



**NSE**

## **NSE Data and Analytics Limited**

**Report on adherence with International  
Organization of Securities Commission  
(IOSCO) Principles for Financial  
Benchmarks**

As on September 30, 2020

## **IOSCO Compliance Release Letter**

NSE Data and Analytics Limited (“NSE Data”)  
Management Statement of Adherence with  
the International Organization of Securities Commissions (“IOSCO”) Principles  
for Financial Benchmarks

### **TERMS OF USE**

This financial benchmark report dated April 19, 2021 (“Report date”) has been prepared for the sole use and benefit of NSE Data and Analytics Limited (“NSE Data”) pursuant to an engagement letter entered into between Ernst & Young Associates LLP (“EY”) and NSE Data.

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(vi) It was not prepared for providing any services to any third party. The description of the relevant activities on the control processes defined in relation to governance, quality and accountability activities as of report date and thus EY’s assurance report is based on historical information. Any projection of such information or EY’s opinion thereon to future periods is subject to the risk that

changes may occur after the Report is issued and the description of controls may no longer accurately portray the control processes. For these reasons, such projection of information to future periods would be inappropriate;

(vii) EY and/or NSE Data will be entitled to the benefit of and to enforce these terms; and

(viii) These terms and any dispute with EY and/or NSE Data arising from them, whether contractual or non-contractual, are subject to Indian laws and the exclusive jurisdiction of courts in Mumbai, India.

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**MANAGEMENT REPORT ON COMPLIANCE**

## MANAGEMENT REPORT ON COMPLIANCE

April 19, 2021

We, as members of management of NSE Data and Analytics Limited, (the “Company” or “NSE Data”) are responsible for complying with the specified requirements of Principles for Financial Benchmarks issued by the International Organization of Securities Commission (IOSCO) (the “Criteria”) for Fixed Income Valuations, as of September 30, 2020.

We also are responsible for establishing and maintaining effective internal control over compliance with the requirements of the Criteria. We have performed an evaluation of the Company’s compliance with the specified requirements of the Criteria, including those described below, as of September 30, 2020. Based on this evaluation, we assert that as of September 30, 2020, the Company complied with the following specified requirements of the Criteria.

List of compliance requirements (Principles for Financial Benchmarks):

- Principle 1: Overall Responsibility of the Administrator
- Principle 2: Oversight of Third Parties
- Principle 3: Conflicts of Interest for Administrators
- Principle 4: Control Framework for Administrators
- Principle 5: Internal Oversight
- Principle 6: Benchmark Design
- Principle 7: Data Sufficiency
- Principle 8: Hierarchy of Data Inputs
- Principle 9: Transparency of Benchmark Determinations
- Principle 10: Periodic Review
- Principle 11: Content of the Methodology
- Principle 12: Changes in the Methodology
- Principle 13: Transition
- Principle 14: Submitter Code of Conduct
- Principle 15: Internal Controls over Data Collection
- Principle 16: Complaints Procedures
- Principle 17: Audits
- Principle 18: Audit Trail
- Principle 19: Co-operation with Regulatory Authorities

In this report, the Company sets out a description of how the underlying controls address each of the Principles for Financial Benchmarks (IOSCO Principles) related to Fixed Income Valuations, operated as of September 30, 2020, and we confirm that:

- (a) The report fairly describes such underlying controls which were in place as on September 30, 2020; and
- (b) The procedures are suitably designed such that the intent of the applicable IOSCO Principles is complied with.

AGARWAL  
MUKESH  
Digitally signed  
by AGARWAL  
MUKESH  
Date: 2021.04.19  
16:38:29 +05'30'

Mukesh Agarwal  
Managing Director  
NSE Data and Analytics Limited

# **REPORT OF INDEPENDENT ACCOUNTANTS**





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## REPORT OF INDEPENDENT ACCOUNTANTS

### To the Management of NSE Data and Analytics Limited

We have reviewed management of NSE Data and Analytics Limited's (the "Company" or "NSE Data") assertion that the Financial Benchmarking Process followed by NSE Data for Fixed Income Valuations ("subject matter") as on September 30, 2020, is presented in accordance with the requirements of Principles for Financial Benchmarks issued by the International Organization of Securities Commission (IOSCO). NSE Data's management is responsible for its assertion. Our responsibility is to express a conclusion on the management's assertion based on our review.

#### *Management's Responsibilities*

NSE Data's management is responsible for having a reasonable basis for its assertion. Management is also responsible for ensuring that the Financial Benchmarking Process is designed, implemented, and monitored in accordance with the requirements of Principles for Financial Benchmarks (IOSCO Principles).

#### *Service Auditor's Responsibilities*

Our responsibility is to undertake a limited assurance engagement and review the responses provided by NSE Data on its assessment (self-assessment) described under "IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests" section of this report as of September 30, 2020 in accordance with the IOSCO Principles. Our review was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants (AICPA) (AT-C Sections 105 and 210) and International Standard on Assurance Engagements 3000 (ISAE 3000) 'Assurance Engagements Other than Audits or Reviews of Historical Financial Information', issued by the International Auditing and Assurance Standards Board (IAASB). Those standards require that we plan and perform the review to obtain limited assurance about whether any material modifications should be made to management's assertion in order for it to be fairly stated. A review is substantially less in scope than an examination, the objective of which is to obtain limited assurance about whether management's assertion is fairly stated, in all material respects, in order to express an opinion. Accordingly, we do not express such an opinion. We believe that our review provides a reasonable basis for our conclusion. We did not perform any procedures regarding the operating effectiveness of the underlying controls related to the subject matter and, accordingly, do not express an opinion thereon.

#### *Service Auditor's Independence and Quality Control*

We have complied with the independence and other ethical requirements set forth in the Preface: Applicable to All Members and Part 1 –Members in Public Practice of the Code of Professional Conduct established by the AICPA and applied the AICPA's Statements on Quality Control Standards.

Additionally, 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.

Service Auditor applies International Standard on Quality Control 1[16] and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

### *Limitations*

Our engagement was limited to the presentation of information related to Fixed Income Valuations in line with the requirements of IOSCO Principles. Because of their nature and inherent limitations, the underlying controls may not prevent, or detect and correct, all misstatements that may be considered relevant. Furthermore, the projection of any evaluations of effectiveness of the subject matter to future periods, or conclusions about the suitability of the design of the controls to achieve the related requirements of IOSCO Principles, is subject to the risk that the underlying controls related to the subject matter may become inadequate because of changes in conditions or that the degree of compliance with such controls may deteriorate.

### *Opinion*

Based on the results of our procedures, nothing has come to our attention to indicate that the control procedures described in NSE Data's statement of compliance in "IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests" section that relate to the IOSCO Principles for Fixed Income Valuations, which were in place as of September 30, 2020, is not fairly stated, in all material respects. Accordingly, we are not aware of any material modifications that should be made to management of NSE Data's assertion in order for it to be fairly stated.

### *Restricted use*

This report is intended solely for the information and use of the Board of Directors and the management of NSE Data and is to be read in conjunction with the *IOSCO Compliance Release Letter* issued at the beginning of the report.

For Ernst & Young Associates LLP



Anuj Gupta  
Associate Partner – Consulting  
Gurgaon, Haryana  
April 19, 2021

**DESCRIPTION OF NSE DATA AND ANALYTICS  
LIMITED'S FIXED INCOME VALUATION  
SERVICES AS OF SEPTEMBER 30, 2020**

## **Overview of NSE Data and Analytics Limited**

NSE Data and Analytics Limited (NSE Data), a subsidiary of the National Stock Exchange (NSE) of India (a regulated stock exchange), provides data and information vending services and products for various market segments and is a professional set-up dedicated solely for this purpose. NSE Data also provides fixed income valuation services to its clients.

### **NSE Fixed Income Valuations**

NSE Data offers daily security level valuations for various fixed income securities. These include corporate bonds, commercial papers (CP), certificate of deposits (CD), government securities, and state development loans. The valuation universe includes investment grade, sub-investment grade, and default securities. The valuation approach is objective, well defined, and independent, incorporating all important security level features. NSE Data maintains a database of bond cash flows and respective terms & conditions.

## **Financial Benchmarking**

In July 2013, the Board of the International Organization of Securities Commissions (IOSCO) issued the “Principles for Financial Benchmarks” with an aim to promote reliability of benchmark determinations and address benchmark governance, quality, and accountability mechanisms. Although the principles set out uniform expectations, IOSCO does not expect a one-size-fits-all method of implementation to achieve them. The principles provide a framework of standards that Administrators should implement according to the specificities of each benchmark. In particular, the application and implementation of the principles should be proportional to the size and risks posed by each benchmark and/or Administrator and the benchmark-setting process. Moreover, nothing in these principles is intended to restrict an Administrator from adopting its own unique methodology or from adapting their methodologies to changing market conditions in order to meet the principles.

The principles for Financial Benchmarks can be broadly encapsulated within the following categories:

## Governance

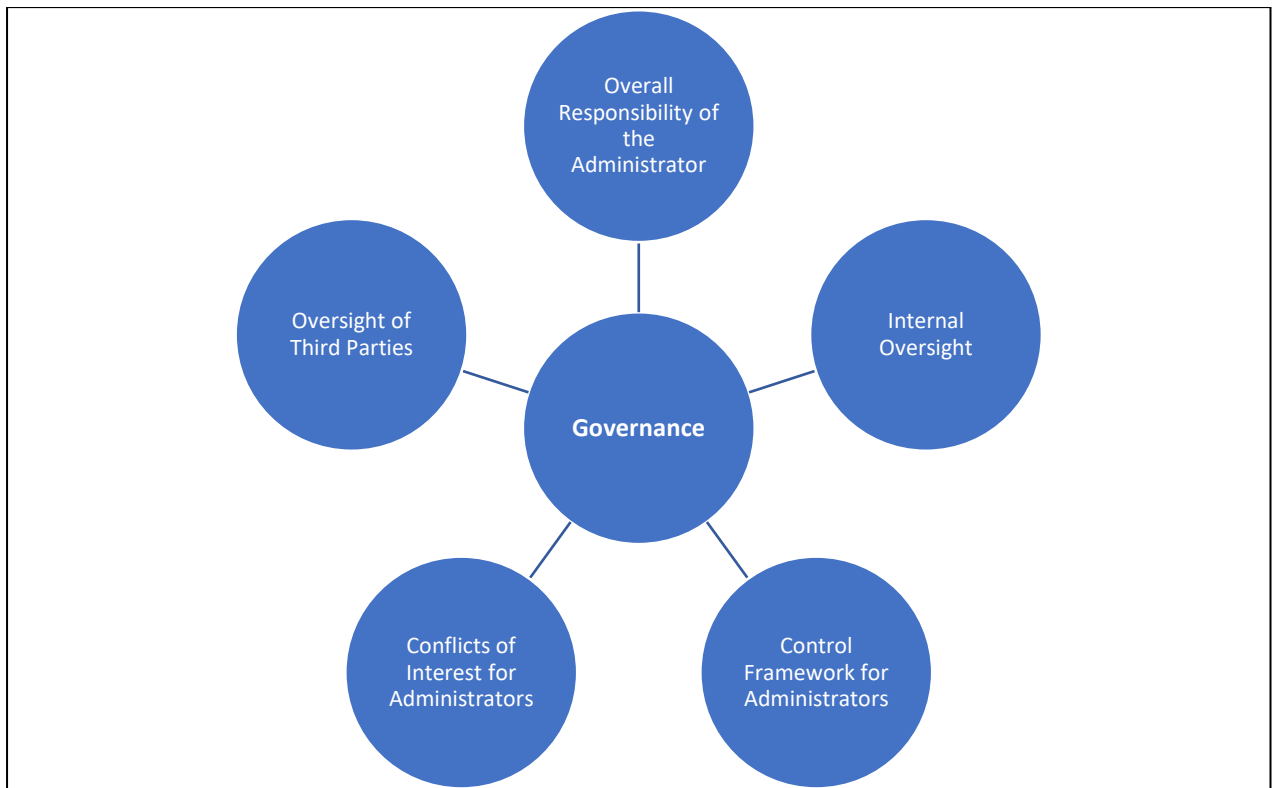


Figure 1: Principles related to Governance

These principles are intended to ensure that Administrators will have appropriate governance arrangements in place in order to protect the integrity of the benchmark determination process and to address conflicts of interest. Specifically, the principles address the following:

### *Overview of Benchmark Determination*

The fixed income valuation process for various securities (such as bond, CP, CD, etc.) in the active market is managed by NSE Data (Administrator).

NSE Data retains primary responsibility for all aspects of the fixed income valuation process. This includes development, determination & dissemination, operations and governance. Detailed valuation methodology document is transparently published on the NSE Data website ([www.nseindia.com/nse-data-and-analytics](http://www.nseindia.com/nse-data-and-analytics)). The valuation methodology document covers the pre-defined waterfall approach, which gives details of how the valuation would be performed, and includes scenarios of non-availability of any data required for valuation along with the exception policy. NSE Data also has Business Continuity Plans in place to ensure seamless performance of valuations and dissemination of the underlying data. **[SA-1a]**. The valuation methodology document encapsulates details such as valuation process steps (approach) and sources of data considered for valuation.

The valuation process is carried out by NSE Data as per the defined valuation methodology and Standard Operating Procedures (SOPs). Changes to the valuation process are deliberated upon and subsequently reviewed and approved by an oversight committee established by NSE Data for the said purpose. Post approvals, the updated valuation methodology is made available on the website and also communicated to the relevant market participants.

Oversight committees such as the Bond Valuation Advisory Committee (BVAC) and the Bond Valuation Review Committee (BVRC) have been established. While the BVAC provides its guidance on macro issues pertaining to fixed income valuations, the BVRC oversees operational guidelines for valuations, reviews changes to the valuation criteria & exceptions, and provides necessary approvals. Additionally, independent audit of business functions of NSE Data is carried out on a quarterly basis by the Internal Audit function, to ensure adherence to stated procedures [SA-1b].

### *Agreements with Third Parties*

NSE Data does not outsource operational activities (related to its valuation process) to third parties.

The valuation process at NSE Data is carried out independently by the in-house full time staff personnel of NSE Data. NSE Data sources data on bond trades and primary issuances from NSE and other regulated third party data aggregator(s). Further, NSE Data may also receive quotes from market participants which could be used as one of the inputs for certain valuations. Data sourcing from third party data aggregator(s) is done through written arrangements (contracts which include definition of the roles and obligations of the third party and the type of data disseminated by them). These agreements are approved by authorized personnel of NSE Data.

The aggregators do not participate in the valuation process. NSE Data has controls in place to cross-validate data (wherever applicable) sourced from third party data aggregator(s). Further, it also exercises quality checks on quotes received from market participants by following the maker-checker process. Details of the type of data received and used for the valuation process are captured in the valuation methodology and the SOPs and can be made available to stakeholders and regulatory authorities upon request. [SA-2].

### *Conflicts of Interest*

NSE Data, a group company of NSE, is a separate legal entity involved in independent calculation of valuations for various Indian debt instruments. NSE Data maintains arms-length relationship with its group companies. For every business transaction between NSE Data and NSE & group companies, NSE Data has entered into written arrangements.

Valuations at NSE Data are carried out using a pre-defined waterfall approach and in accordance with proper documentation that protects the integrity and independence of the valuation. Further, a review of all valuations is carried out based on an objective pre-defined selection criteria and a maker-checker process.

NSE Data has defined “Code of Ethics policy” for identification, disclosure, management, mitigation, and avoidance of potential conflicts of interest and addressing the risks associated with it.

There is a clear demarcation of business functions such as valuation operations and business development teams. Each team functions independently to ensure that there is no conflict of

interest. Roles and responsibilities of various business functions of NSE Data have been segregated to ensure no direct or indirect influences in the valuation process.

NSE Data comprises of qualified and experienced staff personnel with sound knowledge of financial market. Supervision and approval mechanism at different levels is in place prior to releasing the benchmark valuation to ensure its integrity and quality. Furthermore, each employee involved in the benchmark determination process is subject to declarations of code of ethics.

Remuneration of staff is not linked to the level of valuations, directly or indirectly.

Initiatives related to awareness about Information Security, Business Continuity and Code of Ethics are conducted periodically at a group level.

As on September 30, 2020, there were no conflicts of interest raised during the last one year [SA-3].

Please refer to SA-3 section above for controls in place at NSE Data to ensure integrity of daily valuations and disseminations and to manage conflicts of interest [SA-4a].

### *Operational Risk Management*

In order to manage operational risk related to the valuation process, NSE Data maintains a “Cyber Security and Cyber Resilience policy” which contains details related to data confidentiality, classification of data, prevention of data leakage, etc. Any data used for valuation is stored in secured folders which can only be accessed by authorized personnel. Furthermore, NSE Data also maintains a data register which is reviewed and approved on an annual basis [SA-4b].

### *Whistle Blowing Mechanism*

NSE Data has prescribed a “Whistle blowing policy” [SA-4c]. The policy contains the following:

- Procedures and mechanism for whistle blowing are detailed within the policy.
- External reporting mechanism is available on the NSE Data website.
- External reporting mechanism is available through e-mail at [fivaluations@nse.co.in](mailto:fivaluations@nse.co.in).

### *Succession Planning and Skill Development*

NSE Data comprises of qualified and experienced staff personnel with sound knowledge of financial market. Supervision and approval mechanism at different levels is in place prior to releasing the valuation to ensure its integrity and quality [SA-4d].

Employees of NSE Data who are involved in the valuation process are provided product related training for skill development on a periodic basis. Further, continuity and succession planning for personnel is carried out at an organizational level on a periodic basis [SA-4e].

NSE Data does not receive valuations from submitters. It may receive quotes from market participants which may be used as one of the inputs for certain valuations. NSE Data exercises quality checks on such quotes by following a maker-checker process and also reviews the quotes for identifying any outliers [SA-4f].

### *Internal Oversight*

NSE Data has constituted the BVAC to provide guidance on macro issues pertaining to fixed



income valuations. The BVAC does not participate in the day to day operations of the valuation process. In addition to the BVAC, NSE Data has also constituted the BVRC to oversee operational guidelines for valuations, review changes to the valuation criteria & exceptions, and provide necessary approvals. The BVRC is also responsible for periodically reviewing existing methodology documents for valuations.

Each of these committees is represented by the industry experts. Members of the respective committees are independent of each other (except the exchange representative(s) who coordinates between the BVAC and the BVRC) and do not represent more than one committee. The committees comprise of representatives from financial market such as asset management company, insurance company, etc. Terms of references of each committee are defined and approved by the board. In order to maintain transparency, the names of the committee members are publicly displayed on the website.

NSE Data does not receive valuations from submitters. It may receive quotes from market participants which may be used as one of the inputs for certain valuations. NSE Data exercises quality checks on such quotes by following a maker-checker process and also reviews the quotes for identifying any outliers [SA-5].

### Quality of the Benchmark

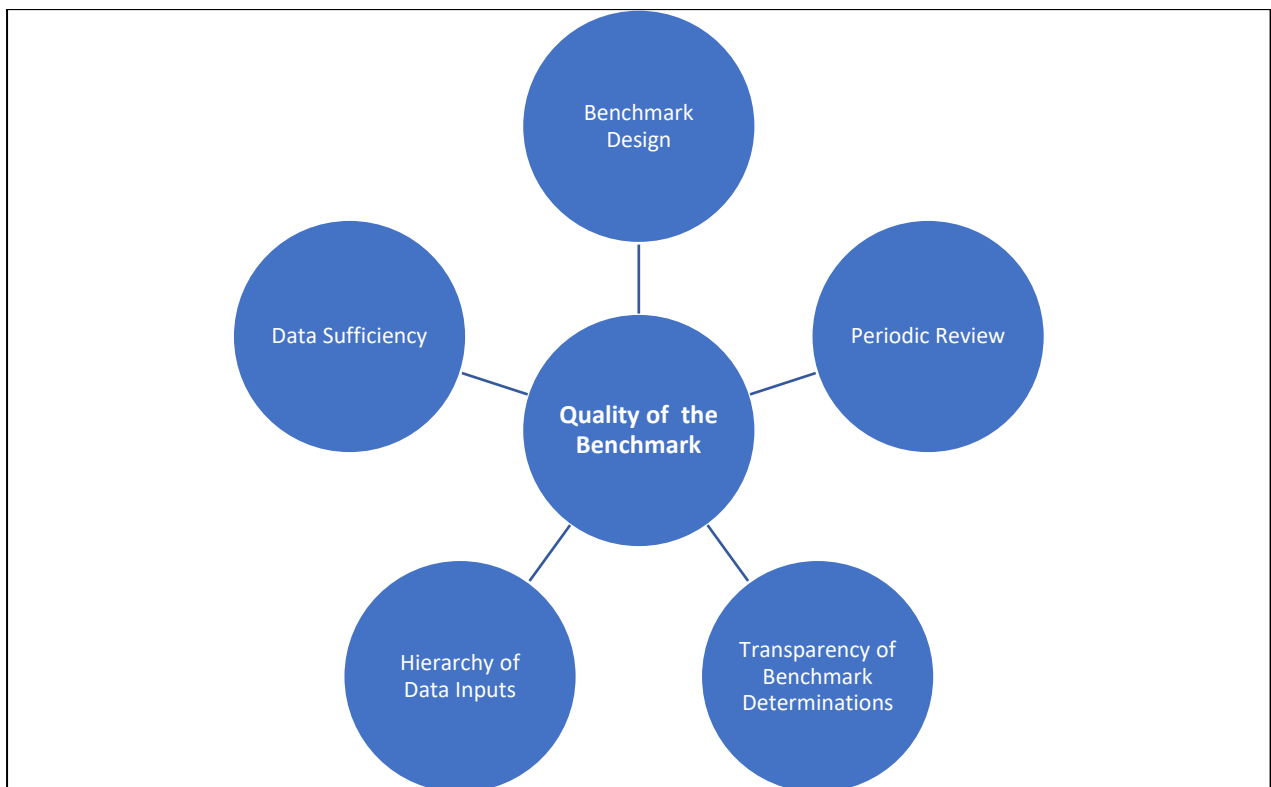


Figure 2: Principles related to Quality of the Benchmark

These principles are intended to promote the quality and integrity of benchmark determinations through the application of design factors that result in a benchmark that reflects a credible market for an Interest measured by that benchmark. Specifically, the principles address the following:

### *Brief of the Valuations Process*

The fixed income valuation process at NSE Data is based on an internal assessment of valuation inputs and the market feedback that NSE Data receives through interaction with market participants. Valuations are independently performed by primary analysts in accordance with the pre-defined valuation methodology and then reviewed by secondary analysts. There also exists a maker-checker process for data inputs received to validate the adequacy of valuation inputs and perform an independent analysis of the same. Accordingly, the valuations at NSE Data seek to achieve and result in a reliable representation of the current market conditions. The methodologies for valuations are documented, reviewed, and approved [SA-6].

### *Data Inputs from Third Party Data Aggregators*

NSE Data sources data related to bond trades and primary issuances from NSE, which is a regulated stock exchange, and other regulated third party data aggregators through written arrangements. Further, NSE Data also sources primary and secondary market data (including market quotes) from market participants, who do not participate in the valuations process. The data received is based on parameters such as current prices, rates, projections, etc. within the active market. All data inputs received for the valuation process are independently analysed by NSE Data taking into account factors such as materiality, authenticity, etc. Furthermore, the valuation methodology details how the data shall be used for the valuation process (including preference to observable trades). The valuation methodology document is transparently published on the NSE Data website. [SA-7] [SA-8a].

NSE Data does not receive valuations from submitters. It may receive quotes from market participants which may be used as one of the inputs for certain valuations. NSE Data exercises quality checks on such quotes by following a maker-checker process and also reviews the quotes for identifying any outliers [SA-8b].

The data obtained from third party data aggregator(s) is reconciled (as applicable) to the source data as part of a maker-checker activity to review the data being used for valuation. The calculation of valuations (which is performed based on data received) is monitored by NSE Data for accuracy.

### *Transparency of the Benchmark*

NSE Data transparently publishes the benchmark determination process (documented within its valuation methodology documents) on the website. The documents detail the methodology for performing the valuation process, the waterfall method, processes followed for governance and exceptions, etc. The documents also provide information about the type of data used for valuations and how the data shall be used for the valuation process (including preference to observable trades).

Changes to the valuation methodology (along with the rationale, wherever applicable) are communicated to market participants via e-mail before the effective date of proposed changes. The valuations are made available to clients based on subscriptions. Rationale of how each valuation (including size and liquidity of market, data used for valuation, calculation, etc.) has been determined is documented and can be made available to relevant stakeholders or regulatory authorities upon request. [SA-9].

### *Periodic Review of Valuations*

Calculation of valuations may either remain constant or may be subject to change depending on the current market dynamics, regulatory changes, and based on inputs received from market participants during interactions. Therefore, on a periodic basis, NSE Data reviews valuation process.

NSE Data has constituted the BVRC to oversee operational guidelines for valuations, review changes to the valuation criteria & exceptions, and provide necessary approvals.

Changes to the valuation methodology are communicated to market participants via e-mail. Approvals related to changes in the valuation methodology are documented and the updated methodology is made available to the market participants through the website.

During the year, methodology review of valuations was carried out and changes were communicated to market participants via e-mail [SA-10].

### **Quality of the Methodology**



Figure 3: Principles related to Quality of the Methodology

These principles are intended to promote the quality and integrity of methodologies by setting out minimum information that should be addressed within a methodology, which should be published or made available so that stakeholders may understand and make their own judgments concerning the overall credibility of a benchmark. The methodology should also address the need for procedures that control when material changes are planned, as a means of alerting stakeholders to these changes that might affect their positions, financial instruments, or contracts. The principles also establish that Administrators should have credible policies in case a benchmark ceases to exist

or stakeholders need to transition to another benchmark. These policies are intended to encourage Administrators and stakeholders to plan prospectively for the possible cessation of a benchmark. Principles should also address vulnerabilities in the submission process (e.g., conflict of interest, improper communication between Submitters and Administrators, selective Submission of data) by outlining the responsibilities that should be undertaken by Submitters (i.e., a Submitter Code of Conduct). Further, the principles also make clear the Administrator's responsibilities to have internal controls over the collection of data from regulated sources. Specifically, the principles address the following:

#### *Transparency of the Methodology*

NSE Data transparently publishes the benchmark determination process (documented within its valuation methodology documents) on the website. The documents detail the methodology for performing the valuation process, the waterfall method, processes followed for governance and exceptions, etc. The documents also provide information about the data used for valuations.

NSE Data does not receive valuations from submitters. It may receive quotes from market participants which may be used as one of the inputs for certain valuations. NSE Data exercises quality checks on such quotes by following a maker-checker process and also reviews the quotes for identifying any outliers [SA-11] [SA-14].

#### *Review of Changes to the Methodology*

NSE Data on an on-going basis reviews the valuation methodology in order to keep the methodology in line with the current market dynamics and/or any regulatory changes.

Any proposed change in the valuation methodology is deliberated upon before making a final decision. The BVRC has been constituted to oversee operational guidelines for valuations, review changes to the valuation criteria & exceptions, and provide necessary approvals. Changes to the valuation methodology (along with the rationale, wherever applicable) are communicated to market participants via e-mail before the effective date of proposed changes. Approvals related to changes in the valuation methodology are documented and the updated methodology is made available to the market participants through the website.

During the year, methodology review of valuations was carried out and changes were communicated to market participants via e-mail [SA-12].

#### *Cessation of Valuations*

Cessation of valuations only occurs for financial instruments which are redeemed by the respective issuers. This does not occur for valuations offered by NSE Data to its market participants as the bonds which reach their maturity date cease to exist beyond that date [SA-13].

#### *Collection of Data from External Sources*

NSE Data sources data related to bond trades and primary issuances from NSE, which is a regulated stock exchange, and other regulated third party data aggregators through written arrangements. Further, NSE Data also sources primary and secondary market data (including market quotes) from market participants, who do not participate in the valuations process. NSE Data has controls in place to cross-validate data (wherever applicable) sourced from third party

data aggregator(s). There exists a maker-checker process for data inputs received to validate the adequacy of valuation inputs and perform an independent analysis of the same. Furthermore, any data used for valuation is stored in secured folders which can only be accessed by authorized personnel. [SA-15].

### Accountability

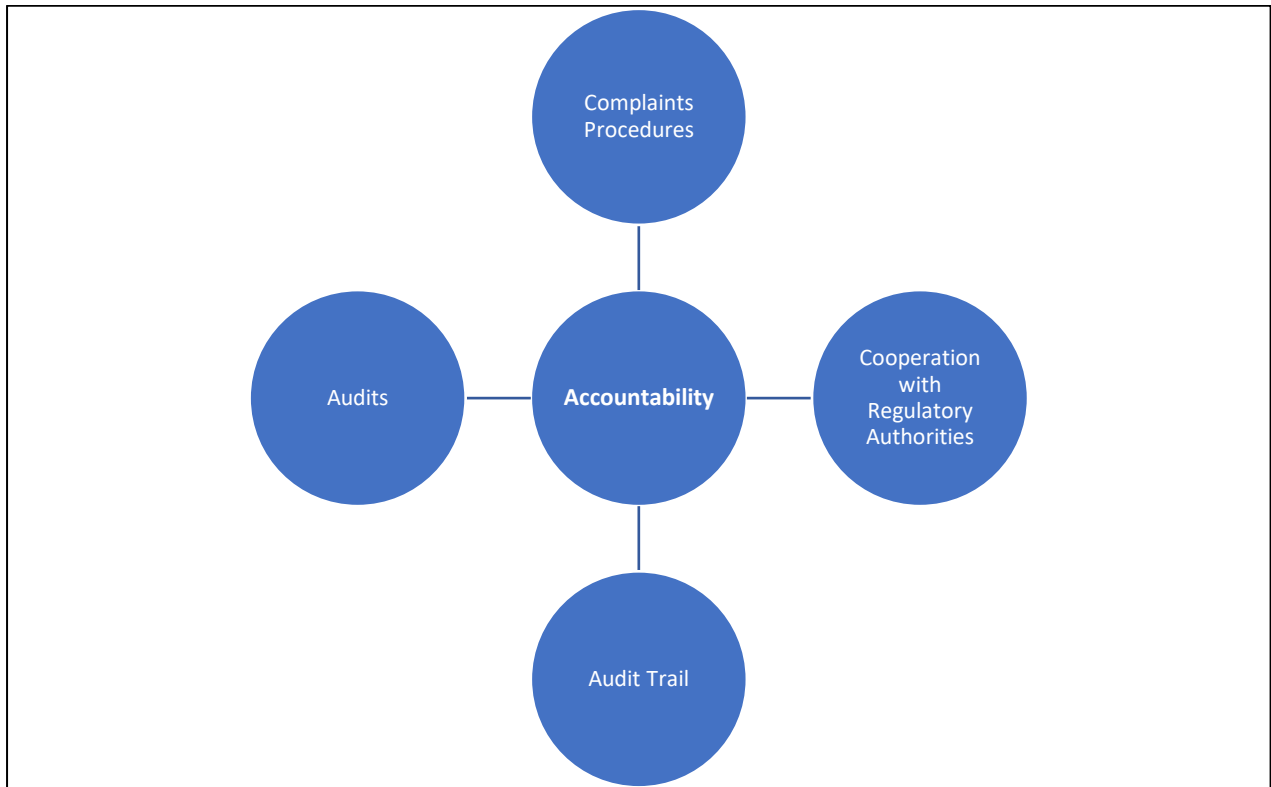


Figure 4: Principles related to Accountability

These principles establish complaints processes, documentation standards, and audit reviews that are intended to provide evidence of compliance by the Administrator with its quality standards, as defined by these Principles and its own policies. The principles also address making the foregoing information available to relevant Market Authorities. Specifically, the principles address the following:

#### *Complaints Procedures*

In order to address complaints by market participants regarding any valuations, NSE Data has prescribed “Grievance Redressal policy - NDAL” for redressal of grievances. As per the policy, NSE Data invites complaints, queries, and feedback through a designated e-mail ID published on the website. Feedback and queries are noted and responded to by the relevant teams of NSE Data whereas complaints are directed to the senior officials of NSE Data. Redressal complaints involving incorrect calculations, data usage, bribery, unethical practice of employees, insider trading etc. are escalated to the Chief Executive Officer (CEO) of NSE Data.

NSE Data is required to maintain documentation related to complaints and records of approval notes, for a period of at least five years.

As on September 30, 2020, there were no complaints in the last one year [SA-16].

#### *Audits and Evidence Retention*

In order to demonstrate its adherence to IOSCO principles, NSE Data periodically undergoes audits to carry out a review of its activities related to Governance, Quality of the Benchmark, Quality of the Methodology, and Accountability.

NSE Data voluntarily conducts periodic internal audits to review the valuation process and the operational activities related to the process followed by its business functions. The audit reports are presented to the board. As on September 30, 2020, there were no conflicts of interest raised during the last one year [SA-17].

NSE Data is required to maintain written records of approval notes, minutes of meeting of the board and the BVRC, related to the review of valuation methodologies, for a period of at least five years (which is as per the requirements set out by the regulatory authorities). NSE Data started rendering valuation services to its clients in the year 2018 and has retained data since then. NSE Data also sources market data from third party data aggregator(s) with whom it has written arrangements in place. This data and records related to it are maintained by the respective third parties and are publicly available on their websites. Further, NSE Data does not receive valuations from submitters. It may receive quotes from market participants which may be used as one of the inputs for certain valuations. NSE Data exercises quality checks on such quotes by following a maker-checker process and also reviews the quotes for identifying any outliers [SA-18].

#### *Co-operation with Regulatory Authorities*

NSE Data co-operates with the regulatory authorities and upon request provides relevant information (such as documents and audit trails) that may be available with NSE Data in order for them to carry out their regulatory and/or supervisory duties within the legal framework, as applicable. Documents and audit trails are readily available within the shared drive/ portal and/or the website.

As on September 30, 2020, there were no such information requests from the relevant regulatory authorities in the last one year [SA-19].

**IOSCO PRINCIPLES, NSE DATA SELF-ASSESSMENT, TEST PERFORMED BY EY, AND RESULTS OF TESTS**

**Principle 1: Overall Responsibility of the Administrator**

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p><b>IOSCO Principle #1:</b>                      The Administrator should retain primary responsibility for all aspects of the Benchmark determination process. For example, this includes:</p> <ol style="list-style-type: none"> <li>a. Development: The definition of the Benchmark and Benchmark Methodology;</li> <li>b. Determination and Dissemination: Accurate and timely compilation and publication and distribution of the Benchmark;</li> <li>c. Operation: Ensuring appropriate transparency over significant decisions affecting the compilation of the Benchmark and any related determination process, including contingency measures in the event of absence of or insufficient inputs, market stress or disruption, failure of critical infrastructure, or other relevant factors; and</li> <li>d. Governance: Establishing credible and transparent governance, oversight and accountability procedures for the Benchmark determination process, including an identifiable oversight function accountable for the development, issuance and operation of the Benchmark.</li> </ol>		
<p><b>SA-1a:</b> NSE Data retains primary responsibility for all aspects of the fixed income valuation process. This includes development, determination &amp; dissemination, operations and governance. Detailed valuation methodology document is transparently published on the NSE Data website (<a href="http://www.nseindia.com/nse-data-and-analytics">www.nseindia.com/nse-data-and-analytics</a>). The valuation methodology document covers the pre-defined waterfall approach, which gives details of how the valuation would be performed, and includes scenarios of non-availability of any data required for valuation along with the exception policy. NSE Data also has Business Continuity Plans in place to ensure seamless performance of valuations and dissemination of the underlying data.</p>	<p>For a sample security, inspected the methodology document and noted the following:</p> <ul style="list-style-type: none"> <li>• Valuation process steps (approach) and the sources of data considered for valuation were evidenced in the methodology document.</li> <li>• Valuation process steps to be undertaken in case of unavailability of required data.</li> </ul> <p>Inspected the version history in the methodology document to verify that the maintenance of the document was the responsibility of NSE Data.</p>	<p>No deviations noted.</p>



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<p><b>SA-1b:</b> Oversight committees such as the Bond Valuation Advisory Committee (BVAC) and the Bond Valuation Review Committee (BVRC) have been established. While the BVAC provides its guidance on macro issues pertaining to fixed income valuations, the BVRC oversees operational guidelines for valuations, reviews changes to the valuation criteria &amp; exceptions, and provides necessary approvals. Additionally, independent audit of business functions of NSE Data is carried out on a quarterly basis by the Internal Audit function, to ensure adherence to stated procedures.</p>	<p>Inspected “Business Continuity Plan document” and noted that contingency measures for calculation of valuations and dissemination of the underlying data were documented within the same.</p> <p>For a sample security and a sample change in the methodology, inspected e-mail communication with market participants and noted that the change in the methodology document was communicated prior to its effective date.</p> <p>Further, for the sampled security and the sampled change, inspected the methodology document, minutes of meeting of the BVRC, and approval notes, and noted that the change in methodology was reviewed and approved by authorized personnel of the BVRC.</p> <p>Additionally, for the sampled security, inspected the NSE Data website and noted that the updated methodology document was publicly available on the same.</p> <p>For a sample security, inspected the methodology document, minutes of meeting of the board and the BVRC, and approval notes, and noted the following:</p>	

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	<ul style="list-style-type: none"> <li>• Significant decisions affecting valuations (changes to methodology) are documented and are publicly communicated.</li> <li>• Approved methodology was in place and the change was uploaded in NSE Data’s system.</li> <li>• Valuation methodology review was performed by authorized personnel of the BVRC.</li> </ul> <p>Inspected NSE Data’s governance structure and verified that there exists an oversight function to review all aspects of the benchmark determination process. Further, inspected the roles and responsibilities of the following committees, which were part of the oversight function:</p> <ul style="list-style-type: none"> <li>• BVAC</li> <li>• BVRC</li> </ul> <p>Noted that the roles and responsibilities of the aforementioned committees included providing guidance on macro issues related to the fixed income valuations process, overseeing operational guidelines for valuations, reviewing changes to the valuation criteria &amp; exceptions, and providing necessary approvals.</p> <p>For a sample quarter, inspected an internal audit report and noted that it covered compliance</p>	

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	<p>checks related to the operational activities carried out by various functions.</p> <p>Further, inspected the internal audit report and noted that there were no instances of non-compliance within the report.</p>	

## Principle 2: Oversight of Third Parties

IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests		
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<p><b>IOSCO Principle #2:</b>            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:</p> <ol style="list-style-type: none"> <li>Clearly define and substantiate through appropriate written arrangements the roles and obligations of third parties who participate in the Benchmark determination process, as well as the standards the Administrator expects these third parties to comply with;</li> <li>Monitor third parties' compliance with the standards set out by the Administrator;</li> <li>Make Available to Stakeholders and any relevant Regulatory Authority the identity and roles of third parties who participate in the Benchmark determination process; and</li> <li>Take reasonable steps, including contingency plans, to avoid undue operational risk related to the participation of third parties in the Benchmark determination process.</li> </ol> <p>This Principle does not apply in relation to a third party from whom an Administrator sources data if that third party is a Regulated Market or Exchange.</p>		
<p><b>SA-2:</b> The valuation process at NSE Data is carried out independently by the in-house full time staff personnel of NSE Data. NSE Data sources data on bond trades and primary issuances from NSE and other regulated third party data aggregator(s). Further, NSE Data may also receive quotes from market participants which could be used as one of the inputs for certain valuations. Data sourcing from third party data aggregator(s) is done through written arrangements (contracts which include definition of the roles and obligations of the third party and the type of data disseminated by them). These agreements are approved by authorized personnel of NSE Data.</p> <p>The aggregators do not participate in the valuation process. NSE</p>	<p>Obtained a confirmation from NSE Data that it does not outsource any of its valuations' operation related activities.</p> <p>For a sample third party data aggregator, inspected the written agreement with NSE Data and noted that it captured details related to sourcing of data for the valuation process and that the agreement had defined within it the roles and obligations of the third party, the nature of data to be provided to NSE Data, and service delivery levels.</p>	<p>No deviations noted.</p>

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<p>Data has controls in place to cross-validate data (wherever applicable) sourced from third party data aggregator(s). Further, it also exercises quality checks on quotes received from market participants by following the maker-checker process. Details of the type of data received and used for the valuation process are captured in the valuation methodology and the SOPs and can be made available to stakeholders and regulatory authorities upon request.</p>	<p>Further, for the sampled third party data aggregator, inspected the written agreement with NSE Data and noted that it was approved by authorized personnel of NSE Data.</p> <p>For a sample security, inspected the minutes of meeting of the BVRC, and approval notes, and noted that the data inputs were reconciled to the source data as part of a maker-checker activity to review the data being used for valuation.</p> <p>Inspected the methodology document and the SOPs and noted that details related to type of data received and used for valuation were documented within the same.</p>	

**Principle 3: Conflicts of Interest for Administrators**

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<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p><b>IOSCO Principle #3:</b>            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.</p> <p>Administrators should review and update their policies and procedures as appropriate.</p> <p>Administrators should disclose any material conflicts of interest to their users and any relevant Regulatory Authority, if any.</p> <p>The framework should be appropriately tailored to the level of existing or potential conflicts of interest identified and the risks that the Benchmark poses and should seek to ensure:</p> <ol style="list-style-type: none"> <li>a. Existing or potential conflicts of interest do not inappropriately influence Benchmark determinations;</li> <li>b. Personal interests and connections or business connections do not compromise the administrator’s performance of its functions;</li> <li>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;</li> <li>d. Adequate supervision and sign-off by authorised or qualified employees prior to releasing Benchmark determinations;</li> <li>e. The confidentiality of data, information and other inputs submitted to, received by or produced by the Administrator, subject to the disclosure obligations of the Administrator;</li> <li>f. Effective procedures to control the exchange of information between staff engaged in activities involving a risk of conflicts of interest or between staff and third parties, where that information may reasonably affect any Benchmark determinations; and</li> <li>g. Adequate remuneration policies that ensure all staff who participate in the Benchmark determination are not directly or indirectly rewarded or incentivised by the levels of the Benchmark.</li> </ol> <p>An Administrator’s conflict of interest framework should seek to mitigate existing or potential conflicts created by its ownership structure or control, or due to other interests the Administrator’s staff or wider group may have in relation to Benchmark determinations. To this end, the framework should:</p> <ol style="list-style-type: none"> <li>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</li> </ol>		

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<p>b. Provide that an Administrator discloses conflicts of interest arising from the ownership structure or the control of the Administrator to its Stakeholders and any relevant Regulatory Authority in a timely manner.</p>		
<p><b>SA-3:</b> NSE Data, a group company of NSE, is a separate legal entity involved in independent calculation of valuations for various Indian debt instruments. NSE Data maintains arms-length relationship with its group companies. For every business transaction between NSE Data and NSE &amp; group companies, NSE Data has entered into written arrangements.</p> <p>Valuations at NSE Data are carried out using a pre-defined waterfall approach and in accordance with proper documentation that protects the integrity and independence of the valuation. Further, a review of all valuations is carried out based on an objective pre-defined selection criteria and a maker-checker process.</p> <p>NSE Data has defined “Code of Ethics policy” for identification, disclosure, management, mitigation, and avoidance of potential conflicts of interest and addressing the risks associated with it.</p> <p>There is a clear demarcation of business functions such as valuation operations and business development teams. Each team functions independently to ensure that there is no conflict of interest. Roles and responsibilities of various business functions of NSE Data have been segregated to ensure no direct or indirect influences in the valuation process.</p> <p>NSE Data comprises of qualified and experienced staff personnel with sound knowledge of financial market. Supervision and approval mechanism at different levels is in place prior to</p>	<p>For a sample group company of NSE, inspected the written agreement with NSE Data, and noted that it captured details related to sourcing of data for performing valuations and that it was approved by authorized personnel of NSE Data.</p> <p>Inspected the “Code of Ethics policy” maintained on NSE Data’s internal portal and noted that there existed a framework for identification, disclosure, management, mitigation, and avoidance of potential conflicts of interest and addressing the risks associated with it.</p> <p>Inspected the organization structure of NSE Data and noted that roles, responsibilities, and reporting lines were clearly defined. Additionally, inspected the roles and responsibilities of various business functions of NSE Data and noted that they had been segregated to avoid conflicts of interest.</p> <p>For a sample security and a sample change in the methodology, inspected the methodology document, minutes of meeting of the BVRC, and approval notes, and noted that the change in methodology was reviewed and approved by authorized personnel of the BVRC.</p>	<p>No deviations noted.</p>

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<p>releasing the benchmark valuation to ensure its integrity and quality. Furthermore, each employee involved in the benchmark determination process is subject to declarations of code of ethics.</p> <p>Remuneration of staff is not linked to the level of valuations, directly or indirectly.</p> <p>Initiatives related to awareness about Information Security, Business Continuity and Code of Ethics are conducted periodically at a group level.</p> <p>As on September 30, 2020, there were no conflicts of interest raised during the last one year.</p>	<p>For a sample employee responsible for performing valuations, inspected the employee details on NSE Data’s internal portal to determine whether the employee had provided a declaration on code of ethics.</p> <p>Further, for the sampled employee, inspected the Key Result Areas (KRAs) on the NSE Data’s internal portal and noted that the employee was trained to participate in the valuation process.</p> <p>Obtained a management representation from the Human Resources (HR) stating that “Staff of NSE Data who participate in the valuations process are not rewarded through any incentive plan related to the valuation process.”</p> <p>Inspected the induction training deck for new joiners and noted that the compliance trainings covered topics such as Information Security, Business Continuity Awareness, and Code of Ethics Declarations.</p> <p>Obtained a confirmation from NSE Data that as on September 30, 2020, there were no conflicts of interest raised during the last one year.</p>	



## Principle 4: Control Framework for Administrators

IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests		
NSE Data Self-Assessment	Test Performed by EY	Results of Tests
<p><b>IOSCO Principle #4:</b>            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:</p> <ol style="list-style-type: none"> <li>a. Conflicts of interest in line with Principle 3 on conflicts of interests;</li> <li>b. Integrity and quality of Benchmark determination:               <ol style="list-style-type: none"> <li>i. Arrangements to ensure that the quality and integrity of Benchmarks is maintained, in line with principles 6 to 15 on the quality of the Benchmark and Methodology;</li> <li>ii. Arrangements to promote the integrity of Benchmark inputs, including adequate due diligence on input sources;</li> <li>iii. Arrangements to ensure accountability and complaints mechanisms are effective, in line with principles 16 to 19; and</li> <li>iv. Providing robust infrastructure, policies and procedures for the management of risk, including operational risk.</li> </ol> </li> <li>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;</li> <li>d. Expertise:               <ol style="list-style-type: none"> <li>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</li> <li>ii. Staff training, including ethics and conflicts of interest training, and continuity and succession planning for personnel.</li> </ol> </li> </ol> <p>Where a Benchmark is based on Submissions: Administrators should promote the integrity of inputs by:</p> <ol style="list-style-type: none"> <li>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;</li> <li>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;</li> <li>c. Specifying how frequently Submissions should be made and specifying that inputs or Submissions should be made for every Benchmark determination; and</li> </ol>		

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NSE Data Self-Assessment	Test Performed by EY	Results of Tests
Establishing and employing measures to effectively monitor and scrutinize inputs or Submissions. This should include pre-compilation or prepublication monitoring to identify and avoid errors in inputs or Submissions, as well as ex-post analysis of trends and outliers.		
<p><b>SA-4a:</b> Please refer to SA-3 section above for controls in place at NSE Data to ensure integrity of daily valuations and disseminations and to manage conflicts of interest.</p> <p>For response to item (a), please refer NSE Data Self-Assessment for Principle 3.</p> <p>For response to item (b) (i) and (b) (ii), please refer NSE Data Self-Assessment for Principals 6 to 15.</p> <p>For response to item (b) (iii), please refer NSE Data Self-Assessment for Principals 16 to 19.</p> <p><b>SA-4b:</b> For response to item (b) (iv), In order to manage operational risk related to the valuation process, NSE Data maintains a “Cyber Security and Cyber Resilience policy” which contains details related to data confidentiality, classification of data, prevention of data leakage, etc. Any data used for valuation is stored in secured folders which can only be accessed by authorized personnel. Furthermore, NSE Data also maintains a data register which is reviewed and approved on an annual basis.</p> <p><b>SA-4c:</b> For item (c), NSE Data has prescribed a “Whistle blowing policy”.</p>	<p>For item (a), please refer Tests Performed for Principle 3.</p> <p>For item (b) (i), please refer Tests Performed for Principles 6 to 15.</p> <p>For item (b) (iii), please refer Tests Performed for Principles 16 to 19.</p> <p>For item (b) (iv), inspected the “Cyber Security and Cyber Resilience policy” and noted that it contained details related to data confidentiality, classification of data, prevention of data leakage, etc.</p> <p>For a sample folder used for storing data related to valuations, inspected access to the folder and noted that it could only be accessed by authorized personnel working on the valuations process.</p> <p>Further, inspected the data register maintained by NSE Data and noted that it was reviewed and approved by authorized personnel of the BVRC.</p> <p>For item (c), inspected the “Whistle blowing policy” and noted the following:</p>	<p>No deviations noted.</p>

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<p><b>SA-4d:</b> For item (d) (i), NSE Data comprises of qualified and experienced staff personnel with sound knowledge of financial market. Supervision and approval mechanism at different levels is in place prior to releasing the valuation to ensure its integrity and quality.</p> <p><b>SA-4e:</b> For item (d) (ii), Employees of NSE Data who are involved in the valuation process are provided product related training for skill development on a periodic basis. Further, continuity and succession planning for personnel is carried out at an organizational level on a periodic basis.</p> <p><b>SA-4f:</b> NSE Data does not receive valuations from submitters. It may receive quotes from market participants which may be used as one of the inputs for certain valuations. NSE Data exercises quality checks on such quotes by following a maker-checker process and also reviews the quotes for identifying any outliers.</p>	<ul style="list-style-type: none"> <li>• Procedures and mechanism for whistle blowing are detailed within the policy.</li> <li>• External reporting mechanism is available on the NSE Data website.</li> <li>• External reporting mechanism is available through e-mail at <a href="mailto:fivaluations@nse.co.in">fivaluations@nse.co.in</a>.</li> </ul> <p>For a sample employee responsible for performing valuations, inspected the KRAs on NSE Data’s internal portal and noted that initial, mid-year, and annual performance reviews were conducted and signed-off by reporting managers.</p> <p>For item (d), inspected NSE Data’s succession plans and noted that succession plans were documented for the key personnel involved in the valuation process.</p> <p>Inspected the employee training plan and noted that it covered the following trainings:</p> <ul style="list-style-type: none"> <li>• Periodic trainings on functional subjects covering valuations, advanced excel and product trainings, etc.</li> <li>• Information Security.</li> <li>• Business Continuity Awareness.</li> <li>• Code of Ethics.</li> </ul> <p>Obtained a confirmation from NSE Data that it does not receive valuations from submitters.</p>	

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	Further, please refer Tests Performed for Principle 2 and Principle 6.	

## Principle 5: Internal Oversight

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NSE Data Self-Assessment	Test Performed by EY	Results of Tests
<p><b>IOSCO Principle #5:</b>  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:</p> <ol style="list-style-type: none"> <li>a. The terms of reference of the oversight function;</li> <li>b. Criteria to select members of the oversight function;</li> <li>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.</li> </ol> <p>The responsibilities of the oversight function include:</p> <ol style="list-style-type: none"> <li>a. Oversight of the Benchmark design: <ol style="list-style-type: none"> <li>i. Periodic review of the definition of the Benchmark and its Methodology;</li> <li>ii. Taking measures to remain informed about issues and risks to the Benchmark, as well as commissioning external reviews of the Benchmark (as appropriate);</li> <li>iii. Overseeing any changes to the Benchmark Methodology, including assessing whether the Methodology continues to appropriately measure the underlying Interest, reviewing proposed and implemented changes to the Methodology, and authorizing or requesting the Administrator to undertake a consultation with Stakeholders where known or its Subscribers on such changes as per Principle 12; and</li> <li>iv. Reviewing and approving procedures for termination of the Benchmark, including guidelines that set out how the Administrator should consult with Stakeholders about such cessation.</li> </ol> </li> <li>b. Oversight of the integrity of Benchmark determination and control framework: <ol style="list-style-type: none"> <li>i. Overseeing the management and operation of the Benchmark, including activities related to Benchmark determination undertaken by a third party;</li> </ol> </li> </ol>		

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NSE Data Self-Assessment	Test Performed by EY	Results of Tests
<p>ii. Considering the results of internal and external audits, and following up on the implementation of remedial actions highlighted in the results of these audits; and</p> <p>iii. Overseeing any exercise of Expert Judgment by the Administrator and ensuring Published Methodologies have been followed.</p> <p>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:</p> <p>a. Overseeing and challenging the scrutiny and monitoring of inputs or Submissions by the Administrator. This could include regular discussions of inputs or Submission patterns, defining parameters against which inputs or Submissions can be analysed, or querying the role of the Administrator in challenging or sampling unusual inputs or Submissions;</p> <p>b. Overseeing the Code of Conduct for Submitters;</p> <p>c. Establishing effective arrangements to address breaches of the Code of Conduct for Submitters; and</p> <p>Establishing measures to detect potential anomalous or suspicious Submissions and in case of suspicious activities, to report them, as well as any misconduct by Submitters of which it becomes aware to the relevant Regulatory Authorities, if any.</p>		
<p><b>SA-5:</b> NSE Data has constituted the BVAC to provide guidance on macro issues pertaining to fixed income valuations. The BVAC does not participate in the day to day operations of the valuation process. In addition to the BVAC, NSE Data has also constituted the BVRC to oversee operational guidelines for valuations, review changes to the valuation criteria &amp; exceptions, and provide necessary approvals. The BVRC is also responsible for periodically reviewing existing methodology documents for valuations.</p> <p>Each of these committees is represented by the industry experts. Members of the respective committees are independent of each other (except the exchange representative(s) who coordinates</p>	<p>Inspected NSE Data’s governance structure and verified that there exists an oversight function to review all aspects of the benchmark determination process. Further, inspected the roles and responsibilities of the following committees, which were part of the oversight function:</p> <ul style="list-style-type: none"> <li>• BVAC</li> <li>• BVRC</li> </ul> <p>Noted that the roles and responsibilities of the aforementioned committees included providing guidance on macro issues related to the fixed</p>	<p>No deviations noted.</p>

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<p>between the BVAC and the BVRC) and do not represent more than one committee. The committees comprise of representatives from financial market such as asset management company, insurance company, etc. Terms of references of each committee are defined and approved by the board. In order to maintain transparency, the names of the committee members are publicly displayed on the website.</p> <p>NSE Data does not receive valuations from submitters. It may receive quotes from market participants which may be used as one of the inputs for certain valuations. NSE Data exercises quality checks on such quotes by following a maker-checker process and also reviews the quotes for identifying any outliers.</p>	<p>income valuations process, overseeing operational guidelines for valuations, reviewing changes to the valuation criteria &amp; exceptions, and providing necessary approvals.</p> <p>Inspected the terms of reference of each committee and noted that they were approved by the board.</p> <p>Obtained a confirmation from NSE Data that the constitution of each committee is approved by the board. Further, inspected the NSE Data website and noted that details of the committee members (such as name, designation, and company) were publicly displayed on the website.</p> <p>For a sample security, inspected the methodology document, SOPs, minutes of meeting of the BVRC, and approval notes, and noted the following:</p> <ul style="list-style-type: none"> <li>• The approved valuation methodology was in place.</li> <li>• Valuation methodology review (for a sample month) was performed by the BVRC.</li> <li>• Data inputs were reconciled to the source data as part of a maker-checker activity to review the data being used for valuation.</li> </ul> <p>Obtained a confirmation from NSE Data that it does not receive valuations from submitters.</p>	

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<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
	Further, please refer Tests Performed for Principle 2 and Principle 6.	



## Principle 6: Benchmark Design

IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests		
NSE Data Self-Assessment	Test Performed by EY	Results of Tests
<p><b>IOSCO Principle #6:</b>            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 nonexclusive features, and other factors should be considered, as appropriate to the particular Interest:</p> <ol style="list-style-type: none"> <li>Adequacy of the sample used to represent the Interest;</li> <li>Size and liquidity of the relevant market (for example whether there is sufficient trading to provide observable, transparent pricing);</li> <li>Relative size of the underlying market in relation to the volume of trading in the market that references the Benchmark;</li> <li>The distribution of trading among Market Participants (market concentration); and</li> <li>Market dynamics (e.g., to ensure that the Benchmark reflects changes to the assets underpinning a Benchmark).</li> </ol>		
<p><b>SA-6:</b> The fixed income valuation process at NSE Data is based on an internal assessment of valuation inputs and the market feedback that NSE Data receives through interaction with market participants. Valuations are independently performed by primary analysts in accordance with the pre-defined valuation methodology and then reviewed by secondary analysts. There also exists a maker-checker process for data inputs received to validate the adequacy of valuation inputs and perform an independent analysis of the same. Accordingly, the valuations at NSE Data seek to achieve and result in a reliable representation of the current market conditions. The methodologies for valuations are documented, reviewed, and approved.</p>	<p>For a sample security, inspected the methodology document, SOPs, minutes of meeting of the BVRC, and approval notes, and noted the following:</p> <ul style="list-style-type: none"> <li>• The valuation (for the security) was performed in accordance with the pre-defined valuation methodology and SOPs.</li> <li>• Data inputs were reconciled to the source data as part of a maker-checker activity to review the data being used for valuation.</li> <li>• The documents included key information such as:               <ul style="list-style-type: none"> <li>○ Market sample considered</li> <li>○ Computational methodology (including criteria and size &amp; liquidity of target market)</li> </ul> </li> </ul>	<p>No deviations noted.</p>

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
	<ul style="list-style-type: none"> <li>○ Data sources used</li> <li>○ Instructions for dissemination</li> <li>○ Process followed for governance</li> <li>○ Procedure for dealing with exceptions</li> <li>○ Frequency of internal reviews</li> <li>○ Circumstances where NSE Data would consult stakeholders</li> </ul> <ul style="list-style-type: none"> <li>● The methodology was reviewed by authorized personnel of the BVRC.</li> </ul>	

**Principle 7: Data Sufficiency**

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p><b>IOSCO Principle #7:</b>            The data used to construct a Benchmark determination should be sufficient to accurately and reliably represent the Interest measured by the Benchmark and should:</p> <ol style="list-style-type: none"> <li>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</li> <li>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.</li> </ol> <p>This Principle requires that a Benchmark be based upon (i.e., anchored in) an active market having observable Bona Fide, Arms-Length Transactions. This does not mean that every individual Benchmark determination must be constructed solely of transaction data. Provided that an active market exists, conditions in the market on any given day might require the Administrator to rely on different forms of data tied to observable market data as an adjunct or supplement to transactions. Depending upon the Administrator’s Methodology, this could result in an individual Benchmark determination being based predominantly, or exclusively, on bids 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, Armlength 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 behaviour of an index or market or other aspects of an active market. Principle 7 does not preclude the use of non-transactional data for such indices that are not designed to represent transactions and where the nature of the index is such that non transactional data is used to reflect what the index is designed to measure. For example, certain volatility indices, which are designed to measure the expected volatility of an index of securities transactions, rely on non-transactional data, but the data is derived from and thus “anchored” in an actual functioning securities or options market.</p>		

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p><b>SA-7:</b> NSE Data sources data related to bond trades and primary issuances from NSE, which is a regulated stock exchange, and other regulated third party data aggregators through written arrangements. Further, NSE Data also sources primary and secondary market data (including market quotes) from market participants, who do not participate in the valuations process. The data received is based on parameters such as current prices, rates, projections, etc. within the active market. All data inputs received for the valuation process are independently analysed by NSE Data taking into account factors such as materiality, authenticity, etc. Furthermore, the valuation methodology details how the data shall be used for the valuation process (including preference to observable trades). The valuation methodology document is transparently published on the NSE Data website.</p>	<p>For a sample third party data aggregator, inspected the written agreement with NSE Data, and noted that it captured details related to sourcing of data for performing valuations.</p> <p>Further, for the sampled third party data aggregator, inspected the written agreement and noted that the third party data aggregator from whom market data was sourced was a regulated exchange/ agency.</p> <p>For a sample security, inspected the methodology document and SOPs, and noted the following:</p> <ul style="list-style-type: none"> <li>• The valuation methodology and SOPs detailed the type of data to be received and how the data would be used for the valuation process.</li> <li>• Data inputs were reconciled to the source data as part of a maker-checker activity to review the data being used for valuation.</li> </ul> <p>Inspected the NSE Data website and noted that the methodology document was publicly available on the same.</p>	<p>No deviations noted.</p>

## Principle 8: Hierarchy of Data Inputs

IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests		
NSE Data Self-Assessment	Test Performed by EY	Results of Tests
<p><b>IOSCO Principle #8:</b>            An Administrator should establish and Publish or Make Available clear guidelines regarding the hierarchy of data inputs and exercise of Expert Judgment used for the determination of Benchmarks. In general, the hierarchy of data inputs should include:</p> <ol style="list-style-type: none"> <li>Where a Benchmark is dependent upon Submissions, the Submitters' own concluded armlength transactions in the underlying interest or related markets;</li> <li>Reported or observed concluded Arm's-length Transactions in the underlying interest;</li> <li>Reported or observed concluded Arm's-length Transactions in related markets;</li> <li>Firm (executable) bids and offers; and</li> <li>Other market information or Expert Judgments. 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.</li> </ol>		
<p><b>SA-8a:</b> NSE Data sources data related to bond trades and primary issuances from NSE, which is a regulated stock exchange, and other regulated third party data aggregators through written arrangements. Further, NSE Data also sources primary and secondary market data (including market quotes) from market participants, who do not participate in the valuations process. The data received is based on parameters such as current prices, rates, projections, etc. within the active market. All data inputs received for the valuation process are independently analysed by NSE Data taking into account factors</p>	<p>For a sample third party data aggregator, inspected the written agreement and noted that the third party data aggregator from whom market data was sourced was a regulated exchange/ agency.</p> <p>Inspected the NSE Data website and noted that the methodology document was publicly available on the same.</p>	<p>No deviations noted.</p>

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p>such as materiality, authenticity, etc. Furthermore, the valuation methodology details how the data shall be used for the valuation process (including preference to observable trades). The valuation methodology document is transparently published on the NSE Data website.</p> <p><b>SA-8b:</b> NSE Data does not receive valuations from submitters. It may receive quotes from market participants which may be used as one of the inputs for certain valuations. NSE Data exercises quality checks on such quotes by following a maker-checker process and also reviews the quotes for identifying any outliers.</p>	<p>Obtained a confirmation from NSE Data that it does not receive valuations from submitters. Further, please refer Tests Performed for Principle 2 and Principle 6.</p>	

**Principle 9: Transparency of Benchmark Determinations**

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p><b>IOSCO Principle #9:</b>                      The Administrator should describe and publish with each Benchmark determination, to the extent reasonable without delaying an Administrator publication deadline:</p> <p>a. A concise explanation, sufficient to facilitate a Stakeholder’s or Market Authority’s ability to understand how the determination was developed, including, at a minimum, the size and liquidity of the market being assessed (meaning the number and volume of transactions submitted), the range and average volume and range and average of price, and indicative percentages of each type of market data that have been considered in a Benchmark determination; terms referring to the pricing Methodology should be included (i.e., transaction based, spread-based or interpolated/extrapolated); and</p> <p>b. A concise explanation of the extent to which and the basis upon which Expert Judgment if any, was used in establishing a Benchmark determination.</p>		
<p><b>SA-9:</b> NSE Data transparently publishes the benchmark determination process (documented within its valuation methodology documents) on the website. The documents detail the methodology for performing the valuation process, the waterfall method, processes followed for governance and exceptions, etc. The documents also provide information about the type of data used for valuations and how the data shall be used for the valuation process (including preference to observable trades).</p> <p>Changes to the valuation methodology (along with the rationale, wherever applicable) are communicated to market participants via e-mail before the effective date of proposed changes. The valuations are made available to clients based on subscriptions. Rationale of how each valuation (including size and liquidity of market, data used for valuation, calculation, etc.) has been</p>	<p>For a sample security, inspected the methodology document and SOPs, and noted the following:</p> <ul style="list-style-type: none"> <li>• The methodology document and SOPs contained the process followed for performing valuations, governance and exceptions, etc.</li> <li>• The methodology document and SOPs contained details related to the type of data received and how the data would be used for the valuations process.</li> <li>• The methodology document and SOPs contained the rationale for adopting a particular methodology and how the valuation was determined.</li> <li>• The documents included key information such as:                             <ul style="list-style-type: none"> <li>○ Market sample considered</li> </ul> </li> </ul>	<p>No deviations noted.</p>

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p>determined is documented and can be made available to relevant stakeholders or regulatory authorities upon request.</p>	<ul style="list-style-type: none"> <li>○ Computational methodology (including criteria and size &amp; liquidity of target market)</li> <li>○ Data sources used</li> <li>○ Instructions for dissemination</li> <li>○ Process followed for governance</li> <li>○ Procedure for dealing with exceptions</li> <li>○ Circumstances where NSE Data would consult stakeholders</li> </ul> <p>Further, for the sampled security, inspected the NSE Data website and noted that the methodology document was publicly available on the same.</p> <p>For a sample security and a sample change in the methodology, inspected e-mail communication with market participants and noted that the change in the methodology document was communicated prior to it's effective date.</p>	



**Principle 10: Periodic Review**

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p><b>IOSCO Principle #10:</b>                      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.</p>		
<p><b>SA-10:</b> NSE Data has constituted the BVRC to oversee operational guidelines for valuations, review changes to the valuation criteria &amp; exceptions, and provide necessary approvals.</p> <p>Changes to the valuation methodology are communicated to market participants via e-mail. Approvals related to changes in the valuation methodology are documented and the updated methodology is made available to the market participants through the website.</p> <p>During the year, methodology review of valuations was carried out and changes were communicated to market participants via e-mail.</p>	<p>For a sample security and a sample change in the methodology, inspected the methodology document, minutes of meeting of the BVRC, and approval notes, and noted that the change in methodology was reviewed and approved by authorized personnel of the BVRC.</p> <p>Further, for the sampled security and the sampled change, inspected e-mail communication with market participants and noted that the change in the methodology document was communicated prior to it's effective date.</p> <p>Additionally, for the sampled security, inspected the NSE Data website and noted that the updated methodology document was publicly available on the same.</p>	<p>No deviations noted.</p>

**Principle 11: Content of the Methodology**

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p><b>IOSCO Principle #11:</b>                      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:</p> <ol style="list-style-type: none"> <li>a. Definitions of key terms;</li> <li>b. All criteria and procedures used to develop the Benchmark, including input selection, the mix of inputs used to derive the Benchmark, the guidelines that control the exercise of Expert Judgment by the Administrator, priority given to certain data types, minimum data needed to determine a Benchmark, and any models or extrapolation methods;</li> <li>c. Procedures and practices designed to promote consistency in the exercise of Expert Judgment between Benchmark determinations;</li> <li>d. The procedures which govern Benchmark determination in periods of market stress or disruption, or periods where data sources may be absent (e.g., theoretical estimation models);</li> <li>e. The procedures for dealing with error reports, including when a revision of a Benchmark would be applicable;</li> <li>f. Information regarding the frequency for internal reviews and approvals of the Methodology. Where applicable, the Published Methodologies should also include information regarding the procedures and frequency for external review of the Methodology;</li> <li>g. The circumstances and procedures under which the Administrator will consult with Stakeholders, as appropriate; and</li> <li>h. The identification of potential limitations of a Benchmark, including its operation in illiquid or fragmented markets and the possible concentration of inputs. 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.</li> </ol>		
<p><b>SA-11:</b> NSE Data transparently publishes the benchmark determination process (documented within its valuation methodology documents) on the website. The documents detail the methodology for performing the valuation process, the waterfall method, processes followed for governance and</p>	<p>For a sample security, inspected the methodology document, SOPs, minutes of meeting of the BVRC, and approval notes, and noted the following:</p> <ul style="list-style-type: none"> <li>• The methodology was reviewed by authorized personnel of the BVRC.</li> </ul>	<p>No deviations noted.</p>

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p>exceptions, etc. The documents also provide information about the data used for valuations.</p> <p>NSE Data does not receive valuations from submitters. It may receive quotes from market participants which may be used as one of the inputs for certain valuations. NSE Data exercises quality checks on such quotes by following a maker-checker process and also reviews the quotes for identifying any outliers.</p>	<ul style="list-style-type: none"> <li>• The methodology document and SOPs contained the rationale for adopting a particular methodology and how the valuation was determined.</li> <li>• The documents included key information such as: <ul style="list-style-type: none"> <li>○ Definition of key terms</li> <li>○ Computational methodology (including criteria and size &amp; liquidity of target market)</li> <li>○ Data sources used</li> <li>○ Instructions for dissemination</li> <li>○ Process followed for governance</li> <li>○ Procedure for dealing with exceptions</li> <li>○ Frequency of internal reviews</li> <li>○ Circumstances where NSE Data would consult stakeholders</li> </ul> </li> </ul> <p>Further, for the sampled security, inspected the NSE Data website and noted that the methodology document was publicly available on the same.</p> <p>Obtained a confirmation from NSE Data that it does not receive valuations from submitters. Further, please refer Tests Performed for Principle 2 and Principle 6.</p>	

**Principle 12: Changes in the Methodology**

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p><b>IOSCO Principle #12:</b>            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 scrutinised, 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:</p> <ol style="list-style-type: none"> <li>a. Provide advance notice and a clear timeframe that gives Stakeholders sufficient opportunity to analyse and comment on the impact of such proposed material changes, having regard to the Administrator’s assessment of the overall circumstances; and</li> <li>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.</li> </ol>		
<p><b>SA-12:</b> NSE Data on an on-going basis reviews the valuation methodology in order to keep the methodology in line with the current market dynamics and/or any regulatory changes.</p> <p>Any proposed change in the valuation methodology is deliberated upon before making a final decision. The BVRC has been constituted to oversee operational guidelines for valuations, review changes to the valuation criteria &amp; exceptions, and provide necessary approvals. Changes to the valuation methodology (along with the rationale, wherever applicable) are communicated to market participants via e-mail before the effective date of proposed changes. Approvals related to changes in the valuation methodology are documented and the updated</p>	<p>For a sample security and a sample change in the methodology, inspected e-mail communication with market participants and noted that the change in the methodology document was communicated prior to it’s effective date.</p> <p>Further, for the sampled security and the sampled change, inspected the methodology document, SOPs, minutes of meeting of the BVRC, and approval notes, and noted the following:</p> <ul style="list-style-type: none"> <li>• The change in methodology was reviewed and approved by authorized personnel of the BVRC.</li> </ul>	<p>No deviations noted.</p>

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p>methodology is made available to the market participants through the website.</p> <p>During the year, methodology review of valuations was carried out and changes were communicated to market participants via e-mail.</p>	<ul style="list-style-type: none"> <li>• The documents included key information such as: <ul style="list-style-type: none"> <li>○ Definition of key terms</li> <li>○ Computational methodology (including criteria and size &amp; liquidity of target market)</li> <li>○ Data sources used</li> <li>○ Instructions for dissemination</li> <li>○ Process followed for governance</li> <li>○ Procedure for dealing with exceptions</li> <li>○ Frequency of internal reviews</li> <li>○ Circumstances where NSE Data would consult stakeholders</li> </ul> </li> </ul> <p>Additionally, for the sampled security, inspected the NSE Data website and noted that the updated methodology document was publicly available on the same.</p>	

## Principle 13: Transition

IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests		
NSE Data Self-Assessment	Test Performed by EY	Results of Tests
<p><b>IOSCO Principle #13:</b>  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:</p> <ol style="list-style-type: none"> <li>a. Contracts or other financial instruments that reference a Benchmark, have robust fall-back provisions in the event of material changes to, or cessation of, the referenced Benchmark; and</li> <li>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.</li> </ol> <p>Administrators' written policies and procedures to address the possibility of Benchmark Cessation could include the following factors, if determined to be reasonable and appropriate by the Administrator:</p> <ol style="list-style-type: none"> <li>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;</li> <li>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;</li> <li>c. The procedures that the Administrator would follow in the event that a suitable alternative cannot be identified;</li> <li>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</li> <li>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.</li> </ol>		

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p><b>SA-13:</b> Cessation of valuations only occurs for financial instruments which are redeemed by the respective issuers. This does not occur for valuations offered by NSE Data to its market participants as the bonds which reach their maturity date cease to exist beyond that date.</p>	<p>Obtained a confirmation from NSE Data that a process for cessation of valuations is not required as only those bonds are valued by NSE Data which have not reached their maturity date.</p>	<p>No deviations noted.</p>

**Principle 14: Submitter Code of Conduct**

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p><b>IOSCO Principle #14:</b>            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:</p> <ol style="list-style-type: none"> <li>a. The selection of inputs;</li> <li>b. Who may submit data and information to the Administrator;</li> <li>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;</li> <li>d. Criteria applied to employees of a Submitter who are permitted to submit data or information to an Administrator on behalf of a Submitter;</li> <li>e. Policies to discourage the interim withdrawal of Submitters from surveys or Panels;</li> <li>f. Policies to encourage Submitters to submit all relevant data; and</li> <li>g. The Submitters’ internal systems and controls, which should include:               <ol style="list-style-type: none"> <li>i. Procedures for submitting inputs, including Methodologies to determine the type of eligible inputs, in line with the Administrator’s Methodologies;</li> <li>ii. Procedures to detect and evaluate suspicious inputs or transactions, including intergroup transactions, and to ensure the Bona Fide nature of such inputs, where appropriate;</li> <li>iii. Policies guiding and detailing the use of Expert Judgment, including documentation requirements;</li> <li>iv. Record keeping policies;</li> <li>v. Pre-Submission validation of inputs, and procedures for multiple reviews by senior staff to check inputs;</li> <li>vi. Training, including training with respect to any relevant regulation (covering Benchmark regulation or any market abuse regime);</li> <li>vii. Suspicious Submission reporting;</li> <li>viii. Roles and responsibilities of key personnel and accountability lines;</li> <li>ix. Internal sign off procedures by management for submitting inputs;</li> <li>x. Whistle blowing policies (in line with Principle 4); and</li> </ol> </li> </ol>		



IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests		
NSE Data Self-Assessment	Test Performed by EY	Results of Tests
<p>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.</p>		
<p><b>SA-14:</b> NSE Data transparently publishes the benchmark determination process (documented within its valuation methodology documents) on the website. The documents detail the methodology for performing the valuation process, the waterfall method, processes followed for governance and exceptions, etc. The documents also provide information about the data used for valuations.</p> <p>NSE Data does not receive valuations from submitters. It may receive quotes from market participants which may be used as one of the inputs for certain valuations. NSE Data exercises quality checks on such quotes by following a maker-checker process and also reviews the quotes for identifying any outliers.</p>	<p>For a sample security, inspected the methodology document and SOPs, and noted the following:</p> <ul style="list-style-type: none"> <li>• The methodology document and SOPs contained the process followed for performing valuations, governance and exceptions, etc.</li> <li>• The methodology document and SOPs contained details related to the type of data received and how the data would be used for the valuations process.</li> <li>• The methodology document was publicly available on the NSE Data website.</li> </ul> <p>Obtained a confirmation from NSE Data that it does not receive valuations from submitters. Further, please refer Tests Performed for Principle 2 and Principle 6.</p>	<p>No deviations noted.</p>

**Principle 15: Internal Controls over Data Collection**

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p><b>IOSCO Principle #15:</b>                      When an Administrator collects data from any external source the Administrator should ensure that there are appropriate internal controls over its data collection and transmission processes. These controls should address the process for selecting the source, collecting the data and protecting the integrity and confidentiality of the data. Where Administrators receive data from employees of the Front Office Function, the Administrator should seek corroborating data from other sources.</p>		
<p><b>SA-15:</b> NSE Data sources data related to bond trades and primary issuances from NSE, which is a regulated stock exchange, and other regulated third party data aggregators through written arrangements. Further, NSE Data also sources primary and secondary market data (including market quotes) from market participants, who do not participate in the valuations process. NSE Data has controls in place to cross-validate data (wherever applicable) sourced from third party data aggregator(s). There exists a maker-checker process for data inputs received to validate the adequacy of valuation inputs and perform an independent analysis of the same. Furthermore, any data used for valuation is stored in secured folders which can only be accessed by authorized personnel.</p>	<p>For a sample third party data aggregator, inspected the written agreement with NSE Data, and noted that it captured details related to sourcing of data for performing valuations.</p> <p>For a sample security, inspected the methodology document and SOPs, and noted the following:</p> <ul style="list-style-type: none"> <li>• The methodology document and SOPs contained details related to the type of data received and how the data would be used for the valuations process.</li> <li>• Data inputs were reconciled to the source data as part of a maker-checker activity to review the data being used for valuation.</li> </ul> <p>For a sample folder used for storing data related to valuations, inspected access to the folder and noted that it could only be accessed by authorized personnel working on the valuations process.</p>	<p>No deviations noted.</p>

## Principle 16: Complaints Procedures

IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests		
NSE Data Self-Assessment	Test Performed by EY	Results of Tests
<p><b>IOSCO Principle #16:</b>            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:</p> <ol style="list-style-type: none"> <li>Permit complaints to be submitted through a user friendly complaints process such as an electronic Submission process;</li> <li>Contain procedures for receiving and investigating a complaint made about the Administrator’s Benchmark determination process on a timely and fair basis by personnel who are independent of any personnel who may be or may have been involved in the subject of the complaint, advising the complainant and other relevant parties of the outcome of its investigation within a reasonable period and retaining all records concerning complaints;</li> <li>Contain a process for escalating complaints, as appropriate, to the Administrator’s governance body; and</li> <li>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.</li> </ol>		
<p><b>SA-16:</b> In order to address complaints by market participants regarding any valuations, NSE Data has prescribed “Grievance Redressal policy - NDAL” for redressal of grievances. As per the policy, NSE Data invites complaints, queries, and feedback through a designated e-mail ID published on the website. Feedback and queries are noted and responded to by the relevant teams of NSE Data whereas complaints are directed to the senior officials of NSE Data. Redressal complaints involving incorrect calculations, data usage, bribery, unethical practice of employees, insider trading etc. are escalated to the Chief Executive Officer (CEO) of NSE Data.</p>	<p>For item (a), inspected the NSE Data website and noted that there existed a designated e-mail ID (fivaluations@nse.co.in), through which queries, feedback, and complaints could be submitted.</p> <p>Inspected the “Grievance Redressal policy - NDAL” maintained by NSE Data and noted the following:</p> <ul style="list-style-type: none"> <li>For item (b), the policy detailed procedures for receiving, investigating, and advising the complainant and other relevant parties of the</li> </ul>	<p>No deviations noted.</p>

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p>NSE Data is required to maintain documentation related to complaints and records of approval notes, for a period of at least five years.</p> <p>As on September 30, 2020, there were no complaints in the last one year.</p>	<p>outcome of the complaint, along with timelines for resolution. The policy also contained details of personnel of NSE Data who would be assigned complaints (based on the categorization) for investigation and review.</p> <ul style="list-style-type: none"> <li>• For item (c), the policy included a categorization of complaints based on severity, along with points of contact in the event of an escalation.</li> <li>• For item (d), the policy detailed that documentation related to complaints and records of approval notes were to be maintained for a period of at least five years.</li> </ul> <p>Obtained a confirmation from NSE Data that as on September 30, 2020, there were no complaints in the last one year.</p>	

**Principle 17: Audits**

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p><b>IOSCO Principle #17:</b>                      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.</p>		
<p><b>SA-17:</b> NSE Data voluntarily conducts periodic internal audits to review the valuation process and the operational activities related to the process followed by it’s business functions. The audit reports are presented to the board. As on September 30, 2020, there were no conflicts of interest raised during the last one year.</p>	<p>For a sample quarter, inspected an internal audit report and noted that it covered compliance checks related to the operational activities carried out by various functions.</p> <p>Further, inspected the internal audit report and noted that there were no instances of non-compliance within the report.</p> <p>Obtained a confirmation from NSE Data that as on September 30, 2020, there were no conflicts of interest raised during the last one year.</p>	<p>No deviations noted.</p>

**Principle 18: Audit Trail**

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p><b>IOSCO Principle #18:</b>            Written records should be retained by the Administrator for five years, subject to applicable national legal or regulatory requirements on:</p> <ul style="list-style-type: none"> <li>a. All market data, Submissions and any other data and information sources relied upon for Benchmark determination;</li> <li>b. The exercise of Expert Judgment made by the Administrator in reaching a Benchmark determination;</li> <li>c. Other changes in or deviations from standard procedures and Methodologies, including those made during periods of market stress or disruption;</li> <li>d. The identity of each person involved in producing a Benchmark determination; and</li> <li>e. Any queries and responses relating to data inputs. 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.</li> </ul> <p>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:</p> <ul style="list-style-type: none"> <li>a. The procedures and Methodologies governing the Submission of inputs;</li> <li>b. The identity of any other person who submitted or otherwise generated any of the data or information provided to the Administrator;</li> <li>c. Names and roles of individuals responsible for Submission and Submission oversight;</li> <li>d. Relevant communications between submitting parties;</li> <li>e. Any interaction with the Administrator;</li> <li>f. Any queries received regarding data or information provided to the Administrator;</li> <li>g. Declaration of any conflicts of interests and aggregate exposures to Benchmark related instruments;</li> <li>h. Exposures of individual traders/desks to Benchmark related instruments in order to facilitate audits and investigations; and</li> <li>i. Findings of external/internal audits, when available, related to Benchmark Submission remedial actions and progress in implementing them.</li> </ul>		
<p><b>SA-18:</b> NSE Data is required to maintain written records of approval notes, minutes of meeting of the board and the BVRC, related to the review of valuation methodologies, for a period of at least five years (which is as per the requirements set out by the regulatory authorities). NSE Data started rendering valuation services to its clients in the year 2018 and has retained data since then. NSE Data also sources market data from third party data</p>	<p>Inspected the “NSE Data Retention policy” and noted that the policy detailed that NSE Data is required to maintain written records of approval notes, minutes of meeting of the board and the BVRC, related to the review of valuation methodologies, changes within the same, queries</p>	<p>No deviations noted.</p>

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p>aggregator(s) with whom it has written arrangements in place. This data and records related to it are maintained by the respective third parties and are publicly available on their websites. Further, NSE Data does not receive valuations from submitters. It may receive quotes from market participants which may be used as one of the inputs for certain valuations. NSE Data exercises quality checks on such quotes by following a maker-checker process and also reviews the quotes for identifying any outliers.</p>	<p>related to data inputs, etc. for a period of at least five years.</p> <p>For a sample security, inspected the shared drive/portal and noted the following:</p> <ul style="list-style-type: none"> <li>• Current data (such as minutes of meeting of the board and committees, approval notes, valuation methodology documents, etc.) was stored on the shared drive/ portal.</li> <li>• Erstwhile data (such as minutes of meeting of the board and committees, approval notes, valuation methodology documents, etc.) was maintained since the year 2018.</li> </ul> <p>For a sample third party data aggregator, inspected the written agreement with NSE Data, and noted that it captured details related to sourcing of data for performing valuations. Further, obtained a confirmation from NSE Data that the market data was maintained by the respective third party data aggregator(s) (who own their respective data) and that the data was publicly available on their respective websites.</p> <p>Obtained a confirmation from NSE Data that it does not receive valuations from submitters. Further, please refer Tests Performed for Principle 2 and Principle 6.</p>	

**Principle 19: Co-operation with Regulatory Authorities**

<b>IOSCO Principles, NSE Data Self-Assessment, Test Performed by EY, and Results of Tests</b>		
<b>NSE Data Self-Assessment</b>	<b>Test Performed by EY</b>	<b>Results of Tests</b>
<p><b>IOSCO Principle #19:</b>                      Relevant documents, Audit Trails, and other documents subject to these Principles shall be made readily available by the relevant parties to the relevant Regulatory Authorities in carrying out their regulatory or supervisory duties and handed over promptly upon request.</p>		
<p><b>SA-19:</b> NSE Data co-operates with the regulatory authorities and upon request provides relevant information (such as documents and audit trails) that may be available with NSE Data in order for them to carry out their regulatory and/or supervisory duties within the legal framework, as applicable. Documents and audit trails are readily available within the shared drive/ portal and/or the website.</p> <p>As on September 30, 2020, there were no such information requests from the relevant regulatory authorities in the last one year.</p>	<p>Obtained a confirmation from NSE Data that it co-operates with regulatory authorities, as and when required, by providing the relevant information (such as documents and audit trails) to them.</p> <p>For a sample security, inspected the shared drive/ portal and noted that data (such as minutes of meeting of the board and committees and approval notes) was stored within the same.</p> <p>Further, for the sampled security, inspected the NSE Data website and noted that the valuation methodology document was publicly available on the same.</p> <p>Obtained a confirmation from NSE Data that as on September 30, 2020, there were no such information requests from the relevant regulatory authorities in the last one year.</p>	<p>No deviations noted.</p>



## **Terms and Abbreviations used in the Report**

<b>Acronym</b>	<b>Full Forms</b>
AGM	Annual General Meeting
BVAC	Bond Valuation Advisory Committee
BVRC	Bond Valuation Risk Committee
CEO	Chief Executive Officer
CD	Certificate of Deposit
CP	Commercial Paper
CSR	Corporate Social Responsibility
CTCL	Computer to Computer Link
EGM	Extraordinary General Meeting
HR	Human Resources
IOSCO	International Organization of Securities Commission
KRAs	Key Result Areas
KYC	Know Your Customer
NOW	NEAT on Web
NSE	National Stock Exchange
SEBI	Securities and Exchange Board of India
SOP	Standard Operating Procedure

## Disclaimer

The entire report including each of its sections (collectively, the “Report”) has been prepared to reflect how NSE Data has applied the IOSCO Principles for financial benchmarks across its relevant fixed income valuations. EY has been selected as an independent assurance provider to fulfil the requirements of Principle 17 which requires an auditor “to periodically review and report on the Administrator’s adherence to its stated criteria and with the Principles”.

NSE Data provides this report voluntarily to demonstrate its commitment to best practices in fixed income valuation design, maintenance, and calculation.

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