

SEPTEMBER 2017

# REPORT ON COMPLIANCE WITH THE IOSCO PRINCIPLES FOR FINANCIAL BENCHMARKS AND THE ESMA-EBA PRINCIPLES FOR BENCHMARK- SETTING PROCESSES IN THE EU (ESMA 2013/659) FOR THE PERIOD JAN. 1 - DEC. 31, 2016



**STOXX**

INNOVATIVE. GLOBAL. INDICES.

## INTRODUCTION

On Jul. 31, 2014, STOXX Limited announced its compliance with the International Organization of Securities Commission's (IOSCO) Principles for Financial Benchmarks for STOXX-branded indices.

The objective of the IOSCO Principles for Financial Benchmarks ("IOSCO Principles") is to create an overarching regulatory framework for benchmarks used in global financial markets. The internationally valid guidelines focus on the methodology, transparency and overall quality of benchmarks as well as the overall governance arrangements and accountability for index providers and other relevant bodies.

STOXX also claims compliance with the ESMA-EBA Principles for Benchmark-Setting Processes in the EU issued by the European Securities and Markets Authority and European Banking Authority (ESMA 2013/659, or "ESMA-EBA Principles"). The ESMA-EBA Principles aim to mitigate governance and incentive issues pertaining to Benchmarks provided by private sector Benchmark Administrators such as STOXX.

STOXX ensures the administration of the STOXX-branded indices in compliance with the recommendations and in line with the principle of proportionality set forth in the IOSCO and ESMA-EBA principles.

STOXX has engaged PwC to conduct an independent audit of STOXX's compliance with IOSCO and ESMA-EBA Principles for the period from Jan. 1, 2016 to Dec. 31, 2016.

The presented IOSCO/ESMA-EBA compliance report includes STOXX's responses to individual IOSCO Principles, STOXX's responses to the ESMA/EBA principles and the outcome of PwC's audit. It is structured as follows:

- » Section I contains an overview provided by STOXX of its organization, company history, business and description of major families of index products related to STOXX indices.
- » Section II sets out the independent auditor's report issued by PwC.
- » Section III sets out the management's statement of compliance with the IOSCO and the ESMA-EBA Principles.
- » Section IV includes responses by STOXX to individual IOSCO Principles and the procedures performed by PwC.
- » Section V includes responses by STOXX to the ESMA/EBA Principles and the procedures performed by PwC.

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## **1. SECTION I. STOXX ORGANIZATION AND BUSINESS**

### **1.1. OVERVIEW OF BUSINESS AND OPERATIONS**

#### **1.1.1. COMPANY HISTORY**

STOXX AG ("STOXX") is an established and leading global index provider with its Headquarters in Zurich, Switzerland. The launch of the first STOXX® indices in 1998, including the EURO STOXX 50® Index, marked the beginning of a unique success story based on the company's neutrality and independence. Since then, STOXX has been at the forefront of market developments and has continuously expanded its portfolio of innovative indices.

The STOXX product portfolio includes a wide variety of useful tools, ranging from broad indices to blue-chip to strategy to style and smart-beta indices. The historical development of STOXX is outlined on the next page.

STOXX currently provides over 7,000 own-brand indices globally, across all asset classes, and also calculates around 700 customized indices on behalf of third parties.

STOXX indices are licensed to more than 500 companies, which include the world's largest financial products issuers, capital owners and asset managers. STOXX indices are used not only as underlying for financial products, such as ETFs, futures and options and structured products, but also for risk and performance measurement.

STOXX is a wholly-owned subsidiary of Deutsche Boerse AG and also functions as the marketing agent for DAX® indices.

1997	STOXX Limited is formed.
1998	The first STOXX indices are launched.
2000	STOXX is the first index provider to implement free-float market cap in all STOXX indices.
2001-2009	STOXX expands its index offering with innovative index concepts.
2009 December	Deutsche Boerse AG and SIX AG become sole shareholders of STOXX after Dow Jones & Company exits the joint venture.
2010 March	STOXX renames all indices by removing the "DJ/Dow Jones" prefix.
2010 July	STOXX becomes the marketing agent for Deutsche Boerse and SIX Swiss Exchange indices, among them the DAX and SMI indices.
2010 November	STOXX extends its worldwide equity index offering by adding indices for global regions and emerging markets.
2011 February	STOXX expands its index universe with a broad range of global indices.
2011 February	STOXX relaunches its brand.
2012 March	STOXX introduces a market classification model and emerging markets indices.
2013 February	STOXX celebrates 15 years of innovation.
2013 April	STOXX launches the GC Pooling Index family in cooperation with Eurex.
2013 September	STOXX launches its first dividend index for the ASEAN region.
2013 October	STOXX and Eurex Repo extend the GC Pooling Index family to cover the full money market yield curve.
2014 May	STOXX introduces a Chinese version of its name.
2015 June	STOXX launches a True Exposure index family "STOXX TRU".
2015 July	Deutsche Boerse Group becomes the sole shareholder of STOXX and Indexium.
2015 September	European Central Bank (ECB) announces it will use STOXX GC Pooling index family as new Euro secured benchmark rate, replacing the Eurostoxx index.

## 1.1.2. BUSINESS AND CORPORATE STRUCTURE

### Corporate Structure

The management of STOXX Limited consists of two teams: the Board of Directors and the Management Board.

#### Board of Directors

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**Dr. Holger Wohlenberg**  
Chairman



**Andreas Rötheli**  
Member

#### Management Board

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**Matteo Andreetto**  
Chief Executive Officer



**Steffen Hermanns**  
Chief Operating Officer



**Michael Hyzik**  
Chief Financial Officer

STOXX is headquartered in Zurich, Switzerland, and operates offices in Frankfurt, London, New York, Sydney, Tokyo and Hong Kong.

STOXX consists of the following teams, which report into the Management Board:

1. Product Development & Engineering
2. Applied Research
3. Operations & IT
4. Legal and Regulations
5. Finance & Business Processing

Their functions include the following:

- 1) Sales  
Sell licenses and data subscriptions for the use of STOXX and DAX indices to buy- and sell-side clients globally. Be first point of contact for clients and prospects.
- 2) Product Development & Engineering  
Index product development  
Index maintenance tools construction
  - a. Applied Research  
Economic research papers, index research
- 3) Operations & IT  
Maintenance and determination of indices  
Maintenance and development of IT infrastructure
- 4) Legal and Regulations  
Legal affairs, in particular related to the licensing of STOXX indices, and regulatory affairs
- 5) Finance & Business Processing  
Accounts payable and receivable

Additionally STOXX receives marketing services from the MD+S Marketing team. The same team reported into the Management Board until March 2016 (and now reports to the DBG Group Marketing) and has extensive experience in product, brand and content marketing, as well as event marketing, social media, prospecting activities and client communications. The team also acts as a liaison to the Group Media Relations, who provides public relations and social media services to STOXX.

### 1.1.3. DESCRIPTION OF MAJOR FAMILIES OF INDEX PRODUCTS RELATED TO STOXX INDICES

#### FLAGSHIP

##### **Benchmark**

STOXX benchmark indices cover and track the performance of global and regional markets. They are separated into fixed-component benchmark indices and variable-component indices.

##### **Blue Chip**

STOXX blue-chip indices are available for global and regional markets. They are also available for individual countries.

##### **Size**

STOXX Size indices provide a representation of large-, mid- and small-cap stocks for global and various regional markets.

##### **Supersector**

STOXX Supersector indices are available for global and regional markets. For these indices, companies are categorized according to their primary source of revenue based on Industry Classification Benchmark (ICB) nomenclature. There are four levels of classification, ranging from broad to very detailed: ten industries are broken into 19 supersectors, 41 sectors and 114 subsectors.

##### **Sector**

STOXX Sector indices are available for global and regional markets. For these indices, companies are categorized according to their primary source of revenue based on ICB nomenclature. There are four levels of classification, ranging from broad to very detailed: ten industries are broken into 19 supersectors, 41 sectors and 114 subsectors.

#### FACTOR & STRATEGY

##### **Dividend**

STOXX offers two families of dividend indices with different methodologies catering to different client needs:

STOXX Select Dividend indices: these indices include the highest dividend-yielding stocks relative to their home markets and are available for global and regional markets. Companies are selected and weighted solely on the basis of historical dividend payments.

STOXX Maximum Dividend indices: these indices aim to maximize the dividend yield of the index portfolio on a short-term basis and are available for global and regional markets. They represent companies with the highest expected dividend yield, based on three-month dividend forecasts. Components are weighted according to their expected liquidity-adjusted dividend yield.



**Optimized**

STOXX Optimized indices offer investors a tool to invest in STOXX indices with a higher degree of liquidity. Stocks for these indices are selected by taking into account equity turnover. Components are weighted based on market cap and component-specific liquidity scaling factors to enhance the overall liquidity of the index.

The STOXX Optimized Country indices are designed to track the performance of companies in selected countries by focusing on a high degree of liquidity. Hence, components are selected according to their free-float market cap and liquidity. Two versions are available: the STOXX Optimized Country Local indices represent companies resident in the respective country and traded on their local stock exchange. The STOXX Optimized Country DR indices represent depository receipts of companies resident in the respective country but traded on one of the following exchanges: LSE, NYSE or NASDAQ.

**Minimum Variance**

STOXX Minimum Variance indices are designed to minimize risk by reducing the volatility of the underlying index. STOXX offers two versions – constrained and unconstrained – for global and regional markets and various countries. The constrained version optimizes the benchmark index with respect to volatility, offering investors an improvement over the benchmark. The unconstrained version provides a strategy index that is minimized for volatility but is not restricted to follow a specific benchmark too closely.

**Risk-Based**

STOXX offers many indices to mitigate risk for global and regional markets and for several countries. These include the STOXX Risk Control, the STOXX Equal Risk and the STOXX Low Risk Weighted index families.

**Style**

STOXX offers different style concepts, classifying companies by growth and value characteristics. These indices are available for global and regional markets and various countries.

**Leveraged/Short**

STOXX Leveraged indices replicate a leveraged investment strategy based on the relevant underlying STOXX index using static leverage factors. STOXX short indices replicate a short investment strategy on the underlying STOXX index. Both are available for global and regional markets and various countries.

**Select & Diversification Select**

The STOXX Select indices set the focus on stocks characterized by low volatility and high dividend yield.

The STOXX Diversification Select indices add a low correlation twist to the STOXX Select indices.

## THEME

### **True Exposure**

The STOXX TRU Indices are based on a sophisticated and innovative model to identify a company's economic exposure to a country or region, when such a breakdown is not available explicitly. Allows investments in predefined countries or regions by selecting companies that have a dominant economic exposure to the targeted area.

### **FactSet Thematic**

In cooperation with FactSet, STOXX has developed a family of indices focusing on sectors which are believed to profit from long-term structural trends driven by social, economic and environmental changes: Automation & Robotics, Ageing Population, Digitalization and Breakthrough Healthcare.

### **Infrastructure**

STOXX Infrastructure indices provide investors enhanced and diversified access to the global infrastructure sector by tracking the performance of infrastructure companies as well as suppliers.

### **ESG, Sustainability & Carbon Emissions**

The STOXX ESG and STOXX Sustainability index families provide access to companies that are leaders in terms of environmental, social and governance criteria. They are available for global and regional markets.

The Carbon Emissions based indices, like the STOXX Low Carbon indices and other STOXX indices, provide exposure to companies depending on their emissions profile and are available for global and regional markets.

### **Christian**

The STOXX Europe Christian index takes into account Christian values such as ethical, social, environmental and economic responsibility. Companies are screened according to procedures implemented by an independent committee.

### **3D Printing**

The STOXX Global 3D Printing index family represents companies that generate part of their revenue from the growing and emerging 3D printing sector.

### **Sports**

The STOXX Europe Football index covers all football clubs listed on a stock exchange in Europe or Eastern Europe, Turkey or the EU-Enlarged region. The index accurately represents the breadth and depth of the European football industry.

The STOXX Global Grand Prix index tracks the performance of the major players in the Formula 1 industry globally. The index covers engine manufacturers, tire suppliers, oil and fuel suppliers participating in Formula 1 as well as title sponsors.

### **Other Themes**

STOXX also offers other theme indices that cover IPOs, the rare earths sector and emerging markets-exposed strategies.

## FIXED INCOME & MULTI-ASSET

### **EURO STOXX 50® Corporate Bond index**

The EURO STOXX 50® Corporate Bond indices track the performance of the Euro-denominated, investment grade corporate bonds of the EURO STOXX 50® constituents. The bond issuers represent the high-credit, blue-chip companies of the Eurozone.

The main index, representing the entire universe linked to the EURO STOXX 50®, is flanked by its sector, maturity and rating variants.

### **Multi-Asset indices**

The Multi-Asset indices offer a combined exposure to the equity and fixed income asset classes by blending the EURO STOXX 50® and the EURO STOXX 50® Corporate Bond indices. Depending on the indices, the mix can be in fixed proportion or driven by a momentum signal.

## OTHER

### **Calculation Products**

With Dividend Points (DVP), STOXX provides additional data linked to STOXX indices as an underlying for derivative products. Dividend Points provides pure dividend data of the respective indices and increases investors' ability to focus on fundamentals that determine equity values. The indices track gross cumulative cash dividends (i.e., the sum of the individual cash dividends) that are announced and paid by constituents of the respective indices during the annual period.

The EURO STOXX 50® Distribution Points index is developed on a concept similar to the DVP indices, but includes the returns from all distributions to shareholders of the EURO STOXX 50® index components, hence it is not limited to cash dividends.

### **Funding Rates**

The STOXX GC Pooling index family is based on the Eurex Repo GC Pooling Market and offers a transparent, rules-based independent alternative to unsecured interbank benchmarks such as LIBOR and EURIBOR/EONIA.

The indices represent secured euro lending transactions and binding quotations that take place on the Eurex Repo GC Pooling Market. The STOXX GC Pooling index family covers the full money market curve. Each index is available in three versions: volume-weighted average rate indices, current rate indices and total volume indices.

### **Hedged**

STOXX Hedged indices measure the performance of an underlying index while also eliminating foreign currency fluctuations. The indices combine performance of the underlying STOXX index with a hypothetical, rolling investment into one-month foreign exchange forward contracts. The indices are available both with monthly and daily readjustment frequency. Index values of the hedged indices are available only to license holders.

## 2. SECTION II. INDEPENDENT AUDITOR'S REPORT



To the Board of Directors of  
STOXX Ltd.  
Manessestrasse 85/87  
8045 Zurich

**STOXX Ltd: Assurance report with respect to the Statement of Compliance with the IOSCO Principles for Financial Benchmarks and the ESMA-EBA Principles for Benchmark-Setting Processes in the EU**

We have performed an examination of the accompanying Statement of Compliance of STOXX Ltd. ("STOXX") with the Principles for Financial Benchmarks published by the International Organisation of Securities Commissions (IOSCO) in July 2013 and with the Principles for Benchmark-Setting Processes in the EU issued by the European Securities and Markets Authority and European Banking Authority (ESMA 2013/659) (hereinafter "IOSCO/ESMA-EBA Compliance Statement"), with respect to the STOXX-branded indexes administered by STOXX throughout the period from 1 January 2016 to 31 December, 2016 for the purpose of expressing a reasonable assurance opinion whether the IOSCO/ESMA-EBA Compliance Statement is fairly stated, in all material respects.

*Responsibilities of STOXX*

STOXX is responsible for designing, implementing and monitoring the policies, procedures and processes that achieve compliance with the IOSCO Principles for Financial Benchmarks and with the ESMA-EBA Principles for Benchmark-Setting Processes in the EU as well as for preparing the Management's Statement of Compliance with the above Principles set out in Section III, and the responses to the individual IOSCO and ESMA-EBA Principles set out in Sections IV and V.

*Independent auditor's responsibilities and scope of work*

Our responsibility is to express a reasonable assurance opinion on STOXX' IOSCO/ESMA-EBA Compliance Statement whether it is fairly stated, in all material respects. We conducted our engagement in accordance with International Standard on Assurance Engagements 3000 "Assurance Engagements other than Audits or Reviews of Historical Financial Information" (ISAE 3000).

Our examination included those procedures we considered necessary in the circumstances to obtain reasonable, but not absolute, assurance about whether the IOSCO/ESMA-EBA Compliance Statement of STOXX, incl. the responses to the individual IOSCO Principles for Financial Benchmarks and to the ESMA-EBA Principles for Benchmark-Setting Processes in the EU set out in Sections IV and V throughout the period from 1 January 2016 to 31 December 2016, is fairly stated, in all material respects. Our examination included obtaining through observation, inspection, representation, inquiry and examination, on a sample basis, of the evidence supporting the assertions necessary for rendering our opinion. Our procedures are described in Sections IV and V.

In addition, we have obtained a written representation from the management of STOXX in relation to the IOSCO/ESMA-EBA Compliance Statement and confirming that all important and relevant information has been provided to us.

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Our engagement did not include an examination of adherence to the index methodology and/or rulebooks of any individual indexes administered by STOXX.

*Our independence and quality control*

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. We apply International Standard on Quality Control 1 and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

*Inherent limitations*

Our examination procedures are subject to inherent limitations and, accordingly, errors or irregularities may occur and not be detected. Such procedures cannot guarantee protection against fraudulent collusion or misrepresentation especially on the part of those holding positions of authority or trust, and our work was not specifically designed to detect fraud, deliberate misstatement or criminal acts. Furthermore, our opinion is based on historical information and the projection of any information or conclusions to any future periods is inappropriate.

*Use of the report*

This report is issued solely to STOXX. We do not accept any responsibility to third parties to whom our report may be shown or into whose hands it may come. This report may not be used other than together with the IOSCO/ESMA-EBA Compliance Statement of STOXX to which it relates.

*Opinion*

In our opinion, based on the results of our procedures, the IOSCO/ESMA-EBA Compliance Statement of STOXX for the period from 1 January 2016 to 31 December 2016, including the responses to the individual IOSCO Principles for Financial Benchmarks and to the ESMA-EBA Principles for Benchmark-Setting Processes in the EU set out in Sections IV and V, is fairly stated, in all material respects.

PricewaterhouseCoopers Ltd.

  
Dimitri Senik  
Zurich, 14 September 2017

  
Pascal Philippi

### 3. SECTION III. MANAGEMENT'S STATEMENT OF COMPLIANCE

As Directors of STOXX Ltd ("STOXX"), we are responsible for ensuring that STOXX complies with the Principles for Financial Benchmarks published by the International Organization of Securities Commissions (IOSCO) in July, 2013 ("IOSCO Principles") and with the Principles for Benchmark-Setting Processes in the EU issued by the European Securities and Markets Authority (ESMA) and European Banking Authority (EBA) (ESMA 2013/659 or "ESMA-EBA Principles"). This includes responsibility for designing, implementing and monitoring compliance with policies and procedures that achieve compliance with the IOSCO and ESMA-EBA Principles. We are also responsible for preparing a statement of compliance with the IOSCO and ESMA-EBA Principles, including our responses to the individual IOSCO and ESMA-EBA Principles, which is free of misstatement, whether due to fraud or error. It also includes selecting the criteria against which to measure the fair assertion of the statement of compliance.

We confirm that STOXX has designed and implemented specific activities to comply with the IOSCO and ESMA-EBA Principles for all STOXX-branded indices.

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

We have prepared the accompanying description in Section IV to set out the details of STOXX's compliance with the IOSCO and ESMA-EBA Principles, together with the related activities in operation throughout the period from 1 January 2016 to 31 December 2016. Furthermore, if implementation of compliance with the IOSCO or ESMA-EBA Principles in any way deviates from the recommendations of the IOSCO or ESMA-EBA Principles, we have explained why we believe STOXX meets the objectives and functions of the IOSCO and ESMA-EBA Principles, including the extent to which STOXX relies on the principle of proportionality set forth in the IOSCO and ESMA-EBA Principles.

We confirm that to the best of our knowledge and belief the accompanying description in Sections IV and V are fairly stated in that it presents the activities undertaken by STOXX to achieve compliance with the IOSCO and ESMA-EBA Principles. The criteria we used in making this assertion were that the accompanying description:

- (a) Presents how STOXX's policies and processes with respect to its compliance with the IOSCO and ESMA-EBA Principles were designed, implemented and operating effectively throughout the period from 1 January 2016 to 31 December 2016.
- (b) Does not omit or distort information relevant to the scope of STOXX's policies and processes being described throughout the period from 1 January 2016 to 31 December 2016, while acknowledging that the description is prepared to meet the common needs of a broad range of users and may not therefore include every aspect of STOXX's policies and processes that individual users may consider important in their own particular environment and circumstances.
- (c) Where STOXX uses Third Parties as Benchmark Publishers in terms of ESMA-EBA Principles, we obtained a confirmation from those Third Parties that they comply with the relevant ESMA-EBA Principles.



Matteo Andreetto, CEO



Steffen Hermanns, COO



Michael Hyzik, CFO

Zurich, May. 31, 2016



## 4. SECTION IV. STOXX'S STATEMENT OF COMPLIANCE WITH THE IOSCO PRINCIPLES FOR FINANCIAL BENCHMARKS: INDIVIDUAL PRINCIPLES AND RESPONSES

The information presented in Sections IV and V below sets out the response of STOXX in terms of how it meets the objectives and functions of the IOSCO Principles for Financial Benchmarks and with the ESMA-EBA Principles for Benchmark-Setting Processes in the EU. The accompanying "Procedures performed by PwC" summarizes the work performed by PwC to validate that the relevant processes and procedures described in STOXX's response are fairly stated and were effectively performed in the period under examination. This section supports PwC assurance report and STOXX' management statement as documented in Sections II and III of the report.

As part of the examination of STOXX's responses, PwC has performed a variety of tests. PwC's procedures included assessing the risks that the IOSCO and ESMA-EBA Compliance Statement of STOXX is not fairly presented and that the described activities were not suitably designed and implemented, as well as testing the operating performance of those activities that PwC consider necessary to provide reasonable assurance that the IOSCO and ESMA-EBA Compliance Statement of STOXX, including the responses to the individual IOSCO and ESMA-EBA Principles, set out in Sections IV and V, is fairly stated, in all material respects and that STOXX's policies and processes with respect to its compliance with the IOSCO and ESMA-EBA Principles were designed, and implemented and operating effectively throughout the period from 1 January 2016 to 31 December, 2016.

PwC tests included the following procedures, to the extent considered necessary:

- » Review of STOXX's organizational structure (including segregation of functional responsibilities, policy statements, procedures manuals and personnel policies);
- » Discussions and enquiry with management and other personnel of STOXX;
- » Review of index rulebooks
- » Review of contracts with relevant third-party providers;
- » Observation of STOXX's personnel in the performance of their assigned procedures;
- » Walk-through of selected processes and controls; and
- » Inspection of the evidence of the performed activities and controls.

PwC tests of the operating performance of specific processes and procedures were designed to cover a representative number of cases and occurrences throughout the period from 1 January 2016 to 31 December 2016, for each of the relevant responses listed in Sections IV and V. The types of tests included the following procedures performed on a sample basis and where applicable.

## Inquiry

Inquiries seeking relevant information or representation from STOXX's personnel were performed to obtain, among other things:

- » Knowledge and additional information regarding the processes and procedures; and
- » Corroborating evidence of the performed processes, procedures and activities.

As inquiries were performed for substantially all activities, this test was not mentioned individually for each item listed in these sections.

## Inspection

Inspected documents and records indicating performance of the processes, procedures and activities. This included, among other things:

- » Inspection of operational reports that age or quantify relevant items and cases to assess whether the relevant items are properly monitored, controlled and resolved on a timely basis;
- » Review of source documentation and authorizations, including system processing flows and audit trail, to test propriety of cases processed;
- » Examining documents or records for evidence of performance such as the existence of initials or signatures; and
- » Inspection of STOXX's systems documentation, such as operations manuals and job descriptions.

## Observation

Observed the application or existence of specific activities as represented.

## Reperformance

Reperformed the activity to test the accuracy of its operation. This included, among other things:

- » Obtaining evidence of the arithmetical accuracy and correct processing of cases by either recomputing STOXX's application computation or performing independent calculations; and
- » Reperforming the matching of various system records by independently matching the same records and comparing reconciling items to STOXX prepared reports.



## 4.1. PRINCIPLE 1: OVERALL RESPONSIBILITY OF THE ADMINISTRATOR

### IOSCO Principle 1

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

- a) Development: The definition of the Benchmark and Benchmark Methodology;
- b) Determination and Dissemination: Accurate and timely compilation and publication and distribution of the Benchmark;
- 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
- 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.

**STOXX's Response**

STOXX assumes primary responsibility for all stages of index administration for all STOXX-labelled indices, such as:

- » Definition, maintenance and communication of the index methodologies and any changes in methodologies
- » Compilation, publication and distribution of indices
- » Ensuring appropriate transparency over discretionary decisions affecting the compilation of indices and the related determination process
- » Establishing appropriate governance, oversight and accountability procedures for the index determination process
- » Handling of complaints in relation to the indices

**Procedures performed by PwC and their results**

Reviewed STOXX's Policy "Determination and Dissemination" to validate that responsibility and accountability are allocated to the appropriate departments of STOXX.

Reviewed the operational procedures documents of STOXX, such as the Operational Handbook, and verified that the index determination tasks specified in STOXX's Policy "Determination and Dissemination" were appropriately reflected in those documents.

Inspected evidence that the index governance structure of STOXX had been placed in operation and that the escalation process according to Policy "Determination and Dissemination" had been complied with (the respective testing procedures are described under Principle 5).

For a sample of indices, inspected evidence that periodic index reviews with respect to index construction and methodology execution were performed in accordance with the STOXX policies.

Our procedures regarding index determination process are described under Principle 9.

Our procedures regarding handling of complaints are described under Principle 16.

No exceptions noted.

## 4.2. PRINCIPLE 2: OVERSIGHT OF THIRD PARTIES

### IOSCO Principle 2

Where activities relating to the Benchmark determination process are undertaken by third parties – for example collection of inputs, publication or where a third party acts as Calculation Agent – the Administrator should maintain appropriate oversight of such third parties. The Administrator (and its oversight function) should consider adopting policies and procedures that:

- a) Clearly define and substantiate through appropriate written arrangements the roles and obligations of third parties who participate in the Benchmark determination process, as well as the standards the Administrator expects these third parties to comply with;
- b) Monitor third parties' compliance with the standards set out by the Administrator;
- c) Make available to Stakeholders and any relevant Regulatory Authority the identity and roles of third parties who participate in the Benchmark determination process; and
- d) Take reasonable steps, including contingency plans, to avoid undue operational risk related to the participation of third parties in the Benchmark determination process.

This Principle does not apply in relation to a third party from whom an Administrator sources data if that third party is a Regulated Market or Exchange.

**STOXX's Response**

- » STOXX may outsource certain activities of the index determination process to third parties; in particular, index calculation and index dissemination. In addition, for some indices, STOXX may outsource determination of index components to specialized third-party financial service providers. A list of outsourcing partners and their roles may be obtained on request from [regulations@stox.com](mailto:regulations@stox.com).
- » STOXX has clear written agreements in place with its outsourcing partners in relation to their service provision.
- » STOXX monitors the services provided by its outsourcing partners to ensure their compliance with the agreed service levels and standards.
- » STOXX ensures through its controls framework that operational risks arising from index administration are duly managed.
- » STOXX has outsourced elements of index calculation and dissemination to Deutsche Boerse AG (DBAG) and SIX Swiss Exchange (SSX). Data centers are locally duplicated to form primary and secondary centers that act as backups of each other. Catastrophe scenarios regarding work space and staff unavailability are simulated on a yearly basis in close coordination with the third-party providers (DBAG and SSX). Findings of each simulation are reported to STOXX.

**Procedures performed by PwC and their results**

Reviewed STOXX's Policies "Outsourcing and Oversight of Outsourcing Partners" and "Business Contingency Management" and validated that they adequately addressed the recommendations of IOSCO Principle 2.

Obtained a full list of third-party providers of STOXX and enquired about their roles.

On a sample basis, inspected evidence of written arrangements between STOXX and third parties and that they included the elements defined in STOXX's Policy "Outsourcing and Oversight of Outsourcing Partners."

Verified that monitoring instruments, including their time schedule, were defined for all third parties. On a sample basis, inspected evidence that those monitoring measures that were scheduled to take place in the period under examination were effectively performed.

Verified that STOXX had defined formal third-party selection requirements in its Policy "Outsourcing and Oversight of Outsourcing Partners." On a sample basis, inspected evidence that third-party selection criteria have been applied when selecting new third parties.

STOXX has represented to us that no incidents from third-party providers occurred between Jan. 01, 2016 and Dec. 31, 2016. Therefore we were unable to validate whether internal reporting of such incidents had been handled in compliance with the internal reporting requirements as per STOXX Policy "Outsourcing and Oversight of Outsourcing Partners." Inspected evidence of annual simulation of catastrophe scenarios as described in response to Principle 2.d, incl. coordination with Deutsche Boerse and SIX and verified STOXX's participation in those simulations and adherence to the defined business continuity management measures.

No exceptions noted.

## 4.3. PRINCIPLE 3: CONFLICTS OF INTEREST FOR ADMINISTRATORS

### IOSCO Principle 3

To protect the integrity and independence of Benchmark determinations, Administrators should document, implement and enforce policies and procedures for the identification, disclosure, management, mitigation or avoidance of conflicts of interest.

Administrators should review and update their policies and procedures as appropriate. Administrators should disclose any material conflicts of interest to their users and any relevant Regulatory Authority, if any. The framework should be appropriately tailored to the level of existing or potential conflicts of interest identified and the risks that the Benchmark poses and should seek to ensure:

- a) Existing or potential conflicts of interest do not inappropriately influence Benchmark determinations;
- b) Personal interests and connections or business connections do not compromise the Administrator's performance of its functions;
- c) Segregation of reporting lines within the Administrator, where appropriate, to clearly define responsibilities and prevent unnecessary or undisclosed conflicts of interest or the perception of such conflicts;
- d) Adequate supervision and sign-off by authorized or qualified employees prior to releasing Benchmark determinations;
- e) The confidentiality of data, information and other inputs submitted to, received by or produced by the Administrator, subject to the disclosure obligations of the Administrator;
- f) Effective procedures to control the exchange of information between staff engaged in activities involving a risk of conflicts of interest or between staff and third parties, where that information may reasonably affect any Benchmark determinations; and
- g) Adequate remuneration policies that ensure all staff who participate in the Benchmark determination are not directly or indirectly rewarded or incentivized by the levels of the Benchmark.

An Administrator's conflict of interest framework should seek to mitigate existing or potential conflicts created by its ownership structure or control, or due to other interests the Administrator's staff or wider group may have in relation to Benchmark determinations.

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**STOXX's Response**

- » STOXX has created a specific policy for conflicts of interest and is subject to the compliance policies of Deutsche Boerse Group (DBAG), which identify, disclose, mitigate, avoid and manage potential and actual conflicts of interest in general. The STOXX policy on conflicts of interest is reviewed and approved annually. STOXX's staff certify compliance with these policies upon joining and once per calendar year thereafter.
- » Members of the Executive Board disclose actual or potential conflicts of interest to the Chief Executive Officer (CEO).
- » STOXX's remuneration policies ensure that all staff who participate in index determination are not directly or indirectly rewarded or incentivized by the levels of the index.
- » STOXX does not issue, market, trade or clear securities or financial products on its indices.
- » STOXX's revenue includes fees linked to financial products based on STOXX indices licensed to clients, among which is Eurex Exchange, owned by STOXX's shareholder, Deutsche Boerse AG. However, Eurex Exchange provides only the trading infrastructure and does not hold any positions in the indices themselves.
- » STOXX currently has not identified any material conflicts of interest arising from its business relationships or ownership structure. STOXX is committed to disclose such material conflicts of interest should they arise.

**Procedures performed by PwC and their results**

Reviewed STOXX's Policy 3 "Conflicts of Interest," DBAG's "Compliance Manual" and validated that these policies address the elements recommended by IOSCO Principle 3.

Obtained and reviewed the inventory of potential business conflicts of interest of STOXX and validated that the defined mitigating measures address the described conflicts of interest, as required by IOSCO Principle 3.

For a sample of STOXX employees, inspected evidence that remuneration-related objectives defined in the employees' development plans were not linked to index levels.

On a sample basis, inspected evidence of a formal confirmation of compliance with the above policies by new and existing employees and inspected their annual declaration of conflicts of interest.

Inspected evidence on the annual conflicts-of-interest declaration by the STOXX Executive Board members.

No exceptions noted.

## 4.3. PRINCIPLE 3: CONFLICTS OF INTEREST FOR ADMINISTRATORS

### IOSCO Principle 3 continued from previous page

To this end, the framework should:

- a) Include measures to avoid, mitigate or disclose conflicts of interest that may exist between its Benchmark determination business (including all staff who perform or otherwise participate in Benchmark production responsibilities), and any other business of the Administrator or any of its affiliates; and
- b) Provide that an Administrator discloses conflicts of interest arising from the ownership structure or the control of the Administrator to its Stakeholders and any relevant Regulatory Authority in a timely manner.



## 4.4. PRINCIPLE 4: CONTROL FRAMEWORK

### IOSCO Principle 4

An Administrator should implement an appropriate control framework for the process of determining and distributing the Benchmark. The control framework should be appropriately tailored to the materiality of the potential or existing conflicts of interest identified, the extent of the use of discretion in the Benchmark-setting process and to the nature of Benchmark inputs and outputs.

The control framework should be documented and available to relevant Regulatory Authorities, if any. A summary of its main features should be Published or Made Available to Stakeholders.

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

- a) Conflicts of interest in line with Principle 3 on conflicts of interests;
- b) Integrity and quality of Benchmark determination:
  - i. Arrangements to ensure that the quality and integrity of Benchmarks is maintained, in line with principles 6 to 15 on the quality of the Benchmark and Methodology;
  - ii. Arrangements to promote the integrity of Benchmark inputs, including adequate due diligence on input sources;
  - iii. Arrangements to ensure accountability and complaints mechanisms are effective, in line with principles 16 to 19; and
  - iv. Providing robust infrastructure, policies and procedures for the management of risk, including operational risk.
- c) Whistleblowing mechanism: Administrators should establish an effective whistleblowing mechanism to facilitate early awareness of any potential misconduct or irregularities that may arise. This mechanism should allow for external reporting of such cases where appropriate.

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**STOXX's Response**

STOXX has implemented a documented risk-based control framework in all areas of the benchmark administration process. Areas include:

- i. index design, launch and decommissioning;
- ii. changes to index methodology;
- iii. periodic index review and adjustment;
- iv. index monitoring and surveillance;
- v. processing of input data and corporate actions;
- vi. incident and unexpected event management;

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

The control framework identifies potential risks in the respective business processes in the above areas, determines control objectives that address those risks and defines controls in place to meet those control objectives. The defined controls comprise a range of automated and manual checks and reporting mechanisms and are linked to STOXX's second- and third-level operational procedures.

The underlying input data for the STOXX indices are generally sourced through a variety of data providers.

Where practicable, STOXX sources data from more than one provider in order to improve accuracy and reduce operational dependencies on single providers. STOXX sometimes also supplements vendor data with information sourced through publicly available sources. With respect to the indices' underlying data, STOXX has implemented various quality controls designed to identify abnormal or erroneous inputs for such data as securities prices, foreign exchange rates, fundamental data and corporate actions. If input data are identified as potentially deficient in any of these checks, they are investigated by Operations and are subject to the internal approval process.

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**Procedures performed by PwC and their results**

Obtained the formal documentation of STOXX's Controls Framework and validated that it covered the relevant areas of the benchmark administration process, such as index design launch and decommissioning; index methodology updates; index review and adjustment; index monitoring; processing of input data and corporate actions; incident and unexpected event management as well as monitoring controls with respect to third parties and outsourced activities and also IT general controls, such as controls over access rights, application change management and data security.

Validated that individual controls related to the control objectives defined in STOXX's Controls Framework were suitably designed in order to mitigate the business risks they relate to, and were placed in operation.

Our procedures with respect to the index administration governance and oversight at STOXX are described under Principle 5.

Our procedures with respect to complaints management at STOXX are described under Principle 16.

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

Reviewed STOXX's Policy 4B "Qualification and Training" and on a sample basis inspected evidence that the policy had been adhered to in all material aspects.

None of the employees hired during the period under examination were relevant within the benchmark determination process. Accordingly, we could not verify whether the required documentation as stipulated in STOXX's Policy (probation period evaluation, training plan and performance evaluation) would have been adhered to.

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## 4.4. PRINCIPLE 4: CONTROL FRAMEWORK

### IOSCO Principle 4 continued from previous page

#### d) Expertise:

- i. Ensuring Benchmark determinations are made by personnel who possess the relevant levels of expertise, with a process for periodic review of their competence; and
- ii. Staff training, including ethics and conflicts of interest training, and continuity and succession planning for personnel.

Where a Benchmark is based on Submissions:

Administrators should promote the integrity of inputs by:

- a) Ensuring as far as possible that the Submitters comprise an appropriately representative group of participants taking into consideration the underlying Interest measured by the Benchmark;
- b) Employing a system of appropriate measures so that, to the extent possible, Submitters comply with the Submission guidelines, as defined in the Submitter Code of Conduct and the Administrators' applicable quality and integrity standards for Submission;
- c) Specifying how frequently Submissions should be made and specifying that inputs or Submissions should be made for every Benchmark determination; and
- d) Establishing and employing measures to effectively monitor and scrutinize inputs or Submissions. This should include pre-compilation or pre-publication monitoring to identify and avoid errors in inputs or Submissions, as well as ex-post analysis of trends and outliers.

**STOXX's Response** continued from previous page

Quality of performance of services provided by third parties who provide services to STOXX with respect to an essential element of operation and the index administration process (such as IT system and database maintenance, securities data research and processing, index calculation and index dissemination and their compliance with the contracts and standards set out by STOXX) is monitored by the respective business units.

The documented internal control framework details the adequacy of controls to maintain the integrity and quality of benchmark determination in line with STOXX responses to IOSCO principles and is under the responsibility of the STOXX Oversight Committee. It is also embedded in the governance and oversight structure of STOXX, as described under Principle 5, and delineates the internal reporting and escalation process.

The STOXX Oversight Committee is responsible for identifying risks in index administration, including conflicts of interest, operational issues and compliance aspects. It is also responsible for regularly reviewing the control framework in terms of its design and operating effectiveness.

The internal controls framework and dedicated organizational measures such as segregation of reporting lines, restricted access to certain information, etc., and also aims to mitigate risk of conflicts of interest arising in the index administration process.

STOXX has implemented an internal whistleblowing policy and mechanism for reporting any potential misconduct or irregularities. STOXX staff members are made aware of this policy by means of the intranet and compliance training.

STOXX has implemented a dedicated complaints policy and a procedure that allows stakeholders to lodge their complaints by email. All complaints must be duly investigated, and the complainant must receive a response. Complaints that may result in financial or reputational impact are escalated or subject to review by STOXX's Oversight Committee or Executive Board. Further details are available in the STOXX Complaints Policy.

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**Procedures performed by PwC and their results**  
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On a sample basis, inspected evidence that an annual employee performance evaluation was conducted.

No exceptions noted.

#### 4.4. PRINCIPLE 4: CONTROL FRAMEWORK



**STOXX's Response** continued from previous page

STOXX has a dedicated human resource policy in place that addresses staff recruitment, onboarding, performance evaluation, training and deputy planning. STOXX business unit managers are responsible for the supervision and training of their staff and for adequate deputy and/or succession planning for all key staff members, with the clear focus of ensuring proper business continuity. STOXX employees are subject to mandatory compliance and conflicts of interest-management training. In addition, depending on their roles in the index administration process, staff members undergo external and internal technical training based on an individual training plan that is reviewed on an annual basis. A standardized comprehensive individual performance assessment takes place on an annual basis.

In the reporting period STOXX acted as Administrator for a submission based index.

As described under Principle 14, STOXX currently excludes the administered submission-based index from IOSCO compliance and as of Dec. 31, 2016 there are no submission based indices as the iSTOXX® Efficient Capital® Managed Futures 20 index (based on submissions) was terminated in 2016.

## 4.5. PRINCIPLE 5: INTERNAL OVERSIGHT

### IOSCO Principle 5

Administrators should establish an oversight function to review and provide challenge on all aspects of the Benchmark determination process. This should include consideration of the features and intended, expected or known usage of the Benchmark and the materiality of existing or potential conflicts of interest identified. The oversight function should be carried out either by a separate committee, or other appropriate governance arrangements. The oversight function and its composition should be appropriate to provide effective scrutiny of the Administrator. Such oversight function could consider groups of Benchmarks by type or asset class, provided that it otherwise complies with this Principle. An Administrator should develop and maintain robust procedures regarding its oversight function, which should be documented and available to relevant Regulatory Authorities, if any. The main features of the procedures should be Made Available to Stakeholders. These procedures should include:

- a) The terms of reference of the oversight function;
- b) Criteria to select members of the oversight function;
- c) The summary details of membership of any committee or arrangement charged with the oversight function, along with any declarations of conflicts of interest and processes for election, nomination or removal and replacement of committee members.

The responsibilities of the oversight function include:

- a) Oversight of the Benchmark design:
  - i. Periodic review of the definition of the Benchmark and its Methodology;
  - ii. Taking measures to remain informed about issues and risks to the Benchmark, as well as commissioning external reviews of the Benchmark (as appropriate);
  - iii. Overseeing any changes to the Benchmark Methodology, including assessing whether the Methodology continues to appropriately measure the underlying Interest, reviewing proposed and implemented changes to the Methodology, and authorizing or requesting the Administrator to undertake a consultation with Stakeholders where known or its Subscribers on such changes as per Principle 12; and

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**STOXX's Response**

STOXX has an appropriate governance structure that oversees all stages of the index administration process. The governance structure is composed of several committees, all of which are assigned specific tasks and which ultimately report to STOXX's senior management.

STOXX's index administration governance framework includes the following bodies:

- » Executive Board (EB)
- » Oversight Committee (OC)
- » Index Management Committee (IMC)
- » Index Operations Committee (IOC)

In addition, the Advisory Board – composed of external stakeholders – is consulted for specific matters.

The STOXX EB meetings take place fortnightly.

The purpose of the OC is to oversee all areas of the benchmark determination process and to take final decisions in case Operations, the IOC and the IMC are not capable or allowed to take decisions, unless a decision needs to be further escalated to the EB because of the risk of substantial financial and/or reputational impact.

The purpose of the IMC is to oversee decisions made by the IOC and to decide in cases where the IOC has escalated a decision. The second purpose of the IMC is to monitor rules for existing indices and to decide on rule changes, the corresponding impact analysis, development of guidelines for the regular review of index methodologies and the oversight of the results of suitability conducted by Product Development and Operations. This includes a periodic review of the current index methodology and consideration to terminate.

**Procedures performed by PwC and their results**

Reviewed the STOXX Index Administration Governance framework and the corresponding Terms of Reference of the individual governance and oversight committees and validated that they address the recommendations of IOSCO Principle 5.

Inspected evidence that all oversight committees within STOXX's Index Administration Governance framework had been set up, held meetings as scheduled and acted according to their terms of reference.

For a sample of operational incidents, verified whether the incidents were handled in accordance with STOXX's incident management process and, with respect to escalation cases, reviewed the respective committee meeting minutes and validated that:

- » The committees acted in accordance with the defined trigger points for escalation.
- » The contents of the meetings covered the relevant matters according to their responsibilities/functions.
- » The committees acted in accordance with the Terms of Reference.

No exceptions noted.

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## 4.5. PRINCIPLE 5: INTERNAL OVERSIGHT

### IOSCO Principle 5 continued from previous page

- iv. Reviewing and approving procedures for termination of the Benchmark, including guidelines that set out how the Administrator should consult with Stakeholders about such cessation.
- b) Oversight of the integrity of Benchmark determination and control framework:
  - i. Overseeing the management and operation of the Benchmark, including activities related to Benchmark determination undertaken by a third party;
  - ii. Considering the results of internal and external audits, and following up on the implementation of remedial actions highlighted in the results of these audits; and
  - iii. Overseeing any exercise of Expert Judgment by the Administrator and ensuring Published Methodologies have been followed.

Where conflicts of interests may arise in the Administrator due to its ownership structures or controlling interests, or due to other activities conducted by any entity owning or controlling the Administrator or by the Administrator or any of its affiliates: the Administrator should establish an independent oversight function which includes a balanced representation of a range of Stakeholders where known, Subscribers and Submitters, which is chosen to counterbalance the relevant conflict of interest. Where a Benchmark is based on Submissions: the oversight function should provide suitable oversight and challenge of the Submissions by:

- a) Overseeing and challenging the scrutiny and monitoring of inputs or Submissions by the Administrator. This could include regular discussions of inputs or Submission patterns, defining parameters against which inputs or Submissions can be analyzed, or querying the role of the Administrator in challenging or sampling unusual inputs or Submissions;
- b) Overseeing the Code of Conduct for Submitters;
- c) Establishing effective arrangements to address breaches of the Code of Conduct for Submitters; and
- d) Establishing measures to detect potential anomalous or suspicious Submissions and in case of suspicious activities, to report them, as well as any misconduct by Submitters of which it becomes aware.

**STOXX's Response** continued from previous page

The purpose of the IOC is to oversee those areas of Operations that deal with daily questions, problems, or issues that arise as a result of the administration of indices. Hence, the overall objective of the IOC is to ensure that the benchmark administration process results in a correct and timely determination, calculation and dissemination of indices. Furthermore, the IOC must define and oversee measures that allow for mitigation of operational risks.

As described under Principle 14, STOXX currently excludes the administered submission-based index from IOSCO compliance and as of Dec. 31, 2016 there are no submission based indices as the iSTOXX® Efficient Capital® Managed Futures 20 index (based on submissions) was terminated in 2016.

## 4.6. PRINCIPLE 6: BENCHMARK DESIGN

### IOSCO Principle 6

The design of the Benchmark should seek to achieve, and result in an accurate and reliable representation of the economic realities of the Interest it seeks to measure, and eliminate factors that might result in a distortion of the price, rate, index or value of the Benchmark.

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

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

STOXX's Response	Procedures performed by PwC and their results
<ul style="list-style-type: none"> <li>» STOXX has established dedicated policies, and procedures are in place that regulate the index design process.</li> <li>» Internal controls with respect to benchmark design are integrated into the STOXX controls framework.</li> <li>» The STOXX indices are constructed, calculated and maintained based on predefined rules. For new indices, the methodology must be designed in a way to ideally achieve synergies in terms of data, processes and procedures. Depending on the underlying interests of the index – for whom and which target group the index is designed – the methodology should also follow certain quality aspects, e.g., diversification of the index composition or restrictions on maximum weightings. During the index design process the simulated results for the index calculation must be tested against their ability to adequately measure the interest.</li> <li>» For each new index a detailed methodology and index objective are defined in the Rulebooks. In addition, new indices should be backtested or backcasted (in the case where only limited data are available) using historical data if economically and technically feasible. In the case of new raw data, a data analysis and cleansing must be conducted to ensure adequacy of the sample.</li> <li>» The index methodology must contain rules to capture size, liquidity and the underlying market representation appropriate for the index, provided the respective Interest requires such rules. In the case of indices referring to less-liquid markets, the distribution of trading among market participants (market concentration) must be considered in the index design.</li> <li>» To ensure that developments in the underlying reference markets are reflected in a timely fashion, the composition and index methodology are periodically reviewed and revised if necessary.</li> </ul>	<p>Reviewed STOXX's Policy "Benchmark Design" and validated that it addresses the recommendations of IOSCO Principle 6.</p> <p>For a sample of newly launched STOXX indices, inspected evidence of compliance with the process and all elements defined in the STOXX policy in response to IOSCO Principle 6.</p> <p>Inspected evidence on the timely reflection of developments in the underlying reference markets by verifying that the launched indices were subject to periodic index reviews.</p> <p>The procedures we performed on the index review process are described under Principle 10.</p> <p>Our procedures with respect to controls framework at STOXX are described under Principle 4.</p> <p>No exceptions noted.</p>

## 4.7. PRINCIPLE 7: DATA SUFFICIENCY

### IOSCO Principle 7

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

- a) Be based on prices, rates, indices or values that have been formed by the competitive forces of supply and demand in order to provide confidence that the price discovery system is reliable; and
- b) Be anchored by observable transactions entered into at arm's length between buyers and sellers in the market for the Interest the Benchmark measures in order for it to function as a credible indicator of prices, rates, indices or values.

This Principle requires that a Benchmark be based upon (i.e., anchored in) an active market having observable Bona Fide, Arms-Length Transactions. This does not mean that every individual Benchmark determination must be constructed solely of transaction data. Provided that an active market exists, conditions in the market on any given day might require the Administrator to rely on different forms of data tied to observable market data as an adjunct or supplement to transactions. Depending upon the Administrator's Methodology, this could result in an individual Benchmark determination being based predominantly, or exclusively, on bids and offers or extrapolations from prior transactions. This is further clarified in Principle 8.

Provided that subparagraphs a.) and b.) above are met, Principle 7 does not preclude Benchmark Administrators from using executable bids or offers as a means to construct Benchmarks where anchored in an observable market consisting of Bona Fide, Arms-Length transactions. This Principle also recognizes that various indices may be designed to measure or reflect the performance of a rule-based investment strategy, the volatility or behavior of an index or market or other aspects of an active market. Principle 7 does not preclude the use of non-transactional data for such indices that are not designed to represent transactions and where the nature of the index is such that non-transactional data is used to reflect what the index is designed to measure. For example, certain volatility indices, which are designed to measure the expected volatility of an index of securities transactions, rely on non-transactional data, but the data is derived from and thus "anchored" in an actual functioning securities or options market.



**STOXX's Response**

STOXX has dedicated policies and procedures in place to ensure that the data quality used for index determination purposes is in compliance with IOSCO principles.

The respective data sufficiency provisions are also reflected in the methodology descriptions of specific indices in the index Rulebooks that are available online:

STOXX Rulebooks: <https://www.stoxx.com/rulebooks>

In general, STOXX uses traded prices from regulated exchanges/markets (representing observable bona fide, arms-length transactions) for all of its indices, wherever possible and reasonable.

For any deviations from this rule, such as the use of non-transactional data, a detailed rationale is provided as part of the published index Rulebooks.

In order to prove the accuracy and reliability of the data used in representing the interest measured for index determination, STOXX discloses the nature of the data in the Rulebooks.

In the case of incidents where it is not possible to obtain observable bona fide, arms-length transactions for a specific index (e.g., market disruptions), the hierarchy of data inputs applicable for an index disclosed in the Rulebooks must be followed.

If STOXX determines that transactional data to determine an index are not available or the application of the hierarchy of data inputs would not result in an accurate and reliable representation of the interest measured by the index, the relevant governance structure of STOXX is used.

Management of data sourced from third parties is covered in the response to IOSCO Principle 2.

**Procedures performed by PwC and their results**

Reviewed STOXX's Policy "Data Sufficiency" and validated that it addresses the recommendations of IOSCO Principle 7.

For a sample of indices, inspected evidence that the corresponding index Rulebooks adequately address the provisions of the policy.

Verified the disclosure of the underlying data used for benchmark determination in the index Rulebooks and, where appropriate, a rationale for non-transaction-based input data as described in STOXX's policy.

On a sample basis, inspected evidence that missing transaction-based data were not substituted with non-transactional data and verified that there were no incidents where it was not possible to obtain observable bona fide, "at arms-length" transaction-based data for a specific index as per STOXX policy.

Obtained a written confirmation from STOXX that incidents with regard to missing transaction-based data were subject to a standardized process as defined by the policy.

For a sample of one index for one day, inspected evidence that underlying market prices are sourced in accordance to the Rulebooks.

On a sample basis, reviewed the price sources used for index calculation and tied them back to formal exchange prices in order to validate that underlying market prices were sourced in accordance to the Rulebooks.

No exceptions noted.

## 4.8. PRINCIPLE 8: HIERARCHY OF DATA INPUTS

### IOSCO Principle 8

An Administrator should establish and Publish or Make Available clear guidelines regarding the hierarchy of data inputs and exercise of Expert Judgment used for the determination of Benchmarks.

In general, the hierarchy of data inputs should include:

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

Provided that the Data Sufficiency Principle is met (i.e., an active market exists), this Principle is not intended to restrict an Administrator's flexibility to use inputs consistent with the Administrator's approach to ensuring the quality, integrity, continuity and reliability of its Benchmark determinations, as set out in the Administrator's Methodology.

The Administrator should retain flexibility to use the inputs it believes are appropriate under its Methodology to ensure the quality and integrity of its Benchmark. For example, certain Administrators may decide to rely upon Expert Judgment in an active albeit low liquidity market, when transactions may not be consistently available each day.

IOSCO also recognizes that there might be circumstances (e.g., a low liquidity market) when a confirmed bid or offer might carry more meaning than an outlier transaction. Under these circumstances, non-transactional data such as bids and offers and extrapolations from prior transactions might predominate in a given Benchmark determination.

**STOXX's Response**

STOXX has dedicated policies and procedures in place to ensure that the data hierarchy used for index determination purposes is in compliance with IOSCO principles.

The respective provisions regarding hierarchy of data inputs and exercise of expert judgment are reflected in the methodology descriptions of specific indices and in the index Rulebooks that are available online:

STOXX Rulebooks: <https://www.stoxx.com/rulebooks>

STOXX defines expert judgment as any deviation from published index methodologies, the extrapolation of values from prior or related transactions, the adjustment of values for factors that might influence the quality of data such as market events or impairment of a buyer or seller's credit quality, or weighting firm bids or offers greater than a particular concluded transaction.

Data filter rules are not considered expert judgment. They are considered a part of the methodology of an index and must be disclosed in the Rulebooks.

With the exception of submission-based indices, all STOXX proprietary indices are based on data obtained from regulated markets (either executed transactions or observable bid/ask quotes), and no expert judgment is exercised with respect to data inputs.

As described under Principle 14, STOXX currently excludes the administered submission-based index from IOSCO compliance and as of Dec. 31, 2016 there are no submission based indices as the iSTOXX® Efficient Capital® Managed Futures 20 index (based on submissions) was terminated in 2016.

**Procedures performed by PwC and their results**

Reviewed STOXX's Policy "Hierarchy of Data Inputs" and validated that it addresses the recommendations of IOSCO Principle 8.

For a sample of index Rulebooks verified that a clear description of the hierarchy of the data inputs is disclosed in the Rulebooks.

STOXX has represented to us that no significant discretionary expert judgment not otherwise defined in the Rulebooks is applied for the determination of STOXX's indices.

For a sample of relevant cases, we inspected evidence that no expert judgment was effectively applied with respect to input data, except for the above mentioned special case.

No exceptions noted.

## 4.9. PRINCIPLE 9: TRANSPARENCY OF BENCHMARK DETERMINATIONS

### IOSCO Principle 9

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

- a) A concise explanation, sufficient to facilitate a Stakeholder's or Market Authority's ability to understand how the determination was developed, including, at a minimum, the size and liquidity of the market being assessed (meaning the number and volume of transactions submitted), the range and average volume and range and average of price, and indicative percentages of each type of market data that have been considered in a Benchmark determination; terms referring to the pricing Methodology should be included (i.e., transaction-based, spread-based or interpolated/extrapolated);
- b) A concise explanation of the extent to which and the basis upon which Expert Judgment if any, was used in establishing a Benchmark determination.

**STOXX's Response**

The indices administered by STOXX are typically derived from data sourced from regulated markets or exchanges that have mandatory post-trade transparency requirements, and they typically do not involve significant expert judgment.

- a) The relevant details on index determination are described and disclosed in published Rulebooks of the respective indices. STOXX Rulebooks: <https://www.stoxx.com/rulebooks>

STOXX provides and publishes a number of documents that describe its benchmark determinations. The following data types provide sufficient transparency for STOXX's stakeholders to understand the process and data used to make determinations for each relevant benchmark:

- » Open quotations
- » Index settlement values
- » Intraday snapshots data
- » Closing data
- » Corporate action forecasts
- » Monthly reports and selection lists
- » Index review lists
- » STOXX news and index data notifications

Private clients can have access to data files that are relevant to their own products to allow them to validate and determine the benchmark calculation.

- b) For indices that may involve significant expert judgment, STOXX discloses the relevant information with each index determination.

Further information about expert judgment is provided in the response to IOSCO Principle 8.

**Procedures performed by PwC and their results**

Reviewed STOXX's Policy "Determination and Dissemination" and validated that it addresses the recommendations of IOSCO Principle 9.

For a sample of indices, validated that the index Rulebooks include the relevant details on index determination and comply with the provisions of STOXX's Policy "Determination and Dissemination."

For a sample of indices, inspected evidence that STOXX prepared and distributed the information with respect to benchmark determinations as described in STOXX's response and defined in STOXX's Policy "Determination and Dissemination."

STOXX has represented to us that no significant discretionary expert judgment is applied for the determination of STOXX's indices.

No exceptions noted.

## 4.10. PRINCIPLE 10: PERIODIC REVIEW

### IOSCO Principle 10

The Administrator should periodically review the conditions in the underlying Interest that the Benchmark measures to determine whether the Interest has undergone structural changes that might require changes to the design of the Methodology. The Administrator also should periodically review whether the Interest has diminished or is non-functioning such that it can no longer function as the basis for a credible Benchmark.

The Administrator should Publish or Make Available a summary of such reviews where material revisions have been made to a Benchmark, including the rationale for the revisions.

**STOXX's Response**

- » STOXX has dedicated policies and procedures in place with respect to periodic review of index conditions and parameters.
- » Internal controls with respect to index review are integrated into the STOXX controls framework.
- » All changes to existing index rules or amendments to index methodologies are updated in the Rulebooks and are published through appropriate communication channels, such as STOXX's website.
- » STOXX has implemented a governance structure with committees and policies to review index methodologies and when stakeholders are to be contacted.
- » STOXX constantly monitors the execution of the index calculation rules to ensure the validity of the index methodology. STOXX also conducts general methodology reviews on a periodic and ad-hoc basis to reflect economic and political changes and developments in the investment industry. As a result of these activities, STOXX introduces changes to the methodology books. Material changes are notified to subscribers and the media through the usual communication channels.

**Procedures performed by PwC and their results**

Reviewed STOXX's Policy "Periodic Review" and validated that it addresses the recommendations of IOSCO Principle 10.

For a sample of indices that had undergone a methodology review, inspected evidence that:

- » The periodic index methodology review was carried out by Product Development in accordance with STOXX's policy.
- » The decision to implement the revised methodology was handled by the competent governance committee.
- » Changes to index rules or amendments to index methodologies were updated in the Rulebooks and published through appropriate communication channels.

No exceptions noted.

## 4.11. PRINCIPLE 11: CONTENT OF METHODOLOGY

### IOSCO Principle 11

The Administrator should document and Publish or Make Available the Methodology used to make Benchmark determinations. The Administrator should provide the rationale for adopting a particular Methodology. The Published Methodology should provide sufficient detail to allow Stakeholders to understand how the Benchmark is derived and to assess its representativeness, its relevance to particular Stakeholders, and its appropriateness as a reference for financial instruments. At a minimum, the Methodology should contain:

- a) Definitions of key terms;
- b) All criteria and procedures used to develop the Benchmark, including input selection, the mix of inputs used to derive the Benchmark, the guidelines that control the exercise of Expert Judgment by the Administrator, priority given to certain data types, minimum data needed to determine a Benchmark, and any models or extrapolation methods;
- c) Procedures and practices designed to promote consistency in the exercise of Expert Judgment between Benchmark determinations;
- d) The procedures which govern Benchmark determination in periods of market stress or disruption, or periods where data sources may be absent (e.g., theoretical estimation models);
- e) The procedures for dealing with error reports, including when a revision of a Benchmark would be applicable;
- f) Information regarding the frequency for internal reviews and approvals of the Methodology. Where applicable, the Published Methodologies should also include information regarding the procedures and frequency for external review of the Methodology;
- g) The circumstances and procedures under which the Administrator will consult with Stakeholders, as appropriate; and
- h) The identification of potential limitations of a Benchmark, including its operation in illiquid or fragmented markets and the possible concentration of inputs.

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**STOXX's Response**

STOXX publishes the methodology for all of its administered indices in the index Rulebooks on the STOXX website and ensures that the contents of the methodology meet the requirements of the IOSCO principles.

The index methodologies and the interest that each index seeks to measure are detailed in the STOXX Rulebooks. Each index family has a dedicated Rulebook and sections. The Rulebooks consist of the STOXX and iSTOXX Index Methodology Guides for equity-based indices, the STOXX ESG Index Guide for ESG equity-based indices, STOXX Strategy Index Guide for volatility and index-of-index strategies, the STOXX Reference Rate Guide for the GC Pooling Reference rates and the STOXX Calculation Guides for the overall calculations and application of corporate actions and the calculation of Dividend Value Points and statistics.

Stakeholders can access the above information under:  
<https://www.stoxx.com/rulebooks>

STOXX key terms are defined in the STOXX index guide in Chapters 4 and 5 and the overall calculation formulae in the STOXX calculation guide.

The methodologies of STOXX indices outline the selection criteria, weighting scheme and calculation principles used for determination of the benchmarks. They provide sufficient detail to allow stakeholders to understand how an index is derived, to assess its representativeness, its relevance to particular stakeholders and its appropriateness as a reference for financial instruments.

The index methodologies are designed to limit subjectivity and expert judgment.

STOXX is using traded prices from regulated markets and not submission-based data, which are typically prone to subjectivity and the need for expert judgment.

In the case of rules being silent or open for interpretation, STOXX has implemented a governance structure to review the individual cases, trigger market consultations and make rule adjustments.

Clients are made aware by email alerts of market disruptions. The handling of extreme market events is published in the Rulebooks and follows the established STOXX governance process.

**Procedures performed by PwC and their results**

For a sample of index Rulebooks, verified that the methodology descriptions in the index Rulebooks include the elements recommended by IOSCO Principle 11 and comply with STOXX's Policy "Content of Methodology."

In particular:

- a) Verified that the Rulebooks include the definition of key terms.
- b) Verified that the Rulebooks include selection criteria, weighting scheme and calculation principles used for determination of the benchmarks and provide sufficient detail to understand how an index is derived.
- c) STOXX has represented to us that no discretionary expert judgment is applied for the determination of STOXX's indices. Our procedures in this respect are described under Principle 8.
- d) Verified that the Rulebooks include clear provisions with respect to handling of extreme market events.
- e) Verified that procedures for dealing with error reports are disclosed in the Rulebooks and are subject to the incident management process.
- f) Verified that information regarding the frequency for internal reviews and approvals of the methodology are disclosed in the Rulebooks.
- g) Verified that circumstances and procedures under which STOXX will consult with stakeholders are disclosed in the Rulebooks.
- h) Verified that the Rulebooks include the definition of key terms of the index, including potential limitations.

No exceptions noted.

## 4.11. PRINCIPLE 11: CONTENT OF METHODOLOGY

### **IOSCO Principle 11** continued from previous page

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

The Administrator should clearly establish criteria for including and excluding Submitters. The criteria should consider any issues arising from the location of the Submitter, if in a different jurisdiction to the Administrator. These criteria should be available to any relevant Regulatory Authorities, if any, and Published or Made Available to Stakeholders. Any provisions related to changes in composition, including notice periods should be made clear.

**STOXX's Response** continued from previous page

Procedures are described in the STOXX calculation guide Chapter 9, and STOXX has established an incident management process.

STOXX has implemented a governance structure with committees and policies to review index methodologies and when stakeholders are to be contacted.

STOXX constantly monitors the execution of the index calculation rules to ensure the validity of the index methodology. STOXX also conducts general methodology reviews on a periodic and ad-hoc basis to reflect economic and political changes and developments in the investment industry. As result of these activities, STOXX introduces changes to the methodology books. Material changes are notified to subscribers and the media through the usual communication channels. Clarifications of the methodology are updated in the Rulebooks. All changes are tracked in the change log section of each Rulebook.

STOXX indices are constructed to serve as a basis for investment instruments. Clients requiring clarifications on index methodologies can contact the STOXX customer support function. Feedback received from market participants or through the STOXX complaints procedure regarding trading difficulties is evaluated by the internal committees. Any recommendation resulting in a methodology change needs to be approved by the STOXX oversight function.

As described under Principle 14, STOXX currently excludes the administered submission-based index from IOSCO compliance and as of Dec. 31, 2016 there are no submission based indices as the iSTOXX® Efficient Capital® Managed Futures 20 index (based on submissions) was terminated in 2016.

## 4.12. PRINCIPLE 12: CHANGES TO METHODOLOGY

### IOSCO Principle 12

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. Those procedures should be consistent with the overriding objective that an Administrator must ensure the continued integrity of its Benchmark determinations. When changes are proposed, the Administrator should specify exactly what these changes entail and when they are intended to apply.

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

The Administrator should develop Stakeholder consultation procedures in relation to changes to the Methodology that are deemed material by the oversight function, and that are appropriate and proportionate to the breadth and depth of the Benchmark's use and the nature of the Stakeholders. Procedures should:

- a) Provide advance notice and a clear timeframe that gives Stakeholders sufficient opportunity to analyze and comment on the impact of such proposed material changes, having regard to the Administrator's assessment of the overall circumstances; and
- b) Provide for Stakeholders' summary comments, and the Administrator's summary response to those comments, to be made accessible to all Stakeholders after any given consultation period, except where the commenter has requested confidentiality.

**STOXX's Response**

- » Changes to the methodology of indices administered by STOXX are disclosed through the STOXX website.
- » The internal control framework of STOXX ensures that changes to the index methodology follow the STOXX policies and are subject to the appropriate oversight and stakeholder consultation.
- » STOXX has implemented a governance structure with committees and policies to review index methodologies, when stakeholders are to be contacted and when and how to publish any changes. All changes need to be approved by the STOXX oversight function.
- » Clarifications of the methodology are updated in the Rulebooks. All changes are tracked in the change log section of each Rulebook.

All material methodology changes should generally be publicly announced three months prior to implementation, except for urgent or distressed situations where the timing of the announcement must be determined by the OC ad hoc or in situations where there is no stakeholder impact and where immediate communication is possible. All rule changes including changes in distress situations will require a minimum notice period of one full trading day. On request, STOXX provides detailed information about the nature and rationale of the change as well as the implications and terms of the new methodology to enter into force.

The oversight function is responsible for evaluating the necessity for consulting the Advisory Board or any other external stakeholders. The timing and duration of the consultation period is determined by the OC and is dependent on the proposed change in methodology. A summary of the stakeholders' comments and STOXX's summary response to those comments is made available to all stakeholders after any given consultation period, except where the commenter has requested confidentiality.

**Procedures performed by PwC and their results**

For a sample of indices that had undergone a methodology change in 2016, inspected evidence that the methodology change management adhered to the process defined in STOXX's Policy "Changes to Methodology".

On a sample basis, inspected evidence that methodology changes had been publicly announced three months prior to implementation.

We noted that for 1 out of 2 cases in our sample, we could not be provided with the public notice/email to subscribers prior to the implementation of the change.

On a sample basis, inspected evidence of the availability of detailed information about the nature and rationale of the change that can be provided on request.

For the above sample, inspected evidence that methodology changes had been approved by the Oversight Committee (OC) as defined in STOXX's policy.

No further exceptions noted.

## 4.13. PRINCIPLE 13: TRANSITION

### IOSCO Principle 13

Administrators should have clear written policies and procedures, to address the need for possible cessation of a Benchmark, due to market structure change, product definition change, or any other condition which makes the Benchmark no longer representative of its intended Interest. These policies and procedures should be proportionate to the estimated breadth and depth of contracts and financial instruments that reference a Benchmark and the economic and financial stability impact that might result from the cessation of the Benchmark. The Administrator should take into account the views of Stakeholders and any relevant Regulatory and National Authorities in determining what policies and procedures are appropriate for a particular Benchmark.

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

- a) Contracts or other financial instruments that reference a Benchmark, have robust fallback provisions in the event of material changes to, or cessation of, the referenced Benchmark; and
- b) Stakeholders are aware of the possibility that various factors, including external factors beyond the control of the Administrator, might necessitate material changes to a Benchmark.

Administrators' written policies and procedures to address the possibility of Benchmark cessation could include the following factors, if determined to be reasonable and appropriate by the Administrator:

- a) Criteria to guide the selection of a credible, alternative Benchmark such as, but not limited to, criteria that seek to match to the extent practicable the existing Benchmark's characteristics (e.g., credit quality, maturities and liquidity of the alternative market), differentials between Benchmarks, the extent to which an alternative Benchmark meets the asset/liability needs of Stakeholders, whether the revised Benchmark is investable, the availability of transparent transaction data, the impact on Stakeholders and impact of existing legislation.

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**STOXX's Response**

STOXX has put a dedicated policy in place that regulates transitions and cessations of indices administered by STOXX. This policy can be obtained from [regulations@stoxx.com](mailto:regulations@stoxx.com)

STOXX has integrated into its Rulebooks an index termination process:

<https://www.stoxx.com/rulebooks>

In general, any STOXX department can identify the need for decommissioning an index and submit a proposal to Product Development. If Product Development agrees with the need for a cessation according to the above criteria, the Product Approval Committee must be involved to formally request the cessation of an index. The decision to decommission an index is made by the OC in accordance with the terms of reference.

Before decommissioning an index, STOXX always determines whether there are any listed financial products issued on that index as the underlying. STOXX terminates indices only provided that:

- » All existing (to STOXX's knowledge) commercial customers have been consulted, and commercial relationships have been terminated or transitioned accordingly.
- » Consultations with stakeholders have not led to the decision to continue the index.

STOXX gives sufficient notice to ensure that all non-commercial stakeholders have sufficient time to adjust accordingly. STOXX is not responsible for determining or offering an alternative index to its subscribers or other stakeholders when an index is decommissioned.

Legal ensures that all contracts with third parties indicate that STOXX has the right to materially change or decommission an index at any time and that for such cases subscribers or other stakeholders who have financial instruments that refer to the index are responsible for implementing robust fallback provisions (e.g., early redemption of the financial instruments issued on the index).

**Procedures performed by PwC and their results**

Reviewed STOXX's Policy "Index Transition" and validated that it addresses the recommendations of IOSCO Principle 13.

For a sample of terminated Indices, inspected that the process of cessation was conducted in accordance with STOXX's Policy "Index Transition".

Inspected a sample index licence agreement and noted that it includes a provision stating that STOXX has the right to materially change or decommission an index at any time and that for such cases subscribers or other stakeholders who have financial instruments that refer to the index are responsible for implementing robust fallback provisions (e.g., early redemption of the financial instruments issued on the index).

No exceptions noted.

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## 4.13. PRINCIPLE 13: TRANSITION

### IOSCO Principle 13 continued from previous page

- b) The practicality of maintaining parallel Benchmarks (e.g., where feasible, maintain the existing Benchmark for a defined period of time to permit existing contracts and financial instruments to mature and publish a new Benchmark) in order to accommodate an orderly transition to a new Benchmark;
- c) The procedures that the Administrator would follow in the event that a suitable alternative cannot be identified;
- d) In the case of a Benchmark or a tenor of a Benchmark that will be discontinued completely, the policy defining the period of time in which the Benchmark will continue to be produced in order to permit existing contracts to migrate to an alternative Benchmark if necessary; and
- e) The process by which the Administrator will engage Stakeholders and relevant Market and National Authorities, as appropriate, in the process for selecting and moving towards an alternative Benchmark, including the timeframe for any such action commensurate with the tenors of the financial instruments referencing the Benchmarks and the adequacy of notice that will be provided to Stakeholders.



**STOXX's Response** continued from previous page

Subscriber or other stakeholders are informed about a cessation or transition of an index at least three months in advance. A press release and email to subscribers or other stakeholder is issued, giving detailed information about the nature and rationale of the cessation and transition as well as the date on which the index is to be decommissioned. The press release and email inform subscribers or other stakeholders that there will be no replacement of the index and whether STOXX suggests the use of alternative indices.

For the transition of an index or index family, a market consultation with the involved subscribers and other stakeholders, as well as the Advisory Board, must be initiated by STOXX.

The duration of the consultation phase must be approved by the OC.

A summary of the stakeholders' comments and STOXX's summary response to those comments must be made available upon request to all stakeholders after any given consultation period, except where the commenter has requested confidentiality.

When it is discontinuing an index without launching a new one, STOXX considers whether to recommend using an alternative credible index. Criteria to be considered are matching characteristics of the discontinued index, differentials between indices, the extent to which an alternative index meets the needs of stakeholders, whether the alternative index is investable, availability of transparent transaction data, impact on stakeholders and impact of existing legislation.

STOXX is not responsible for determining or offering an alternative index to its subscribers or other stakeholders when an index is decommissioned.

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## 4.13. PRINCIPLE 13: TRANSITION

**STOXX's Response** continued from previous page

Subscribers or other stakeholders are informed about a cessation or transition of an index at least three months in advance. A press release and email to subscribers or other stakeholders must be issued giving detailed information about the nature and rationale of the cessation and transition as well as the date on which the index is to be decommissioned. The press release and email must also inform subscribers or other stakeholders that there will be no replacement of the index and whether STOXX suggests the use of alternative indices. For the transition of an index or index family, a market consultation with the involved subscribers and other stakeholders, as well as the Advisory Board, is initiated by STOXX.

The duration of the transition is approved by the OC.

A summary of the stakeholders' comments and STOXX's summary response to those comments must be made available upon request to all stakeholders after any given consultation period, except where the commenter has requested confidentiality.

## 4.14. PRINCIPLE 14: SUBMITTER CODE OF CONDUCT

### IOSCO Principle 14

Where a Benchmark is based on Submissions, the following additional Principle also applies: The Administrator should develop guidelines for Submitters ("Submitter Code of Conduct"), which should be available to any relevant Regulatory Authorities, if any and Published or Made Available to Stakeholders. The Administrator should only use inputs or Submissions from entities which adhere to the Submitter Code of Conduct and the Administrator should appropriately monitor and record adherence from Submitters. The Administrator should require Submitters to confirm adherence to the Submitter Code of Conduct annually and whenever a change to the Submitter Code of Conduct has occurred. The Administrator's oversight function should be responsible for the continuing review and oversight of the Submitter Code of Conduct. The Submitter Code of Conduct should address:

- a) The selection of inputs;
- b) Who may submit data and information to the Administrator;
- c) Quality control procedures to verify the identity of a Submitter and any employee(s) of a Submitter who report(s) data or information and the authorization of such person(s) to report market data on behalf of a Submitter;
- d) Criteria applied to employees of a Submitter who are permitted to submit data or information to an Administrator on behalf of a Submitter;
- e) Policies to discourage the interim withdrawal of Submitters from surveys or Panels;
- f) Policies to encourage Submitters to submit all relevant data; and
- g) The Submitters' internal systems and controls, which should include:
  - i. Procedures for submitting inputs, including Methodologies to determine the type of eligible inputs, in line with the Administrator's Methodologies;
  - ii. Procedures to detect and evaluate suspicious inputs or transactions, including inter-group transactions, and to ensure the Bona Fide nature of such inputs, where appropriate;
  - iii. Policies guiding and detailing the use of Expert Judgment, including documentation requirements;

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**STOXX's Response**

- » The indices administered by STOXX are based on data sourced from regulated markets or exchanges with mandatory post-trade transparency requirements, except for the iSTOXX® Efficient Capital® Managed Futures 20 index (based on submissions), according to the terms of the IOSCO Principles. That index was terminated in 2016 and no other submission-based indices are currently administered by STOXX.

**Procedures performed by PwC and their results**

No procedures were performed as no indices fell within the scope of Principle 14.

## 4.14. PRINCIPLE 14: SUBMITTER CODE OF CONDUCT

### IOSCO Principle 14 continued from previous page

- iv. Record keeping policies;
- v. Pre-Submission validation of inputs, and procedures for multiple reviews by senior staff to check inputs;
- vi. Training, including training with respect to any relevant regulation (covering Benchmark regulation or any market abuse regime);
- vii. Suspicious Submission reporting;
- viii. Roles and responsibilities of key personnel and accountability lines;
- ix. Internal sign off procedures by management for submitting inputs;
- x. Whistle blowing policies (in line with Principle 4); and
- xi. Conflicts of interest procedures and policies, including prohibitions on the Submission of data from Front Office Functions unless the Administrator is satisfied that there are adequate internal oversight and verification procedures for Front Office Function Submissions of data to an Administrator (including safeguards and supervision to address possible conflicts of interests as per paragraphs (v) and (ix) above), the physical separation of employees and reporting lines where appropriate, the consideration of how to identify, disclose, manage, mitigate and avoid existing or potential incentives to manipulate or otherwise influence data inputs (whether or not in order to influence the Benchmark levels), including, without limitation, through appropriate remuneration policies and by effectively addressing conflicts of interest which may exist between the Submitter's Submission activities (including all staff who perform or otherwise participate in Benchmark Submission responsibilities), and any other business of the Submitter or of any of its affiliates or any of their respective clients or customers.



## 4.15. PRINCIPLE 15: INTERNAL CONTROLS OVER DATA COLLECTION

### IOSCO Principle 15

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.



**STOXX's Response**

STOXX collects underlying data from stock exchanges and a variety of market data vendors. Within its internal controls framework, STOXX has implemented appropriate internal control procedures with respect to the collection and processing of the underlying index data. For further details, see the response to Principle 4.

**Procedures performed by PwC and their results**

Obtained the formal documentation of STOXX's Controls Framework and validated that it covers the relevant controls with respect to input data collection as well as monitoring controls over third-party data providers.

Validated that individual controls related to the control objectives defined in STOXX's Controls Framework with respect to input data collection were suitably designed in order to mitigate the business risks they relate to and were placed in operation.

Our procedures with respect to the internal controls framework of STOXX are described in detail under Principle 4.

No exceptions noted.

## 4.16. PRINCIPLE 16: COMPLAINTS PROCEDURES

### IOSCO Principle 16

The Administrator should establish and Publish or Make Available a written complaints procedures policy, by which Stakeholders may submit complaints including concerning whether a specific Benchmark determination is representative of the underlying Interest it seeks to measure, applications of the Methodology in relation to a specific Benchmark determination(s) and other Administrator decisions in relation to a Benchmark determination.

The complaints procedures policy should:

- a) Permit complaints to be submitted through a user-friendly complaints process such as an electronic Submission process;
- b) Contain procedures for receiving and investigating a complaint made about the Administrator's Benchmark determination process on a timely and fair basis by personnel who are independent of any personnel who may be or may have been involved in the subject of the complaint, advising the complainant and other relevant parties of the outcome of its investigation within a reasonable period and retaining all records concerning complaints;
- c) Contain a process for escalating complaints, as appropriate, to the Administrator's governance body; and
- d) Require all documents relating to a complaint, including those submitted by the complainant as well as the Administrator's own record, to be retained for a minimum of five years, subject to applicable national legal or regulatory requirements.

Disputes about a Benchmarking determination, which are not formal complaints, should be resolved by the Administrator by reference to its standard appropriate procedures. If a complaint results in a change in a Benchmark determination, that should be Published or Made Available to Subscribers and Published or Made Available to Stakeholders as soon as possible as set out in the Methodology.

- a) The exercise of Expert Judgment made by the Administrator in reaching a Benchmark determination;
- b) Other changes in or deviations from standard procedures and Methodologies, including those made during periods of market stress or disruption;
- c) The identity of each person involved in producing a Benchmark determination; and

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**STOXX's Response**

STOXX has implemented a dedicated complaints policy and a procedure that allows stakeholders to lodge their complaints in a user-friendly manner via the STOXX website or by email. All complaints must be duly investigated and a response given to the complainant. Complaints that may result in financial or reputational impact are escalated or subject to review by the STOXX OC or Executive Board. Further details are available in the STOXX Complaints Policy.

As described under Principle 14, STOXX currently excludes the administered submission-based index from IOSCO compliance and as of Dec. 31, 2016 there are no submission based indices as the iSTOXX® Efficient Capital® Managed Futures 20 index (based on submissions) was terminated in 2016.

**Procedures performed by PwC and their results**

Reviewed STOXX's Policy "Complaints Procedures" and validated that it addresses the recommendations of IOSCO Principle 16.

For a sample of complaints, inspected evidence that complaints had been treated in accordance with the Policy.

No exceptions noted.

## 4.16 PRINCIPLE 16: COMPLAINTS PROCEDURES

### IOSCO Principle 16 continued from previous page

- d) Any queries and responses relating to data inputs.

If these records are held by a Regulated Market or Exchange the Administrator may rely on these records for compliance with this Principle, subject to appropriate written record sharing agreements.

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

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

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



## 4.17. PRINCIPLE 17: AUDITS

### IOSCO Principle 17

The Administrator should appoint an independent internal or external auditor with appropriate experience and capability to periodically review and report on the Administrator's adherence to its stated criteria and with the Principles. The frequency of audits should be proportionate to the size and complexity of the Administrator's operations. Where appropriate to the level of existing or potential conflicts of interest identified by the Administrator (except for Benchmarks that are otherwise regulated or supervised by a National Authority other than a relevant Regulatory Authority), an Administrator should appoint an independent external auditor with appropriate experience and capability to periodically review and report on the Administrator's adherence to its stated Methodology. The frequency of audits should be proportionate to the size and complexity of the Administrator's Benchmark operations and the breadth and depth of Benchmark use by Stakeholders.

**STOXX's Response**

- » STOXX has appointed PwC to perform an audit of compliance of STOXX with the IOSCO Principles. Given that STOXX's indices are designed to be replicated by clients, STOXX does not deem it necessary to undergo additional audits with respect to adherence to index methodologies.

**Procedures performed by PwC and their results**

We have been engaged to conduct an examination of STOXX's responses in relation to compliance with the IOSCO Principles for Financial Benchmarks and provide a reasonable assurance opinion on whether the relevant responses have been fairly stated.

## 4.18. PRINCIPLE 18: AUDIT TRAIL

### IOSCO Principle 18

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

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

If these records are held by a Regulated Market or Exchange the Administrator may rely on these records for compliance with this Principle, subject to appropriate written record sharing agreements.

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

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

- a) The procedures and Methodologies governing the Submission of inputs;
- b) The identity of any other person who submitted or otherwise generated any of the data or information provided to the Administrator;
- c) Names and roles of individuals responsible for Submission and Submission oversight;
- d) Relevant communications between submitting parties;
- e) Any interaction with the Administrator;
- f) Any queries received regarding data or information provided to the Administrator;
- g) Declaration of any conflicts of interests and aggregate exposures to Benchmark related instruments;

continued on next page



**STOXX's Response**

STOXX has implemented a dedicated policy with respect to storage and archiving of data and information that are used in the process of index administration. This policy complies with the regulatory requirements and the IOSCO Principles.

Written records are retained for at least five years with respect to the following data within STOXX or with the support of the shareholders' systems:

- a) All market data and any other data and information sources relied upon for index determination are kept for at least five years, in particular:
  - » End-of-day index values (ticks)
  - » End-of-day prices of index constituents
  - » Parameterization of in- and outbound filters
  - » End-of-day index configuration (weightings, etc.)

STOXX does not archive real-time input data because of the following factors:

- » Stakeholders can typically obtain real-time/intra-day data from the established information service providers.
  - » The headline indices of STOXX are replicated and monitored by a large range of market participants, ensuring the correctness of the indices instantaneously.
  - » Applicable law does not impose an obligation on STOXX to archive real-time/intra-day data.
- b) In general, for STOXX proprietary indices, STOXX uses traded prices from regulated exchanges/markets (representing observable bona fide, arms-length transactions) for all of its indices wherever possible and reasonable. The decision-making process for the exercise of expert judgment made in reaching a benchmark determination is determined by the governance structure of STOXX. STOXX stores this information within the minutes of the relevant committee (IOC, IMC or OC).

**Procedures performed by PwC and their results**

Reviewed STOXX's Policy 18 "Audit Trail" and validated that it addresses the recommendations of IOSCO Principle 18.

Response a):

On a sample basis, inspected the availability of the data elements and information specified in STOXX's response and Policy "Audit Trail" ("a" through "e" of the STOXX policy) and verified that those data are stored for at least five years as defined by the policy.

For one case, inspected evidence of a formal record sharing agreement that exists between the exchange where the underlying constituents price data is stored and STOXX.

Responses b)-c):

Inspected evidence that the information described in STOXX's response is documented in the governance committee meeting minutes and that those minutes are retained.

Response d):

Reviewed STOXX's staff planning tool and checklists of controls and processes carried out during the index production process and validated that those records were retained as specified by the policy.

Response e):

For a sample of client emails, inspected evidence that they were retained as specified by the policy.

No exceptions noted.

## 4.18. PRINCIPLE 18: AUDIT TRAIL

### **IOSCO Principle 18** continued from previous page

- h) Exposures of individual traders/desks to Benchmark related instruments in order to facilitate audits and investigations; and
- i) Findings of external/internal audits, when available, related to Benchmark Submission remedial actions and progress in implementing them.

**STOXX's Response** continued from previous page

- c) The governance structure of STOXX is designed to deal with situations where STOXX's Rulebooks do not contain sufficient information or the rules are open to interpretation. In these cases, the IOC will be convened; in more complex cases, the IMC will be notified by the IOC. The details of any decisions are documented within the minutes of the relevant committee and are retained for at least five years.
- d) STOXX has a clear organizational and governance structure; the roles and responsibilities of each individual involved in the index administration process are defined and documented. The Index Operations teams have a dedicated shift program; within this, individuals are responsible for checklists for end-of day and real-time index production. The checklists and any appropriate authorizations are stored for at least five years.
- e) Any correspondence from customers or shareholders relating to data inputs is stored in a database or within the STOXX email system. These records are stored for at least five years.

As described under Principle 14, STOXX currently excludes the administered submission-based index from IOSCO compliance and as of Dec. 31, 2016 there are no submission based indices as the iSTOXX® Efficient Capital® Managed Futures 20 index (based on submissions) was terminated in 2016.

#### 4.19. PRINCIPLE 19: COOPERATION WITH REGULATORY AUTHORITIES

##### IOSCO Principle 19

Relevant documents, Audit Trails and other documents subject to these Principles shall be made readily available by the relevant parties to the relevant Regulatory Authorities in carrying out their regulatory or supervisory duties and handed over promptly upon request.

STOXX's Response	Procedures performed by PwC and their results
Currently, STOXX is not being supervised by any regulatory authority, and there is no legal basis for such supervision.	No procedures were performed because this item was excluded from the scope.

5. SECTION V. STOXX'S STATEMENT OF COMPLIANCE  
WITH THE ESMA-EBA PRINCIPLES FOR BENCHMARK-  
SETTING PROCESSES IN THE EU: INDIVIDUAL PRINCIPLES  
AND RESPONSES



## 5.1. PRINCIPLES A1-A4: GENERAL FRAMEWORK FOR BENCHMARK SETTING

### ESMA-EBA Principle

**A.1 Methodology:** The methodologies for the calculation of a Benchmark, including information on the way in which contributions are determined and corroborated, should be documented and be subject to regular scrutiny and controls to verify their reliability. The definition of a specific Benchmark should be precise in order to avoid subjective interpretation of key concepts. A Benchmark should represent adequately the market, strategy or interest to which it refers, and measure the performance of a representative group of underlyings in a relevant and appropriate way. Where appropriate, actual market transactions should be used as a basis for a Benchmark Calculation.

**A.2 Governance structure:** The process of setting a Benchmark needs to be governed by clear and independent procedures, with detailed information on the process made available publicly, in order to avoid and manage conflicts of interest and limit its susceptibility to manipulation, discretionary decision making or price distortion. Governing processes should include clear rules on the allocation of responsibilities for the Benchmark Administration. Benchmark structures should be established and managed in a way so as to reduce conflicts of interest as much as possible. Conflicts of interest may arise where Benchmark Submitters have discretion regarding the submitted data, while at the same time they or their clients have an exposure against the Benchmark. Where conflicts of interest are unavoidable, they should be identified, disclosed to the public and monitored so as to be transparent and acceptable to Stakeholders and to maintain confidence in the Benchmark setting process.

**A.3 Supervision and oversight:** Confidence in a Benchmark is enhanced through regulation and oversight and an appropriate sanctioning regime that allows sanctions for improper conduct, as it will be the case in accordance with future EU legislation on market abuse. In the EU, outside of proposals for market abuse, a formal regulatory regime for Benchmarks does not exist so far. For any existing applicable regimes and rules and for the application of these Principles, Benchmark Submitters, Benchmark Administrators, Benchmark Calculation Agents, Benchmark Publishers and Benchmark Users should co-operate closely with the relevant Supervisory Authorities.

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### STOXX's Response

This ESMA-EBA principle is materially the same as IOSCO Principles 6 and 11, therefore STOXX's response can be found under the respective principles in Section IV.

### Procedures performed by PwC and their results

Please refer to our procedures with respect to IOSCO Principles 6 and 11 in Section IV.

This ESMA-EBA principle is materially the same as IOSCO Principles 3 and 5, therefore STOXX's response can be found under the respective principles in Section IV.

Please refer to our procedures with respect to IOSCO Principles 3 and 5 in Section IV.

This ESMA-EBA principle is materially the same as IOSCO Principle 19. Currently, STOXX is not being supervised by any regulatory authority, and there is no legal basis for such supervision.

No procedures were performed because this item was excluded from the scope.

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## 5.1 PRINCIPLES A1-A4: GENERAL FRAMEWORK FOR BENCHMARK SETTING

### ESMA-EBA Principle

continued from previous page

**A.4 Transparency:** A Benchmark should be transparent and accessible to the public, with fair and open access to the rules governing its establishment and operation, calculation, and publication; the fact that a Benchmark is (or may be) published first to certain Stakeholders before it is to others should be disclosed. A high degree of transparency on the process determining a Benchmark, or any modification thereof, will enhance confidence in its integrity, which would also help foster understanding of the Benchmark in the market place. Transparency may be limited in exceptional circumstances only, based on contractual provisions safeguarding confidentiality and intellectual property rights. The full Methodology along with historical records\* should be disclosed to the public wherever possible in order to make it fully replicable. Where this is not possible based on contractual provisions, the relevant information, such as weightings and prices of components, should be disclosed to the public prior to any changes in the composition of the Benchmark, with sufficient notice so as to allow a proper reassessment by Stakeholders.

\* Footnote 15: Historical records should include the data relating to the historical composition, past performances and Methodology of a Benchmark including its past and current weightings, historical panel composition – if any – past and current Methodology, data on past submissions by Benchmark Submitters, and when possible benchmark data, i.e. the data disclosed by the Benchmark Publisher.

### STOXX's Response

continued from previous page

This ESMA-EBA principle is materially the same as IOSCO Principles 9, 11 and 12 therefore STOXX's response can be found under the respective principles in Section IV.

STOXX has no preferential publication processes for any of its indices, therefore all licensed parties have the ability to receive the benchmark publications at the same time.

### Procedures performed by PwC and their results

continued from previous page

Please refer to our procedures with respect to IOSCO Principles 9, 11 and 12 in Section IV.

STOXX has represented to us that no indices administered by STOXX were preferentially published to specific stakeholders prior to publishing to others throughout the period from 1 January 2016 to 31 December 2016.

We also reviewed relevant provisions for error handling and communication in cases of errors in STOXX's Calculation Guide and Operational Handbook.

No exceptions noted.

## 5.2. PRINCIPLES B1-B17: PRINCIPLES FOR BENCHMARK ADMINISTRATORS

### ESMA-EBA Principle

**B.1** A Benchmark Administrator should ensure the existence of robust methodologies for the calculation of the Benchmark and appropriately oversee its operations and ensure that there is an appropriate level of transparency to the public regarding the rules governing the Benchmark.

**B.2** A Benchmark Administrator should establish methodologies with well-defined criteria for the calculation of the Benchmark, so that judgment and qualitative assessments or other opportunities for discretionary decision making are limited and confined to well-defined stages of the Benchmark setting process or specific situations, such as cases of market disruption or operational contingencies. Inter alia, such criteria should address the composition of panels where applicable, the algorithm for the calculation of the Benchmark, the definition and sourcing of the data used in the calculation, and provisions regarding operational continuity.

**B.3** The methodologies established by the Benchmark Administrator should be rigorous, systematic and continuous. Any amendment to an established methodology should be made according to a transparent and determined process, and be published by the Benchmark Administrator beforehand.

**B.4** Benchmark Administrators should have clear policies for communicating errors in the Benchmark (whatever the reason for the error), and any subsequent re-fixing.

**B.5** Without prejudice of the principles under Section G. below, a Benchmark Administrator should encourage Benchmark Submitters not to withdraw from surveys or panels.

continued on next page

### STOXX's Response

This ESMA-EBA principle is materially the same as IOSCO Principles 5, 6, 8, 9 and 11, therefore STOXX's response can be found under the respective principles in Section IV.

This ESMA-EBA principle is materially the same as IOSCO Principles 6, 8 and 11, therefore STOXX's response can be found under the respective principle in Section IV.

This ESMA-EBA principle is materially the same as IOSCO Principle 12, therefore STOXX's response can be found under the respective principle in Section IV.

STOXX has clear policies and procedures for communicating errors in the benchmark within its calculation guides for all STOXX-branded indices.

This ESMA-EBA principle is materially the same as IOSCO Principle 14. STOXX's response can be found under the respective principle in Section IV.

### Procedures performed by PwC and their results

Please refer to our procedures with respect to IOSCO Principles 5, 6, 8, 9 and 11 in Section IV.

Please refer to our procedures with respect to IOSCO Principles 6, 8 and 11 in Section IV.

Please refer to our procedures with respect to IOSCO Principle 12 in Section IV.

Reviewed relevant provision for error handling and communication in cases of errors in STOXX's Calculation Guide and Operational Handbook.

No exceptions noted.

Please refer to our procedures with respect to IOSCO Principle 14 in Section IV.

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## 5.2. PRINCIPLES B1- B17: PRINCIPLES FOR BENCHMARK ADMINISTRATORS

### ESMA-EBA Principle

continued from previous page

**B.6** A Benchmark Administrator should regularly review the Benchmarks or the range of Benchmarks provided (such as, for example, asset classes, currencies and tenors). It should ensure that any Benchmark reflects the market or interest it seeks to represent.

**B.7** The data used to construct a Benchmark determination should be sufficient to represent accurately and reliably the underlying assets or prices, interest rates or other values measured by the Benchmark. These data should be anchored by observable transactions entered into at arm's length between buyers and sellers in the market for the underlying assets or prices, interest rates or other values the Benchmark measures in order for it to function as a credible indicator of prices, rates, indices or values. Administrators may rely on non-transactional data such as offers and bids and adjustments based on expert judgment for purposes of constructing an individual Benchmark determination, but such data should only be used as an adjunct or supplement to transactional data. The principle does not prohibit the use of non-transactional data for 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.

**B.8** A Benchmark Administrator should fully disclose the Methodology to the public. Where this is not possible for legal reasons, the relevant information, such as weightings and prices of components, should be disclosed to the public prior to any changes in the composition of the Benchmark, with sufficient notice so as to allow for a proper reassessment by Stakeholders.

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## STOXX's Response

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This ESMA-EBA principle is materially the same as IOSCO Principle 10, therefore STOXX's response can be found under the respective principle in Section IV.

This ESMA-EBA principle is materially the same as IOSCO Principles 7 and 8, therefore STOXX's response can be found under the respective principles in Section IV.

This ESMA-EBA principle is materially the same as IOSCO Principles 9 and 12, therefore STOXX's response can be found under the respective principles in Section IV.

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## Procedures performed by PwC and their results

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Please refer to our procedures with respect to IOSCO Principle 10 in Section IV.

Please refer to our procedures with respect to IOSCO Principles 7 and 8 in Section IV.

Please refer to our procedures with respect to IOSCO Principles 9 and 12 in Section IV.

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## 5.2. PRINCIPLES B1-B17: PRINCIPLES FOR BENCHMARK ADMINISTRATORS

### ESMA-EBA Principle

continued from previous page

**B.9** A Benchmark Administrator should have governance and compliance functions and processes to enable it to operate effectively and ensure the quality of the Benchmark. A Benchmark Administrator should provide well-defined criteria and procedures to select members of the governance and compliance functions that participate in the determination of the methodologies for the calculation of the Benchmark. Governance bodies of Benchmark Administrators should include members who are independent and appointed from outside those that through ownership or other linkages could face conflicts of interest, in particular those representing members contributing to the Benchmark. Members of governing bodies should be present and fully involved in ensuring that Benchmark Administration respects internal rules and procedures. Details of the membership of the relevant governance and compliance functions should be disclosed to the public, along with any declarations of conflicts of interests and the processes for appointment to and removal from the governance and compliance functions.

**B.10** A Benchmark Administrator should have procedures to enable its oversight functions to report to their respective Supervisory Authorities, if any, any irregularities, unusual submissions or misconduct by the Benchmark Submitters of which the Administrator becomes aware.

**B.11** A Benchmark Administrator should comply with any query from its Supervisory Authority or, when it is not under the responsibility of a Supervisory Authority, is encouraged to co-operate with the Supervisory Authorities responsible for the other actors, markets and instruments involved in the setting of the Benchmark to which it contributes.

**B.12** A Benchmark Administrator should record minutes of relevant meetings of its oversight functions along with details of all interactions between the Benchmark Administrator and Benchmark Submitters, Benchmark Calculation Agents and Benchmark Publishers. Meeting minutes should be kept for a minimum of five years and be made available to Supervisory Authorities upon request. A Benchmark Administrator should keep audit records of all data used by Benchmark Calculation Agents and Benchmark Submitters in the process of calculating the Benchmark as well as of all the Methodologies used to calculate the Benchmark.

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## STOXX's Response

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STOXX ensures that the relevant governance function include members who are independent and appointed from outside those that through ownership or other linkages could face conflicts of interest, in particular those representing members contributing to the benchmark.

In addition STOXX discloses details of the membership of the relevant governance and compliance functions to the public, along with any declarations of conflicts of interests and the processes for appointment to and removal from the governance and compliance functions. In all further aspects, this ESMA-EBA principle is materially the same as IOSCO Principles 3, 4 and 5, therefore further details on STOXX's response can be found under the respective principles in Section IV.

This ESMA-EBA principle is materially the same as IOSCO Principles 5, 14 and 19, therefore STOXX's response can be found under the respective principles in Section IV.

Currently, STOXX is not being supervised by any regulatory authority, and there is no legal basis for such supervision. Where the law permits and where appropriate, STOXX would co-operate with relevant Supervisory Authorities.

STOXX has a detailed policy for data retention which requires all relevant meeting minutes are stored for at least five years.

Further details are provided under STOXX's response to Principle 18 in Section IV.

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## Procedures performed by PwC and their results

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Inspected STOXX's governance disclosure and verified that governance bodies include members who are independent and appointed from outside those who are actively contributing to the benchmark and validated that the disclosures adequately address the recommendations of ESMA-EBA Principle B.9.

We noted that the STOXX's governance disclosure on the STOXX Website was not updated during the year 2016 and did therefore not accurately reflect the members of STOXX's governance committees.

No further exceptions noted.

Please also refer to our procedures with respect to IOSCO Principles 3, 4 and 5 in Section IV.

Please refer to our procedures with respect to IOSCO Principles 5, 14 and 19 in Section IV.

No procedures were performed because this item was excluded from the scope.

Please refer to our procedures with respect to IOSCO Principle 18 in Section IV.

In addition, we also inspected evidence that STOXX stored all relevant meeting minutes in accordance with the recommendations of ESMA-EBA Principle B.12.

No exceptions noted.

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## 5.2. PRINCIPLES B1-B17: PRINCIPLES FOR BENCHMARK ADMINISTRATORS

### ESMA-EBA Principle

continued from previous page

**B.13** The governance and compliance functions of a Benchmark Administrator should seek to ensure that Principles applying to Benchmark Submitters, Benchmark Calculation Agents and Benchmark Publishers are implemented. In particular, the Benchmark Administrator should require Benchmark Submitters, where they are part of the Benchmark setting process, Benchmark Calculation Agents and Benchmark Publishers to publicly and periodically confirm adherence to these Principles.

**B.14** A Benchmark Administrator should establish an effective whistleblowing mechanism as well as complaints procedures in order to facilitate early awareness of any misconduct or other irregularities that may arise.

**B.15** A Benchmark Administrator should establish, implement and maintain adequate internal control mechanisms on the data contributed. This should include consistency and plausibility checks on the basis of transaction-based or other verifiable data where available.

**B.16** A Benchmark Administrator, when outsourcing Benchmark Calculations to a third party, should retain adequate access to and control over the activities of the third party. A Benchmark Administrator should have formal selection criteria as well as contractual and service level arrangements in place when outsourcing Benchmark Calculations to a third party, and periodically audit the services performed by the Benchmark Calculation agent. In particular, a Benchmark Administrator should retain adequate access to and control over the activities of the Benchmark Calculation agent, including a proper functioning of its Benchmark computation process, and the ability to check its compliance with the Methodology of the Benchmark.

**B.17** A Benchmark Administrator should publicly disclose a confirmation by its management of compliance with the above principles as well as the confirmation received from the Benchmark Submitters, the Benchmark Calculation Agent and Benchmark Publisher.

## STOXX's Response

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STOXX is not considered a Benchmark Submitter and does not currently use submissions in any of their own-branded indices. Please also refer to our response to IOSCO Principle 14 under Section IV for further details.

STOXX confirms its adherence to the ESMA-EBA principles within this report and has also requested confirmations from the relevant third-party providers.

This ESMA-EBA principle is materially the same as IOSCO Principles 4 and 16, therefore STOXX's response can be found under the respective principles in Section IV.

This ESMA-EBA principle is materially the same as IOSCO Principles 4 and 15, therefore STOXX's response can be found under the relevant principles in Section IV.

STOXX has outsourced certain aspects of the benchmark determination process, the publication of its indices and the provision of certain IT services (IT infrastructure), to SSX and DBAG, and monitors the outsourced services as part of periodic review meetings with the outsourcing providers.

This ESMA-EBA principle is materially the same as IOSCO Principle 2. STOXX has implemented dedicated policy and procedures on the selection and monitoring of third parties involved in its benchmark determination process. Please also refer to STOXX's response to Principle 2 in Section IV.

Section III of this document contains the statement by STOXX management in relation to compliance with the ESMA-EBA principles. Links to any relevant confirmations of third parties will be available on [www.stoxx.com](http://www.stoxx.com)

## Procedures performed by PwC and their results

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Inspected evidence of confirmations of compliance with the relevant ESMA-EBA Principles from the relevant third-party providers in those cases where STOXX uses third parties as Benchmark Publishers in terms of the ESMA-EBA Principles.

No exceptions noted.

Please refer to our procedures with respect to IOSCO Principles 4 and 16 in Section IV.

Please refer to our procedures with respect to IOSCO Principles 4 and 15 in Section IV.

Inspected ESMA-EBA claim of compliance of SSX and DBAG and the periodic review meetings, which are part of STOXX's ISAE-3402 controls report.

Please refer to our procedures with respect to IOSCO Principle 2 in Section IV.

Inspected evidence of confirmations of compliance with the relevant ESMA-EBA Principles by the relevant third parties in those cases where STOXX uses third-party providers as Benchmark Publishers in terms of the ESMA-EBA Principles.

No exceptions noted.

### 5.3. PRINCIPLES G1-G7: PRINCIPLES FOR THE CONTINUITY OF BENCHMARKS

#### ESMA-EBA Principle

**G.1** All those participating in the Benchmark setting process and, where relevant, Benchmark Users should put in place robust and credible contingency provisions for cases in which there is a risk to the continuity of the provision of a Benchmark due to, for example, a drying-up of market liquidity, an operational failure, a lack of submissions, transactions or quotes or the unavailability of the Benchmark.

**G.2** The contingency provisions put in place by Benchmark Administrators should be transparent and ideally written into contract, so as to reflect the needs of contracting parties. The range of possible solutions may include the use of alternative data sources, including derivatives, or proxies such as algorithms or expert judgments to complement market transactions; increasing the time window for Benchmark submissions; lowering minimum threshold amounts for Benchmark submissions; or the use of a substitute rate based on comparable underlying data. Benchmark Administrators should disclose to the public any temporary switch – due to a contingency situation – from a transaction-based system to an expert judgment-based system and provide evidence for such a switch.

**G.3** A Benchmark Submitter should implement and maintain systems that are adequate to ensure consistent and timely delivery of submissions, including during adverse events.

**G.4** A Benchmark Calculation Agent should have appropriate technical and procedural contingency plans in case of technical failure.

**G.5** A Benchmark Publisher should have robust contingency provisions for unavailability of the systems required to ensure consistent and timely Benchmark Publication.

**G.6** The contingency provisions put in place by Benchmark Users, where relevant, should be transparent and ideally written into contract, so as to reflect the needs of contracting parties.

continued on next page

STOXX's Response	Procedures performed by PwC and their results
<p>This ESMA-EBA principle is materially covered by IOSCO Principles 1, 2, 4, 7 and 8 therefore STOXX's response can be found under the respective principles in Section IV.</p> <p>STOXX has robust contingency measures in place which address risks to continuity of the STOXX indexes:</p> <ul style="list-style-type: none"> <li>» Risks to the continuity of the Benchmarks, which arise from a drying up of the market liquidity, a lack of submissions, transactions or quotes or the like, as well as situations with application of expert judgment, are addressed by STOXX's policies and procedures in response to IOSCO Principles 7 and 8 and the relevant rulebooks.</li> <li>» Risks to the continuity of the Benchmark, which arise from operational failure and other technical aspects, are covered by the business continuity policies of STOXX's, SSX's and DBAG (as the respective service providers to STOXX).</li> </ul>	<p>Please refer to our procedures with respect to IOSCO Principle 1, 2, 4, 7 and 8 in Section IV.</p>
<p>STOXX is not considered a Benchmark Submitter, therefore no response to this principle is provided.</p>	<p>N/A</p>
<p>STOXX is not considered a Benchmark Calculation Agent, therefore no response to this principle is made.</p>	<p>N/A</p>
<p>STOXX is not considered a Benchmark Publisher, therefore no response to this principle is provided.</p>	<p>N/A</p>
<p>STOXX is not considered a Benchmark User, therefore no response to this principle is provided.</p>	<p>N/A</p>
<p>continued on next page</p>	<p>continued on next page</p>

### 5.3. PRINCIPLES G1-G7: PRINCIPLES FOR THE CONTINUITY OF BENCHMARKS

#### ESMA-EBA Principle

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**G.7** A Benchmark User should develop robust contingencies for the unavailability of a Benchmark within contracts referenced to it. The contingency provisions should be used in the event of interruptions in the provision of a Benchmark, or other market disruptive events which lead to the Benchmark not being calculated or published in the usual manner.

**STOXX's Response**

continued from previous page

STOXX is not considered a Benchmark User, therefore no response to this principle is provided.

**Procedures performed by PwC and their results**

continued from previous page

N/A

## About STOXX

STOXX is a global index provider, currently calculating a global, comprehensive index family of over 7,000 strictly rules-based and transparent indices. Best known for the leading European equity indices EURO STOXX 50, STOXX Europe 50 and STOXX Europe 600, STOXX maintains and calculates the STOXX Global Index family, which consists of total market, broad and blue-chip indices for the regions Americas, Europe, Asia and Pacific; the subregions Latin America and BRIC (Brazil, Russia, India and China) as well as global markets.

To provide market participants optimal transparency, STOXX indices are classified in three different categories. The regular "STOXX" indices include all standard, theme and strategy indices that are part of STOXX's integrated index family and that follow a strict rules-based methodology. The "iSTOXX" brand typically comprises less-standardized index concepts that are not integrated into the STOXX Global Index Family but are nevertheless strictly rules-based. While indices that are branded "STOXX" and "iSTOXX" are developed by STOXX for a broad range of market participants, the "STOXX Customized" brand covers indices that are specifically developed for clients and do not carry the STOXX brand in the index name.

STOXX indices are licensed to more than 500 companies around the world as underlyings for ETFs, futures and options, structured products and passively managed investment funds. Three of the top ETFs in Europe and 30% of all assets under management are based on STOXX indices. STOXX AG holds Europe's number-one position and the world's number-three position in the derivatives segment.

In addition, STOXX is the marketing agent for the indices of Deutsche Boerse AG and SIX AG, among them the DAX and the SMI indices.

STOXX AG is part of Deutsche Boerse AG.

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# STOXX

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