aspects of the Financial Benchmark determination process.

- a) Borsa İstanbul, supported by committees which are part of the governance structure as described in Article 4 and 5 of The Management Procedure, is responsible for the development of Financial Benchmarks as well as Benchmark Methodologies.

Benchmark Methodologies set out the definition and practice to be followed for the construction and ongoing operations of the Financial Benchmarks. Benchmark Methodologies of existing Financial Benchmarks are updated regularly to ensure they continue to reflect market practice.

Financial Benchmark development process is supervised by The Committee described in Article 5 of The Management Procedure. Benchmark Methodologies are also reviewed for compliance with legislation and internal regulations by the "Risk Management, Internal Control and Compliance Directorate" of Borsa İstanbul. Afterwards they are reviewed and approved by the "Decision-making Body" determined in Article 4 of The Management Procedure.

All [Benchmark Methodologies](#) are publicly available on Borsa İstanbul official website.

- b) Financial Benchmark calculation and dissemination processes are automated at Borsa İstanbul. The process of Financial Benchmarks dissemination follows the process of their calculation. In order to ensure the reliability and integrity of the Financial Benchmarks, Borsa İstanbul performs the calculation and dissemination of the Financial Benchmarks with appropriate software and hardware systems, controls the data used in the calculation of the Financial Benchmarks to the extent possible and includes them in the calculations. The responsibility for the dissemination of Financial Benchmarks to its licensed direct clients

and licensed intermediaries (such as data vendors) is defined within Borsa İstanbul's contractual arrangements for benchmark and data services licensing.

- c) Decisions affecting the determination of the Financial Benchmark are relayed via [Index Announcements](#) on the Borsa İstanbul official website (for example changes in Constituent List and Benchmark Methodologies).

Respective Benchmark Methodologies contain provisions concerning Financial Benchmark determination processes in case of absence or insufficient inputs and technical deficiencies. In such cases, Borsa İstanbul is responsible for undertaking measures to ensure the accuracy of the Financial Benchmark. Borsa İstanbul backs up the software and hardware systems used in all processes, including the development, determination and dissemination of Financial Benchmarks.

Borsa İstanbul has a [Business Continuity Policy](#) in place to cover disruptions both to technical and office infrastructure, thus ensuring the continuity of the business. All employees of Borsa İstanbul attend annual trainings concerning internal policies aimed at business continuity and prevention of infrastructure disruptions.

- d) The Committee provides governance and internal oversight in regarding all aspects of Financial Benchmark determination activity. Responsibilities of The Committee include, without limitation, overseeing Financial Benchmark determination activity undertaken by the employees of Borsa İstanbul, including reviewing and challenging all aspects of (i) Benchmark design, (ii) the integrity of Financial Benchmark determination processes, and (iii) relevant Control Frameworks. The roles and responsibilities of The Committee are further described in The Management Procedure.

#### Work performed by PwC Türkiye

Reviewed statement 4 & 5 & 6 "Decision-making Body", "Financial Benchmarks Committee" and "Determination, Creation, Calculation and Dissemination of Financial Benchmarks" in "The Management Procedure" and validated that these procedures address the elements recommended by IOSCO Principle 1.

Reviewed the operational procedures documents of Borsa İstanbul, such as the Operational Handbooks (of BIST Stock Indices, BIST KYD Indices, BIST Gold Denominated Indices, TLREF and BIST TLREF Index), The Management Procedure, Business Continuity Plan and verified that the benchmark determination tasks specified in "Benchmark Methodologies" were appropriately reflected in those documents.

For a sample of Financial Benchmarks, inspected evidence that periodic benchmarks reviews with respect to benchmark construction and methodology execution were performed in accordance with the Borsa İstanbul policies.

Inspected evidence that Borsa İstanbul's Financial Benchmark governance structure had been placed operation and that the decision processes regarding the Financial Benchmarks are in compliance with the "Management Procedure" and "Benchmark Methodologies", and work performed regarding the internal oversight function is described under Principle 5.

Work performed regarding the Financial Benchmark determination process is described under Principle 9.

Work performed regarding the handling of complaints is described under Principle 16.

No exceptions noted.

### 4.1.2. Principle 2: Oversight of Third Parties

#### IOSCO Principle 2

Where activities relating to the Benchmark determination process are undertaken by third parties – for example collection of inputs, publication or where a 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:

- a) 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;
- b) Monitor third parties' compliance with the standards set out by the Administrator;
- c) Make available to Stakeholders and any relevant Regulatory Authority the identity and roles of third parties who participate in the Benchmark determination process; and
- d) Take reasonable steps, including contingency plans, to avoid undue operational risk related to the participation of third parties in the Benchmark determination process.

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.

## Borsa İstanbul's Response

Borsa İstanbul may outsource certain activities of the Financial Benchmark determination processes to third parties and monitors and controls outsourcing and data supply processes accordingly. Principles regarding outsourcing and data procurement are regulated in Article 6.6. of The Management Procedure.

Borsa İstanbul, does not have any Financial Benchmark calculated by a third party but uses a number of third-party data in determination of Financial Benchmarks.

Some of those data including sustainability scores, bond prices, gold prices and currency exchange rates are provided by data vendors such as Bloomberg and Refinitiv. Borsa İstanbul has written agreements with its outsourcing partners, which define the roles and obligations of parties and provisions regarding termination of the service.

Other third-party data including currency exchange rates and CPI (Consumer Price Index published by Turkish Statistical Institute) based Reference Index Values are publicly available in official websites of specific state-owned institutions authorized by law to make the related data available to the public such as Central Bank of Türkiye and Ministry of Treasury and Finance.

Borsa İstanbul asks its Licensees' and Stakeholders' opinions which third party data to use in Financial Benchmarks during the design phase and choose the data that are widely used by financial institutions and market professionals as a market standard. Borsa İstanbul takes third party's experience and reliability, and potential conflicts of interest into consideration before choosing the third party.

All data used in determination of Financial Benchmarks and their providers are stated in respective Benchmark Methodologies. The Committee reviews third party data used in the determination of Financial Benchmarks at least once a year in order to ensure that the data and the third party comply with the intended service levels and standards.

## Work performed by PwC Türkiye

Reviewed statement 6.6 "Outsourcing of Services in Creation and Calculation of Financial Benchmarks" in "The Management Procedure" and validated that it addresses the recommendations by IOSCO Principle 2.

Acquired a complete list of Borsa İstanbul third-party data vendors and investigated about their roles.

On a sample basis, inspected evidence of written agreements between Borsa İstanbul and third parties and determined that they included the elements defined in The Management Procedure.

On a sample basis, inspected evidence of reviews between Stakeholders and The Committee via emails.

No exceptions noted.

### 4.1.3. Principle 3: Conflicts of Interest for Administrators

## IOSCO Principle 3

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. Administrators should disclose any material conflicts of interest to their users and any relevant Regulatory Authority, if any. 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:

- a) Existing or potential conflicts of interest do not inappropriately influence Benchmark determinations;
- b) Personal interests and connections or business connections do not compromise the Administrator's performance of its functions;
- c) 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 such conflicts;
- d) Adequate supervision and sign-off by authorized or qualified employees prior to releasing Benchmark determinations;
- 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;
- 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

- 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.

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:

- 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
- 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.

### **Borsa İstanbul's Response**

Borsa İstanbul's employees are restricted from participating in trading activities according to Article 23 of "Regulation on Establishment, Activity, Working and Audit Principles of Exchanges and Market Operators", thus no material conflict of interests may arise.

Since Borsa İstanbul is a regulated market of Türkiye and is subject to regulation by the CMB, Borsa İstanbul's business connections do not cause any conflict of interest in relation to Financial Benchmarks. Borsa İstanbul's revenue may include fees linked to financial products based on its Financial Benchmarks licensed to clients and being traded on its platforms, such as Derivatives Market. However, Borsa İstanbul provides only the trading infrastructure and does not hold any position in the Financial Benchmarks directly or indirectly.

Borsa İstanbul enforces policies and procedures, which are periodically reviewed by The Committee, to mitigate and avoid conflicts of interest in determination of Financial Benchmarks. Additionally, Borsa İstanbul enacts The Conflicts of Interest Procedure and employees are subject to continuous training on ethics, prevention of conflicts of interest, information security and confidentiality. Borsa İstanbul has organized the management and supervision of its Benchmark Administration activity in a manner which seeks to manage and mitigate conflicts of interest that may arise.

Only publicly available information is used in Financial Benchmark determination processes. Benchmark Methodologies are based on objective rules and publicly available on Borsa İstanbul official website. Benchmark Methodology changes are announced and the data used in Financial Benchmark determination processes are disseminated transparently. All employees of Borsa İstanbul, including The Committee are required to sign "Declaration of Information Security and Confidentiality" and conduct their business activities in line with well documented processes and procedures established in relation to the administration of Financial Benchmarks and in accordance with The Conflicts of Interest Procedure, other internal regulations and relevant laws. Only the authorized employees can participate in and no one apart from them can influence the Financial Benchmark determination processes. Thus, there is no conflict of interest arising from the employees and the Borsa İstanbul's ownership structure.

Financial Benchmark determinations and disseminations are performed by automated and redundant systems which are subject to proper user acceptance tests and predefined release management arrangements. All data used in the determination processes input automatically from integrated systems as much as possible and four-eyes principle is applied to the data which needs human intervention. All systems and processes are well structured so that only authorized employees can access and all accesses are reported. Additionally, Financial Benchmark determination processes are supervised by senior employees daily in order to ensure that they are performed adequately.

The goals, rewards and incentives for the employees involved in the administration and determination of Financial Benchmarks are not directly or indirectly tied to the performance of the Financial Benchmarks.

Borsa İstanbul currently has not identified any material conflicts of interest arising from its business relationships or ownership structure. Borsa İstanbul is committed to disclose such material conflicts of interest should they arise according to Article 10.3 of The Management Procedure.

### **Work performed by PwC Türkiye**

Reviewed "The Conflicts of Interest Procedure" and statement 10 "Prevention of Conflicts of Interest in Financial Benchmarks" in "The Management Procedure" and validated that they address the elements recommended by IOSCO Principle 3.

For a sample of Borsa İstanbul employees, inspected evidence that the authorizations of each user of the Index Calculation System (ICS) are defined according to their own level and the operator does not have authorization to approve.

On a sample basis, inspected evidence of a formal confirmation of compliance with the above procedures by new and existing employees and inspected their "Declaration of Information Security and Confidentiality".

On a sample basis, inspected evidence that automatic operation confirmation e-mails are received smoothly and completely.

No exceptions noted.

#### 4.1.4. Principle 4: Control Framework

##### IOSCO Principle 4

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 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.

This control framework should be reviewed periodically and updated as appropriate. The framework should address the following areas:

- a) Conflicts of interest in line with Principle 3 on conflicts of interests;
- b) Integrity and quality of Benchmark determination:
  - 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;
  - ii. Arrangements to promote the integrity of Benchmark inputs, including adequate due diligence on input sources;
  - iii. Arrangements to ensure accountability and complaints mechanisms are effective, in line with principles 16 to 19; and
  - iv. Providing robust infrastructure, policies and procedures for the management of risk, including operational risk.
- c) Whistleblowing mechanism: 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.
- d) Expertise:
  - 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
  - ii. Staff training, including ethics and conflicts of interest training, and continuity and succession planning for personnel.

##### Where a Benchmark is based on Submissions:

Administrators should promote the integrity of inputs by:

- 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;
- 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;
- c) Specifying how frequently Submissions should be made and specifying that inputs or Submissions should be made for every Benchmark determination; and
- 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.

##### Borsa İstanbul's Response

Borsa İstanbul is a regulated market of Türkiye, is subject to regulation by the CMB and it is listed by ESMA as Third Country Trading Venue that meets the post-trade transparency requirements under MiFID II and MiFIR.

Borsa İstanbul has implemented a well-documented risk-based Control Framework in all areas of the Financial Benchmark administration process. Areas include:

- i. Financial Benchmark design, launch and cessation;
- ii. changes to Benchmark Methodology;



- iii. periodic index review and adjustment;
- iv. Financial Benchmark monitoring and surveillance;
- v. processing of input data and corporate actions;
- vi. incident and unexpected event management.

In addition, the Control Framework covers IT general controls, such as controls over access rights, application change management and data security.

The Committee is responsible for identifying risks in Financial Benchmark administration, including conflicts of interest, operational issues and compliance aspects. It is also responsible for reviews of the Control Framework in terms of its design and operating effectiveness.

Borsa İstanbul's Control Framework addresses conflict of interest issues as explained in its response to IOSCO Principles 3 in detail.

Borsa İstanbul has taken necessary measures to ensure that the integrity and quality of the Financial Benchmarks are maintained in the determination processes. Actions taken by Borsa İstanbul, regarding the integrity and quality of the Financial Benchmarks including adequate due diligence on input sources, are explained in the responses to IOSCO Principles 6 – 15, under the main titles of "Quality of the Benchmark" and "Quality of the Methodology" in detail.

Borsa İstanbul has enacted The Whistleblowing Procedure in order to address and report any potential misconduct or irregularity. It has also implemented a dedicated accountability and complaints policy as explained in the responses to IOSCO Principles 16 – 19, under the main title of "Accountability" in detail.

All processes of Borsa İstanbul where the frameworks are determined by "[Borsa İstanbul A.Ş. Information Security Policy](#)", "[Borsa İstanbul A.Ş. IT Service Management System Policy](#)", "[Borsa İstanbul A.Ş. Business Continuity Policy](#)" and "[Borsa İstanbul A.Ş. Risk Management Policy](#)" are covered in the scope of corporate risk management system, internal control system and business continuity management system.

At Borsa İstanbul, the effective management of risks is a fundamental component of the corporate strategy and an important step in the successful execution of activities. Corporate risk management methodology was adopted to achieve continuous and timely identification, measurement and assessment, monitoring, mitigation and reporting of existing or potential risks which may have an impact on achieving the specified strategic objectives of the company. Three Lines of Defence model was adopted under corporate risk management framework. The main objective of this model is to manage and control risks which may prevent the realization of the corporate strategies and goals effectively, and to provide reasonable assurance to the senior management.

In the first line of defence, units are responsible for the management of their own risks by using corporate risk management tools designed by Borsa İstanbul's risk management function which stands in the second line of defence. Units are also responsible for designing a strong control environment. In this framework, as part of Borsa İstanbul's risk management procedures, the first line of defence comprises the following characteristics and control activities in order to manage, mitigate and/or avoid operational risks:

- Borsa İstanbul's Markets, services and applications run on an integrated, highly available and site resilient system. System is designed to be application and hardware redundant and site failover capable with no data loss.
- Roles and responsibilities of operation, application management and development teams are strictly defined. Only authorized employees can access production systems on a need-to-know basis and the access logs are recorded and reviewed accordingly.
- Newly developed applications which have external user interaction are subject to mandatory penetration tests before deployment into production.
- All software developments are subject to user acceptance tests and preplanned release management processes.
- In case production data are needed in test environments, customer sensitive data are obscured by database teams beforehand.
- Only confirmed data and/or data from secure sources are input into ICS. Alerts and alarms regarding data sufficiency, hierarchy of data or other potential problems such as unexpected price changes of index constituents and unchanged index values within a specific period, are produced in ICS and e-mailed to related users by the system.
- Four-eyes principle is applied if any human intervention is needed through the process.

In the second line of defense, "Risk Management, Internal Control and Compliance Directorate" designs corporate risk management and internal control systems and their tools and conducts efficiency and control design tests.

In the third line of defense, the "Audit and Surveillance Board", reports to the "Audit Committee" which is an organ of the Borsa İstanbul Board of Directors and consisting of members of the Board of Directors, performs an independent and objective audit activity to evaluate and improve the effectiveness and efficiency of Borsa İstanbul's



risk management, control and governance processes and to help Borsa İstanbul achieve its objectives, and shares the improvement suggestions regarding the deficiencies/weaknesses identified with the process owners.

In order to maintain business operations without any interruptions, Borsa İstanbul implements a business continuity management system which is awarded by ISO 22301 certificate. Borsa İstanbul also has ISO 27001 Information Security Management System certificate ensuring the safeguard of its information assets and ISO 20000 Information Technologies Service Management System certificate ensuring the quality and reliability of its services.

Borsa İstanbul has a dedicated human resource policy in place that addresses employee recruitment, (orientation, performance evaluation, training and succession planning. Borsa İstanbul business unit managers are responsible for the supervision and training of their employees and for adequate succession planning for all key employees, with the clear focus of ensuring proper business continuity. Besides external and internal technical training based on an individual training plan that is reviewed on an annual basis, Borsa İstanbul employees are subject to mandatory trainings on ethics, prevention of conflicts of interest, information security and confidentiality. A standardized and comprehensive individual performance assessment for all employees takes place on an annual basis. Performance assessments comprise of the expertise and competence levels of the employees involved in Benchmark determination processes.

Borsa İstanbul does not use Submissions in the determination of Financial Benchmarks.

### Work performed by PwC Türkiye

Inspected the formal documentation of Borsa İstanbul's Control Framework and validated that it covered the relevant areas of the benchmark administration process, such as index design, index creation and index cessation; index methodology updates; index review and adjustment; index monitoring; processing of input data and corporate actions; incident and unexpected event management.

Validated those individual controls related to the control objectives defined in Borsa İstanbul's Control Framework were suitably designed to mitigate the business risks they relate to, were placed in operation and operating effectively.

Reviewed "The Whistleblowing Procedure" and validated that it adequately addresses the recommendations of IOSCO Principle 4. Borsa İstanbul has represented to us that no whistleblowing cases occurred during the period of our examination. Therefore, we were unable to validate whether whistleblowing cases had been handled in accordance with Borsa İstanbul's Procedure.

Reviewed Borsa İstanbul's "The Directive" and, inspected evidence that the directive had been adhered to in all material aspects.

On a sample basis, inspected evidence that trainings were held on Borsa İstanbul's system and checked completion rate, points and consumed time.

No exceptions noted.

## 4.1.5. Principle 5: Internal Oversight

### IOSCO Principle 5

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.

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 otherwise complies with this Principle.

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:

- a) The terms of reference of the oversight function;
- b) Criteria to select members of the oversight function;
- 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.

The responsibilities of the oversight function include:

- a) Oversight of the Benchmark design:
  - i. Periodic review of the definition of the Benchmark and its Methodology;

- ii. Taking measures to remain informed about issues and risks to the Benchmark, as well as commissioning external reviews of the Benchmark (as appropriate);
  - 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 authorizing or requesting the Administrator to undertake a consultation with Stakeholders where known or its Subscribers on such changes as per Principle 12; and
  - 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.
- b) Oversight of the integrity of Benchmark determination and control framework:
- i. Overseeing the management and operation of the Benchmark, including activities related to Benchmark determination undertaken by a third party;
  - 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
  - iii. Overseeing any exercise of Expert Judgment by the Administrator and ensuring Published Methodologies have been followed.

**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:** the Administrator should establish an independent oversight function which includes a balanced representation of a range of Stakeholders where known, Subscribers and Submitters, which is chosen to counterbalance the relevant conflict of interest.

**Where a Benchmark is based on Submissions:** the oversight function should provide suitable oversight and challenge of the Submissions by:

- 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 analyzed, or querying the role of the Administrator in challenging or sampling unusual inputs or Submissions;
- b) Overseeing the Code of Conduct for Submitters;
- c) Establishing effective arrangements to address breaches of the Code of Conduct for Submitters; and
- 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.

### Borsa İstanbul's Response

Borsa İstanbul has an appropriate governance structure that oversees all stages of the Financial Benchmark administration process. Within this structure, "Decision-making Body" is mainly responsible for the oversight of the Benchmark determination process. The Committee provides "Decision-making Body" with its evaluations and proposals regarding the oversight of the Financial Benchmarks and "Decision-making Body" takes the decisions.

Duties, responsibilities and the membership structure of The Committee are stated in Article 5 of The Management Procedure.

### Work performed by PwC Türkiye

Reviewed statements 4 & 5 "Decision-making Body" and "Financial Benchmarks Committee" in "The Management Procedure" and validated that it addresses the recommendations of IOSCO Principle 5.

Inspected evidence that The Committee had been set up, held meetings as scheduled and acted according to their terms of reference.

On a sample basis, inspected change proposals of the compliance team made to benchmark methodologies and emails of The Committee opinions to those suggestions.

On a sample basis, verified that The Committee have acted in accordance with defined escalation trigger points and that meeting content has covered relevant issues based on their responsibilities and functions.

No further exceptions noted.

## B. QUALITY OF THE BENCHMARK

### 4.1.6. Principle 6: Benchmark Design

#### IOSCO Principle 6

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.

Benchmark design should take into account the following generic non-exclusive features, and other factors should be considered, as appropriate to the particular Interest:

- a) Adequacy of the sample used to represent the Interest;
- b) Size and liquidity of the relevant market (for example whether there is sufficient trading to provide observable, transparent pricing);
- c) Relative size of the underlying market in relation to the volume of trading in the market that references the Benchmark;
- d) The distribution of trading among Market Participants (market concentration); and
- e) Market dynamics (e.g., to ensure that the Benchmark reflects changes to the assets underpinning a Benchmark).

#### Borsa İstanbul's Response

While designing Financial Benchmarks, Borsa İstanbul aims to reflect the economic realities of the changes it aims to measure accurately and reliably. To achieve this goal, it eliminates the factors that may cause deterioration in the value of Financial Benchmark.

Borsa İstanbul considers the following in the design of the Financial Benchmarks, as appropriate:

- a) Use of appropriate and sufficient samples for the change that is aimed to be measured,
- b) Size and liquidity of the relevant market, efficiency of the market that references the Financial Benchmark,
- c) Comparison of the sizes of the market transactions, which are the basis for the calculation of the Financial Benchmark, and the transactions in the underlying market,
- d) The concentration of bids, asks and the trades, where appropriate, among market participants,
- e) Driving forces of the market.

The designs of the Financial Benchmarks and their determination processes are described in respective Benchmark Methodologies.

#### Work performed by PwC Türkiye

Examined and validated The Directive and statement 6 "Determination, Creation, Calculation and Dissemination of Financial Benchmarks" in "The Management Procedure" published by Borsa İstanbul and The Benchmark Methodologies are created in accordance with the IOSCO Principle 6.

For a sample of Borsa İstanbul's Financial Benchmarks, inspected evidence of compliance with the process and all elements defined in Borsa İstanbul's Benchmark Methodologies in response to IOSCO Principle 6.

Inspected evidence on the timely reflection of developments in the underlying reference markets by verifying that the published Financial Benchmarks were subject to periodic reviews.

No exceptions noted.

### 4.1.7. Principle 7: Data Sufficiency

#### IOSCO Principle 7

The data used to construct a Benchmark determination should be sufficient to accurately and reliably represent the Interest measured by the Benchmark and should:

- 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

- 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 function as a credible indicator of prices, rates, indices or values.

This Principle requires that a Benchmark be based upon (i.e., *anchored in*) 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.

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 Bona Fide, Arms-Length transactions. 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 behavior 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.

#### Borsa İstanbul's Response

When calculating Financial Benchmarks, Borsa İstanbul uses sufficient data to ensure that the changes it aims to measure are accurate and reliable, and its procedures and practices are in compliance with IOSCO Principles.

For each Financial Benchmark data sufficiency provisions are stated in respective Benchmark Methodologies.

The data that Borsa İstanbul uses are prices, rates, indices or values based on observable transactions between buyers and sellers that reflect market conditions.

Inputs are considered sufficient to produce the Financial Benchmark unless the conditions for the contingency arrangement are fulfilled. In that event, a pre-determined contingency procedure will be automatically triggered. Accordingly, pre-determined contingency procedures are stated in respective Benchmark Methodologies.

#### Work performed by PwC Türkiye

Reviewed Borsa İstanbul's Benchmark Methodologies and validated that it addresses the recommendations of IOSCO Principle 7.

For a sample of Financial Benchmarks prepared in accordance with The Directive, inspected evidence that the corresponding Benchmark Methodologies address the provisions regarding data sufficiency.

For a sample of three Financial Benchmarks for one day, inspected evidence that underlying market prices are maintained in accordance with the Benchmark Methodologies.

On a sample basis, validated that the Benchmark Methodologies include pre-determined contingency procedures, such a situation has never been encountered before. If encountered, the procedures are clearly explained in the relevant Benchmark Methodologies.

No exceptions noted.

### 4.1.8. Principle 8: Hierarchy of Data Inputs

#### IOSCO Principle 8

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:

- a) Where a Benchmark is dependent upon Submissions, the Submitters' own concluded arms-length transactions in the underlying interest or related markets;
- b) Reported or observed concluded Arm's-length Transactions in the underlying interest;
- c) Reported or observed concluded Arm's-length Transactions in related markets;
- d) Firm (executable) bids and offers; and
- e) Other market information or Expert Judgments.

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.

#### Borsa İstanbul's Response

TLREF (Turkish Lira Overnight Reference Rate) is calculated as the volume weighted mean rate, based upon the overnight repo transactions, that are realized on Borsa İstanbul Repo-Reverse Repo Market.

As an additional precaution, a TLREF Committee member, who has the opinion that the TLREF rate does not in any way reflect the effective overnight borrowing / lending interest rate due to CBRT's monetary policy practices or other reasons, shall promptly express this opinion to the Committee. The Committee evaluates the reasoning of the member and by majority of the votes, adopts the TLREF rate generated by the current Methodology, or adopts and announces a new rate representing the effective overnight borrowing / lending rate as TLREF rate. This rule has never applied since TLREF's launch in 2019.

Calculation methods, membership of the committees, the hierarchy of input data and all other details for each Financial Benchmarks are further explained in respective Benchmark Methodologies.

#### Work performed by PwC Türkiye

Reviewed statement 12 "Hierarchy of Data Inputs" in "The Directive" and validated that it addresses the recommendations of IOSCO Principle 8.

For a sample of Financial Benchmark Methodologies prepared in accordance with The Directive, verified that a clear description of the hierarchy of the data inputs is disclosed in the Benchmark Methodologies.

No exceptions noted.

### 4.1.9. Principle 9: Transparency of Benchmark Determinations

#### IOSCO Principle 9

The Administrator should describe and publish with each Benchmark determination, to the extent reasonable without delaying an Administrator publication deadline:

- 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 data that have been considered in a Benchmark determination; terms referring to the pricing Methodology should be included (i.e., transaction-based, spread-based or interpolated/extrapolated);
- 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.

#### Borsa İstanbul's Response

Borsa İstanbul is a regulated market of Türkiye, is subject to regulation by the CMB and has mandatory post-trade transparency requirements. It is also listed by ESMA as a Third Country Trading Venue that meets the post-trade transparency requirements under MiFID II and MiFIR.

Only publicly available information is used in Financial Benchmark determination processes. Financial Benchmarks administered by Borsa İstanbul are typically derived from data sourced from its own markets. For each Financial Benchmark, the relevant details including data inputs, selection criteria, formula, calculation and dissemination intervals and announcement dates are stated in respective Benchmark Methodologies which are based on objective rules and publicly available on Borsa İstanbul official website. Benchmark Methodology changes are announced and the data used in Financial Benchmark determination processes are disseminated transparently.

Borsa İstanbul explains in respective Benchmark Methodologies if any expert judgement is applied in benchmark determination processes and announces in its official website when it is applied.

### Work performed by PwC Türkiye

Reviewed statement 6 “Determination, Creation, Calculation and Dissemination of Financial Benchmarks” in “The Management Procedure” and validated that it addresses the recommendations of IOSCO Principle 9.

For a sample of Financial Benchmarks, validated that the Benchmark Methodologies include the relevant details on benchmark determination and comply with the provisions of “The Management Procedure” statement 6.

For a sample of Financial Benchmark Methodologies, inspected evidence that Borsa İstanbul prepared and published relevant details including data inputs, selection criteria, formula, calculation and dissemination intervals and announcement dates are stated in respective Benchmark Methodologies which are based on objective rules and publicly available on Borsa İstanbul’s official website.

For a sample of Financial Benchmark determination processes, inspected evidence and no Expert Judgment was found.

No exceptions noted.

#### 4.1.10. Principle 10: Periodic Review

### IOSCO Principle 10

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.

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.

### Borsa İstanbul’s Response

The Committee conducts general reviews on a periodic and ad-hoc basis to determine whether the underlying interest that the Financial Benchmark measures has undergone a structural change and presents its opinions to the “Decision-making Body”.

In addition to periodic and non-periodic reviews, external revision requests are also taken into account in the process of determining whether there is a need for revision in the Financial Benchmarks and Benchmark Methodologies.

As a result of these activities, all changes that are decided to be made in the Financial Benchmarks and Benchmark Methodologies are published on Borsa İstanbul official website before they are being implemented. A summary of such reviews where material changes have been made to a Benchmark Methodology is made publicly available on the “[Methodologies and Changes](#)” section of the Borsa İstanbul website.

### Work performed by PwC Türkiye

Reviewed statement 7.8 “Review of Definition and Methodology of Financial Benchmarks” in “The Management Procedure” and validated that it addresses the recommendations of IOSCO Principle 10.

On a sample basis, in the analysis made regarding the review of the Financial Benchmarks and Methodologies, examined The Committee minutes, the e-mails regarding the review of the Methodologies, the evaluations submitted to the Decision Making Body and the change announcements published on the Borsa İstanbul corporate website, and verified that the process was carried out in accordance with the relevant procedures.

For a sample of non-periodic reviews, observed that external revision requests are taken into account in the process of determining whether there is a need for revision in the Financial Benchmarks and Benchmark Methodologies.

No exceptions noted.

## C. QUALITY OF THE METHODOLOGY

#### 4.1.11. Principle 11: Content of Methodology

### IOSCO Principle 11

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. At a minimum, the Methodology should contain:



- a) Definitions of key terms;
- 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;
- c) Procedures and practices designed to promote consistency in the exercise of Expert Judgment between Benchmark determinations;
- 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);
- e) The procedures for dealing with error reports, including when a revision of a Benchmark would be applicable;
- 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;
- g) The circumstances and procedures under which the Administrator will consult with Stakeholders, as appropriate; and
- h) The identification of potential limitations of a Benchmark, including its operation in illiquid or fragmented markets and the possible concentration of inputs.

**Where a Benchmark is based on Submissions, the additional Principle also applies:**

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.

### **Borsa İstanbul's Response**

Benchmark Methodologies detail the determination process of each Financial Benchmark and provide sufficient information (including the rationale for the method it chooses) for Stakeholders to understand how the Financial Benchmark is constructed, maintained and whether it is suitable to use as a reference in financial products.

Created by Borsa İstanbul, Benchmark Methodologies are designed to limit subjectivity and contain at least the following information;

- a) Definition of the key terms frequently used in the Benchmark Methodologies,
- b) All criteria and procedures for determining the Financial Benchmark, such as the data inputs used in calculating the Financial Benchmark, the selection of the data inputs, the priorities given to certain data types, the minimum data needed to determine a Financial Benchmark and any models or extrapolation methods used (if any),
- c) The hierarchy of data used to determine Financial Benchmarks, and the procedures for determining the Financial Benchmark in the absence of data or unusual market conditions,
- d) Procedures for eliminating potential errors, including situations that would require recalculation of a Financial Benchmark,
- e) Information on the approval and periodic review of the Benchmark Methodology

Borsa İstanbul explains in respective Benchmark Methodologies if any expert judgement is applied in Financial Benchmark determination processes and announces in its official website when it is applied.

Borsa İstanbul does not apply any Submission in the determination processes of Financial Benchmarks.

### **Work performed by PwC Türkiye**

Reviewed statement 15 "Content of the Methodology" in "The Directive" and validated that it addresses the recommendations of IOSCO Principle 11.

For a sample of Financial Benchmark Methodologies, verified that the methodology descriptions in the Benchmark Methodologies include the needs recommended by IOSCO Principle 11.

In particular:

- a) Verified that the Benchmark Methodologies include the definition of key terms.
- b) Verified that the Benchmark Methodologies include all criteria and procedures for determining the Financial Benchmark, such as the data inputs used in calculating the Financial Benchmark, the selection of the data

inputs, the priorities given to certain data types and the minimum data needed to determine a Financial Benchmark.

- c) Verified that the Benchmark Methodologies include procedures for eliminating potential errors, including situations that would require recalculation of a Financial Benchmark.
- d) Verified that effective date information is disclosed in the Benchmark Methodologies.

No exceptions noted.

#### 4.1.12. Principle 12: Changes to Methodology

##### IOSCO Principle 12

An Administrator should Publish or Make Available the rationale of any proposed material changes 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. 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.

The Administrator should specify how changes to the Methodology will be scrutinized, by the oversight function.

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:

- a) Provide advance notice and a clear timeframe that gives Stakeholders sufficient opportunity to analyze and comment on the impact of such proposed material changes, having regard to the Administrator's assessment of the overall circumstances; and
- 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.

##### Borsa İstanbul's Response

Needs for revision in the Benchmark Methodologies may arise as a result of change requests from Subscribers or Stakeholders and periodic or non-periodic reviews within the scope of the oversight of the Financial Benchmarks.

Borsa İstanbul has implemented a governance and oversight structure with committees and policies to review Benchmark Methodologies and conduct consultations with Stakeholders as needed.

All changes that are decided to be made in the Benchmark Methodologies are made publicly available ("[Methodologies and Changes](#)" section) on Borsa İstanbul official website, accompanied by the relevant explanations and rationale for the revision, before being implemented.

The Committee evaluates the needs for revision and submits its evaluation to the "Decision-making Body" for a decision, including its opinion on whether the change is material or not. Prior to the implementation of a material change, a consultation with the Stakeholders takes place in accordance with the provisions outlined in Article 7 of The Management Procedure. Borsa İstanbul makes the Benchmark Methodology changes publicly available on the official website and notify Subscribers via e-mail which sets out the reasons and procedures for making material changes to the Benchmark Methodologies.

Borsa İstanbul has established a survey substructure on the website where Subscribers and Stakeholders can comment on Benchmark Methodology changes. The consultation period would depend on the urgency and nature of the change but would be notified in advance to Subscribers and Stakeholders. A summary of the comments, except where the commentator has requested confidentiality, and Borsa İstanbul's summary response to those comments are made publicly available on the website after any given consultation period.

##### Work performed by PwC Türkiye

Reviewed "The Directive" and statement 7 "Changes in the Methodology of Financial Benchmarks" in "The Management Procedure" and validated that it addresses the recommendations of IOSCO Principle 12.

For a sample of Financial Benchmarks that had undergone a methodology change, obtained all the changes in the Benchmark Methodologies are made publicly available on "[Methodologies and Changes](#)" section on the Borsa İstanbul's website. Also, changes in consultation processes are published under "[Methodologies and Changes](#)".

On a sample basis, examined that Subscribers and Stakeholders can comment on Benchmark Methodology changes by filling out "Consultation Form on the Changes in the Methodologies of Financial Benchmarks" between the specified dates.



On a sample basis, reviewed evidence of the availability of extensive information about the nature and rationale of the methodology change that can be provided upon request.

For the same sample as above, inspected evidence that methodology changes had been approved by the appropriate Decision-making Body as defined in Borsa İstanbul's regulations.

No exceptions noted.

#### 4.1.13. Principle 13: Transition

##### IOSCO Principle 13

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 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.

These written policies and procedures should be Published or Made Available to all Stakeholders. Administrators should encourage Subscribers and other Stakeholders who have financial instruments that reference a Benchmark to take steps to make sure that:

- a) Contracts or other financial instruments that reference a Benchmark, have robust fallback provisions in the event of material changes to, or cessation of, the referenced Benchmark; and
- 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.

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:

- 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.
- 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;
- c) The procedures that the Administrator would follow in the event that a suitable alternative cannot be identified;
- 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 Benchmark will continue to be produced in order to permit existing contracts to migrate to an alternative Benchmark if necessary; and
- 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.

##### Borsa İstanbul's Response

Borsa İstanbul has clear written policies and procedures on the possible cessation of Financial Benchmarks. Principles regarding transitions and cessations are regulated in Article 8 of The Management Procedure.

In general, The Committee can identify the need for cessation of a Financial Benchmark and submit a proposal to "Decision-making Body" for a decision. While preparing this proposal The Committee, identify the effects of the cessations of a Benchmark to economic and financial stability, the breadth and depth of contracts and financial instruments that reference a Financial Benchmark and the views of Stakeholders and the Regulatory and National Authorities. This proposal also includes giving detailed information about the nature and rationale of the cessation and transition as well as the date on which the Financial Benchmark is to be ceased.

When a Financial Benchmark is ceased without launching a new one, Borsa İstanbul considers whether to recommend an alternative credible Financial Benchmark.

Borsa İstanbul requests Subscribers and other Stakeholders to be aware of the transition and cessations policies that may be applied in the case of cessation of a Financial Benchmark by which contracts or financial products are referenced, and to take precautions.

## Work performed by PwC Türkiye

Reviewed statement 8 “Cessation of Financial Benchmarks” in “The Management Procedure” and validated that it addresses the recommendations of IOSCO Principle 13 in regard to transitions and cessations.

There has never been an example of cessation throughout the audit period (1 January 2023 to 31 March 2023), so there has not been a proposal to the "Decision-making Body", but in statement 8 there is a clear explanation for a possible cessation in The Management Procedure.

No exceptions noted.

### 4.1.14. Principle 14: Submitter Code of Conduct

#### IOSCO Principle 14

**Where a Benchmark is based on Submissions, the following additional Principle also applies:**

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.

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.

The Administrator’s oversight function should be responsible for the continuing review and oversight of the Submitter Code of Conduct.

The Submitter Code of Conduct should address:

- a) The selection of inputs;
- b) Who may submit data and information to the Administrator;
- c) 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;
- d) Criteria applied to employees of a Submitter who are permitted to submit data or information to an Administrator on behalf of a Submitter;
- e) Policies to discourage the interim withdrawal of Submitters from surveys or Panels;
- f) Policies to encourage Submitters to submit all relevant data; and
- g) The Submitters’ internal systems and controls, which should include:
  - i. Procedures for submitting inputs, including Methodologies to determine the type of eligible inputs, in line with the Administrator’s Methodologies;
  - 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;
  - iii. Policies guiding and detailing the use of Expert Judgment, including documentation requirements;
  - iv. Record keeping policies;
  - v. Pre-Submission validation of inputs, and procedures for multiple reviews by senior staff to check inputs;
  - vi. Training, including training with respect to any relevant regulation (covering Benchmark regulation or any market abuse regime);
  - vii. Suspicious Submission reporting;
  - viii. Roles and responsibilities of key personnel and accountability lines;
  - ix. Internal sign off procedures by management for submitting inputs;
  - x. Whistle blowing policies (in line with Principle 4); and
  - 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.

#### Borsa İstanbul's Response

Financial Benchmarks administered by Borsa İstanbul are observable and entirely transaction-based, as opposed to submissions-based, benchmarks. Accordingly, any part of the IOSCO Principles referring to benchmarks based on Submissions are not applicable to the Financial Benchmarks administered by Borsa İstanbul.

#### Work performed by PwC Türkiye

No procedures were performed because any part of the IOSCO Principles referring to benchmarks based on Submissions are not applicable to the Financial Benchmarks administered by Borsa İstanbul. Therefore, excluded from the scope.

### 4.1.15. Principle 15: Internal Controls over Data Collection

#### IOSCO Principle 16

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 corroborating data from other sources.

#### Borsa İstanbul's Response

In cases where Borsa İstanbul obtains data from external sources, it establishes appropriate internal control systems for data collection and transmission processes. These controls cover the selection of the external source from which the data is obtained, how the data is obtained, and how the integrity and confidentiality of the data is protected.

Borsa İstanbul does not obtain any data from any Front Office Function.

The data inputs used in the determination of Financial Benchmarks are;

- Based on transactions executed in Borsa İstanbul Markets,
- Provided by data vendors such as Bloomberg and Refinitiv, where the data are widely used by financial institutions and market professionals as a market standard and/or
- Provided by state owned institutions authorized by law to make the related data available to the public such as Central Securities Depository of Türkiye, Central Bank of Türkiye and Ministry of Treasury and Finance.

For each Financial Benchmark the data inputs used in the determination are stated in respective Benchmark Methodologies.

As part of Borsa İstanbul's internal data input control procedures;

- All data are automatically input to the ICS and confirmed with another data source as available, and/or double checked by index specialists. Four-eyes principle is applied if any human intervention is needed in the process.
- Alerts and alarms regarding data sufficiency, hierarchy of data and other potential problems such as unexpected price changes of index constituents and unchanged index values within a specific period, are generated and e-mailed to related users by the ICS.

#### Work performed by PwC Türkiye

Reviewed statement 19 "Internal Controls over Data Collection" in "The Directive" and statement 6 "Determination, Creation, Calculation and Dissemination of Financial Benchmarks" in "The Management Procedure", validated that it addresses the recommendations of IOSCO Principle 12.

Inspected formal documentation of the Control Framework of Borsa İstanbul and confirmed that it encompasses the required controls for input data collection as well as monitoring controls over third-party data providers.

No exceptions noted.

## D. ACCOUNTABILITY

### 4.1.16. Principle 16: Complaints Procedures

#### IOSCO Principle 16

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.

The complaints procedures policy should:

- a) Permit complaints to be submitted through a user-friendly complaints process such as an electronic Submission process;
- b) 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 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;
- c) Contain a process for escalating complaints, as appropriate, to the Administrator's governance body; and
- 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.

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.

#### Borsa İstanbul's Response

Borsa İstanbul has implemented a dedicated complaints policy and The Complaint Procedure allows Stakeholders to submit their complaints in a user-friendly manner via Contact Form on the Borsa İstanbul official website or by email.

All complaints are duly investigated by an employee not involved in the determination of the relevant Financial Benchmark and a response is given to the complainant within a reasonable time.

#### Work performed by PwC Türkiye

Reviewed Borsa İstanbul's Procedure "The Complaint Procedure" and validated that it addresses the recommendations of IOSCO Principle 16.

For all Borsa İstanbul's Financial Benchmarks, examined evidence that there has no example of complaints and seen that the complaints can be made on the Borsa İstanbul website.

No exceptions noted.

### 4.1.17. Principle 17: Audits

#### IOSCO Principle 17

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.

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 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.

## Borsa İstanbul's Response

"Audit and Surveillance Board" of Borsa İstanbul reviews the Financial Benchmark determination processes and the compliance of said processes with the Benchmark Methodologies as well as The Directive and reports the results to the "Audit Committee".

## Work performed by PwC Türkiye

Confirmed that work performed on the compliance of the Financial Benchmark determination processes and their adherence to Benchmark Methodologies and The Directive has been included in the 2023 Internal Audit program of the Borsa İstanbul's "Audit and Surveillance Board".

No exceptions noted.

### 4.1.18. Principle 18: Audit Trail

## IOSCO Principle 18

Written records should be retained by the Administrator for five years, subject to applicable national legal or regulatory requirements on:

- a) All market data, Submissions and any other data and information sources relied upon for Benchmark determination;
- b) The exercise of Expert Judgment made by the Administrator in reaching a Benchmark determination;
- c) Other changes in or deviations from standard procedures and Methodologies, including those made during periods of market stress or disruption;
- d) The identity of each person involved in producing a Benchmark determination; and
- e) Any queries and responses relating to data inputs.

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.

### When a Benchmark is based on Submissions, the following additional Principle also applies:

Submitters should retain records for five years subject to applicable national legal or regulatory requirements on:

- a) The procedures and Methodologies governing the Submission of inputs;
- b) The identity of any other person who submitted or otherwise generated any of the data or information provided to the Administrator;
- c) Names and roles of individuals responsible for Submission and Submission oversight;
- d) Relevant communications between submitting parties;
- e) Any interaction with the Administrator;
- f) Any queries received regarding data or information provided to the Administrator;
- g) Declaration of any conflicts of interests and aggregate exposures to Benchmark related instruments;
- h) Exposures of individual traders/desks to Benchmark related instruments in order to facilitate audits and investigations; and
- i) Findings of external/internal audits, when available, related to Benchmark Submission remedial actions and progress in implementing them.

## Borsa İstanbul's Response

Borsa İstanbul keeps all the records of the Financial Benchmark calculation processes.

Besides these records, Borsa İstanbul keeps the following data for at least 5 years, without prejudice to legal and administrative requirements; upon request, it shares with the CMB:

- a) All market data which are taken as inputs in the determination processes of Financial Benchmarks,
- b) Expert judgments, which are taken as basis in the determination processes of a Financial Benchmarks,
- c) Changes and deviations from the standard procedures and Methodologies for determining Financial Benchmarks, including those which are made during periods of market stress or disruption,
- d) Information about employees participating in the determination processes of Financial Benchmarks,

- e) All queries and responses regarding the data used in the calculation of Financial Benchmark.

Financial Benchmarks administered by Borsa İstanbul are observable and entirely transaction-based, as opposed to submissions-based, benchmarks. Accordingly, any part of the IOSCO Principles referring to benchmarks based on Submissions are not applicable to the Financial Benchmarks administered by Borsa İstanbul.

#### Work performed by PwC Türkiye

Reviewed statement 9.8 “Keeping of Records by Submitters” in “The Management Procedure” and statement 22 “Audit Trail” in “The Management Procedure” validated that it addresses the recommendations of IOSCO Principle 18.

- a) On a sample basis, inspected the availability of the data elements and information specified in Borsa İstanbul's response and verified that those data are stored for at least five years as defined by The Directive.
- b) Inspected evidence that the information described in Borsa İstanbul's response is documented in The Committee meeting minutes and that those minutes are retained.
- c) Borsa İstanbul's checklists regarding the controls and processes performed during the Financial Benchmark determination process has been examined and verified that these records are kept as specified in The Directive.
- d) For samples of client emails, examined evidence that were retained in accordance with The Directive.

No exceptions noted.

### 4.1.19. Principle 19: Cooperation with Regulatory Authorities

#### IOSCO Principle 19

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.

#### Borsa İstanbul's Response

Borsa İstanbul is a regulated market of Türkiye and is subject to regulation by the CMB.

Upon request, Borsa İstanbul provides access to any information required by CMB and other Regulatory Authorities in carrying out their regulatory or supervisory duties.

#### Work performed by PwC Türkiye

Verified that Borsa İstanbul provided access with respect to information to the relevant regulators.

No exceptions noted.

## ABBREVIATIONS

**Administrator** refers to and stands for Borsa İstanbul A.Ş. as the legal entity which has control on the Financial Benchmarks compliant with IOSCO principles and which carries out the processes relating to preparation, calculation and publishing of the regulations regarding the Financial Benchmarks.

**Borsa İstanbul Group** stands for Borsa İstanbul A.Ş., İstanbul Settlement and Custody Bank and Central Securities Depository.

**CMB** stands for the Capital Markets Board of Türkiye.

**Committee** refers to the Financial Benchmarks Committee, described in Article 5 of Borsa İstanbul A.Ş. Financial Benchmarks Management Procedure.

**Control Framework** refers to the set of measures implemented to protect the integrity and quality of the calculation processes of Financial Benchmarks within the scope of Article 8 of Borsa İstanbul A.Ş. Directive on Financial Benchmarks Compliant with IOSCO Principles.

**Decision-making Body** stands for the authority referred to in Article 4 “Decision-making Body” of Borsa İstanbul A.Ş. Financial Benchmarks Management Procedure, depending on the qualifications of the related Financial Benchmarks.

**Expert Judgment** refers to the exercise of discretion by the Administrator (Borsa İstanbul) or Submitter with respect to the use of data in determining a Financial Benchmark. Expert Judgment includes extrapolating values from prior or related transactions, adjusting values for factors that might influence the quality of data such 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.

**Front Office** refers to any department, division, group, or personnel of Submitter or any of its affiliates, whether identified as such, that performs, or personnel exercising direct supervisory authority over the performance of, any pricing (excluding price verification for risk management purposes), trading, sales, marketing, advertising, solicitation, structuring, or brokerage activities on behalf of a third party or for proprietary purposes.

**ICS** stands for the Index Calculation System of Borsa İstanbul.

**IOSCO Principles** refers to the Principles for Financial Benchmarks published by IOSCO.

**Market Authority** refers to such institutions as Regulatory Authorities, self-regulatory organizations, organized markets, exchanges or clearing houses.

**Methodology** refers to the written rules and procedures according to which information is collected and the Financial Benchmark is determined by the Administrator (Borsa İstanbul)

**National Authority** refers to and stands for the related public authorities in Türkiye which have public liability or interest in determination of policies for Financial Benchmarks, except for CMB.

**Stakeholder(s)** refers to Subscribers and other persons or entities who own contracts or financial instruments that reference a Financial Benchmark.

**Submission(s)** refers to prices, estimates, values, rates or other information that is provided by a Submitter to Administrator (Borsa İstanbul) for the purposes of determining a Financial Benchmark. This excludes data sourced from regulated markets or exchanges with mandatory post-trade transparency requirements.

**Submitter(s)** refers to legal entities providing information to Administrator (Borsa İstanbul) required in connection with the determination of a Financial Benchmarks.

**Subscriber(s)** refers to a person or entity that purchases Financial Benchmark determination services from Administrator (Borsa İstanbul).

**The Complaint Procedure** refers to the Borsa İstanbul A.Ş. Complaint Procedure for Financial Benchmarks.

**The Conflicts of Interest Procedure** refers to the Borsa İstanbul A.Ş. Procedure on Prevention of Conflicts of Interest in Financial Benchmarks.

**The Directive** refers to the Borsa İstanbul A.Ş. Directive on Financial Benchmarks Compliant with IOSCO Principles.

**The Management Procedure** refers to the Borsa İstanbul A.Ş. Financial Benchmarks Management Procedure.

**The Whistleblowing Procedure** refers to the Borsa İstanbul A.Ş. Whistleblowing Procedure for Financial Benchmarks.