

**BY OPENING THIS DOCUMENT YOU HAVE EXPLICITLY AGREED TO THE FOLLOWING TERMS AND CONDITIONS WITHOUT RESERVATION**

You have requested access to a copy of a report prepared by PricewaterhouseCoopers LLP ("PwC") on Invesco Indexing LLC's Report on Managements' Statement of Adherence to the International Organization of Securities Commissions ("IOSCO") Principles for Financial Benchmarks (the "report"). Invesco Indexing LLC, to whom the report is addressed, has confirmed that a copy of the report may be provided to you. PwC\* has consented to release of the report to you on condition that you accept and agree to the terms below.

By clicking on the "I ACCEPT THE TERMS OF THIS AGREEMENT" button upon opening this document, you confirmed the following:

I accept and agree for and on behalf of myself and the entity I represent (each a "recipient") that:

1. PwC accepts no liability (including liability for negligence) to each recipient in relation to PwC's work or its assurance report. The report is provided to each recipient for information purposes only. If a recipient relies on PwC's report, it does so entirely at its own risk;
2. No recipient will bring a claim against PwC which relates to the access to the report by a recipient;
3. Neither PwC's report, nor information obtained from it, may be made available to anyone else without PwC's prior written consent, except where required by law or regulation;
4. PwC's report was prepared with Invesco Indexing LLC's interests in mind. It was not prepared with any recipient's interests in mind or for its use. PwC's report is not a substitute for any enquiries that a recipient should make. The report describes Relevant Activities as at April, 6 2023, and thus PwC's assurance report is based on historical information. Any projection of such information or PwC's opinion thereon to future periods is subject to the risk that changes may occur after the report is issued and the Description may no longer accurately portray the Relevant Activities that Invesco Indexing LLC has in place to adhere to the IOSCO Principles. For these reasons, such projection of information to future periods would be inappropriate;
5. Any explanations that PwC may provide to any recipient in relation to the report are given on the same bases as those relating to the provision of the report itself;
6. PwC will be entitled to the benefit of and to enforce these terms; and
7. These terms and any dispute arising from them, whether contractual or non-contractual, are subject to English law and the exclusive jurisdiction of English courts.

**If you have received this document and you have not confirmed your agreement to PwC's disclaimer in the terms of access by clicking the "I ACCEPT THE TERMS OF THIS AGREEMENT" button upon opening this document, you are an unauthorised recipient and should return or destroy the document.**

\* PwC refers to PricewaterhouseCoopers LLP, a limited liability partnership incorporated in England (number OC303525), whose registered office is at 1 Embankment Place, London WC2N 6RH

# Invesco Indexing LLC

## Report on the Senior Management's Statement of Adherence to the International Organization of Securities Commissions ("IOSCO") Principles for Financial Benchmarks

As at April 6, 2023

# Contents

<b>1. Introduction</b>	<b>1</b>
<b>2. Organisational Overview</b>	<b>5</b>
<b>3. Management's Statement of Adherence</b>	<b>8</b>
<b>4. Independent Practitioner's Assurance Report</b>	<b>9</b>
<b>5. Principles and responses</b>	<b>13</b>
<b>6. Invesco's Response to Matters and Exceptions</b>	<b>84</b>
<b>7. In-scope Indexes</b>	<b>95</b>

## 1. Introduction

Invesco Indexing LLC (“Invesco Indexing”, or “IILLC”) was established on January 1, 2017 and currently serves clients both internal and external to Invesco Ltd. Internal clients include the Invesco ETF and Solutions teams. In that first year, the team launched its first set of indexes – a group of five regional market-capitalization weighted equity indexes. As of April 6, 2023, the team oversees a diverse set of more than 160+ indexes covering a wide spectrum of capabilities including broad market beta, equity and fixed income single and multi- factors, ESG, rates and targeted date fixed income. These indexes represent \$18.9 billion in assets under management. Members of IILLC are located in Atlanta, Boston, New York, Toronto, Dallas and Hyderabad.

### ***IOSCO Principles for Financial Benchmarks***

The Board of the International Organization of Securities Commissions (“IOSCO”) released the Principles for Financial Benchmarks<sup>1</sup> in July 2013 for consideration by all financial benchmark administrators. The Principles focus on benchmark governance, quality and accountability, in order to improve the reliability of Benchmark determinations.

IOSCO allows benchmark administrators to apply a proportionate response to the Principles with respect to the size and risk profile of the relevant benchmarks and/or benchmark administrator and the nature of the benchmark determination process.

### ***Benchmarks Regulation (“BMR”)***

On January 4, 2021, IILLC became a third country benchmark administrator recognized under the EU Benchmarks Regulation and, since November 4, 2019, the UK Benchmarks Regulation. IILLC has integrated its approach to adherence with the IOSCO Principles into its framework for complying with the BMR.

The ‘Regulation on indexes used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds’<sup>2</sup> entered into force on June 30, 2016; most of the provisions came into effect on January 1, 2018. BMR introduced a common framework and consistent approach to benchmark regulation across the EU. It aims to ensure benchmarks are robust and reliable, and to minimize conflicts of interest in the benchmark-setting processes.

IILLC, as an approved third country benchmark administrator, is subject to the requirements of the BMR and is regulated via its legal representatives in the UK and in the Republic of Ireland.

---

<sup>1</sup> Available at: <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf>

<sup>2</sup> Available at: <https://eur-lex.europa.eu/legal-content/EN/TEXT/PDF/?uri=CELEX:32016R1011&from=EN>

## About Invesco Indexing LLC

Invesco Indexing LLC is part of the Investments team at Invesco. Invesco Indexing LLC specifically reports into Invesco's Multi-Asset Strategies team, which is within Invesco Ltd.

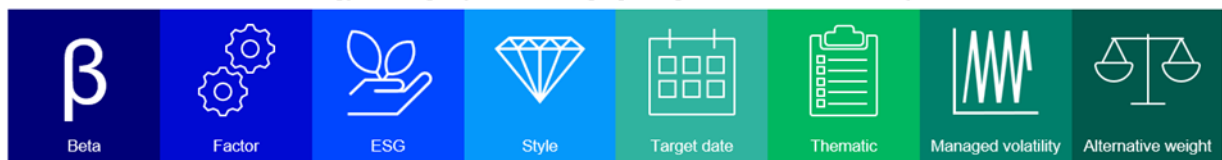
Invesco Indexing LLC's philosophy revolves around three key values:

- Investor-designed indexes leveraging the resources of a global asset management firm
- Spanning broad market exposure to multi-faceted and sophisticated strategies
- Providing a true level of customization to address each client's unique challenges

## About Invesco Indexes

<b>Broad range of indexes</b>	160+ live indexes
<b>Comprehensive asset class coverage</b>	Equity, fixed income, rates and multi-asset
<b>Diverse client types</b>	Retail fund shareholders, Insurance, Endowments & Foundations, Banks, Financial Intermediaries
<b>Global client base</b>	Americas, EMEA, Asia-Pacific
<b>Associated assets</b>	\$18.9B+ in assets managed against Invesco Indexing indexes

Strategy offerings span wide-ranging categories and investment styles



Invesco Indexing LLC administers indexes organized into Benchmark Families – the families are listed below:

- Invesco Multi-Asset - Indexes that belong to the Multi-Asset Benchmark Family include constituents from two or more asset classes. Each asset class, and asset class sub-component, where applicable, is clearly defined in terms of security selection, geographic coverage and constituent weighting methodology. Asset classes are combined using index specific asset allocation methodologies.
- Invesco Alternative Weighted Equity - Indexes that belong to the Alternative Weighted Equity Benchmark Family provide exposure to the US equity market through security weighting schemes that differ from those based on simple market capitalization. Each index in this Benchmark Family uses quantifiable equity characteristics other than market capitalization to establish constituent weights. For example, the Invesco Defensive Equity Index uses revenue growth as one of the inputs that determine the weighting of index constituents.
- Invesco Bulletshares® Municipal Bond - Invesco BulletShares® Municipal Bond Indexes are designed to provide maturity-targeted exposure to the US dollar-denominated investment grade municipal bond market.
- Invesco Equity Bulk Beta - Indexes that belong to the Equity Bulk Beta Benchmark Family are market capitalization- or equal-weighted indexes designed to provide broad, diversified exposure to equity markets in specific geographic regions and size (market capitalization) categories.
- Invesco Equity Factor - Indexes that belong to the Equity Factor Benchmark Family are factor-tilted, market capitalization aware indexes designed to provide well-defined factor exposure in specific geographic regions and size (market capitalization) categories.
- Invesco Fixed Income Bulk Beta - Indexes that belong to the Fixed Income Bulk Beta Benchmark Family are market value-weighted indexes designed to provide broad, diversified

exposure to corporate bonds, government bonds, or US 30-year mortgage-backed securities issued by Fannie Mae or Freddie Mac.

- Invesco Fixed Income Factor - Indexes that belong to the Fixed Income Factor Benchmark Family are equal weighted (or, in the case of Emerging Markets Debt, square root of market value weighted) indexes designed to provide well-defined factor exposure in specific geographic regions and credit quality categories.
- Invesco Strategic Equity - Indexes that belong to the Strategic Equity Benchmark Family are designed to provide broad, diversified exposure to companies that tend to have larger, higher quality businesses within their target market segment.
- Nasdaq Bulletshares® Corporate Bond - Nasdaq BulletShares® Corporate Bond Indexes are designed to provide maturity-targeted exposure to the US dollar-denominated investment grade corporate bond market.
- Nasdaq Bulletshares® Emerging Market Debt - Nasdaq BulletShares® Emerging Markets Debt Indexes are designed to provide maturity-targeted exposure to the US dollar denominated emerging markets debt market.
- Nasdaq Bulletshares® High Yield Corporate Bond - Nasdaq BulletShares® High Yield Corporate Bond Indexes are designed to provide maturity-targeted exposure to the US dollar denominated high yield corporate bond market.
- Invesco ESG - Indexes that belong to the ESG Benchmark Family are equity and fixed income indexes that emphasize either broad exposure spanning the environmental, social, and governance spectrum, or a narrower theme along an E, S, and/or G dimension

As of July 2022, Invesco Indexing has begun administering a suite of indexes developed in partnership with SOFR Academy, Inc. The Invesco/SOFR Academy Across-the-Curve Credit Spread Index (“AXI”)™ is a weighted average of the credit spreads of unsecured bank funding transactions with maturities ranging from overnight to five years, with weights that reflect both transactions volumes and issuance volumes. AXI can be added to Term SOFR (or other SOFR variants) to form a credit-sensitive index for loans, derivatives and other products. The Invesco/SOFR Academy Financial Conditions Credit Spread Index (“FXI”)™ is an extension of AXI that incorporates data based on transactions of both financial and non-financial corporate debt instruments.

The AXI and FXI indexes are not included in this scope of this report. On July 3, 2023, IOSCO released a statement<sup>3</sup> on alternatives to USD-LIBOR. IOSCO assessed the extent to which four indexes developed as substitutes for USD LIBOR – two credit sensitive rates and two Term SOFR rates, but not including AXI and FXI – had implemented IOSCO’s Principles, notably for index design (Principle 6), data sufficiency (Principle 7), and transparency (Principle 9). IOSCO compared these four indexes against the Federal Reserve Bank of New York-administered Secured Overnight Financing Rate (“SOFR”).

IOSCO identified several concerns with each of the studied rates’ implementation of the Principles and identify areas for improvement. In particular, IOSCO expressed concern due to liquidity risk and financial stability during periods of market stress, lack of data transparency, and, for the two Term SOFR rates, concerns over limited potential use.

While ILLC’s AXI and FXI indexes were not reviewed within the scope of IOSCO’s July 3, 2023, statement, the statement relates to how the IOSCO Principles, in particular Principles 6, 7, and 9, should be applied to AXI and FXI. The IOSCO statement was also released after the as-of date of this report (6 April 2023), effectively providing new standards for application after the audit opinion date had already passed. In light of these evolving standards and significant timing concerns in how to apply

---

<sup>3</sup> Available at: [www.iosco.org/library/pubdocs/pdf/IOSCOPD738.pdf](http://www.iosco.org/library/pubdocs/pdf/IOSCOPD738.pdf)

those evolving standards retrospectively, the AXI and FXI indexes are not included within the scope of review for this report. We note, however, that the AXI and FXI indexes were developed by the same organization and using similar processes and standards as other in-scope indexes.

IILLC is continuing to develop and share information about the AXI and FXI indexes, in particular related to financial stability and transparency. IILLC is also committed to work with IOSCO and market regulators to ensure its indexes, including AXI and FXI, comply with the highest international standards.

## **Invesco Indexing Universe**

Invesco Indexing LLC utilizes a universe that was created to be used as the base for all indexes administered. The universe and other supporting materials can be found on the Invesco Indexing website: [www.invescoindexing.com/en/](http://www.invescoindexing.com/en/).

The Invesco Indexing Investable (“III”) universe (<https://www.invescoindexing.com/en/about/investable>) is global in scale — comprising securities issued in both developed and emerging markets. A fully transparent, systematic approach to securities selection is used to produce a comprehensive set of equity and fixed income securities eligible for Invesco indexes.

The III Equity Universe is updated four times per year, including an annual reconstitution which resets the overall global equity universe. Quarterly rebalancing helps ensure that holdings remain relevant to the index universe, with the most illiquid securities being eliminated. As part of the reconstitution process, markets are analyzed annually — a rigorous process that considers a country’s inflation, national income, sovereign debt rating, openness to foreign investment, and equity market maturity.

The III Equity Universe captures the investable segment of the global equity market. Publicly listed equity securities and securities that exhibit equity-like characteristics are eligible for inclusion. We carefully consider the liquidity of universe constituents — including company size, trading activity and any limitation to ownership that reduces security free float.

The III Bond Universe is updated monthly. Monthly updates account for the bond market’s more dynamic nature, reflected in frequent new issuances and changes to bond features. The monthly updates ensure the universe remains relevant by including any new securities that meet the universe eligibility criteria while eliminating those that fall outside of these requirements.

The III Bond Universe captures a broad and diverse opportunity set of the global bond market. Eligible securities are selected if they meet a number of strict requirements including coupon type, credit rating, and maturity. These criteria seek to ensure that the universe properly encompasses the broad and diverse global bond market.

Inclusion criteria for equity and fixed income securities are chosen to assist in delivering highly customizable solutions across both developed and emerging markets.

## 2. Organisational Overview

Invesco Indexing LLC is an indirect, wholly owned subsidiary of Invesco Ltd. Invesco Indexing LLC develops and licenses customized, proprietary indexes that leverage the global scale of Invesco - one of the world's premiere global investment management firms. These customized indexes are constructed by experienced investment professionals and are uniquely tailored to help clients meet specific financial objectives. Invesco Indexing LLC is physically, legally and technologically separated from Invesco Ltd. and affiliated entities.

Invesco Indexing LLC's EU and UK BMR oversight is provided by Invesco's UK and Irish subsidiaries Invesco Asset Management Limited (IAML) and Invesco Investment Management Limited (IIML). Additional compliance oversight is provided by Invesco Capital Management in the US. Invesco Indexing LLC reports into the Head of Systematic and Factor Investing, which falls under Invesco Ltd. While Invesco Indexing reports into an investment team, all indexing work is technologically separate from investment teams (using their own servers) and have physically separate workspaces from investors that may use its indexes.

Below is the operational structure of the Invesco Indexing team as of April 6, 2023.<sup>4</sup>



### Governance

Invesco Indexing LLC is managed and monitored by a Board of Managers, pursuant to the terms of Invesco Indexing's Operating Agreement. Day-to-day operations of Invesco Indexing are conducted by its officers, including its President and Vice Presidents.

Invesco Indexing has several teams and committees that help oversee the index creation and administration of indexes. There are three key bodies.

The first is the Index Review Team ("IRT"). The IRT consists solely of members of Invesco Indexing. The IRT is involved in the regular quality assurance reviews of the indexes, index rebalances, and index and universe reconstitutions.

The second is the Indexing Advisory Committee ("IAC"), which is primarily involved in the index development process. The IAC is composed of members of Invesco Indexing as well as members of Invesco's trading, compliance, and legal teams. The IAC is a forum in which initial index ideas are discussed and, subsequently, in which enhancements could be discussed. Meetings involve standing

---

<sup>4</sup> Ms. Laue departed from Invesco on September 22, 2023. The Director of Operations role is expected to be filled by around October 31, 2023.



IAC members and may include guest participants with particular areas of investment expertise within the firm.

The third is the Index Oversight Committee (“IOC”). The IOC oversees the development, interpretation and adherence to policies and procedures of Invesco Indexing’s indexes. The IOC consists of members of compliance, legal, as well as members of the Invesco Indexing team. Further, a subcommittee called the Calculation Provider Oversight Committee (“CPOC”) oversees the performance of the calculation agents used by Invesco Indexing in the index determination process. The committee is made up of members of the IOC and focuses solely on quality assessment and continued oversight of the calculation agents.

The governing body for the IOC is both the IAML and IIML fund boards. As part of Invesco Indexing’s ongoing compliance with BMR, these boards provide oversight of the committee tasked with overseeing all of Invesco Indexing’s business.

## ***Use of Third Parties***

### Invesco Ltd Services

Invesco Indexing LLC relies on the broader Invesco Ltd. for several support functions. Technology, Vendor Risk Management, Compliance, Legal, and Internal Audit are some of those teams. The teams are considered as third parties because they are a separate legal entity from Invesco Indexing LLC, the legal administrator.

### Calculation Agent Services

Currently, all index calculation is also outsourced to third parties, including implementation of corporate actions and security valuation. Invesco Indexing uses Standard & Poor’s for equity index calculation, and Intercontinental Exchange and Nasdaq for fixed income index calculation. Outsourcing is a cost-effective solution for index determination and corporation actions. This allows Invesco Indexing to focus on the value-added aspects of index design, creation and administration.

### Infrastructure Services

Another key third-party used in the creation and management of indexes is FactSet, which is used by the research team for infrastructure to create database structures used in the management of the index universe and index management.

Comprehensive oversight of third-party providers is completed by Invesco Indexing. This includes periodic due diligence and ongoing quality monitoring. For further details, reference Principle 2 – Third-Parties.

## ***Conflicts of Interest***

As Invesco Indexing LLC is a wholly-owned subsidiary of an asset manager that uses its indexes there is a de facto potential conflict of interest given the ongoing intention to use the indexes provided by the Invesco Indexing across its own products (the “Self-indexed Products”), the index administrator has put measures in place to mitigate conflicts of interest arising from its ownership structure as well as due to other interests in the wider Invesco Group.

Invesco Indexing LLC has established and operates policies, procedures and controls for the identification, disclosure, prevention, management, and mitigation of conflicts of interest to protect the integrity and independence of index determinations.

## ***Scope Covered by this Report***

The scope of this review includes Equity, Fixed Income, and Multi-Asset indexes. Please refer to Section 7 for the full list of in-scope indexes.

## ***For Further Information***

### **Please contact:**

Blaise Warren  
Chief Operating Officer, Multi Asset Strategies  
[Blaise.Warren@invesco.com](mailto:Blaise.Warren@invesco.com)  
(404) 439.4865



---

**Invesco**

1331 Spring Street NW  
Suite 2500  
Atlanta, Georgia 30309

---

Telephone 404 892 0896  
[www.invesco.com](http://www.invesco.com)

### 3. Management's Statement of Adherence

As the Management of Invesco Indexing LLC we confirm that we are solely responsible for the preparation of this report including this Statement of Adherence and have designed, implemented, operated, and monitored compliance with policies, processes and control activities as described in the 'Invesco's Response' column of the table in Section 5 of the report (the "Relevant Activities") to adhere to the Principles for Financial Benchmarks published by the International Organization of Securities Commissions (the "Principles") for the Invesco Indexing LLC in-scope benchmarks.

The Invesco Indexing LLC benchmarks in scope for the purpose of the report are set out in Section 7 of the report.

We confirm that the accompanying description in Section 5 of the report fairly presents the Relevant Activities as at April 6, 2023.

The Management of Invesco Indexing LLC are, and shall be, responsible for the report including this Statement of Adherence and the implementation and operation of the Relevant Activities, and for establishing appropriate internal controls to ensure continued compliance with the Principles.

A handwritten signature in black ink, appearing to read "Scott Wolle", with a large, stylized loop at the end.

Scott Wolle

CIO, Multi Asset Strategies

Manager for and on behalf of the Board of Managers of Invesco Indexing LLC

October 5, 2023



## **Independent Practitioner's Assurance Report**

**To the Management of Invesco Indexing LLC (the "Company") in respect of the description by management of the policies, processes and control activities placed in operation over the in-scope Invesco Indexing LLC benchmarks to address the IOSCO Principles for Financial Benchmarks**

### ***Scope***

We have carried out a limited assurance engagement in respect of the Relevant Activities in place as at April 6, 2023 as described in the 'Invesco's Response' column of the table in Section 5 of the report (the "Relevant Activities") in response to the IOSCO Principles for Financial Benchmarks (the "Principles") for the in-scope Invesco Indexing LLC benchmarks.

The Invesco Indexing LLC benchmarks in scope for the purpose of the report and our assurance are set out in Section 7 of the report.

This report is made solely for the use and benefit to Management in connection with Principle 17. Our work has been undertaken in accordance with our agreement dated March 16, 2023, as varied March 30, August 17 and September 19, 2023, so that we might state to Management those matters we are required to state in an independent assurance report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Company and Management for our work, for this report, or for the conclusion we have formed, save where expressly agreed in writing.

### ***Our Independence and Quality Control***

In carrying out our work, we complied with the Institute of Chartered Accountants in England and Wales (ICAEW) Code of Ethics, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour, and which is at least as demanding as the applicable provisions of the IESBA Code of Ethics.

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

### ***Respective responsibilities of Management of the Company and the Independent Practitioner***

The Management of the Company are responsible for ensuring that the Company designs, implements, operates and monitors policies, processes and control activities to adhere to the Principles. They are also responsible for preparing Management's Statement of Adherence to the Principles, set out in Section 3 supported by the description of the Relevant Activities as set out in the 'Invesco's Response' column of the table in Section 5 of the report.

Our responsibilities are to undertake a limited assurance engagement and report in connection to the Relevant Activities in Section 5 of the report. We report to you whether, based on the results of our

*PricewaterhouseCoopers LLP, 7 More London Riverside, London, SE1 2RT  
T: +44 (0) 2075 835 000, F: +44 (0) 2072 127 500, [www.pwc.co.uk](http://www.pwc.co.uk)*

PricewaterhouseCoopers LLP is a limited liability partnership registered in England with registered number OC303525. The registered office of PricewaterhouseCoopers LLP is 1 Embankment Place, London WC2N 6RH. PricewaterhouseCoopers LLP is authorised and regulated by the Financial Conduct Authority for designated investment business.

work (which is further described below), anything has come to our attention to indicate that the description of the Relevant Activities in Section 5 placed in operation over the in-scope Invesco Indexing LLC benchmarks to adhere to the Principles, is not fairly stated, in all material respects as at April 6, 2023.

### ***Our Approach***

We conducted our engagement in accordance with International Standard on Assurance Engagements 3000 (Revised) - Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ("ISAE 3000"), issued by the International Auditing and Assurance Standards Board and with regard to the ICAEW's guidance within Technical Release "TECH02/14FSF - Assurance Reports on Benchmarks and Indices".

The objective of a limited 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, anything has come to our attention to indicate that the description of the Relevant Activities in respect of the in-scope benchmarks is not fairly stated, in all material respects as at April 6, 2023.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed and accordingly, we shall express no such opinion.

We examined, on a test basis, evidence relevant to assessing the Relevant Activities in response to the Principles. Our procedures are described in the 'Practitioner's Testing' column of the table in Section 5 of the report. Assessing the suitability of design of the Relevant Activities is outside the scope of this engagement, accordingly, we do not express an opinion thereon.

Our procedures were not sufficient to enable us to conclude on the suitability of design of the policies, processes or control activities in place to address the Principles.

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

### ***Inherent limitations***

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

The validity and reliability of daily index levels and returns is dependent on both (i) those that provide the input data to the benchmark administrator, for which the data provider is solely responsible, and (ii) the procedures performed by the benchmark administrator to check that information. Data

providers of information are not themselves subject to the Principles and we are unable to comment on input data submitted by those parties.

### ***Conclusion***

Based on the results of our procedures, nothing has come to our attention to indicate that management's description of the Relevant Activities set out in the 'Invesco's Response' column of the table in Section 5 in respect of the in-scope benchmarks as at April 6, 2023, is not fairly stated in all material respects.

### ***Emphasis of matters:***

Without modifying our Conclusion, we draw attention to the following matters as described in Sections 5 and 6:

- There is no formality or mechanism through which the application of Expert Judgement, applied by a Calculation Agent, is overseen or approved by the Company (Principle 1 - Overall Responsibility of the Administrator).
- Invesco Indexing LLC's reporting line feeds directly into the primary subscriber to its indices (Principle 3 - Conflicts of Interest)
- The annual review of the continued accuracy of, and any necessary changes required to, the Control Framework was not performed (Principle 4 - Control Framework for Administrators).
- The annual Economic Reality Review of all indexes was not performed (Principle 10 - Periodic Review)
- There is no prescribed minimum period for giving notice to customers before making material changes to indexes or their methodologies or before terminating an index (Principle 13 - Transition)

### ***Other information***

Management are responsible for the other information, comprising the Statement of Adherence in Section 3 and the description of the 'Context' in Section 5 of the report. Other information is presented by management to provide additional information and context to the Relevant Activities. Our conclusion on the description of Relevant Activities does not cover such other information and we do not express any form of assurance opinion thereon. Our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with our knowledge obtained in the course of our work. If we become aware of any apparent material misstatements or inconsistencies we consider the implications for our report.

### ***Intended users and purpose***

This report is intended solely for the use of Management solely for the purpose of reporting on the Relevant Activities of the Company for the in-scope benchmarks, in accordance with the terms of our engagement letter dated March 16, 2023, as varied March 30, August 17 and September 19, 2023.

Our report must not be recited or referred to in whole or in part in any other document nor made available, copied or recited to any other party, in any circumstances, without our express prior written permission.

To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than Management and the Company for our work, for this report or for the conclusion we have formed, save where terms have expressly been agreed in writing.

PricewaterhouseCoopers LLP

PricewaterhouseCoopers LLP

Chartered Accountants

London

October 5, 2023

## 5. Principles and responses

The Indexes which are in-scope for this report are listed in Section 7.

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

The accompanying “Practitioner’s Testing” column summarises the work performed by PwC to validate that the Policy Statements and Process and Control Activities, summarised by Invesco Indexing LLC, are reflective of working practices. This supports the assurance opinion as documented in the independent practitioner’s assurance report section.

All Policy Statements [PS] and Process and Control Activities [PCA] refer to all Indexes listed in Section 7.

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

Nature of Relevant Activity	Practitioner’s Test Approach
<b>Policy Statement [PS]</b>	Tested for existence of the policy or methodology in line with what has been described in the Invesco’s Response column as at April 6, 2023.
<b>Process and Control Activity [PCA]</b>	Tested a sample to determine whether the process and control activity was in operation as at April 6, 2023.



## Principle 1 – Overall Responsibility of the Administrator

IOSCO Principle 1	Invesco's Response	Practitioner's Testing
<p>The Administrator should retain primary responsibility for all aspects of the Benchmark determination process. For example, this includes:</p> <ul style="list-style-type: none"> <li>a) Development: The definition of the Benchmark and Benchmark Methodology;</li> <li>b) Determination and Dissemination: Accurate and timely compilation and publication and distribution of the Benchmark;</li> <li>c) Operation: Ensuring appropriate transparency over significant decisions affecting the compilation of the Benchmark and any related determination process, including contingency measures in the event of absence of or insufficient inputs, market stress or disruption, failure of critical infrastructure, or other relevant factors; and</li> <li>d) 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.</li> </ul>	<p><b>Context</b></p> <p><i>Invesco Indexing LLC was created as a wholly-owned subsidiary of Invesco in 2017. The Director of Research and Director of Operations are responsible for the key administrative aspects of the Index determination process which is under the oversight of the Index Oversight Committee.</i></p>	
	<p><b>Relevant Activities</b></p> <p><b>In response to (a) of this Principle:</b></p>	
	<p>[PS01.1] The Indexing Control and Accountability Framework Policy describes the responsibilities for index creation and oversight.</p>	<p>[PS01.1] With respect to a), PwC inspected the Indexing Control and Accountability Framework Policy to confirm that it describes the responsibilities for index creation and oversight.</p>
	<p>[PS01.2] The Index Oversight Committee ("IOC") Terms of Reference describes the IOC's responsibilities related to overseeing new indexes and index families.</p>	<p>[PS01.2] PwC inspected the Index Oversight Committee Terms of Reference to confirm that it describes the IOC's responsibilities related to overseeing new indexes and index families.</p>
	<p>[PCA01.3] Quarterly, the IOC meets and reviews all new indexes that have been created. This is captured in the IOC Meeting Pack and Minutes.</p>	<p>[PCA01.3] PwC inspected the most recent meeting minutes to confirm that the IOC met and reviewed all new indexes that have been created during that quarter.</p>

IOSCO Principle 1	Invesco's Response	Practitioner's Testing
	<p>[PCA01.4] Upon occurrence, the IOC approves new Benchmark Families prior to any new index that would identify in that family being created. These requests are captured in the IOC Meeting Pack and Minutes.</p>	<p>[PCA01.04] PwC confirmed via inquiry that the IOC would approve new Benchmark Families prior to any new benchmarks that would identify in that family being created.</p> <p>PwC confirmed via inquiry that there have been no recent Benchmark Families created as at April 6, 2023.</p>
	<p>[PCA01.5] Upon occurrence, new indexes are reviewed by the Index Advisory Committee to validate the original client request is comfortable with the index created.</p>	<p>[PCA01.5] PwC confirmed via inquiry that any new indexes would be reviewed by the Index Advisory Committee to validate the original client request is comfortable with the index created.</p> <p>PwC confirmed via inquiry that there have been no recent indexes created as at April 6, 2023.</p>
	<p>For additional detail, please see Principle 5 – Internal Oversight, Principle 6 – Benchmark Design, Principle 10 – Periodic Review, and Principle 12 – Changes to the Methodology.</p>	<p>Please refer to Principle 5 – Internal Oversight, Principle 6 – Benchmark Design, Principle 10 – Periodic Review, and Principle 12 – Changes to the Methodology for relevant testing performed.</p>
	<p><b>In response to (b) and (c) of this Principle:</b></p> <p>[PCA01.6] Annually the Director of Operations reviews the Technology mission statement to verify it describes the services provided to Invesco Indexing LLC related to business continuity, oversight of operational tasks and other technology related solutions.</p>	<p>[PCA01.6] With respect to b) and c), PwC inspected the Technology mission statement to confirm that it describes the services provided to Invesco Indexing LLC related to business continuity and oversight of operational tasks that relate to distribution of index information.</p>

IOSCO Principle 1	Invesco's Response	Practitioner's Testing
	<p>Invesco Indexing LLC outsources both calculation and dissemination to Calculation Agents (as defined in the individual Index Methodologies). The outsourced activities of the Calculation Agents are overseen by Invesco Indexing LLC, with daily QA checks carried out over the index calculation produced. Please refer to Principle 2 – Oversight of Third Parties and Principle 15 - Internal Controls over Data Collection for more details of third party oversight and the end of day QA process.</p> <p>Please see Principle 2 – Oversight of Third Parties for controls related to contingency measures in the event or absence of insufficient inputs, market stress or disruption or failure of critical infrastructure.</p>	<p>Please refer to Principle 2 - Oversight of Third Parties and Principle 15 - Internal Controls over Data Collection for relevant testing performed.</p> <p>Please refer to Principle 2 - Oversight of Third Parties for relevant testing performed.</p>
	<p>[PS01.7] The responsibility for applying Expert Judgement, when required, lies with Calculation Agents. While Invesco Indexing LLC have guidelines in place for the application of Expert Judgement by Calculation Agents and perform retrospective review of instances where it is applied, approval from Invesco is not obtained in advance and there is no periodic attestation by the Calculation Agents of compliance with the guidelines.</p> <p><i>Refer to Section 6 for more information.</i></p>	<p>[PS01.7] PwC inspected a sample of Index Methodologies to confirm that the responsibility for applying Expert Judgement lies with Calculation Agents.</p> <p>PwC also enquired with management and confirmed that approval for the application of Expert Judgement by Calculation Agents is not obtained in advance and there is no periodic attestation by the Calculation Agents of compliance with the guidelines.</p> <p><i>Refer to Section 6 for more information.</i></p>
	<p><b>In response to (d) of this Principle:</b></p>	

IOSCO Principle 1	Invesco's Response	Practitioner's Testing
	<p>The IOC is made up of stakeholders, including from Compliance and Legal, who meet at least quarterly to provide ongoing oversight of Invesco Indexing LLC, please see Principle 5 – Internal Oversight for additional detail.</p> <p>Please see Principle 2 – Oversight of Third Parties for further detail on the oversight of third parties.</p>	<p>With respect to d), please refer to Principle 5 – Internal Oversight and Principle 2 - Oversight of Third Parties for relevant testing performed.</p>
	<p>Please refer to PS01.7 above related to use of Expert Judgment.</p>	<p>Please refer to PS01.7 above for relevant testing performed.</p>
	<p>Please refer to Principle 5 - Internal Oversight, Principle 6 - Benchmark Design, Principle 10 - Periodic Review and Principle 12 - Changes to the Methodology for further information.</p>	<p>Please refer to Principle 5 - Internal Oversight, Principle 6 - Benchmark Design, Principle 10 - Periodic Review and Principle 12 - Changes to the Methodology for relevant testing performed.</p>

## Principle 2 – Oversight of Third Parties

IOSCO Principle 2	Invesco's Response	Practitioner's Testing
<p>Where activities relating to the Benchmark determination process are undertaken by third parties - for example collection of inputs, publication or where third-party acts as Calculation Agent - the Administrator should maintain appropriate oversight of such third parties. The Administrator (and its oversight function) should consider adopting policies and procedures that:</p> <ul style="list-style-type: none"> <li>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;</li> <li>b) Monitor third parties' compliance with the standards set out by the Administrator;</li> <li>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</li> <li>d) Take reasonable steps, including contingency plans, to avoid undue operational risk related to the participation of third parties in the Benchmark determination process.</li> </ul>	<p><b>Context</b></p> <p><i>Invesco Indexing LLC outsource the calculation and dissemination of its indexes to third-party Calculation Agents. All Calculation Agents are governed by a legal agreement defining their responsibilities. Invesco Indexing LLC performs numerous oversight processes related to the ongoing quality of index determination. This includes additional oversight by the IOC and subcommittee Calculation Provider Oversight Committee ("CPOC").</i></p> <p><i>Invesco Indexing LLC also relies on other key third parties for critical index infrastructure and other support services, e.g. FactSet and Invesco Ltd. Invesco Indexing LLC uses the central Invesco Ltd. Technology, Compliance, and Internal Audit functions. In particular, the Whistleblowing mechanism is administered by Invesco Ltd. Internal Audit.</i></p> <p><i>Invesco Indexing LLC is also supported by the Invesco Ltd. Vendor Risk Management Team, who carry out third party due diligence activities.</i></p> <p><i>Information on third parties related to index determination can be found in each Index Methodology document.</i></p>	
	<p><b>Relevant Activities</b></p> <p><b>In response to (a) of this Principle:</b></p>	

IOSCO Principle 2	Invesco's Response	Practitioner's Testing
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.		
	[PS02.1] Invesco Indexing LLC has in place the Indexing Outsourcing Policy that describes the oversight of key third-party service providers.	[PS02.1] PwC inspected the Indexing Outsourcing Policy to confirm that it describes the oversight of key third-party service providers.
	[PCA02.2] Annually, the IOC and a senior member of Invesco Indexing LLC review and approves the Indexing Outsourcing Policy.	[PCA02.2] PwC inspected the most review and confirmed that a review of the Indexing Outsourcing Policy by the IOC and a senior member of Invesco Indexing LLC had been undertaken within the last year.
	[PS02.3] Invesco Indexing LLC has a Mission Statement in place with Internal Audit and Enterprise Risk Management that ensures continued coverage of Whistleblower Policy.	[PS02.3] PwC have inspected the Internal Audit and Enterprise Risk Management Mission Statement and confirmed they ensure continued coverage of the Whistleblower Policy
	[PCA02.4] Annually, the Director of Operations reviews the Internal Audit Mission Statement to verify it ensures continued coverage of Whistleblower Policy.	[PCA02.4] PwC inspected the most recent review of the Internal Audit Mission Statement by the Director of Operations to confirm it ensures continued coverage of Whistleblower Policy.
	[PS02.5] Invesco Indexing LLC has agreed Mission Statements with Compliance and Information Technology which define the services provided by Compliance and Information Technology to Invesco Indexing LLC.	[PS02.5] PwC inspected the Mission Statements and confirmed that they define the services of Compliance and Information Technology in relation to Invesco Indexing LLC.
	[PCA02.6] Annually, the Director of Operations reviews the Mission Statements with Compliance and Information Technology to confirm it describes the	[PCA02.6] PwC inspected the most recent review of the Mission Statements and confirmed that they

IOSCO Principle 2	Invesco's Response	Practitioner's Testing
	services provided by Compliance and Information Technology to Invesco Indexing LLC.	define the services provided by Compliance and Information Technology to Invesco Indexing LLC.
	[PS02.7] Invesco Indexing LLC has contracts in place with all Calculation Agents that perform determination functions and other key data vendors which state the services that the Calculation Agent will provide to Invesco Indexing LLC.	[PS02.7] PwC inspected the contracts that Invesco Indexing LLC has in place with all Calculation Agents to confirm they exist and are valid and that they state the services that the Calculation Agent will provide to Invesco Indexing LLC.
	<p><b>In response to (b) and of this Principle:</b></p> <p>[PS02.8] The IOC Terms of Reference describe the overall oversight responsibility of the IOC related to external outsourcing arrangements. This includes:</p> <ul style="list-style-type: none"> <li>• Reviewing any discrepancies between the Administrator and third-party Calculation Agents' calculations to ensure they are addressed accordingly and where necessary including investigation into the reason for the discrepancy and agreement on changes to process to prevent ongoing discrepancies; and</li> <li>• Ensuring that there is sufficient oversight of external outsourcing arrangements such as Calculation Agents and, where necessary, ensure that such agents are engaged in best practices to ensure adequate oversight and controls on their side.</li> </ul>	<p>[PS02.8] With regards to b), PwC inspected the IOC Terms of Reference to confirm that it describes the overall oversight responsibility of the IOC, including:</p> <ul style="list-style-type: none"> <li>• Reviewing any discrepancies between the Administrator and third-party Calculation Agents' calculations to ensure they are addressed accordingly and where necessary including investigation into the reason for the discrepancy and agreement on changes to process to prevent ongoing discrepancies; and</li> <li>• Ensuring that there is sufficient oversight of external outsourcing arrangements such as Calculation Agents and, where necessary, ensure that such agents are engaged in best practices to ensure adequate oversight and controls on their side.</li> </ul>

IOSCO Principle 2	Invesco's Response	Practitioner's Testing
	[PS02.9] The Calculation Provider Oversight Committee ("CPOC") Terms of Reference detail the review performed by the CPOC related to oversight of third-party Calculation Agents.	[PS02.9] PwC inspected the Calculation Provider Oversight Committee ("CPOC") Terms of Reference to confirm it contains details of the review performed by the subcommittee related to oversight of third-party Calculation Agents.
	See Principle 15 – Internal Controls over Data Collection for further information about the monitoring of the Calculation Agents' index calculations.	Please see Principle 15 – Internal Controls over Data Collection for relevant testing.
	[PCA02.10] Monthly, members of the IRT meet with both ICE and Nasdaq to review any ongoing areas of concern related to prior month service or monthly rebalances.	[PCA02.10] PwC inspected the agendas and minutes of the most recent monthly meetings between the IRT and both ICE and Nasdaq to confirm that the relevant parties have reviewed areas of ongoing concern related to prior month service or monthly rebalances.
	[PCA02.11] Quarterly, members of the IRT meet with S&P to review any ongoing areas of concern related to prior quarter service or quarterly rebalances.	[PCA02.11] PwC inspected the agendas and minutes of the most recent quarterly meetings between the IRT and S&P to confirm that areas of ongoing concern related to prior month service or monthly rebalances.
	[PCA02.12] Quarterly, the CPOC meets to review any calculator errors for the prior quarter. The CPOC also reviews calculator Report Cards that evaluate the calculator's performance against an internal set of standards. This is documented in the CPOC meeting pack.	[PCA02.12] PwC inspected the most recent agenda, minutes and meeting packs of the quarterly CPOC meetings to confirm that the sub-committee has reviewed any calculator errors from the prior quarter and that within these quarterly meetings, the CPOC reviewed calculator Report Cards.
	[PCA02.13] Quarterly, the IOC monitors the quality of index determinations through materials provided for	[PCA02.13] PwC inspected the most recent quarterly meeting minutes and agendas and confirmed that



IOSCO Principle 2	Invesco's Response	Practitioner's Testing
	the IOC meeting. Any calculation errors or other issues are presented for review to the committee.	the IOC monitors the quality of index determinations through materials provided for the IOC meeting. Any calculation errors or other issues are presented for review to the committee.
	[PCA02.14] Quarterly, the IOC discusses the results of the CPOC meeting. This is captured in both the IOC meeting pack and minutes.	[PCA02.14] PwC inspected the most recent IOC meeting pack and minutes to confirm the CPOC meeting results were discussed.
	[PCA02.15] Annually, Invesco Indexing LLC meet with S&P, Nasdaq, and ICE to review their responses to the Annual Due Diligence Questionnaire (this includes confirmation of annual Business Continuity Testing). A summary of the year's services is reviewed and discussed as needed.	[PCA02.15] PwC inspected the minutes of the most recent annual meetings between Invesco Indexing LLC and S&P, Nasdaq, and ICE to confirm whether responses to the Annual Due Diligence Questionnaire have been reviewed. Additionally, PwC also inspected to confirm that where needed that a summary of the year's services have been reviewed and discussed.
	[PCA02.16] Annually, the Director of Operations reviews the FactSet due diligence performed by the Vendor Risk Management and Global Security Team. The Global Security Team reviews IT controls, including BCP Planning and Testing. Invesco Indexing LLC reviews the team's documentation to confirm the review provides sufficient information on the continued operation of FactSet.	[PCA02.16] PwC inspected the most recent review performed by the Director of Operations of the FactSet due diligence performed by the Vendor Risk Management and Global Security Team, including a review of IT controls, BCP Planning and Testing, and confirmed that review provides sufficient information on the continued operation of FactSet.
	[PCA02.17] Annually, the IOC Terms of Reference are reviewed for accuracy by the IOC and a senior member of Invesco Indexing LLC and any necessary updates made.	[PCA02.17] PwC inspected the most recent annual review of the IOC Terms of Reference to confirm that they were reviewed for accuracy by the IOC and a

IOSCO Principle 2	Invesco's Response	Practitioner's Testing
		senior member of Invesco Indexing LLC and any necessary updates made.
	<b>In response to (c) and of this Principle:</b> [PS02.18] The Index Methodology documents are available on the Invesco Indexing LLC website which indicates which third parties are used for index calculation.	[PS02.18] With respect to c), for a sample of Indexes, PwC inspected the Invesco Indexing LLC website to confirm that the Index Methodology document is publicly available and that it indicates which third parties are used for index calculation.
	[PCA02.19] Annually, the IOC and a senior member of Invesco Indexing LLC review and approve the Control and Accountability Framework Policy and make any necessary updates.	[PCA02.19] PwC inspected the review and confirmed that the Control and Accountability Framework Policy had been reviewed and approved by the IOC and a senior member of Invesco Indexing LLC within the last year.
	<b>In response to (d) and of this Principle:</b> [PS02.20] The Technology Mission Statement defines the requirement for annual business continuity testing.	[PS02.20] With respect to d), PwC inspected the Technology Mission Statement to confirm that it defines the requirement for annual business continuity testing.
	[PCA02.15] Annually, Invesco Indexing LLC meet with S&P, Nasdaq, and ICE to review their responses to the Annual Due Diligence Questionnaire (this includes confirmation of annual Business Continuity Testing). A summary of the year's services is reviewed and discussed as needed.	[PCA02.15] PwC inspected the minutes of the most recent annual meetings between Invesco Indexing LLC with S&P, Nasdaq, and ICE to confirm whether responses to the Annual Due Diligence Questionnaire have been reviewed. Additionally, PwC also inspected to confirm that where needed that a summary of the year's services have been reviewed and discussed.

IOSCO Principle 2	Invesco's Response	Practitioner's Testing
	<p>[PCA02.16] Annually, the Director of Operations reviews the FactSet due diligence performed by the Vendor Risk Management and Global Security Team. The Global Security Team reviews IT controls, including BCP Planning and Testing. Invesco Indexing LLC reviews the team's documentation to confirm the review provides sufficient information on the continued operation of FactSet.</p>	<p>[PCA02.16] PwC inspected the most recent review performed by the Director of Operations of the due diligence performed by the Vendor Risk Management and Global Security Team, including a review of IT controls, BCP Planning and Testing, and confirmed that review provides sufficient information on the continued operation of FactSet.</p>
	<p>[PCA02.21] Annually, Invesco Ltd (Technology Support) carry out BCP testing, which covers Invesco Indexing LLC.</p> <p>This PCA has not yet been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>	<p>[PCA02.21] PwC has not performed testing the basis that the PCA has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>

### Principle 3 – Conflicts of Interest

IOSCO Principle 3	Invesco's Response	Practitioner's Testing
<p>To protect the integrity and independence of Benchmark determinations, Administrators should document, implement and enforce policies and procedures for the identification, disclosure, management, mitigation or avoidance of conflicts of interest. Administrators should review and update their policies and procedures as appropriate.</p> <p>Administrators should disclose any material conflicts of interest to their users and any relevant Regulatory Authority, if any.</p> <p>The framework should be appropriately tailored to the level of existing or potential conflicts of interest identified and the risks that the Benchmark poses and should seek to ensure:</p> <p>a) Existing or potential conflicts of interest do not inappropriately influence Benchmark determinations.</p> <p>b) Personal interests and connections or business connections do not compromise the Administrator's performance of its functions;</p> <p>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;</p>	<p><b>Context</b></p> <p><i>Invesco Indexing LLC has a Conflicts of Interest Policy in place which outlines the process for identification and management of relevant conflicts as well as maintains a Conflict of Interest Register. The policy is overseen by the IOC, which includes members of Compliance and Legal. Additional guidance is provided via the Code of Ethics that applies to all employees of Invesco. The Code of Ethics is administered by the Compliance team with oversight performed within Star Compliance. This system assists in tracking Code of Ethics reviews as well as personal trading.</i></p>	
	<p><b>Relevant Activities</b></p> <p><b>In response to (a) and of this Principle:</b></p>	
	<p>[PS03.1] The Indexing Conflicts of Interest Policy describes the control structure for identifying and managing conflicts of interest.</p>	<p>[PS03.1] With respect to a), PwC inspected the Indexing Conflict of Interest Policy to validate its existence and confirmed that it describes the control structure for identifying and managing conflicts of interest.</p>
	<p>[PS03.2] The Conflicts of Interest Register contains disclosed or identified conflicts of interest related to Invesco Indexing LLC, and how they are mitigated.</p>	<p>[PS03.2] PwC inspected the Conflicts of Interest Register to validate its existence and confirmed that it contains disclosed or identified conflicts of interest</p>

IOSCO Principle 3	Invesco's Response	Practitioner's Testing
d) Adequate supervision and sign-off by authorized or qualified employees prior to releasing Benchmark determinations;		related to Invesco Indexing LLC, and how they are mitigated.
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;	[PS03.3] The IOC Terms of Reference describe the responsibilities of the committee related to conflicts of interest.	[PS03.3] PwC inspected the IOC Terms of Reference to validate its existence and confirmed that it describes the responsibilities of the committee related to conflicts of interest.
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	[PS03.4] Quarterly, the IOC covers a standing agenda item related to the IOC members disclosing any conflicts that may interfere with that meeting's agenda.	[PCA03.4] PwC inspected the agenda and minutes of the most recent quarterly meeting and confirmed that a standing agenda item related to the IOC members disclosing any conflicts that may interfere with that meeting's agenda was discussed.
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.	[PCA03.5] Annually, the IOC and a senior member of Invesco Indexing LLC reviews the Conflicts of Interest Policy for necessary updates or enhancements.	[PCA03.5] PwC inspected the review and confirmed that a review of the Conflicts of Interest Policy had been undertaken within the last year.
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:	[PCA03.6] Quarterly, the IOC reviews the Conflicts of Interest Register to identify if any new conflicts need to be added or existing conflicts need any adjustment.	[PCA03.6] PwC inspected the most recent IOC minutes to confirm any new or potential conflicts of interest were identified, as well as reviewing whether existing conflicts needed adjustment.
	[PCA03.7] Quarterly, Compliance reports via the IOC any policy breaches related to the Information Barrier Policy.	[PCA03.7] PwC inspected the most recent IOC minutes to confirm that Compliance had reported any policy breaches related to the Information Barrier Policy via the IOC.

IOSCO Principle 3	Invesco's Response	Practitioner's Testing
<p>a) Include measures to avoid, mitigate or disclose conflicts of interest that may exist between its Benchmark determination business (including all staff who perform or otherwise participate in Benchmark production responsibilities), and any other business of the Administrator or any of its affiliates; and</p> <p>b) Provide that an Administrator discloses conflicts of interest arising from the ownership structure or the control of the Administrator to its Stakeholders and any relevant Regulatory Authority in a timely manner.</p>	<p><b>In response to (b) and of this Principle:</b></p> <p>[PCA03.8] Quarterly, Invesco Indexing LLC employees complete a certification via Star Compliance to disclose any personal trading and confirm no improper use of material non-public information ("MNPI") related to securities within indexes prior to the information becoming public.</p>	<p>[PCA03.8] With respect to b), for a sample employee in the most recent quarter, PwC inspected training records to confirm that Invesco Indexing LLC employees complete a certification to disclose any personal trading and confirm no improper use of material non-public information ("MNPI") via Star Compliance within the last quarter.</p>
	<p>[PCA03.9] Annually, Invesco Indexing LLC employees complete a certification via Star Compliance confirming their understanding and compliance with the Conflicts of Interest Policy. A link to the Policy is included within the certification for easy access to review.</p>	<p>[PCA03.9] PwC inspected training records to confirm that Invesco Indexing LLC employees completed an annual certification within the last year that confirms their understanding and compliance with the Conflicts of Interest Policy. PwC inspected the annual certification to confirm it includes a link to the Policy.</p>
	<p>[PCA03.10] Upon occurrence, any new hires to Invesco Indexing LLC are provided a copy of the Conflicts of Interest Policy to review and new hires are required to confirm to the Director of Operations that the Policy is understood.</p>	<p>[PCA03.10] For a sample new joiner, PwC inspected email correspondence to confirm that they were provided with a copy of the Conflicts of Interest Policy, and that they confirmed to the Director of Operations that they have reviewed and understood the policy.</p>
	<p><b>In response to (c) and of this Principle:</b></p> <p>[PS03.11] Invesco Indexing LLC is a segregated legal entity within the group and so separate from entities with which it may have a Conflict of Interest.</p> <p>However the reporting line from the administrator entity converges with the reporting line of the primary</p>	<p>[PS03.11] With respect to c), PwC confirmed that Invesco Indexing LLC is a segregated legal entity within the group and so separate from entities with which it may have a Conflict of Interest.</p> <p>PwC also confirmed that the reporting line from the administrator entity converges with the reporting line</p>

IOSCO Principle 3	Invesco's Response	Practitioner's Testing
	<p>subscriber to its indexes immediately beyond the administration business.</p> <p><i>Refer to Section 6 for more information.</i></p>	<p>of the primary subscriber to its indexes immediately beyond the administration business.</p> <p><i>Refer to Section 6 for more information.</i></p>
	<p>[PCA03.6] Quarterly, the IOC reviews the Conflicts of Interest Register to identify if any new conflicts need to be added or existing conflicts need any adjustment.</p>	<p>[PCA03.6] PwC inspected the most recent IOC minutes to confirm any new or potential conflicts of interest were identified, as well as reviewing whether existing conflicts needed adjustment.</p>
	<p><b>In response to (d) and of this Principle:</b></p> <p>Please reference Principle 15 – Internal Controls over Data Collection for additional controls related to the daily quality review of index determinations and Principle 2 – Oversight of Third Parties for controls over the third-party Calculation Agents</p>	<p>With respect to d), please refer to Principle 15 – Internal Controls over Data Collection and Principle 2 - Oversight of Third Parties for relevant testing performed.</p>
	<p>[PCA03.12] Quarterly and monthly (depending on index rebalance schedule), the Director of Research approves the rebalance data that is sent to the Calculation Agents.</p>	<p>[PCA03.12] For the most recent sample index rebalance, PwC inspected correspondence to confirm that the Director of Research approved the rebalance data.</p>
	<p><b>In response to (e) and (f) of this Principle:</b></p> <p>Please reference Principle 4 – Controls Framework for controls related to logical access which control access to confidential data.</p>	<p>With respect to e) and f), please refer to Principle 4 for relevant testing performed.</p>
	<p>[PS03.13] The Information Barrier Policy describes controls in place to restrict and monitor</p>	<p>[PS03.13] PwC inspected the Information Barrier Policy to validate its existence and confirmed that it describes controls in place to restrict and monitor</p>

IOSCO Principle 3	Invesco's Response	Practitioner's Testing
	communication between the Indexing team and potential users of their indexes.	communication between the Indexing team and potential users of their indexes.
	[PCA03.14] Annually, Compliance provides the Self Indexing Communication Guidelines to portfolio teams that use Invesco Indexing indexes in managing a product. The Guidelines describes the appropriate methods of communicating with the Indexing team.	[PCA03.14] PwC inspected communication between Compliance and portfolio teams confirming that Compliance provides the Self Indexing Communication Guidelines to portfolio teams on an annual basis and that the Guidelines describe the appropriate methods of communicating with the Indexing team.
	[PCA03.15] Quarterly, Compliance monitors communications between Portfolio Managers and Invesco Indexing LLC/Third Party Index providers to detect any inappropriate communication. Any such communication will be investigated and escalated to the IOC if necessary.	[PCA03.15] PwC inspected the most recent IOC minutes to confirm that any inappropriate communication had been escalated by Compliance to the IOC.
	<p>[PCA03.16] Annually, the Invesco Indexing LLC shared network drive access is reviewed and validated by the Director of Operations. Any access that is not deemed appropriate is adjusted by Technology Support.</p> <p>This PCA has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>	<p>[PCA03.16] PwC has not performed testing on the basis that the PCA has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>



IOSCO Principle 3	Invesco's Response	Practitioner's Testing
	<p>[PCA03.17] Annually, the Information Barrier Policy is reviewed by the IOC.</p>	<p>[PCA03.17] PwC reviewed the IOC review of the Information Barrier Policy to confirm that it had been conducted within the last year.</p>
	<p><b>In response to (g) of this Principle:</b></p> <p>[PS03.18] The Invesco Remuneration Policy describes the restrictions on compensation structure for the Invesco Indexing LLC team. Specifically, the compensation and performance evaluation of persons involved in the determination and/or creation of indexes shall not be connected with the performance of the indexes or the products which are using such indexes.</p>	<p>[PS03.18] With respect to g), PwC inspected the Invesco Remuneration Policy to validate its existence and confirmed that it describes the restrictions on compensation structure for the Invesco Indexing LLC team, specifically, the compensation and performance evaluation of persons involved in the determination and/or creation of indexes shall not be connected with the performance of the indexes or the products which are using such indexes.</p>
	<p>[PCA03.19] The Director of Operations reviews the Invesco Remuneration Policy annually to ensure the continued inclusion of Invesco Indexing LLC and the specifics of the Policy as they relate to Invesco Indexing LLC remain relevant and applicable. The review results are emailed to a group inbox documenting the review.</p>	<p>[PCA03.19] PwC inspected the annual review of the Invesco Remuneration Policy to ensure the continued inclusion of Invesco Indexing LLC and the specifics of the Policy as they relate to Invesco Indexing LLC remain relevant and applicable, and that this review occurred in the last year, with the review results being emailed to a group inbox.</p>
	<p><b>In response to (a) and (b) of the second set of recommendations:</b></p> <p>[PS03.20] The IOC monitors conflicts of interest via the Conflicts of Interest Register, which includes conflicts related to reporting lines as well as those related to operating independently within an asset manager.</p>	<p>[PS03.20] With respect to a) and b) of the second set of recommendations, PwC inspected the Indexing Conflict of Interest Register to validate its existence and inclusion of conflicts related to reporting lines as well as those related to operating independently within an asset manager.</p>

IOSCO Principle 3	Invesco's Response	Practitioner's Testing
	[PCA03.4] Quarterly, the IOC covers a standing agenda item related to the IOC members disclosing any conflicts that may interfere with that meeting's agenda.	[PCA03.4] PwC inspected the most recent IOC quarterly minutes to confirm that IOC members disclosed whether they have any potential conflicts of interest with regards to the quarterly IOC agenda.
	[PS03.21] Upon occurrence, Invesco Indexing LLC will escalate and disclose any conflicts of interest that cannot be fully mitigated.	[PS03.21] PwC inspected the Conflict of Interest Policy to confirm that it states that conflicts of interest will be escalated and that actual and potential conflicts of interest will be disclosed.
	[PCA03.6] Quarterly, the IOC reviews the Conflicts of Interest Register to identify if any new conflicts need to be added or existing conflicts need any adjustment.	[PCA03.6] Quarterly, the IOC reviews the Conflicts of Interest Register to identify if any new conflicts need to be added or existing conflicts need any adjustment.
	[PS03.22] The Control and Accountability Framework is available on the Invesco Indexing LLC website which lists available Policies upon request, including the Conflicts of Interest Policy.	[PS03.22] PwC inspected the Control and Accountability Framework to confirm that it includes the fact that the Conflicts of Interest Policy is available upon request and that it is available on the Invesco Indexing LLC website.
	[PS03.23] The Conflicts of Interest Policy states that the Conflicts of Interest Register is available upon request.	[PS03.23] PwC inspected the Conflicts of Interest Policy and confirmed that it states that the Conflicts of Interest Register is available upon request.
	[PS03.11] Invesco Indexing LLC is a segregated legal entity within the group and so separate from entities with which it may have a Conflict of Interest. However, the reporting line from the administrator entity converges with the reporting line of the primary	[PS03.11] With respect to c), PwC confirmed that Invesco Indexing LLC is a segregated legal entity within the group and so separate from entities with which it may have a Conflict of Interest.

IOSCO Principle 3	Invesco's Response	Practitioner's Testing
	<p>subscriber to its indexes immediately beyond the administration business.</p> <p><i>Refer to Section 6 for more information.</i></p>	<p>PwC also confirmed that the reporting line from the administrator entity converges with the reporting line of the primary subscriber to its indexes immediately beyond the administration business.</p> <p><i>Refer to Section 6 for more information.</i></p>

## Principle 4 – Control Framework for Administrators

IOSCO Principle 4	Invesco's Response	Practitioner's Testing
<p>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.</p> <p>This control framework should be reviewed periodically and updated as appropriate. The framework should address the following areas:</p> <ul style="list-style-type: none"> <li>a) Conflicts of interest in line with Principle 3 on conflicts of interests;</li> <li>b) Integrity and quality of Benchmark determination: <ul style="list-style-type: none"> <li>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;</li> <li>ii. Arrangements to promote the integrity of Benchmark inputs, including adequate due diligence on input sources;</li> </ul> </li> </ul>	<p><b>Context</b></p> <p><i>Invesco Indexing LLC is subject to the wider Invesco Group policies, as well as specific policies for its business. The IOC is the governance and oversight body for Invesco Indexing LLC activity.</i></p> <p><i>Invesco Indexing LLC has documented and implemented a Control Framework for its activities as a Benchmark Administrator which covers policies and procedures, oversight and accountability mechanisms as well as methodologies.</i></p> <p><i>Invesco Indexing LLC indexes are not based on Submissions therefore the additional requirements do not apply.</i></p> <p><i>Invesco Ltd. Technology manages IT General Controls related to any system within Invesco, including Invesco Indexing LLC. The processing of all access requests, updates, etc. is outsourced by Invesco Indexing LLC to the Technology group.</i></p> <p><i>Invesco Ltd. Compliance and Internal Audit provide additional support functions to Invesco Indexing LLC.</i></p>	
	<p><b>Relevant Activities</b></p>	
	<p>[PS04.1] Invesco Indexing LLC maintains the Control and Accountability Framework Policy and the Control Framework document.</p>	<p>[PS04.1] With respect to a), PwC inspected the Control and Accountability Framework Policy and the</p>

IOSCO Principle 4	Invesco's Response	Practitioner's Testing
<p>iii. Arrangements to ensure accountability and complaints mechanisms are effective, in line with principles 16 to 19; and</p> <p>iv. Providing robust infrastructure, policies and procedures for the management of risk, including operational risk.</p> <p>c) Whistleblowing mechanism: Administrators should establish an effective whistleblowing mechanism to facilitate early awareness of any potential misconduct or irregularities that may arise. This mechanism should allow for external reporting of such cases where appropriate.</p> <p>d) Expertise: 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.</p> <p><b>Where a Benchmark is based on Submissions:</b> Administrators should promote the integrity of inputs by:</p> <p>a) Ensuring as far as possible that the Submitters comprise an appropriately representative group</p>		Control Framework document to confirm their existence.
	<p>[PCA04.2] Annually, the IOC and a senior member of Invesco Indexing LLC reviews and approves both the Control and Accountability Policy and Control Framework for continued accuracy and any necessary changes.</p> <p>The review of the Control Framework has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>	<p>[PCA04.2] PwC inspected the review and confirmed that the Control and Accountability Policy had been reviewed and approved by the IOC and a senior member of Invesco Indexing LLC within the last year.</p> <p>PwC has not performed testing on the review of the Control Framework on the basis that the review has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>
	<p><b>In response to (a) of this Principle:</b></p> <p>Invesco Indexing LLC maintains a Control Framework and Conflicts of Interest Policy which documents the procedures for addressing and mitigating conflicts of interest, as well as their data sources.</p> <p>Please refer to Principle 3 – Conflicts of Interest for further details.</p>	With respect to a), please refer to Principle 3 – Conflicts of Interest for relevant testing performed.
	<p><b>In response to (b)i) and ii) of this Principle:</b></p> <p>Invesco Indexing LLC's Control Framework contains the relevant controls responding to Principles 6 - 15 to ensure quality and integrity of the Indexes and data sources.</p> <p>In addition, the following IT controls are in place:</p>	With respect to b)i) – ii), please refer to Principles 6 – 15 for relevant testing performed.

IOSCO Principle 4	Invesco's Response	Practitioner's Testing
<p>of participants taking into consideration the underlying Interest measured by the Benchmark;</p> <p>b) Employing a system of appropriate measures so that, to the extent possible, Submitters comply with the Submission guidelines, as defined in the Submitter Code of Conduct and the Administrators' applicable quality and integrity standards for Submission;</p> <p>c) Specifying how frequently Submissions should be made and specifying that inputs or Submissions should be made for every Benchmark determination; and</p> <p>d) Establishing and employing measures to effectively monitor and scrutinize inputs or Submissions. This should include pre-compilation or pre-publication monitoring to identify and avoid errors in inputs or Submissions, as well as ex-post analysis of trends and outliers.</p>	<p>[PCA04.3] User access requests are sent via ServiceNow requiring approval in order to gain access to the IT environment.</p>	<p>[PCA04.3] PwC inspected a sample user access request from a recent new joiner and confirmed that the request was approved.</p>
	<p>[PCA04.4] Removal of access rights for leavers/transfers are actioned by raising a ServiceNow tickets to remove access.</p>	<p>[PCA04.4] PwC inspected a sample of a recent leaver/transfer and confirmed that management took action to remove the access rights by raising a ServiceNow ticket to remove access.</p>
	<p>[PCA04.5] Annual reviews are conducted to review user access to ensure that access remains appropriate.</p> <p>This PCA has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>	<p>[PCA04.5] PwC has not performed testing on the basis that the PCA has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>
	<p>[PCA04.6] Password complexity requirements are defined and in operation.</p>	<p>[PCA04.6] PwC inspected evidence to confirm that password complexity requirements were defined and in operation.</p>
	<p>[PCA04.7] Changes to the IT environment are tested and approved prior to production release.</p>	<p>[PCA04.7] PwC inspected a recent sample of changes to the IT environment and confirmed that they were tested and approved prior to release.</p>
	<p>[PCA04.8] Daily, the shared network drive used by Invesco Indexing LLC is backed up and stored for reference if needed. This network drive is where all market data, constituent data, index determinations, use of Expert Judgment, deviations from standard</p>	<p>[PCA04.8] PwC inspected records/logs of the shared network drive used by Invesco Indexing LLC and confirmed that it contains all market data, constituent data, index determinations, use of Expert Judgment, deviations from standard practice, and identity of</p>

IOSCO Principle 4	Invesco's Response	Practitioner's Testing
	<p>practice, and identity of those involved with index determination is retained. This data is retained for at least 5 years.</p>	<p>those involved with index determination is retained and is being correctly backed up and stored for reference on a daily basis, and that this data is retained for at least 5 years.</p>
	<p><b>In response to b)iii) of this Principle:</b></p> <p>Invesco Indexing LLC's Control Framework contains the relevant controls responding to Principles 16-19 in relation to accountability and complaints.</p>	<p>With respect to b)iii), please refer to Principles 16 – 19 for relevant testing performed.</p>
	<p><b>In response to b)iv) of this Principle:</b></p> <p>[PCA04.9] Annually, Invesco Group carry out an Operational Risk review to identify operational risks and put in place mitigants to these risks, including those which are relevant to Invesco Indexing LLC.</p> <p>Risks specific to Invesco Indexing LLC are not currently included in the wider Invesco Group Operational Risk review as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>	<p>[PCA04.9] With respect to b)iv), PwC has not performed testing on the basis that the PCA has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>
	<p>[PS04.10] Invesco Indexing LLC has agreed Mission Statements with Compliance and Information Technology which define the services provided by Compliance and Information Technology to Invesco Indexing LLC.</p>	<p>[PS04.10] PwC inspected the Mission Statements and confirmed that they define the services of Compliance and Information Technology in relation to Invesco Indexing LLC.</p>

IOSCO Principle 4	Invesco's Response	Practitioner's Testing
	[PCA04.11] Quarterly, the IOC covers a business update, including reviewing the Index Quality Control Results for that quarter.	[PCA04.11] PwC inspected the most recent IOC quarterly minutes to confirm that a business update was covered, including reviewing the Index Quality Control Results for that quarter.
	<b>In response to (c) of this Principle:</b> [PS04.12] The Invesco Group Whistleblower Policy is applicable to Invesco Indexing LLC and Invesco Indexing LLC participates in the Invesco Group Whistleblowing process.	[PS04.12] With respect to c), PwC inspected the Invesco Group Whistleblower Policy and confirmed that Invesco Indexing LLC continue to participate in Whistleblowing activities.
	[PCA04.13] Annually, the Director of Operations reviews the Whistleblower Policy to ensure they are comfortable with the procedures in place, and that they are fit for purpose.	[PCA04.13] PwC has inspected the Whistleblowing Policy and evidence of review of the Whistleblowing Policy by the Director of Operations to confirm that they are comfortable with the procedures in place and that they are fit for purpose.
	[PCA04.14] Quarterly, the IOC reviews any whistleblowing cases that have occurred in the quarter.	[PCA04.14] PwC inspected the most recent IOC meeting pack and minutes to confirm any whistleblowing cases that have occurred in the last quarter were discussed.  PwC confirmed via inquiry that there have been no recent whistleblowing cases to report as at April 6, 2023.
	<b>In response to (d)i) of this Principle:</b> [PS04.15] The Knowledge and Competence Policy includes the process and controls to ensure appropriate skills and knowledge of the Invesco Indexing LLC team.	[PS04.15] With respect to d)i), PwC inspected the Knowledge and Competence policy to validate its existence and confirm that it includes the process and controls to ensure appropriate skills and knowledge of the Invesco Indexing LLC team.



IOSCO Principle 4	Invesco's Response	Practitioner's Testing
	[PCA04.16] Annually, the IOC and a senior member of Invesco Indexing LLC reviews the Knowledge and Competency Policy and makes any necessary updates.	[PCA04.16] PwC inspected the Knowledge and Competency Policy and confirmed that it was reviewed by the IOC and a senior member of Invesco Indexing LLC and that any necessary updates were made.
	[PCA04.17] Quarterly, all Invesco Indexing LLC employees participate in Active Performance Management, the employee evaluation process, including a review by their line manager.	[PCAS04.17] PwC inspected system records and confirmed that all employees participated in Active Performance Management by completing an employee evaluation, including a review by their line manager, in the last quarter.
	<p><b>In response to d)ii) of this Principle:</b></p> <p>[PS04.18] Annually, all Invesco Indexing LLC employees complete Annual Compliance training which includes ethics topics and attestation to Conflicts of Interest Policy. Compliance monitors for completion of this training.</p>	[PS04.18] With respect to d)ii), PwC inspected system records and confirmed that Invesco Indexing LLC employees complete Annual Compliance training which includes ethics topics and this is monitored by Compliance.
	[PS04.19] Invesco Indexing LLC staff and management involved in the index determination process have alternative staff member for the purpose of staff continuity.	[PS04.19] PwC inspected the Invesco Indexing LLC Organisational Chart and confirmed that each relevant business area has more than one person in that business areas.

## Principle 5 – Internal Oversight

IOSCO Principle 5	Invesco's Response	Practitioner's Testing
<p>Administrators should establish an oversight function to review and provide challenge on all aspects of the Benchmark determination process. This should include consideration of the features and intended, expected or known usage of the Benchmark and the materiality of existing or potential conflicts of interest identified.</p> <p>The oversight function should be carried out either by a separate committee, or other appropriate governance arrangements. The oversight function and its composition should be appropriate to provide effective scrutiny of the Administrator. Such oversight function could consider groups of Benchmarks by type or asset class, provided that it otherwise complies with this Principle.</p> <p>An Administrator should develop and maintain robust procedures regarding its oversight function, which should be documented and available to relevant Regulatory Authorities, if any. The main features of the procedures should be Made Available to Stakeholders. These procedures should include:</p> <p>a) The terms of reference of the oversight function;</p> <p>b) Criteria to select members of the oversight function;</p> <p>c) The summary details of membership of any committee or arrangement charged with the</p>	<p><b>Context</b></p> <p><i>The IOC is the main governance and oversight body for Invesco Indexing LLC Index activities.</i></p> <p><i>The committee is represented by senior members of Invesco predominantly from Legal and Compliance from the US, UK and Ireland as voting members, complemented by senior business heads who hold no voting rights. The Chief Compliance Officer, Invesco Capital Management (another subsidiary of Invesco Ltd.) is the Chair of this committee. While other members may be invited from time to time, if they are subject to Information Barrier, their access to data and participation is controlled and monitored by Legal &amp; Compliance.</i></p> <p><i>Additionally, Invesco Indexing LLC's indexes do not rely on Submissions, so those requirements do not apply.</i></p>	
	<p><b>Relevant Activities</b></p> <p><b>In response to a) – c) of this Principle:</b></p>	
	<p>[PS05.1] The IOC Terms of Reference, which is available upon request, contain a description of the following:</p> <p>a) Section 1 &amp; 2 – Description &amp; Responsibilities: the terms of reference of the oversight function.</p>	<p>[PS05.1] With respect to a) – c), PwC inspected the Indexing Oversight Committee Terms of Reference to validate its existence, that it is available upon request, and confirm that it contains a description of the requirements for:</p>

IOSCO Principle 5	Invesco's Response	Practitioner's Testing
<p>oversight function, along with any declarations of conflicts of interest and processes for election, nomination or removal and replacement of committee members.</p> <p><b>The responsibilities of the oversight function include:</b></p> <p>a) Oversight of the Benchmark design:</p> <ul style="list-style-type: none"> <li>i. Periodic review of the definition of the Benchmark and its Methodology;</li> <li>ii. Taking measures to remain informed about issues and risks to the Benchmark, as well as commissioning external reviews of the Benchmark (as appropriate);</li> <li>iii. Overseeing any changes to the Benchmark Methodology, including assessing whether the Methodology continues to appropriately measure the underlying Interest, reviewing proposed and implemented changes to the Methodology, and authorising or requesting the Administrator to undertake a consultation with Stakeholders where known or its Subscribers on such changes as per Principle 12; and</li> <li>iv. Reviewing and approving procedures for termination of the Benchmark, including guidelines that set out how the Administrator</li> </ul>	<p>b) Section 3 – Composition: the composition of and criteria to select members of the oversight function.</p> <p>c) Section 3 – Composition: the summary details of membership of the committee, including the process for nomination, election and removal of members, along with the processes for handling/documenting conflicts of interest. See Principle 3 – Conflicts of Interest for further information.</p>	<p>a) The terms of reference of the oversight function.</p> <p>b) The composition of and criteria to select members of the oversight function.</p> <p>c) The summary details of membership of the committee, including the process for nomination, election and removal of members, along with the processes for handling/documenting conflicts of interest. Please also see Principle 3 - Conflicts of Interest for relevant testing.</p>
	<p>[PCA05.2] Annually, the IOC and a senior member of Invesco Indexing LLC reviews and approves the Terms of Reference.</p>	<p>[PCA05.2] PwC inspected the Terms of Reference and confirmed that review by the IOC and a senior member of Invesco Indexing LLC has taken place within the year.</p>
	<p><b>In response to a) i) of this Principle:</b></p> <p>[PS05.3] The IOC Terms of Reference define the oversight responsibilities of the committee under Section 2. Responsibilities, including details of periodic review of the definition of the indexes and methodologies.</p>	<p>[PS05.3] With respect to a) i), PwC inspected the IOC Terms of Reference to validate its existence and confirm that it defines the oversight responsibilities of the committee, including details of periodic review of the definition of the indexes and methodologies.</p>
	<p><b>In response to a) ii) of this Principle:</b></p> <p>[PS05.4] The IOC Terms of Reference define the oversight responsibilities of the committee under Section 2. Responsibilities, and Section 5. Committee Materials specifically:</p>	<p>[PS05.4] With respect to a) ii), PwC inspected the IOC Terms of Reference to validate its existence and confirm that it defines the oversight responsibilities of the committee under Section 2. Responsibilities, and Section 5. Committee Materials specifically:</p>

IOSCO Principle 5	Invesco's Response	Practitioner's Testing
<p>should consult with Stakeholders about such cessation.</p> <p>b) Oversight of the integrity of Benchmark determination and control framework:</p> <p>i. Overseeing the management and operation of the Benchmark, including activities related to Benchmark determination undertaken by a third party;</p> <p>ii. Considering the results of internal and external audits, and following up on the implementation of remedial actions highlighted in the results of these audits; and</p> <p>iii. Overseeing any exercise of Expert Judgment by the Administrator and ensuring Published Methodologies have been followed.</p> <p><b>Where conflicts of interests may arise in the Administrator due to its ownership structures or controlling interests, or due to other activities conducted by any entity owning or controlling the Administrator or by the Administrator or any of its affiliates:</b></p> <ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Assessing internal and external audits or reviews and monitoring the implementation of identified remedial actions.</li> <li>Latest and updated Inventory including \$NAV, funds involved, Calculation Agents, licensees, client types, input data category</li> <li>Keeping updated on regulatory and market updates</li> </ul> <p>[PCA05.2] Annually, the IOC and a senior member of Invesco Indexing LLC reviews and approves the Terms of Reference.</p> <p>[PCA05.5] Quarterly, the IOC agenda includes a standing item for Compliance updates, which would include regulatory updates as well as any industry updates. Additionally, results of internal or external reviews are also reviewed as a standing agenda item.</p> <p><b>In response to a) iii) of this Principle:</b></p> <p>[PS05.6] The IOC Terms of Reference define the oversight responsibility of the committee under Section 2. Responsibilities, and Section 5. Committee Materials specifically:</p> <ul style="list-style-type: none"> <li>Reviewing any index methodology changes to ensure such changes followed the protocols as</li> </ul>	<ul style="list-style-type: none"> <li>Assessing internal and external audits or reviews and monitoring the implementation of identified remedial actions.</li> <li>Latest and updated Inventory including \$NAV, funds involved, Calculation Agents, licensees, client types, input data category</li> <li>Keeping updated on regulatory and market updates</li> </ul> <p>[PCA05.2] PwC inspected the Terms of Reference, and confirmed that review by the IOC and a senior member of Invesco Indexing LLC has taken place within the last year.</p> <p>[PCA05.5] PwC inspected the most recent quarterly IOC meeting minutes and agendas and confirmed that the agenda includes a standing item for Compliance updates. PwC also confirmed that results of internal and external reviews are also reviewed.</p> <p>[PS05.6] With respect to a) iii), PwC inspected the IOC Terms of Reference to validate its existence and confirm that it defines the oversight responsibility of the committee under Section 2. Responsibilities, and Section 5. Committee Materials specifically:</p> <ul style="list-style-type: none"> <li>Reviewing any index methodology changes to ensure such changes followed the protocols as</li> </ul>

IOSCO Principle 5	Invesco's Response	Practitioner's Testing
<p><b>Where a Benchmark is based on Submissions:</b></p> <p>the oversight function should provide suitable oversight and challenge of the Submissions by:</p> <p>a) Overseeing and challenging the scrutiny and monitoring of inputs or Submissions by the Administrator. This could include regular discussions of inputs or Submission patterns, defining parameters against which inputs or Submissions can be analysed, or querying the role of the Administrator in challenging or sampling unusual inputs or Submissions;</p> <p>b) Overseeing the Code of Conduct for Submitters;</p> <p>c) Establishing effective arrangements to address breaches of the Code of Conduct for Submitters; and</p> <p>d) Establishing measures to detect potential anomalous or suspicious Submissions and in case of suspicious activities, to report them, as well as any misconduct by Submitters of which it becomes aware to the relevant Regulatory Authorities, if any</p>	described in the Index Methodology Change Policy.	described in the Index Methodology Change Policy.
	See Principle 12 on Changes to the Methodology for further details relating to changes to index methodologies.	Please refer to Principle 12 on Changes to the Methodology for relevant testing performed.
	<p><b>In response to a) iv) of this Principle:</b></p> <p>[PS05.7] The IOC Terms of Reference defines that the IOC is responsible for approving Invesco Indexing LLC Policies, including the Changes to Benchmark Methodology and Cessation Policy, which defines the process for ceasing indexes.</p>	[PS05.7] In respect of a) iv), PwC inspected the IOC Terms of Reference to confirm that it defines that the IOC is responsible for approving Invesco Indexing LLC Policies, including the Changes to Benchmark Methodology and Cessation Policy, which defines the process for ceasing indexes.
	[PCA05.8] Annually, the IOC and a senior member of Invesco Indexing LLC reviews and approves the Changes to Benchmark Methodology and Cessation Policy, which defines the process for ceasing indexes.	[PCA05.8] PwC inspected the Benchmark Methodology and Cessation Policy and confirmed that it was reviewed by the IOC and a senior member of Invesco Indexing LLC within the last year.
	See Principle 13 on Transitions for further details relating to index cessation.	Please refer to Principle 13 on Transitions for relevant testing performed.
	<p><b>In response to b) i) of this Principle:</b></p> <p>[PS05.9] The IOC Terms of Reference contain sections that address the following requirements:</p> <p>Section 2 – Responsibilities:</p> <ul style="list-style-type: none"> <li>Review any discrepancies between the Administrator and third-party Calculation</li> </ul>	<p>[PS05.9] In respect of b) i), PwC inspected the IOC Terms of Reference to confirm that it contains a description of the requirements for Responsibilities, including:</p> <ul style="list-style-type: none"> <li>Reviewing any discrepancies between the Administrator and third-party Calculation Agents' calculations to ensure they are</li> </ul>

IOSCO Principle 5	Invesco's Response	Practitioner's Testing
	<p>Agents' calculations to ensure they are addressed accordingly where necessary including investigation into the reason for the discrepancy and agreement on changes to process to prevent ongoing discrepancies.</p> <ul style="list-style-type: none"> <li>Ensuring that there is sufficient oversight of external outsourcing arrangements such as Calculation Agents and, where necessary, ensure that such agents are engaged in best practices to ensure adequate oversight and controls on their side.</li> </ul>	<p>addressed accordingly where necessary including investigation into the reason for the discrepancy and agreement on changes to process to prevent ongoing discrepancies.</p> <ul style="list-style-type: none"> <li>Ensuring that there is sufficient oversight of external outsourcing arrangements such as Calculation Agents and, where necessary, ensure that such agents are engaged in best practices to ensure adequate oversight and controls on their side.</li> </ul>
	<p>See Principle 2 – Oversight of Third Parties for further information on the Invesco Indexing LLC oversight of the Calculation Agents.</p>	<p>Please see Principle 2 – Oversight of Third Parties for relevant testing.</p>
	<p><b>In response to b) ii) of this Principle:</b></p> <p>[PS05.10] The IOC Terms of Reference contain sections that address the following requirements:</p> <p>Section 2 – Responsibilities:</p> <ul style="list-style-type: none"> <li>Assessing internal and external audits or reviews and monitoring the implementation of identified remedial actions.</li> </ul>	<p>[PS05.10] In respect of b) ii), PwC inspected the Indexing Oversight Committee Terms of Reference to confirm that it contains a description of the requirements for Responsibilities, including:</p> <ul style="list-style-type: none"> <li>Assessing internal and external audits or reviews and monitoring the implementation of identified remedial actions.</li> </ul>
	<p><b>In response to b) iii) of this Principle:</b></p> <p>[PS05.9] The IOC Terms of Reference contain sections that address the following requirements:</p>	<p>[PS05.9] In respect of b) iii), PwC inspected the Indexing Oversight Committee Terms of Reference to confirm that it contains a description of the requirements for Responsibilities, including:</p>

IOSCO Principle 5	Invesco's Response	Practitioner's Testing
	<p>Section 2 – Responsibilities:</p> <ul style="list-style-type: none"> <li>Review any discrepancies between the Administrator and third-party Calculation Agents' calculations to ensure they are addressed accordingly where necessary including investigation into the reason for the discrepancy and agreement on changes to process to prevent ongoing discrepancies.</li> <li>Ensuring that there is sufficient oversight of external outsourcing arrangements such as Calculation Agents and, where necessary, ensure that such agents are engaged in best practices to ensure adequate oversight and controls on their side.</li> </ul>	<ul style="list-style-type: none"> <li>Reviewing any discrepancies between the Administrator and third-party Calculation Agents' calculations to ensure they are addressed accordingly where necessary including investigation into the reason for the discrepancy and agreement on changes to process to prevent ongoing discrepancies.</li> <li>Ensuring that there is sufficient oversight of external outsourcing arrangements such as Calculation Agents and, where necessary, ensure that such agents are engaged in best practices to ensure adequate oversight and controls on their side.</li> </ul>
	<p>[PS05.11] The responsibility for applying Expert Judgement, when required, lies with Calculation Agents. While Invesco Indexing LLC have guidelines in place for the application of Expert Judgement by Calculation Agents and perform retrospective review of instances where it is applied, approval from Invesco is not obtained in advance and there is no periodic attestation by the Calculation Agents of compliance with the guidelines.</p> <p><i>Refer to Section 6 for more information.</i></p>	<p>[PS05.11] PwC inspected a sample of Index Methodologies to confirm that the responsibility for applying Expert Judgement lies with Calculation Agents.</p> <p>PwC also enquired with management and confirmed that approval for the application of Expert Judgement by Calculation Agents is not obtained in advance and there is no periodic attestation by the Calculation Agents of compliance with the guidelines.</p> <p><i>Refer to Section 6 for more information.</i></p>
	<p><b>In response to “Where conflicts of interests may arise in the Administrator” of the Principle:</b></p>	<p>[PS05.12] In respect of “Where conflicts of interests may arise in the Administrator”, PwC inspected the IOC Terms of Reference to ensure that the IOC is</p>

IOSCO Principle 5	Invesco's Response	Practitioner's Testing
	[PS05.12] To ensure that conflicts of interest are mitigated the IOC is made up of a range of stakeholders, with representatives attending from Invesco Indexing LLC, the main user of the indexes, and Invesco Legal and Compliance functions.	made up of a range of stakeholders, with representatives attending from Invesco Indexing LLC, the main user of the indexes, and Invesco Legal and Compliance functions.



## Principle 6 – Benchmark Design

IOSCO Principle 6	Invesco's Response	Practitioner's Response
<p>The design of the Benchmark should seek to achieve and result in an accurate and reliable representation of the economic realities of the Interest it seeks to measure and eliminate factors that might result in a distortion of the price, rate, index or value of the Benchmark.</p> <p>Benchmark design should take into account the following generic non-exclusive features, and other factors should be considered, as appropriate to the particular Interest:</p> <ul style="list-style-type: none"> <li>a) Adequacy of the sample used to represent the Interest;</li> <li>b) Size and liquidity of the relevant market (for example whether there is sufficient trading to provide observable, transparent pricing);</li> <li>c) Relative size of the underlying market in relation to the volume of trading in the market that references the Benchmark;</li> <li>d) The distribution of trading among Market Participants (market concentration); and</li> <li>e) Market dynamics (e.g., to ensure that the Benchmark reflects changes to the assets underpinning a Benchmark).</li> </ul>	<p><b>Context</b></p> <p><i>The Index design and what the Index is intended to measure are detailed in each of the respective Index Methodologies.</i></p> <p><i>Invesco Indexing LLC develops and licenses proprietary indexes across major equity, fixed income and alternative asset classes. The indexes are tailored to meet client needs ranging from performance indexes to financial engines that power ETFs and institutional portfolios. This customized framework allows Invesco Indexing LLC to construct indexes that achieve desired client outcomes.</i></p> <p><b>Equity Data</b> – <i>The Invesco Indexing Investable universe serves as the foundation for all the equity indexes. The Invesco Indexing Investable Universe Methodology outlines the full details on this which is available on the website.</i></p> <p><b>Fixed Income Data</b> – <i>The Invesco Indexing Investable universe of eligible securities is outlined in detail in each of the relevant methodology documents which are published on the website.</i></p> <p><b>Multi-Asset Data</b> – <i>All Multi-Asset indexes created by Invesco Indexing LLC are a combination of existing equity or fixed income indexes, so the data descriptions for both Equity and Fixed Income apply.</i></p>	

IOSCO Principle 6	Invesco's Response	Practitioner's Response
	<p><i>With respect to the relative size of the underlying market in relation to the volume of trading in the market that references the Index, due to the fact that the ETFs which use the underlying securities as an index have a smaller AUM than the value of the underlying securities there is very little risk of that the trading in the ETFs would outweigh the value of the underlying securities.</i></p> <p><b>Relevant Activities</b></p> <p><b>In response to a) of this Principle:</b></p> <p>[PS06.1] The Invesco Indexing Investable Universe (III Universe) addresses the following which describes how the universe selected is an appropriate sample to represent the interest being evaluated:</p> <ul style="list-style-type: none"> <li>For Equity securities – Invesco Indexing Investable Equity Universe (Pg. 9 - Investability): Only meaningfully sized companies are considered investable and are eligible for inclusion in the III Equity Universe. For developed markets and emerging markets separately, the size of the overall market is computed as the total company market capitalization of all primaries. These securities are then ranked in descending order of total company market capitalization, and the investable set of companies is defined by the top cumulative</li> </ul>	<p>[PS06.1] In response to a), PwC examined the Invesco Indexing Investable Universe (III Universe) and confirmed that it addresses how the universe selected is an appropriate sample to represent the interest being evaluated:</p> <ul style="list-style-type: none"> <li>For Equity securities – Invesco Indexing Investable Equity Universe (Pg. 9 - Investability): Only meaningfully sized companies are considered investable and are eligible for inclusion in the III Equity Universe. For developed markets and emerging markets separately, the size of the overall market is computed as the total company market capitalization of all primaries. These securities are then ranked in descending order of total company market capitalization, and the investable set of companies is defined by the top cumulative 96% of total market capitalization for developed markets and the top 98% for emerging markets. All new universe</li> </ul>

IOSCO Principle 6	Invesco's Response	Practitioner's Response
	<p>96% of total market capitalization for developed markets and the top 98% for emerging markets. All new universe constituents must have company market capitalizations that exceed these thresholds. For current constituents, the requirements for continued inclusion in the universe are adjusted to reduce turnover in the universe and, ultimately, in the associated indexes. In the case of company- level market capitalization, the minimum size thresholds for developed and emerging markets are 99% and 99.5%, respectively.</p> <ul style="list-style-type: none"> <li>For Fixed Income securities – Invesco Indexing Investable Bond Universe (pg. 15 – Eligible Securities.): Securities eligible for the III Bond Universe must meet the following criteria. These criteria seek to ensure that the universe encompasses the full global bond opportunity set. Most requirements apply to all bond sectors. However, several criteria, such as those for asset-backed securities (ABS), mortgage-backed securities (MBS), commercial mortgage-backed securities (CMBS), and tax-exempt municipal securities, are particular to those bond types.</li> </ul>	<p>constituents must have company market capitalizations that exceed these thresholds. For current constituents, the requirements for continued inclusion in the universe are adjusted to reduce turnover in the universe and, ultimately, in the associated indexes. In the case of company- level market capitalization, the minimum size thresholds for developed and emerging markets are 99% and 99.5%, respectively.</p> <ul style="list-style-type: none"> <li>For Fixed Income securities – Invesco Indexing Investable Bond Universe (pg. 15 – Eligible Securities.): Securities eligible for the III Bond Universe must meet the following criteria. These criteria seek to ensure that the universe encompasses the full global bond opportunity set. Most requirements apply to all bond sectors. However, several criteria, such as those for asset-backed securities (ABS), mortgage-backed securities (MBS), commercial mortgage-backed securities (CMBS), and tax-exempt municipal securities, are particular to those bond types.</li> </ul>
	<p><b>In response to b)-c) of this Principle:</b></p>	<p>[PS06.2] In response to b) - c), PwC inspected the Invesco Indexing Investable Universe (III Universe) to confirm that it defines minimum size and eligible</p>

IOSCO Principle 6	Invesco's Response	Practitioner's Response
	<p>[PS06.2] The Invesco Indexing Investable Universe (III Universe) defines minimum size and eligible security types and what trading history, volume, and pricing is available before inclusion in universe to ensure there is sufficient size and liquidity in the underlying markets.</p>	<p>security types and what trading history, volume, and pricing is available before inclusion in universe to ensure there is sufficient size and liquidity in the underlying markets.</p>
	<p><b>In response to d) of this Principle:</b></p> <p>[PS06.3] The Invesco Indexing Investable Universe (III Universe) includes criteria to ensure sufficient coverage of liquid securities to ensure adequate distribution of trading among Market Participants:</p> <ul style="list-style-type: none"> <li>• For Equity securities: Securities must have been trading for at least one month and traded over a minimum number of days over both the short term and long term, meet a minimum criteria of shares outstanding being free float, the market capitalization must meet a threshold, and that shares are required to trade sufficient volume over the long and short term; and</li> <li>• For Fixed Income securities: Securities must have a minimum amount outstanding, have pricing available, and a minimum threshold for time remaining until maturity.</li> </ul>	<p>[PS06.3] In response to d), PwC inspected the Invesco Indexing Investable Universe (III Universe) document to confirm that it includes criteria to ensure sufficient coverage of liquid securities to ensure adequate distribution of trading among Market Participants:</p> <ul style="list-style-type: none"> <li>• For Equity securities: Securities must have been trading for at least one month and traded over a minimum number of days over both the short term and long term, meet a minimum criteria of shares outstanding being free float, the market capitalization must meet a threshold, and that shares are required to trade sufficient volume over the long and short term; and</li> <li>• For Fixed Income securities: Securities must have a minimum amount outstanding, have pricing available, and a minimum threshold for time remaining until maturity.</li> </ul>

IOSCO Principle 6	Invesco's Response	Practitioner's Response
	<p><b>In response to e) of this Principle:</b></p> <p>[PS06.4] The Invesco Indexing Investable Universe (III Universe) describes the periodic (quarterly for equities and monthly for fixed income) rebalance process that ensures continued accurate reflection of the market.</p>	<p>[PS06.4] In response to e), PwC inspected the Invesco Indexing Investable Universe (III Universe) document to confirm that it describes the periodic (quarterly for equities and monthly for fixed income) rebalance process that ensures continued accurate reflection of the market.</p>
	<p>[PCA06.5] Annually, the Invesco Indexing Investable Universe (III Universe) and Invesco Indexing Bond Universe (III Bond Universe) are reviewed for any needed updates by the Index Review Team ("IRT") and this is documented via a confirmation email.</p> <p>This PCA has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>	<p>[PCA06.5] PwC has not performed testing on the basis that the PCA has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>
	<p>[PCA06.6] Quarterly (for Equity indexes) / Monthly (for Fixed Income indexes), the Director of Research approves the rebalance data that is sent to the Calculation Agents. This approval is documented via an email sent to Research.</p>	<p>[PCA06.6] For a recent sample rebalance, PwC inspected emails to confirm that the Director of Research reviewed the rebalance data and sent an approval email to the entire Research team.</p>
	<p>[PCA06.7] Annually, the IRT performs an Economic Reality Review of all indexes. This review assesses that all indexes continue to meet their original design (including size, market, security types, etc.) and is then reviewed and approved by the IOC.</p> <p>This PCA has not been fully implemented as at April 6, 2023.</p>	<p>[PCA06.7] PwC has not performed testing on the basis that the PCA has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>

IOSCO Principle 6	Invesco's Response	Practitioner's Response
	<i>Refer to Section 6 for more information.</i>	
	See Principle 15 – Internal Controls over Data Collection for further information about the daily monitoring of the Calculation Agents' index calculations.	Please see Principle 15 – Internal Controls over Data Collection for relevant testing.

## Principle 7 – Data Sufficiency

IOSCO Principle 7	Invesco's Response	Practitioner's Response
<p>The data used to construct a Benchmark determination should be sufficient to accurately and reliably represent the Interest measured by the Benchmark and should:</p> <p>a) Be based on prices, rates, indices or values that have been formed by the competitive forces of supply and demand in order to provide confidence that the price discovery system is reliable; and</p> <p>b) Be anchored by observable transactions entered into at arm's length between buyers and sellers in the market for the Interest the Benchmark measures in order for it to function as a credible indicator of prices, rates, indices or values.</p> <p>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</p>	<p><b>Context</b></p> <p><i>The input data used for these Indexes are readily available to both Invesco Indexing LLC and the third-party calculator and there are no restrictions on whom can access this data (excluding licensing rights).</i></p> <p><i>The Invesco Indexing LLC team access Equity and Fixed Income data via Factset, who in turn aggregates this data from a number of sources, including IDC, S&amp;P and Moody's. In addition, the input data used by the Calculation Agent is not solely used for determining the Index.</i></p>	
	<p><b>Relevant Activities</b></p> <p><b>In response to a) and b) of this Principle:</b></p> <p>The Calculation Agents used by Invesco Indexing LLC are responsible for the pricing of indexes.</p> <p>For further information, reference Principle 2 – Oversight of Third Parties.</p>	With respect to a) and b), please refer to Principle 2 – Oversight of Third Parties for relevant testing performed.
	<p>[PS07.1] Invesco Indexing LLC creates and maintains index methodology documents that explain the sufficiency of the data used in index creation. This can be found in the section 'Calculator Input Data Used and Hierarchy of Input Data' that the indexes are "calculated using closing prices or last transacted prices of underlying constituent securities</p>	<p>[PS07.1] PwC inspected the methodology documents to confirm that they explain the sufficiency of the data used in index creation. This can be found in the section 'Calculator Input Data Used and Hierarchy of Input Data' that the indexes are "calculated using closing prices or last transacted prices of underlying constituent securities from exchanges or exchange</p>

IOSCO Principle 7	Invesco's Response	Practitioner's Response
<p>and offers or extrapolations from prior transactions. This is further clarified in Principle 8.</p> <p>Provided that subparagraphs (a) and (b) above are met, Principle 7 does not preclude Benchmark Administrators from using executable bids or offers as a means to construct Benchmarks where anchored in an observable market consisting of Bona Fide, Arms-Length transactions.</p> <p>This Principle also recognizes that various indices may be designed to measure or reflect the performance of a rule-based investment strategy, the volatility or behaviour of an index or market or other aspects of an active market. Principle 7 does not preclude the use of non-transactional data for such indices that are not designed to represent transactions and where the nature of the index is such that non-transactional data is used to reflect what the index is designed to measure. For example, certain volatility indices, which are designed to measure the expected volatility of an index of securities transactions, rely on non-transactional data, but the data is derived from and thus "anchored" in an actual functioning securities or options market.</p>	<p>from exchanges or exchange equivalents. Should this type of data be unavailable, the Index may be calculated using quotes or evaluated data or, in case when continued availability of transacted security prices from security exchanges is suspended, the Calculator reserves the right to exercise a judgement call, including carrying forward the latest available closing price, thereby ensuring that the prices are formed by supply and demand and that the transactions are arm's length and observable.</p>	<p>equivalents. Should this type of data be unavailable, the Index may be calculated using quotes or evaluated data or, in case when continued availability of transacted security prices from security exchanges is suspended, the Calculator reserves the right to exercise a judgement call, including carrying forward the latest available closing price.", thereby ensuring that the prices are formed by supply and demand and that the transactions are arm's length and observable.</p>



## Principle 8 – Hierarchy of Data Inputs

IOSCO Principle 8	Invesco's Response	Practitioner's Response
<p>An Administrator should establish and Publish or Make Available clear guidelines regarding the hierarchy of data inputs and exercise of Expert Judgment used for the determination of Benchmarks. In general, the hierarchy of data inputs should include:</p> <ul style="list-style-type: none"> <li>a) Where a Benchmark is dependent upon Submissions, the Submitters' own concluded arms-length transactions in the underlying interest or related markets;</li> <li>b) Reported or observed concluded Arm's-length Transactions in the underlying interest;</li> <li>c) Reported or observed concluded Arm's-length Transactions in related markets;</li> <li>d) Firm (executable) bids and offers; and</li> <li>e) Other market information or Expert Judgments.</li> </ul> <p>Provided that the Data Sufficiency Principle is met (i.e., an active market exists), this Principle is not intended to restrict an Administrator's flexibility to use inputs consistent with the Administrator's approach to ensuring the quality, integrity, continuity and reliability of its Benchmark determinations, as set out in the Administrator's Methodology. The Administrator should retain flexibility to use the inputs it believes are appropriate under its Methodology to ensure the</p>	<p><b>Context</b></p> <p><i>For each Index the description of data inputs is stated in the respective Index Methodologies which are publicly available on Invesco Indexing LLC website.</i></p> <p><i>Additionally, Invesco Indexing LLC's indexes do not rely on submissions, so those requirements do not apply.</i></p>	
	<p><b>Relevant Activities</b></p> <p><b>In response to a) - d) of this Principle:</b></p> <p>[PS08.1] The index methodologies contain the sections 'Calculator Input Data Used and Hierarchy of Input Data' and 'Use of Discretion and/or Expert Judgement' which explains both the hierarchy of data inputs and when Expert Judgement may be used.</p>	<p>[PS08.1] In response to a) - d) of this Principle, PwC inspected the methodology documents to confirm that they explain both the hierarchy of data inputs and when Expert Judgement may be used.</p>
	<p>Index calculators are responsible for data inputs used in index determination, reference Principle 2 – Oversight of Third Parties and Principle 15 – Internal Controls of Data Collection for more information.</p>	<p>Please refer to Principle 2 – Oversight of Third Parties and Principle 15 – Internal Controls of Data Collection for relevant testing performed.</p>
	<p><b>In response to e) of this Principle:</b></p> <p>The Indexes follow a rules-based methodology and therefore Expert Judgement is not applied as a rule, however, in certain market conditions, Expert</p>	<p>Please refer to Principle 1 - Overall Responsibility of the Administrator for relevant testing performed.</p>

IOSCO Principle 8	Invesco's Response	Practitioner's Response
<p>quality and integrity of its Benchmark. For example, certain Administrators may decide to rely upon Expert Judgment in an active albeit low liquidity market, when transactions may not be consistently available each day. IOSCO also recognizes that there might be circumstances (e.g., a low liquidity market) when a confirmed bid or offer might carry more meaning than an outlier transaction. Under these circumstances, non-transactional data such as bids and offers and extrapolations from prior transactions might predominate in a given Benchmark determination.</p>	<p>Judgement may be exercised by the Calculation Agents.</p> <p>Refer to Principle 1 - Overall Responsibility of the Administrator for more information about Invesco Indexing LLC's oversight of Expert Judgement applied by the Calculation Agents.</p>	
	<p>Invesco Indexing LLC may apply Expert Judgement retroactively when restating indexes and/or correcting errors.</p> <p>Refer to Principle 11 – Content of the Methodology for more information about restatements and error correction.</p>	<p>Please refer to Principle 11 – Content of the Methodology for relevant testing performed.</p>

## Principle 9 – Transparency of Benchmark Determinations

IOSCO Principle 9	Invesco's Response	Practitioner's Response
<p>The Administrator should describe and publish with each Benchmark determination, to the extent reasonable without delaying an Administrator publication deadline:</p> <p>a) A concise explanation, sufficient to facilitate a Stakeholder's or Market Authority's ability to understand how the determination was developed, including, at a minimum, the size and liquidity of the market being assessed (meaning the number and volume of transactions submitted), the range and average volume and range and average of price, and indicative percentages of each type of market 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);</p> <p>b) A concise explanation of the extent to which and the basis upon which Expert Judgment if any, was used in establishing a Benchmark determination.</p>	<p><b>Context</b></p> <p><i>Invesco Indexing LLC publishes all its Index methodology documents and index levels on the Invesco Indexing LLC website. Index levels are based on closing prices or last transacted prices or quotes of underlying constituent securities from exchanges or exchange equivalents and follow rules based methodologies designed to eliminate discretion and Expert Judgement.</i></p> <p><i>For Equity indexes, Invesco Indexing LLC uses prices that are exchange traded, publicly available and sourced directly, therefore the range and average volume/price of input data is not relevant for Invesco Indexing LLC.</i></p> <p><i>For Fixed Income indexes, bid price is used by the Invesco Indexing LLC team for rebalances, and the calculators determine daily values using closing prices or last transacted prices of underlying constituent securities from exchanges or exchange equivalents.</i></p> <p><i>Indicative percentages of types of market data is also less applicable because the market data that is used is 100% observable transaction prices, with no weighting for different types of price data (i.e., bids/offers are not used for example - therefore proportionality when responding to this Principle can be applied).</i></p>	

IOSCO Principle 9	Invesco's Response	Practitioner's Response
	.	
	<p><b>Relevant Activities</b></p> <p><b>In response to a) of this Principle:</b></p> <p>[PS09.1] Each index and/or universe methodology document includes the following:</p> <ul style="list-style-type: none"> <li>• Details of how determinations are developed, including what market data is being used ("closing prices or last transacted prices of underlying constituent securities from exchanges or exchange equivalents").</li> <li>• Explanation and justification for the size and liquidity of the market being assessed is explained within the Invesco Indexing Investable Universe Methodology for equity, and the individual Methodologies for fixed income.</li> <li>• Invesco Indexing LLC's Methodology defines what the terms used mean and suitable definitions are included under section Definition of Key Terms.</li> </ul>	<p>[PS09.1] With respect to a), PwC inspected the methodology documents (index and/or universe methodologies) to confirm that they include the following:</p> <ul style="list-style-type: none"> <li>• Details of how the determination was developed, including what market data is being used ("closing prices or last transacted prices of underlying constituent securities from exchanges or exchange equivalents").</li> <li>• Explanation and justification for the size and liquidity of the market being assessed is explained within the Invesco Indexing Investable Universe Methodology for equity, and the individual Methodologies for fixed income.</li> <li>• Invesco Indexing LLC's Methodology defines what the terms used mean and suitable definitions are included under section Definition of Key Terms.</li> </ul>
	<p><b>In response to b) of this Principle:</b></p> <p>The Indexes follow a rules-based methodology and therefore Expert Judgement is not applied as a rule, however, in certain market conditions, Expert Judgement may be exercised by the Calculation Agents.</p>	<p>Please refer to Principle 1 - Overall Responsibility of the Administrator for relevant testing performed.</p>

IOSCO Principle 9	Invesco's Response	Practitioner's Response
	<p>Refer to Principle 1 - Overall Responsibility of the Administrator for more information about Invesco Indexing LLC's oversight of Expert Judgement applied by the Calculation Agents.</p>	
	<p>Invesco Indexing LLC may apply Expert Judgement retroactively when restating indexes and/or correcting errors.</p> <p>Refer to Principle 11 – Content of the Methodology for more information about restatements and error correction.</p>	<p>Please refer to Principle 11 – Content of the Methodology for relevant testing performed</p>

## Principle 10 – Periodic Review

IOSCO Principle 10	Invesco's Response	Practitioner's Response
<p>The Administrator should periodically review the conditions in the underlying Interest that the Benchmark measures to determine whether the Interest has undergone structural changes that might require changes to the design of the Methodology. The Administrator also should periodically review whether the Interest has diminished or is non-functioning such that it can no longer function as the basis for a credible Benchmark.</p> <p>The Administrator should Publish or Make Available a summary of such reviews where material revisions have been made to a Benchmark, including the rationale for the revisions.</p>	<p><b>Context</b></p> <p><i>Invesco Indexing LLC periodically, at least annually, reviews each Index and its accompanying methodology, in addition to periodic rebalancing to ensure the Index continues to accurately represent that portion of the market it was originally intended to, and deliver the outcomes one would expect from the Index's exposures.</i></p> <p><i>In addition to this, on a quarterly basis the Equity indexes are rebalanced and on a monthly basis the Fixed Income indexes are rebalanced. These rebalances are carried out by the IRT team and approved by the Director of Research.</i></p>	
	<p><b>Relevant Activities</b></p> <p>[PCA10.1] Annually, the IRT performs an Economic Reality Review of all indexes. This review assesses that all indexes continue to meet their original design (including size, market, security types, etc.).</p> <p>This PCA has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>	<p>[PCA10.1] PwC has not performed testing the basis that the PCA has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>
	<p>[PCA10.2] Annually, the IOC and a senior member of Invesco Indexing LLC review and approve the index methodologies.</p>	<p>[PCA10.2] PwC inspected the review by the IOC and a senior member of Invesco Indexing LLC to confirm that the index methodologies were reviewed and approved within the last year.</p>

IOSCO Principle 10	Invesco's Response	Practitioner's Response
	[PCA10.3] A summary of all reviews where a material change is made to an index is published after the change has been made, including the rationale for the change.	[PCA10.3] PwC confirmed via inquiry that there were no instances of the control to test.
	For further information on changes to index methodologies and how these are communicated, reference Principle 12 - Changes to the Methodology and Principle 13 – Transition.	Please refer to Principle 12 – Changes to the Methodology and Principle 13 – Transition for relevant testing performed.

## Principle 11 – Content of the Methodology

IOSCO Principle 11	Invesco's Response	Practitioner's Response
<p>The Administrator should document and Publish or Make Available the Methodology used to make Benchmark determinations. The Administrator should provide the rationale for adopting a particular Methodology. The Published Methodology should provide sufficient detail to allow Stakeholders to understand how the Benchmark is derived and to assess its representativeness, its relevance to particular Stakeholders, and its appropriateness as a reference for financial instruments.</p> <p><b>At a minimum, the Methodology should contain:</b></p> <ul style="list-style-type: none"> <li>a) Definitions of key terms;</li> <li>b) All criteria and procedures used to develop the Benchmark, including input selection, the mix of inputs used to derive the Benchmark, the guidelines that control the exercise of Expert Judgment by the Administrator priority given to certain data types, minimum data needed to determine a Benchmark, and any models or extrapolation methods;</li> </ul>	<p><b>Context</b></p> <p><i>All the Index Methodologies of Invesco Indexing LLC are available publicly on their website for each index.</i></p> <p><i>Additionally, Invesco Indexing LLC's indexes do not rely on submissions, so those requirements do not apply.</i></p>	
	<p><b>Relevant Activities</b></p> <p><b>In response to (a-d) of this Principle:</b></p> <p>[PS11.1] Invesco Indexing LLC methodology documents are publicly available on Invesco Indexing LLC's website and contain the following sections:</p> <ul style="list-style-type: none"> <li>a) Definition of key terms;</li> <li>b) Criteria and procedures used to develop the index, including the input selection and mix inputs;</li> <li>c) Procedures related to use of Expert Judgement; and</li> <li>d) Procedures during periods of market stress and when data sources are absent.</li> </ul>	<p>[PS11.1] With respect to a) - d), PwC inspected Invesco Indexing LLC methodology documents and confirmed they contain the following sections:</p> <ul style="list-style-type: none"> <li>a) Definitions of key terms;</li> <li>b) Criteria and procedures used to develop the index, including the input selection and mix inputs;</li> <li>c) Procedures related to use of Expert Judgement; and</li> <li>d) Procedures during periods of market stress and when data sources are absent.</li> </ul>



IOSCO Principle 11	Invesco's Response	Practitioner's Response
<p>c) Procedures and practices designed to promote consistency in the exercise of Expert Judgment between Benchmark determinations;</p> <p>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);</p> <p>e) The procedures for dealing with error reports, including when a revision of a Benchmark would be applicable;</p> <p>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;</p> <p>g) The circumstances and procedures under which the Administrator will consult with Stakeholders, as appropriate; and</p> <p>h) The identification of potential limitations of a Benchmark, including its operation in illiquid or fragmented markets and the possible concentration of inputs.</p> <p><b>Where a Benchmark is based on Submissions, the additional Principle also applies:</b></p> <p>The Administrator should clearly establish criteria for including and excluding Submitters. The criteria should consider any issues arising from the location</p>	<p><b>In response to (e-h) of this Principle:</b></p> <p>[PS11.2] The Changes to Benchmark Methodology and Cessation Policy (which is publicly available and referenced from the methodology document) includes the following:</p> <p>e) When index restatements may occur and the resultant procedures followed;</p> <p>f) Procedures for internal reviews of the methodologies;</p> <p>g) When client consultations need to occur and how it is carried out; and</p> <p>h) Internal Review of indexes that identifies if an index continues to represent the market it is intended.</p>	<p>PwC have also confirmed that Invesco Indexing LLC methodology documents are publicly available on Invesco Indexing LLC's website.</p> <p>[PS11.2] With respect to e) – h) PwC inspected the Changes to Benchmark Methodology and Cessation Policy and confirmed that it contains a description of how changes and cessations to indexes are handled, including the following:</p> <p>e) When index restatements may occur and the resultant procedures followed;</p> <p>f) Procedures for internal reviews of the methodologies;</p> <p>g) When client consultations need to occur and how it is carried out; and</p> <p>h) Internal Review of indexes that identifies if an index continues to represent the market it is intended.</p> <p>PwC has also confirmed that the Changes to Benchmark Methodology and Cessation Policy is publicly available and referred to from the methodology document.</p>

IOSCO Principle 11	Invesco's Response	Practitioner's Response
<p>of the Submitter, if in a different jurisdiction to the Administrator. These criteria should be available to any relevant Regulatory Authorities, if any, and Published or Made Available to Stakeholders. Any provisions related to changes in composition, including notice periods should be made clear.</p>		

## Principle 12 – Changes to the Methodology

IOSCO Principle 12	Invesco's Response	Practitioner's Response
<p>An Administrator should Publish or Make Available the rationale of any proposed material change in its Methodology, and procedures for making such changes. These procedures should clearly define what constitutes a material change, and the method and timing for consulting or notifying Subscribers (and other Stakeholders where appropriate, taking into account the breadth and depth of the Benchmark's use) of changes.</p> <p>Those procedures should be consistent with the overriding objective that an Administrator must ensure the continued integrity of its Benchmark determinations. When changes are proposed, the Administrator should specify exactly what these changes entail and when they are intended to apply.</p> <p>The Administrator should specify how changes to the Methodology will be scrutinized, by the oversight function.</p> <p>The Administrator should develop Stakeholder consultation procedures in relation to changes to the Methodology that are deemed material by the oversight function, and that are appropriate and proportionate to the breadth and depth of the Benchmark's use and the nature of the Stakeholders. Procedures should:</p> <p>a) Provide advance notice and a clear timeframe that gives Stakeholders sufficient opportunity to</p>	<p><b>Context</b></p> <p><i>The Changes to Benchmark Methodology and Cessation policy outlines and details the internal review, the procedure for a material change and a non-material change as well as for cessation of Indexes.</i></p>	
	<p><b>Relevant Activities</b></p> <p>[PS12.1] Invesco Indexing LLC maintains a Changes to Benchmark Methodology and Cessation Policy which describes the process for determining materiality of index changes. This policy is publicly available on the Invesco Indexing LLC website.</p>	<p>[PS12.1] PwC inspected the Changes to Benchmark Methodology and Cessation Policy document to confirm that it describes the process for determining the materiality of an index change and that it is publicly available on the Invesco Indexing LLC website.</p>
	<p>[PS12.2] The Changes to Benchmark Methodology and Cessation Policy describes when a consultation for index subscribers is held. This includes:</p> <ul style="list-style-type: none"> <li>• A description of the change;</li> <li>• Process of the consultation including advance notice and a clear timeframe; and</li> <li>• How a summary of any comments and responses received may be communicated.</li> </ul>	<p>[PS12.2] PwC inspected the Changes to Benchmark Methodology and Cessation Policy document to confirm that it describes when a consultation for index subscribers is held the following are included:</p> <ul style="list-style-type: none"> <li>• A description of the change;</li> <li>• Process of the consultation including advance notice and a clear timeframe; and</li> <li>• How a summary of any comments and responses received may be communicated.</li> </ul>
	<p>[PS12.3] The IOC reviews any methodology changes that are deemed material as determined by the</p>	<p>[PS12.3] PwC inspected the Changes to Benchmark Methodology and Cessation Policy to confirm that the</p>

IOSCO Principle 12	Invesco's Response	Practitioner's Response
<p>analyse and comment on the impact of such proposed material changes, having regard to the Administrator's assessment of the overall circumstances; and</p> <p>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.</p>	<p>Changes to Benchmark Methodology and Cessation Policy.</p>	<p>IOC reviews any methodology changes that are deemed material as determined by the Changes to Benchmark Methodology and Cessation Policy.</p>
	<p>[PCA12.4] The IOC reviews and approves any material methodology changes.</p>	<p>[PCA12.4] PwC confirmed via inquiry that there were no instances of the control to test.</p>
	<p>[PCA12.5] For any proposed material changes Invesco Indexing LLC will publicly consult with stakeholders and any feedback from this consultation, and Invesco Indexing LLC's responses, will be available upon request.</p>	<p>[PCA12.5] PwC confirmed via inquiry that there were no instances of the control to test.</p>
	<p>[PCA12.6] Annually, the IOC and a senior member of Invesco Indexing LLC reviews the Changes to Benchmark Methodology and Cessation Policy and makes any necessary updates.</p>	<p>[PCA 12.6] PwC inspected the Changes to Benchmark Methodology and Cessation Policy and confirmed that it was reviewed by the IOC and a senior member of Invesco Indexing LLC that any changes were approved within the last year.</p>
	<p>[PCA12.7] Proposed changes to the index methodologies are presented by the Director of Research to the other Directors for discussion and approval. Decisions are recorded in meeting minutes and the change summary spreadsheets showing the potential change impacts to the index affected.</p>	<p>[PCA12.7] PwC confirmed via inquiry that any changes to index methodologies would be presented by the Director of Research and then reviewed by the Invesco Indexing LLC Directors.</p> <p>PwC confirmed via inquiry that there have been no changes to index methodologies as at April 6, 2023.</p>

## Principle 13 – Transition

IOSCO Principle 13	Invesco's Response	Practitioner's Response
<p>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.</p> <p>These written policies and procedures should be Published or Made Available to all Stakeholders.</p> <p>Administrators should encourage Subscribers and other Stakeholders who have financial instruments that reference a Benchmark to take steps to make sure that:</p> <p>a) Contracts or other financial instruments that reference a Benchmark, have robust fall-back provisions in the event of material changes to, or cessation of, the referenced Benchmark; and</p>	<p><b>Context</b></p> <p><i>The Changes to Benchmark Methodology and Cessation Policy describes the procedure for the Index decommissioning and cessation. It is stated that when Invesco Indexing LLC considers that an Index no longer represents the market or economic reality it was originally intended to measure, or when Invesco Indexing LLC wishes to cease publication, Invesco Indexing LLC may propose ceasing publication of the Index.</i></p>	
	<p><b>Relevant Activities</b></p> <p><b>In response to the first set of a)-b):</b></p> <p>[PS13.1] Invesco Indexing LLC maintains the Changes to Benchmark Methodology and Cessation Policy (which is publicly available) which describes the process and timeline for ceasing an index. The Policy describes reasons for a methodology change and makes the reader aware of the possibility that factors beyond Invesco Indexing LLC's control may result in a methodology change.</p>	<p>[PS13.1] With respect to a) – b), PwC inspected the Changes to Benchmark Methodology and Cessation Policy and confirmed that it describes the process and timeline for ceasing an index, as well as reasons for a methodology change and makes the reader aware of the possibility that factors beyond Invesco Indexing LLC's control may result in a methodology change.</p> <p>PwC has also confirmed that the Changes to Benchmark Methodology and Cessation Policy is publicly available.</p>
	<p>[PS13.2] The Changes to Benchmark Methodology and Cessation Policy states that if an index were to cease then the public consultation may also consider an alternative Index as a substitute and indicate why such Index would be a suitable alternative, but that</p>	<p>[PS13.2] PwC inspected the Changes to Benchmark Methodology and Cessation Policy and confirmed that it states that if an index were to cease then the public consultation may also consider an alternative Index as a substitute and indicate why such Index</p>

IOSCO Principle 13	Invesco's Response	Practitioner's Response
<p>b) Stakeholders are aware of the possibility that various factors, including external factors beyond the control of the Administrator, might necessitate material changes to a Benchmark.</p> <p>Administrators' written policies and procedures to address the possibility of Benchmark cessation could include the following factors, if determined to be reasonable and appropriate by the Administrator:</p> <p>a) Criteria to guide the selection of a credible, alternative Benchmark such as, but not limited to, criteria that seek to match to the extent practicable the existing Benchmark's characteristics (e.g., credit quality, maturities and liquidity of the alternative market), differentials between Benchmarks, the extent to which an alternative Benchmark meets the asset/liability needs of Stakeholders, whether the revised Benchmark is investable, the availability of transparent transaction data, the impact on Stakeholders and impact of existing legislation;</p> <p>b) The practicality of maintaining parallel Benchmarks (e.g., where feasible, maintain the existing Benchmark for a defined period of time to permit existing contracts and financial instruments to mature and publish a new Benchmark) in order to accommodate an orderly transition to a new Benchmark;</p>	<p>Invesco Indexing LLC is under no obligation to provide such an alternative, and index users are encouraged to seek substitutes that best suit their individual needs.</p>	<p>would be a suitable alternative, but that Invesco Indexing LLC is under no obligation to provide such an alternative, and index users are encouraged to seek substitutes that best suit their individual needs.</p>
	<p>[PS13.3] The Changes to Benchmark Methodology and Cessation Policy states that Invesco Indexing LLC may propose ceasing publication of an index when it no longer represents the market or economic reality it was originally intended to measure or when Invesco Indexing LLC wishes to cease publishing it.</p>	<p>[PS13.3] PwC inspected the Changes to Benchmark Methodology and Cessation Policy and confirmed that it states that Invesco Indexing LLC may propose ceasing publication of an index when it no longer represents the market or economic reality it was originally intended to measure or when Invesco Indexing LLC wishes to cease publishing it.</p>
	<p><b>In response to the second set of Principles a)-e):</b></p> <p>[PS13.4] The Changes to Benchmark Methodology and Cessation Policy includes the following:</p> <ul style="list-style-type: none"> <li>a) Consideration for Invesco Indexing LLC to help identify a replacement index in the case of ceased indexes with subscribers (Section 2.2 Cessation);</li> <li>b) Procedures of ceasing an index that has subscribers (Section 2.1.2 Material Changes);</li> <li>c) Procedures if a suitable replacement cannot be identified (Section 2.2 Cessation);</li> <li>d) Period of time until cessation (Section 2.1.2 Material Changes); and</li> </ul>	<p>[PS13.4] With respect to the second set of Principles a)-e), PwC inspected The Changes to Benchmark Methodology and Cessation Policy and confirmed that it includes the following:</p> <ul style="list-style-type: none"> <li>a) Consideration for Invesco Indexing LLC to help identify a replacement index in the case of ceased indexes with subscribers;</li> <li>b) Procedures of ceasing an index that has subscribers;</li> <li>c) Procedures if a suitable replacement cannot be identified;</li> <li>d) Period of time until cessation; and</li> <li>e) Process to engage with stakeholders.</li> </ul>

IOSCO Principle 13	Invesco's Response	Practitioner's Response
<p>c) The procedures that the Administrator would follow in the event that a suitable alternative cannot be identified;</p> <p>d) In the case of a Benchmark or a tenor of a Benchmark that will be discontinued completely, the policy defining the period of time in which the Benchmark will continue to be produced in order to permit existing contracts to migrate to an alternative Benchmark if necessary; and</p> <p>e) The process by which the Administrator will engage Stakeholders and relevant Market and National Authorities, as appropriate, in the process for selecting and moving towards an alternative Benchmark, including the timeframe for any such action commensurate with the tenors of the financial instruments referencing the Benchmarks and the adequacy of notice that will be provided to Stakeholders.</p>	<p>e) Process to engage with stakeholders (Section 2.1.2 Material Changes).</p>	
	<p>[PCA13.5] Annually, the IOC and a senior member of Invesco Indexing LLC reviews the Changes to Benchmark Methodology and Cessation Policy and makes any necessary updates.</p>	<p>[PCA13.5] PwC inspected the Benchmark Methodology and Cessation Policy and confirmed that it was reviewed by the IOC and a senior member of Invesco Indexing LLC and that any necessary updates were made.</p>
	<p>[PS13.6] All index cessation proposals will follow the Changes to Benchmark Methodology and Cessation Policy.</p>	<p>[PS13.6] PwC inspected the Benchmark Methodology and Cessation Policy and confirmed that all index cessation proposals will follow the Changes to Benchmark Methodology and Cessation Policy.</p>
	<p>[PCA13.7] All cessation proposals follow the Cessation process as defined in the Changes to Benchmark Methodology and Cessation Policy.</p> <p>This PCA has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>	<p>[PCA13.7] PwC has not performed testing on the basis that the PCA has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>

## Principle 14 – Submitter Code of Conduct

IOSCO Principle 14	Invesco's Response	Practitioner's Response
<p>Where a Benchmark is based on Submissions, the following additional Principle also applies:</p> <p>The Administrator should develop guidelines for Submitters ("Submitter Code of Conduct"), which should be available to any relevant Regulatory Authorities, if any and Published or Made Available to Stakeholders.</p> <p>The Administrator should only use inputs or Submissions from entities which adhere to the Submitter Code of Conduct and the Administrator should appropriately monitor and record adherence from Submitters. The Administrator should require Submitters to confirm adherence to the Submitter Code of Conduct annually and whenever a change to the Submitter Code of Conduct has occurred.</p> <p>The Administrator's oversight function should be responsible for the continuing review and oversight of the Submitter Code of Conduct.</p> <p>The Submitter Code of Conduct should address:</p> <ul style="list-style-type: none"> <li>f) The selection of inputs;</li> <li>g) Who may submit data and information to the Administrator;</li> <li>h) Quality control procedures to verify the identity of a Submitter and any employee(s) of a Submitter who report(s) data or information and the authorization of such person(s) to report market data on behalf of a Submitter;</li> </ul>	<p><b>Context</b></p> <p><i>Please refer to Principle 15 – Internal Controls over Data Collection for further information.</i></p> <p><i>None of the Invesco Indexes are based on submissions; therefore, this Principle does not apply.</i></p> <p><b>Relevant Activities</b></p> <p>Not applicable</p>	<p>No testing performed given the Principle is not applicable.</p>



IOSCO Principle 14	Invesco's Response	Practitioner's Response
<ul style="list-style-type: none"> <li>i) Criteria applied to employees of a Submitter who are permitted to submit data or information to an Administrator on behalf of a Submitter;</li> <li>j) Policies to discourage the interim withdrawal of Submitters from surveys or Panels;</li> <li>k) Policies to encourage Submitters to submit all relevant data; and</li> <li>l) The Submitters' internal systems and controls, which should include: <ul style="list-style-type: none"> <li>iv. Procedures for submitting inputs, including Methodologies to determine the type of eligible inputs, in line with the Administrator's Methodologies;</li> <li>v. Procedures to detect and evaluate suspicious inputs or transactions, including inter-group transactions, and to ensure the <i>Bona Fide</i> nature of such inputs, where appropriate;</li> <li>vi. Policies guiding and detailing the use of Expert Judgment, including documentation requirements;</li> <li>vii. Record keeping policies;</li> <li>viii. Pre-Submission validation of inputs, and procedures for multiple reviews by senior staff to check inputs;</li> <li>ix. Training, including training with respect to any relevant regulation (covering Benchmark regulation or any market abuse regime);</li> </ul> </li> </ul>		

IOSCO Principle 14	Invesco's Response	Practitioner's Response
<p>x. Suspicious Submission reporting;</p> <p>xi. Roles and responsibilities of key personnel and accountability lines;</p> <p>xii. Internal sign off procedures by management for submitting inputs;</p> <p>xiii. Whistle blowing policies (in line with Principle 4); and</p> <p>xiv. 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</p>		

IOSCO Principle 14	Invesco's Response	Practitioner's Response
business of the Submitter or of any of its affiliates or any of their respective clients or customers.		

## Principle 15 – Internal Controls over Data Collection

IOSCO Principle 15	Invesco's Response	Practitioner's Response
<p>When an Administrator collects data from any external source the Administrator should ensure that there are appropriate internal controls over its data collection and transmission processes. These controls should address the process for selecting the source, collecting the data and protecting the integrity and confidentiality of the data. Where Administrators receive data from employees of the Front Office Function, the Administrator should seek corroborating data from other sources.</p>	<p><b>Context</b></p> <p><i>Invesco Indexing LLC performs numerous oversight processes related to the ongoing quality of index determination. This includes additional oversight by the IOC and CPOC.</i></p> <p><i>Invesco Indexing LLC selects the source for the data. For indexes that use a third-party calculation agent, the data itself is collected via our third-party Calculation Agents who are responsible for those index determinations. Please see Principle 2 – Oversight of Third Parties for additional detail. No data is received from employees of the Front Office Function.</i></p> <p><i>In relation to confidentiality of data, Invesco Indexing LLC manages user logical access for all data and decision making at Invesco Indexing LLC. Please see Principle 4 – Control Framework for more information.</i></p> <p><i>Reference Principle 3 – Conflicts of Interest for more information related to information barriers that are in place for Invesco Indexing LLC.</i></p>	
	<p><b>Relevant Activities</b></p> <p>[PS15.1] The Daily QA Procedure document defines the process for the daily review of the index</p>	<p>[PS15.1] PwC inspected the Daily QA Procedure document to confirm it defines the process for the</p>

IOSCO Principle 15	Invesco's Response	Practitioner's Response
	calculation files received from the Calculation Agents and follow up activities.	daily review of the index calculation files received from the Calculation Agents and follow up activities.
	<p>[PS15.2] Daily, an automated Quality Assurance ("QA") report for equity, fixed income and multi asset indexes is generated by the Index Review Team. The QA report for both Equity and Fixed Income asset classes highlight movements above a certain threshold.</p> <p>The QA report for Multi Asset compares the Calculation Agent's index level against an internal recalculation and highlights any differences.</p>	<p>[PS15.2] PwC inspected the automated Quality Assurance report for equity, fixed income and multi asset indexes to confirm it was generated by the Index Review Team and that they highlight movements above a certain threshold.</p> <p>PwC inspected a QA report for a Multi Asset index to confirm they compare the Calculation Agent's index level against an internal recalculation and highlights any differences.</p>
	[PCA15.3] Daily, a member of the Index Review Team reviews the QA report which details movements that breach predefined tolerances and therefore need to be investigated.	[PCA15.3] PwC inspected the most recent sample QA report to confirm that it was reviewed by the IRT and sent this review and that for any potential errors the IRT member worked with the relevant Calculation Agent to determine next steps.
	<p>[PCA15.4] Monthly, the Director of Operations selects a sample of days to confirm the daily QA was completed by the IRT.</p> <p>This PCA has not yet been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>	<p>[PCA15.4] PwC has not performed testing the basis that the PCA has not been fully implemented as at April 6, 2023.</p> <p><i>Refer to Section 6 for more information.</i></p>
	[PS15.5] If potential errors are identified, the IRT works directly with the calculator to determine if an	[PS15.5] PwC inspected the IRT error log to confirm that potential errors are followed up with the

IOSCO Principle 15	Invesco's Response	Practitioner's Response
	error has been made. This is typically completed via email.	calculator to determine if an error has been made and what resolution was undertaken.
	[PS15.6] The IOC Terms of Reference define the oversight the IOC is responsible for in relation to data quality and index quality results.	[PS15.6] PwC inspected the IOC Terms of Reference to confirm that it defines the oversight the IOC is responsible for in relation to data quality and index quality results.
	See Principle 2 – Oversight of Third Parties for more information on the monitoring of Calculation Agents.	Please refer to Principle 2 – Oversight of Third Parties for relevant testing.

## Principle 16 – Complaints Procedures

IOSCO Principle 16	Invesco's Response	Practitioner's Response
<p>The Administrator should establish and Publish or Make Available a written complaints procedures policy, by which Stakeholders may submit complaints including concerning whether a specific Benchmark determination is representative of the underlying Interest it seeks to measure, applications of the Methodology in relation to a specific Benchmark determination(s) and other Administrator decisions in relation to a Benchmark determination.</p> <p>The complaints procedures policy should:</p> <ul style="list-style-type: none"> <li>a) Permit complaints to be submitted through a user-friendly complaints process such as an electronic Submission process;</li> <li>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;</li> <li>c) Contain a process for escalating complaints, as appropriate, to the Administrator's governance body; and</li> </ul>	<p><b>Context</b></p> <p><i>Invesco Indexing LLC has a complaints management policy which outlines the procedures for dealing with formal complaints. The instructions of how to submit a formal complaint is also available on its website. Formal complaints are dealt with by the Invesco Indexing LLC Client Engagement team.</i></p> <p><i>Stakeholders can also submit disputes, which are the same as queries, and these follow the same process of resolution as formal complaints.</i></p> <p><b>Relevant Activities</b></p> <p><b>In response to a)-d) of this Principle:</b></p> <p>[PS16.1] Invesco Indexing LLC maintains the Indexing Complaints Management Policy, which is available upon request as stated on the Invesco Indexing LLC website, and contains the following information:</p> <ul style="list-style-type: none"> <li>a) Clear instructions on how complaints can be submitted through a user-friendly process via a specific email address (Section 2.2).</li> <li>b) Procedures for receiving and investigating complaints, including a timeline for completing the complaint review process and ensuring no one named in the complaint is</li> </ul>	<p>[PS16.1] With respect to a) – d), PwC inspected the Indexing Complaints Management Policy and confirmed it contains the following details:</p> <ul style="list-style-type: none"> <li>a) Clear instructions on how complaints can be submitted.</li> <li>b) Procedures for receiving and investigating complaints, including a timeline for completing the complaint review process and ensuring no one named in the complaint is involved in its investigation.</li> <li>c) Process for escalating complaints to the Index Oversight Committee as needed.</li> </ul>

IOSCO Principle 16	Invesco's Response	Practitioner's Response
<p>d) Require all documents relating to a complaint, including those submitted by the complainant as well as the Administrator's own record, to be retained for a minimum of five years, subject to applicable national legal or regulatory requirements.</p> <p>Disputes about a Benchmarking determination, which are not formal complaints, should be resolved by the Administrator by reference to its standard appropriate procedures. If a complaint results in a change in a Benchmark determination, that should be Published or Made Available to Subscribers and Published or Made Available to Stakeholders as soon as possible as set out in the Methodology.</p>	<p>involved in its investigation (Section 2.2 and 2.3).</p> <p>c) Process for escalating complaints to the Index Oversight Committee as needed (Section 2.3.2).</p> <p>d) Requires adequate retention of all backup documentation as required by the Recordkeeping Policy (Section 2.3.4).</p>	<p>d) Requires adequate retention of all backup documentation as required by the Recordkeeping Policy.</p>
	<p>[PCA16.2] Any complaint received by Invesco Indexing LLC are dealt with in line with the Indexing Complaints Management Policy.</p>	<p>[PCA16.2] PwC confirmed via inquiry that there were no instances of the control to test.</p>
	<p>[PS16.3] Invesco Indexing LLC maintains a Recordkeeping Policy that defines the required timeframe to retain all data – including data related to complaints.</p>	<p>[PS16.3] PwC inspected the Invesco Indexing LLC recordkeeping Policy to confirm that it contains the required timeframe to retain all data including data related to complaints.</p>
	<p>[PCA16.4] Annually, the Complaints Policy is reviewed by the IOC and a senior member of Invesco Indexing LLC and any necessary updates will be made.</p>	<p>[PCA16.4] PwC inspected the Complaints policy and confirmed that a review had been performed by the IOC and a senior member of Invesco Indexing LLC in the last year, and that relevant updates were made.</p>
	<p>[PS16.5] The Invesco Indexing LLC website contains a "Contact Us" link that allows for any users of indexes or potential users to email concerns or complaints for review by the Invesco Indexing LLC Client Engagement Team.</p>	<p>[PS16.5] PwC inspected the Invesco Indexing LLC website and confirmed that it contains a "Contact Us" link to allow users to email concerns or complaints.</p>



IOSCO Principle 16	Invesco's Response	Practitioner's Response
	[PCA16.6] Quarterly, the Index Oversight Committee (IOC) meets and reviews any Complaints for the quarter. This is captured in the IOC Meeting Pack and Minutes.	[PCA16.6] PwC inspected the most recent IOC Meeting Pack and Minutes and confirmed that the IOC reviews any complaints on a quarterly basis.
	For further information on record keeping of complaints please see Principle 18 – Audit Trail.	Please refer to Principle 18 – Audit Trail for relevant testing performed.
	<p><b>In response to “Disputes about a Benchmark Determination”:</b></p> <p>[PS16.7] With regards to complaints and disputes, these are resolved in line with the process used for a formal complaint.</p>	[PS16.7] PwC inspected the Complaints Policy and Procedure to confirm that complaints and disputes are resolved in line with the process used for a formal complaint.
	Any methodology change from a complaint or dispute is covered under Principle 12 – Changes to Methodology.	Please refer to Principle 12 – Changes to Methodology for relevant testing performed.

## Principle 17 – Audits

IOSCO Principle 17	Invesco's Response	Practitioner's Response
<p>The Administrator should appoint an independent internal or external auditor with appropriate experience and capability to periodically review and report on the Administrator's adherence to its stated criteria and with the Principles. The frequency of audits should be proportionate to the size and complexity of the Administrator's operations.</p> <p>Where appropriate to the level of existing or potential conflicts of interest identified by the Administrator (except for Benchmarks that are otherwise regulated or supervised by a National Authority other than a relevant Regulatory Authority), an Administrator should appoint an independent external auditor with appropriate experience and capability to periodically review and report on the Administrator's adherence to its stated Methodology. The frequency of audits should be proportionate to the size and complexity of the Administrator's Benchmark operations and the breadth and depth of Benchmark use by Stakeholders.</p>	<p><b>Context</b></p> <p><i>Invesco Indexing LLC is subject to reviews of its business and operations to ensure compliance with relevant rules and regulations in which it operates. Reviews are conducted periodically, and the results are presented and reviewed by the IOC.</i></p> <p><i>As index calculations are outsourced there is a reduced risk of Invesco Indexing LLC not adhering to the index methodology when calculating index levels, therefore this is not directly audited. Instead the auditors will review how Invesco Indexing LLC oversees the Calculation Agents and what quality checks Invesco Indexing LLC has in place to ensure the Calculation Agents are following the index methodologies.</i></p>	
	<p><b>Relevant Activities</b></p> <p>[PS17.1] The IOC Terms of Reference describe the committee's responsibility to oversee internal and external audits and ensure completion of any remedial actions.</p>	<p>[PS17.1] PwC inspected the IOC Terms of Reference to confirm that it describes the committee's responsibility to oversee internal and external audits and ensure completion of any remedial actions.</p>
	<p>[PCA17.2] At least biannually, Invesco Indexing LLC undergoes review by the Internal Audit.</p> <p>This PCA has not yet been fully implemented as at April 6, 2023.</p> <p><a href="#">Refer to Section 6 for more information.</a></p>	<p>[PCA17.2] PwC has not performed testing the basis that the PCA has not been fully implemented as at April 6, 2023.</p> <p><a href="#">Refer to Section 6 for more information.</a></p>

IOSCO Principle 17	Invesco's Response	Practitioner's Response
	[PCA17.3] Annually, Invesco Indexing LLC undergoes an external audit of its compliance with the IOSCO Principles.	[PCA17.3] This IOSCO statement has been audited by an external firm of professional accountants.
	[PCA17.4] Quarterly, the IOC reviews results of any internal or external audits as a standing agenda item.	[PCA17.4] PwC inspected the most recent IOC quarterly minutes to confirm that the results of any internal or external audits were discussed.
	For further information on the oversight of Calculation Agents, and how adherence to the Methodology is monitored, please see Principle 2 – Oversight of Third Parties and Principle 15 – Internal Controls over Data Collection.	Please refer to Principle 2 – Oversight of Third Parties and Principle 15 – Internal Controls over Data Collection for relevant testing performed.

## Principle 18 – Audit Trail

IOSCO Principle 18	Invesco's Response	Practitioner's Response
<p>Written records should be retained by the Administrator for five years, subject to applicable national legal or regulatory requirements on:</p> <ul style="list-style-type: none"> <li>a) All market data, Submissions and any other data and information sources relied upon for Benchmark determination;</li> <li>b) The exercise of Expert Judgment made by the Administrator in reaching a Benchmark determination;</li> <li>c) Other changes in or deviations from standard procedures and Methodologies, including those made during periods of market stress or disruption;</li> <li>d) The identity of each person involved in producing a Benchmark determination; and</li> <li>e) Any queries and responses relating to data inputs.</li> </ul> <p>If these records are held by a Regulated Market or Exchange the Administrator may rely on these records for compliance with this Principle, subject to appropriate written record sharing agreements.</p> <p><b>When a Benchmark is based on Submissions, the following additional Principle also applies:</b></p>	<p><b>Context</b></p> <p><i>Invesco Indexing LLC has a Record Keeping policy for its activities. All records are kept in electronic format on a secured restricted local shared drive, in line with Invesco Group standards and policies with frequent backup snapshots.</i></p> <p><i>Invesco Indexing LLC does not use submissions in determining Benchmarks.</i></p> <p><b>Relevant Activities</b></p> <p><b>In response to (a-e) of this Principle:</b></p> <p>[PS18.1] Invesco Indexing LLC maintains the Recordkeeping Policy that contains a description of the record retention policy, including that data is stored for at least five years, in place for Invesco Indexing LLC and states that the following is retained:</p> <ul style="list-style-type: none"> <li>a) All data relied upon for index determination is retained on the shared network drive used by Invesco Indexing LLC;</li> <li>b) Any documentation related to use of Expert Judgement is retained on the shared network drive used by Invesco Indexing LLC;</li> <li>c) Any changes from standard operating procedure are documented on the shared network drive used by Invesco Indexing LLC;</li> </ul>	<p>[PS18.1] With respect to a)-e), PwC inspected the Invesco Indexing LLC Recordkeeping Policy to confirm that it contains a description of the record retention policy, including that data is stored for at least five years, in place for Invesco Indexing LLC and states that the following is retained:</p> <ul style="list-style-type: none"> <li>a) All data relied upon for index determination is retained on the shared network drive used by Invesco Indexing LLC;</li> <li>b) Any documentation related to use of Expert Judgement is retained on the shared network drive used by Invesco Indexing LLC;</li> <li>c) Any changes from standard operating procedure are documented on the shared network drive used by Invesco Indexing LLC;</li> </ul>

IOSCO Principle 18	Invesco's Response	Practitioner's Response
<p>Submitters should retain records for five years subject to applicable national legal or regulatory requirements on:</p> <ul style="list-style-type: none"> <li>a) The procedures and Methodologies governing the Submission of inputs;</li> <li>b) The identity of any other person who submitted or otherwise generated any of the data or information provided to the Administrator;</li> <li>c) Names and roles of individuals responsible for Submission and Submission oversight;</li> <li>d) Relevant communications between submitting parties;</li> <li>e) Any interaction with the Administrator;</li> <li>f) Any queries received regarding data or information provided to the Administrator;</li> <li>g) Declaration of any conflicts of interests and aggregate exposures to Benchmark related instruments;</li> <li>h) Exposures of individual traders/desks to Benchmark related instruments in order to facilitate audits and investigations; and</li> <li>i) Findings of external/internal audits, when available, related to Benchmark Submission remedial actions and progress in implementing them.</li> </ul>	<ul style="list-style-type: none"> <li>d) All users involved in index determination are identified on the shared network drive used by Invesco Indexing LLC; and</li> <li>e) Any queries and responses related to data inputs are retained on the shared network drive used by Invesco Indexing LLC.</li> </ul>	<ul style="list-style-type: none"> <li>d) All users involved in index determination are identified on the shared network drive used by Invesco Indexing LLC; and</li> <li>e) Any queries and responses related to data inputs are retained on the shared network drive used by Invesco Indexing LLC.</li> </ul>
	<p>[PS18.2] The Calculation Agents' agreements require them to retain all data used in the index calculations for a period of at least 5 years.</p> <p>Currently, the Calculation Agents' agreements do not require them to retain data for a specified period of time.</p> <p><i>Refer to Section 6 for more information.</i></p>	<p>[PS18.2] PwC inspected that the Calculation Agents' agreements and confirmed that they do not require them to retain data for a specified period of time.</p> <p><i>Refer to Section 6 for more information.</i></p>
	<p>[PCA18.3] Daily, the shared network drive used by Invesco Indexing LLC is backed up and stored for reference if needed.</p>	<p>[PCA18.3] PwC inspected records/logs of the shared network drive used by Invesco Indexing LLC and confirmed that it is being correctly backed up and stored for reference on a daily basis.</p>
	<p>[PCA18.4] Annually, the IOC and a senior member of Invesco Indexing LLC reviews the Recordkeeping Policy and makes updates as needed.</p>	<p>[PCA18.4] PwC inspected the review by the IOC and a senior member of Invesco Indexing LLC to confirm that the Recordkeeping Policy was reviewed and updated where necessary within the last year.</p>
	<p>For further information please see Principle 16 – Complaints Procedure for controls related to recordkeeping requirements for complaints.</p>	<p>Please refer to Principle 16 – Complaints Procedure for further information on the controls related to recordkeeping requirements for complaints.</p>

## Principle 19 – Cooperation with Regulatory Authorities

IOSCO Principle 19	Invesco's Response	Practitioner's Response
<p>Relevant documents, Audit Trails and other documents subject to these Principles shall be made readily available by the relevant parties to the relevant Regulatory Authorities in carrying out their regulatory or supervisory duties and handed over promptly upon request.</p>	<p><b>Context</b></p> <p><i>Invesco Indexing LLC cooperates accordingly with the relevant Regulatory Authorities with respect to any enquiries received. As at the date of this review, Invesco Indexing LLC was formally overseen, via its legal representatives, by the FCA and ESMA.</i></p>	
	<p><b>Relevant Activities</b></p> <p>[PS19.1] Invesco Indexing LLC has implemented a Mission Statement with Compliance that defines the role of Compliance in relation to overseeing Invesco Indexing LLC. Part of this Mission Statement describes Compliance's responsibility to interact with any Regulatory Authority reaching out to Invesco Indexing LLC.</p>	<p>[PS19.1] PwC inspected the Mission Statement that Invesco Indexing LLC has implemented with Compliance and confirmed that it defines the role of Compliance in relation to interacting with any Regulatory Authority reaching out to Invesco Indexing LLC.</p>
	<p>[PSA19.2] Upon occurrence, Compliance updates a log tracking any communication with Regulatory Authorities.</p>	<p>[PS19.2] PwC inspected the Compliance log and confirmed that Compliance are, upon occurrence, updating a log to track communication with Regulatory Authorities.</p>
	<p>[PCA19.3] Quarterly, or where necessary, the IOC reviews any regulatory updates or changes that may impact Invesco Indexing LLC. This is reported by Compliance.</p>	<p>[PCA19.3] PwC inspected the most recent IOC quarterly minutes to confirm that regulatory updates or changes which might Invesco Indexing LLC were reported by Compliance and reviewed.</p>

## 6. Invesco's Response to Matters and Exceptions

The practitioner's responsibility is to opine on whether there is anything that has come to their attention that Invesco Indexing LLC has not fairly stated its description. Where Invesco Indexing LLC explicitly acknowledges a known gap in Section 5, it is flagged within the Relevant Activities and a reference made to this section for more information. In doing so, Invesco Indexing LLC fairly states such gaps and the practitioner's conclusion is thus unaffected.

Moreover, should the practitioner consider any such a gap is of sufficient significance in the context of achieving the IOSCO Principle then it may be highlighted within the assurance report in Section 4 as an 'Emphasis of Matter'. Such instances are clearly marked below.

The IOSCO Principle	Practitioner's Description	Invesco Indexing LLC's Response (unaudited)
<p><b>Principle 1 - Overall Responsibility of the Administrator</b></p> <p>The Administrator should retain primary responsibility for all aspects of the Benchmark determination process. For example, this includes:</p> <ul style="list-style-type: none"> <li>b) Determination and Dissemination: Accurate and timely compilation and publication and distribution of the Benchmark;</li> <li>c) Operation: Ensuring appropriate transparency over significant decisions affecting the compilation of the Benchmark and any related determination process, including contingency measures in the event of absence of or insufficient inputs, market stress or disruption, failure of critical infrastructure, or other relevant factors; and</li> </ul> <p><b>Principle 5 – Internal Oversight</b></p> <p>An Administrator should develop and maintain robust procedures regarding its oversight function, which</p>	<p>Daily responsibility for applying Expert Judgement lies with Calculation Agents. While Invesco has guidelines in place for the application of Expert Judgement by Calculation Agents, there is no mechanism by which to monitor and oversee their adherence to these guidelines. For example there is no realtime approval sought from Invesco, nor retrospective reporting or approval after the application of Expert Judgement has taken place across all Calculation Agents.</p> <p>Due to the importance and relevance of this exception in relation to achieving the intention of the Principle, this matter has also been emphasised within PwC's assurance report in Section 4.</p>	<p>Invesco Indexing LLC will update calculation agreements when these contract are renewed to reflect a requirement for approval prior to using Expert Judgment.</p>

The IOSCO Principle	Practitioner's Description	Invesco Indexing LLC's Response (unaudited)
<p>should be documented and available to relevant Regulatory Authorities, if any. The main features of the procedures should be Made Available to Stakeholders. These procedures should include:</p> <p>b) Oversight of the integrity of Benchmark determination and control framework:</p> <p>iii) Overseeing any exercise of Expert Judgement by the Administrator and ensuring Published Methodologies have been followed.</p>		
<p><b>Principle 2 – Oversight of Third Parties</b></p> <p>Where activities relating to the Benchmark determination process are undertaken by third parties - for example collection of inputs, publication or where third-party acts as Calculation Agent - the Administrator should maintain appropriate oversight of such third parties. The Administrator (and its oversight function) should consider adopting policies and procedures that:</p> <p>d) take reasonable steps, including contingency plans, to avoid undue operational risk related to the participation of third parties in the Benchmark determination process.</p>	<p>While a business continuity plan (BCP) exists, there was no formal testing of the BCP in the preceding 12 months.</p>	<p>Invesco Indexing LLC work with Invesco Group Technology to ensure BCP testing occurs related specifically to Invesco Indexing's plan.</p>
<p><b>3 - Conflicts of Interest</b></p> <p>To protect the integrity and independence of Benchmark determinations, Administrators should</p>	<p>IILLC's reporting line feeds directly into other Invesco businesses, including a primary subscriber to the indices. This may create an actual or perceived</p>	<p>Invesco Indexing LLC and Invesco Group Compliance will implement periodic Conflicts of Interest training for the indexing team to ensure the</p>



The IOSCO Principle	Practitioner's Description	Invesco Indexing LLC's Response (unaudited)
<p>document, implement and enforce policies and procedures for the identification, disclosure, management, mitigation or avoidance of conflicts of interest. Administrators should review and update their policies and procedures as appropriate.</p> <p>Administrators should disclose any material conflicts of interest to their users and any relevant Regulatory Authority, if any.</p> <p>The framework should be appropriately tailored to the level of existing or potential conflicts of interest identified and the risks that the Benchmark poses and should seek to ensure:</p> <p>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;</p>	<p>conflict of interest during decision making or in the allocation of resources, impacting on the ability for the administrator to operate with independence and deliver on its objectives.</p> <p>Due to the importance and relevance of this exception in relation to achieving the intention of the Principle, this matter has also been emphasised within PwC's assurance report in Section 4.</p>	<p>team is aware of the risks associated with conflicts related to reporting structure.</p> <p>This Conflict of Interest is also included in the Invesco Indexing LLC Conflict of Interest register, which is reviewed on an at least annual basis by the IOC, and any updates to either the Conflict of Interest, or the mitigants in place, will be made as necessary.</p> <p>Invesco Indexing LLC will also explore additional mitigants that could be put in place to reduce or remove this Conflict of Interest.</p>
<p><b>3 - Conflicts of Interest</b></p> <p>To protect the integrity and independence of Benchmark determinations, Administrators should document, implement and enforce policies and procedures for the identification, disclosure, management, mitigation or avoidance of conflicts of interest. Administrators should review and update their policies and procedures as appropriate.</p> <p>Administrators should disclose any material conflicts of interest to their users and any relevant Regulatory Authority, if any.</p>	<p>There was no review of the shared network drive access performed by the Director of Operations in the preceding 12 months.</p>	<p>Invesco Indexing LLC will ensure that the shared network drive access review is completed and fully documented on an annual basis.</p>

The IOSCO Principle	Practitioner's Description	Invesco Indexing LLC's Response (unaudited)
<p>The framework should be appropriately tailored to the level of existing or potential conflicts of interest identified and the risks that the Benchmark poses and should seek to ensure:</p> <ul style="list-style-type: none"> <li>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;</li> <li>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</li> </ul>		
<p><b>Principle 4 – Control Framework for Administrators</b></p> <p>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.</p>	<p>There was no formal review of the Control Framework performed during the year. This gives rise to a risk that the Control Framework is not kept up to date and controls themselves are not operated, leading to an inadequate control framework being in place for the process of determining and distributing indexes.</p> <p>Due to the importance and relevance of this exception in relation to achieving the intention of the Principle, this matter has also been emphasised within PwC's assurance report in Section 4.</p>	<p>Invesco Indexing LLC will ensure that the Control Framework is reviewed on an annual basis by the IOC.</p>

The IOSCO Principle	Practitioner's Description	Invesco Indexing LLC's Response (unaudited)
<p><b>Principle 4 – Control Framework for Administrators</b></p> <p>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.</p> <p>This control framework should be reviewed periodically and updated as appropriate. The framework should address the following areas:</p> <p>b) Integrity and quality of Benchmark determination:</p> <ul style="list-style-type: none"> <li>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;</li> <li>ii. Arrangements to promote the integrity of Benchmark inputs, including adequate due diligence on input sources;</li> </ul>	<p>There was no review of user access to Invesco Indexing LLC's IT systems in order to ensure that access remains appropriate.</p>	<p>Invesco Indexing LLC will ensure that the access review of the IT systems is completed and formally documented on an annual basis.</p>
<p><b>Principle 4 – Control Framework for Administrators</b></p>	<p>Invesco Indexing LLC were not formally included in the Invesco Group Operational Risk review and therefore any operational risks specific to Invesco</p>	<p>Invesco Indexing LLC will work with Invesco Group Operational Risk to formally include Invesco Indexing</p>

The IOSCO Principle	Practitioner's Description	Invesco Indexing LLC's Response (unaudited)
<p>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.</p> <p>This control framework should be reviewed periodically and updated as appropriate. The framework should address the following areas:</p> <p>b) Integrity and quality of Benchmark determination:</p> <p>iv. Providing robust infrastructure, policies and procedures for the management of risk, including operational risk.</p>	<p>Indexing LLC were not identified, nor mitigants put in place, as part of this review.</p>	<p>LLC specific operational risks as part of the annual Invesco Group Operational Risk review.</p>
<p><b>Principle 6 – Benchmark Design</b></p> <p>The design of the Benchmark should seek to achieve and result in an accurate and reliable representation of the economic realities of the Interest it seeks to measure and eliminate factors that might result in a distortion of the price, rate, index or value of the Benchmark.</p> <p>Benchmark design should take into account the following generic non-exclusive features, and other</p>	<p>There was no formal review of the Invesco Indexing Investable Universe and Invesco Indexing Bond Universe by the Index Review Team ("IRT") .</p>	<p>Invesco Indexing LLC will ensure that the IRT review of the III Universe is formally documented on an annual basis.</p>

The IOSCO Principle	Practitioner's Description	Invesco Indexing LLC's Response (unaudited)
<p>factors should be considered, as appropriate to the particular Interest:</p> <p>e) Market dynamics (e.g., to ensure that the Benchmark reflects changes to the assets underpinning a Benchmark).</p>		
<p><b>Principle 6 – Benchmark Design</b></p> <p>The design of the Benchmark should seek to achieve and result in an accurate and reliable representation of the economic realities of the Interest it seeks to measure and eliminate factors that might result in a distortion of the price, rate, index or value of the Benchmark.</p> <p>Benchmark design should take into account the following generic non-exclusive features, and other factors should be considered, as appropriate to the particular Interest:</p> <p>e) Market dynamics (e.g., to ensure that the Benchmark reflects changes to the assets underpinning a Benchmark).</p> <p><b>Principle 10 – Periodic Review</b></p> <p>The Administrator should periodically review the conditions in the underlying Interest that the Benchmark measures to determine whether the Interest has undergone structural changes that might require changes to the design of the Methodology. The Administrator also should periodically review whether the Interest has diminished or is non-</p>	<p>There was no formal review of the in scope indexes/methodologies by the Index Review Team ("IRT").</p> <p>Due to the importance and relevance of this exception in relation to achieving the intention of the Principle, this matter has also been emphasised within PwC's assurance report in Section 4.</p>	<p>Invesco Indexing LLC will ensure that the IRT review of the Economic Reality Review of each index is formally documented on an annual basis.</p>

The IOSCO Principle	Practitioner's Description	Invesco Indexing LLC's Response (unaudited)
<p>functioning such that it can no longer function as the basis for a credible Benchmark.</p> <p>The Administrator should Publish or Make Available a summary of such reviews where material revisions have been made to a Benchmark, including the rationale for the revisions.</p>		
<p><b>Principle 13 - Transition</b></p> <p>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.</p> <p>These written policies and procedures should be Published or Made Available to all Stakeholders.</p> <p>Administrators' written policies and procedures to address the possibility of Benchmark cessation could include the following factors, if determined to be reasonable and appropriate by the Administrator:</p>	<p>The cessation process outlined within the Changes to Benchmark Methodology and Cessation Policy was not followed completely when an index was ceased.</p> <p>Due to the importance and relevance of this exception in relation to achieving the intention of the Principle, this matter has also been emphasised within PwC's assurance report in Section 4.</p>	<p>Invesco Indexing LLC will ensure that any index cessations follow the entire Changes to Benchmark Methodology and Cessation Policy related to complete notification.</p>

The IOSCO Principle	Practitioner's Description	Invesco Indexing LLC's Response (unaudited)
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		
<p><b>Principle 15 – Internal Controls over Data Collection</b></p> <p>When an Administrator collects data from any external source the Administrator should ensure that there are appropriate internal controls over its data collection and transmission processes. These controls should address the process for selecting the source, collecting the data and protecting the integrity and confidentiality of the data. Where Administrators receive data from employees of the Front Office Function, the Administrator should seek corroborating data from other sources.</p>	<p>There was no monthly review of the daily QA performed by the Director of Operations to ensure that the quality assurance process had been adequately had been completed by the IRT.</p>	<p>Invesco Indexing LLC will determine if the monthly review is a key relevant activity needed to enhance existing oversight of the daily index determinations.</p>
<p><b>Principle 17 – Audits</b></p> <p>The Administrator should appoint an independent internal or external auditor with appropriate experience and capability to periodically review and report on the Administrator's adherence to its stated criteria and with the Principles. The frequency of audits should be proportionate to the size and complexity of the Administrator's operations.</p> <p>Where appropriate to the level of existing or potential conflicts of interest identified by the Administrator</p>	<p>Invesco Indexing LLC were not included in Invesco Group Internal Audit's regular review in the last 2 years.</p>	<p>Invesco Indexing LLC will work with Invesco Group Internal Audit to ensure that they are captured within the Internal Audit testing schedule and to determine the appropriate frequency for periodic reviews.</p>

The IOSCO Principle	Practitioner's Description	Invesco Indexing LLC's Response (unaudited)
<p>(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.</p>		
<p><b>Principle 18 - Audit Trail</b></p> <p>Written records should be retained by the Administrator for five years, subject to applicable national legal or regulatory requirements on:</p> <ul style="list-style-type: none"> <li>a) All market data, Submissions and any other data and information sources relied upon for Benchmark determination;</li> <li>b) The exercise of Expert Judgment made by the Administrator in reaching a Benchmark determination;</li> <li>c) Other changes in or deviations from standard procedures and Methodologies, including those made during periods of market stress or disruption;</li> <li>d) The identity of each person involved in producing a Benchmark determination; and</li> </ul>	<p>There is no formal agreement between Invesco Indexing LLC and its Calculation Agents to ensure relevant data is retained for a minimum of 5 years such that it can be made available to Invesco Indexing LLC on request.</p>	<p>Invesco Indexing LLC will work with the Calculation Agents to incorporate the requirement to retain the relevant data that is used in Index calculations for a minimum of 5 years into the legal agreements that are currently in place.</p>



The IOSCO Principle	Practitioner's Description	Invesco Indexing LLC's Response (unaudited)
e) Any queries and responses relating to data inputs.		

## 7 - In-scope Indexes

The following Indexes are in-scope for this report:

### Invesco Alternative Weighted Equity Benchmark Statement

1. Invesco Defensive Equity Index

### Nasdaq Bulletshares® Corporate Bond Benchmark Statement

2. Nasdaq BulletShares® USD Corporate Bond 2022 Index
3. Nasdaq BulletShares® USD Corporate Bond 2023 Index
4. Nasdaq BulletShares® USD Corporate Bond 2024 Index
5. Nasdaq BulletShares® USD Corporate Bond 2025 Index
6. Nasdaq BulletShares® USD Corporate Bond 2026 Index
7. Nasdaq BulletShares® USD Corporate Bond 2027 Index
8. Nasdaq BulletShares® USD Corporate Bond 2028 Index
9. Nasdaq BulletShares® USD Corporate Bond 2029 Index
10. Nasdaq BulletShares® USD Corporate Bond 2030 Index
11. Nasdaq BulletShares® USD Corporate Bond 2031 Index
12. Nasdaq BulletShares® USD Corporate Bond 2032 Index

### Invesco Bulletshares® Emerging Markets Debt

13. Nasdaq BulletShares® USD Emerging Markets Debt 2022 Index
14. Nasdaq BulletShares® USD Emerging Markets Debt 2023 Index
15. Nasdaq BulletShares® USD Emerging Markets Debt 2024 Index

### Nasdaq Bulletshares® High Yield Corporate Bond Benchmark Statement

16. Nasdaq BulletShares® USD High Yield Corporate Bond 2022 Index
17. Nasdaq BulletShares® USD High Yield Corporate Bond 2023 Index
18. Nasdaq BulletShares® USD High Yield Corporate Bond 2024 Index
19. Nasdaq BulletShares® USD High Yield Corporate Bond 2025 Index
20. Nasdaq BulletShares® USD High Yield Corporate Bond 2026 Index
21. Nasdaq BulletShares® USD High Yield Corporate Bond 2027 Index
22. Nasdaq BulletShares® USD High Yield Corporate Bond 2028 Index
23. Nasdaq BulletShares® USD High Yield Corporate Bond 2029 Index
24. Nasdaq BulletShares® USD High Yield Corporate Bond 2030 Index
25. Nasdaq BulletShares® USD High Yield Corporate Bond 2031 Index
26. Nasdaq BulletShares® USD High Yield Corporate Bond 2032 Index

### Invesco Bulletshares® Municipal Bond Benchmark Statement

27. Invesco BulletShares® Municipal Bond 2022 Index
28. Invesco BulletShares® Municipal Bond 2023 Index
29. Invesco BulletShares® Municipal Bond 2024 Index
30. Invesco BulletShares® Municipal Bond 2025 Index
31. Invesco BulletShares® Municipal Bond 2026 Index
32. Invesco BulletShares® Municipal Bond 2027 Index
33. Invesco BulletShares® Municipal Bond 2028 Index
34. Invesco BulletShares® Municipal Bond 2029 Index

35. Invesco BulletShares® Municipal Bond 2030 Index
36. Invesco BulletShares® Municipal Bond 2031 Index
37. Invesco BulletShares® Municipal Bond 2032 Index

#### Invesco Equity Bulk Beta Benchmark Statement

38. Invesco Asia ex-Japan Total Market Index
39. Invesco Asia ex-Japan Total Market Small Cap Index
40. Invesco Canada Large Mid Cap Index
41. Invesco Developed Markets ex-Japan All Cap REIT Index
42. Invesco Developed Markets ex-North America & Korea Large Cap Index
43. Invesco Emerging Markets + Korea Large Cap Index
44. Invesco Europe Index
45. Invesco Europe Small Cap Index
46. Invesco Global Emerging Markets Index
47. Invesco Global Emerging Markets Small Cap Index
48. Invesco Global ex-Japan & Korea Index
49. Invesco Global ex-US Index
50. Invesco Global ex-US Small Cap Index
51. Invesco Global Index
52. Invesco Global Small Cap Index
53. Invesco Global Total Market All Cap Index
54. Invesco Global Total Market Index
55. Invesco Japan All Cap REIT Index
56. Invesco US Large Cap Equal Weight Index
57. Invesco US Large Cap Index
58. Invesco US Large Mid Cap Index
59. Invesco US Small Cap Index

#### Invesco Equity Factor Benchmark Statement

60. Invesco Asia ex-Japan Total Market Low Volatility Index
61. Invesco Asia ex-Japan Total Market Price Momentum Index
62. Invesco Asia ex-Japan Total Market Quality Index
63. Invesco Asia ex-Japan Total Market Value Index
64. Invesco Canada Large Mid Cap Broad Price Momentum Index
65. Invesco Canada Large Mid Cap Broad Quality Index
66. Invesco Canada Large Mid Cap Broad Value Index
67. Invesco Developed Markets ex-North America & Korea Large Cap Broad Price Momentum Index
68. Invesco Developed Markets ex-North America & Korea Large Cap Broad Quality Index
69. Invesco Developed Markets ex-North America & Korea Large Cap Broad Value Index
70. Invesco Emerging Markets + Korea Large Cap Broad Price Momentum Index
71. Invesco Emerging Markets + Korea Large Cap Broad Quality Index
72. Invesco Emerging Markets + Korea Large Cap Broad Value Index
73. Invesco Europe Low Volatility Index
74. Invesco Europe Price Momentum Index
75. Invesco Europe Quality Index
76. Invesco Europe Value Index
77. Invesco Global Emerging Markets Low Volatility Index
78. Invesco Global Emerging Markets Price Momentum Index
79. Invesco Global Emerging Markets Quality Index
80. Invesco Global Emerging Markets Value Index
81. Invesco Global ex-US Low Volatility Index
82. Invesco Global ex-US Price Momentum Index
83. Invesco Global ex-US Quality Index
84. Invesco Global ex-US Total Market Broad QVML Blend Index
85. Invesco Global ex-US Value Index
86. Invesco Global Low Volatility Index

- 87. Invesco Global Price Momentum Index
- 88. Invesco Global Quality Index
- 89. Invesco Global Value Index
- 90. Invesco UK Broad Low Volatility Index
- 91. Invesco UK Broad Price Momentum Index
- 92. Invesco UK Broad Quality Index
- 93. Invesco US ex-Real Estate Low Volatility Index
- 94. Invesco US ex-Real Estate Price Momentum Index
- 95. Invesco US ex-Real Estate Quality Index
- 96. Invesco US ex-Real Estate Value Index
- 97. Invesco US Large Cap Broad Price Momentum Index
- 98. Invesco US Large Cap Broad Quality Index
- 99. Invesco US Large Cap Broad QVML Blend Index
- 100. Invesco US Large Cap Broad Value Index
- 101. Invesco US Low Volatility Index
- 102. Invesco US Price Momentum Index
- 103. Invesco US Quality Index
- 104. Invesco US QVM Multi-Factor Index
- 105. Invesco US Value Index

#### Invesco ESG Benchmark Statement

- 106. Invesco Global Climate Alignment Index
- 107. Invesco Global ex-Japan & Korea ESG Insight Index
- 108. Invesco Global ex-Japan ESG Rising Stars Index
- 109. Invesco Global Gender Balance Index
- 110. Invesco Select Eurozone Large Cap ESG Index
- 111. Invesco US Core ESG Index
- 112. Invesco US Inclusion Index
- 113. Invesco US Large Cap Total Balanced Multi-Factor ESG Index
- 114. Invesco US Social Equity Index

#### Invesco Fixed Income Bulk Beta Benchmark Statement

- 115. Invesco Developed Markets ex-Japan Sovereign Bond Index
- 116. Invesco Euro Corporate Bond Index
- 117. Invesco Euro Corporate ex-Subordinated & Financials Bond Index
- 118. Invesco Euro Liquid Corporate Bond Index
- 119. Invesco Euro Liquid Corporate ESG Bond Index
- 120. Invesco Global Broad Bond Index
- 121. Invesco JGB Index
- 122. Invesco US Broad Bond Index
- 123. Invesco US High Yield Corporate Bond Index
- 124. Invesco US Liquid Corporate Bond Index
- 125. Invesco US Liquid Corporate ESG Bond Index
- 126. Invesco USD Broad Emerging Markets Government Bond Index

#### Invesco Fixed Income Factor Benchmark Statement

- 127. Invesco Investment Grade Defensive Index
- 128. Invesco Investment Grade Value Index

#### Invesco Multi-Asset Benchmark Statement

- 129. Invesco Dynamic Growth Index
- 130. Invesco Peak Index

#### Invesco Strategic Equity Benchmark Statement

- 131. Invesco Strategic Developed ex-US Index
- 132. Invesco Strategic Emerging Markets Index
- 133. Invesco Strategic US Index
- 134. Invesco Strategic US Small Company Index