

Optimal Blue Independent Reasonable Assurance Report: IOSCO Principles

Report on the suitability of the design of control activities relating to benchmark administration with respect to the IOSCO Principles for Financial Benchmarks Final Report (July 2013)

19 December 2024



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This Report is intended solely for the purpose of reporting on the compliance of Optimal Blue with IOSCO’s report published on the Principles for Financial Benchmarks (“IOSCO Principles”) 2013. This Report should be read in full.

1. Introduction

1.1 Overview

In July 2013, IOSCO issued its final report on the Principles for Financial Benchmarks (the “*IOSCO Principles*”, FR07/13) setting out the standards to which organisations that administer financial Benchmarks (as defined in the IOSCO Principles) should adhere. IOSCO’s objective was to create an overarching framework of Principles for Benchmarks used in financial markets. The final report recommended that Benchmark Administrators adopt the Principles as Recommended Practices.

“The Principles should be understood as a set of recommended practices that should be implemented by Benchmark Administrators and Submitters. The application of these Principles should be proportional to the size and risks posed by each Benchmark and/or Administrator and the Benchmark-setting process.”

1.2 Structure of this Report

This Report contains the 08 November 2024 declaration of Optimal Blue, LLC (“*Optimal Blue*” or “*OB*”) for suitably designing internal control activities in relation to the IOSCO Principles with respect to the Optimal Blue Mortgage Market Indices (OBMMI) 30-Year Fixed Rate Conforming Index.

Section 2 of this Report provides an overview of Optimal Blue’s organisation and business. Section 3 contains the statements provided by the Executive Officers of Optimal Blue. Section 4 contains the KPMG LLP (“KPMG”) Independent Assurance Report. Section 5 contains each of the IOSCO Principles, the control objectives identified by Management of Optimal Blue to meet the requirements of these principles, and the control activities designed to achieve those control objectives, alongside the work performed by KPMG.

The IOSCO Principles for Financial Benchmarks refer to “Benchmarks”. The OBMMI 30-Year Fixed Rate Conforming Index has been assessed against each of the 19 IOSCO Principles set out for Benchmarks. The term “Index” is used to describe the OBMMI 30-Year Fixed Rate Conforming Index in this Report.



2. Company Information

2.1 Overview

Optimal Blue effectively bridges the primary and secondary mortgage markets to deliver the industry's only end-to-end capital markets platform. Our company helps lenders of all sizes and scopes maximize profitability and operate efficiently so they can help American borrowers achieve the dream of homeownership. Through innovative technology, a network of interconnectivity, rich data insights, and expertise gathered over more than 20 years, Optimal Blue is an experienced partner that, in any market environment, allows lenders to optimize their advantage from pricing accuracy to margin protection, and every step in between.

Since being acquired by Constellation Software Inc. in 2023, Optimal Blue is empowered to operate as an independent entity under the holding company's ownership model. Without shareholders or quarterly financial obligations, Optimal Blue is positioned to operate with a long-term, independent view, while benefitting from best practice sharing and additional stability afforded by the parent company. Optimal Blue operates within the Andromeda portfolio of Constellation Software.

2.2 Optimal Blue's Product Range

Optimal Blue's product functionality bridges the primary and secondary markets and spans the complete mortgage life cycle – from the time an American borrower discovers what homes they can afford, to a lender considering originating a mortgage, through rate locking, counterparty oversight, pipeline hedging, securitization and trading, and on through the valuation of mortgage servicing rights and portfolio monitoring for additional lead generation opportunities.

The Optimal Blue platform's role as a conduit across the across the mortgage capital markets life cycle gives us unique access to data exhaust; data flows through pricing, risk management, loan trading, and servicing. Approximately 1 in 3 mortgages are priced and locked in the Optimal Blue Product and Pricing Engine (PPE), giving us access to broadly representative origination data.

2.3 Optimal Blue Mortgage Market Indices, 30-Year Fixed Rate Conforming Index

The Optimal Blue Mortgage Market Indices (OBMMI) provide comprehensive, accurate, and timely pricing analysis, reflecting the United States residential mortgage market. The OBMMI leverages rate lock data from market participants to deliver actionable information in an easy-to-read and user-friendly format. The OBMMI includes current and trending data for popular mortgage products, and specific borrower attributes to provide a clear and transparent trend of mortgage rates over time.

The Optimal Blue Mortgage Market Indices (OBMMI) 30-Year Fixed Rate Conforming Index is a benchmark designed to measure the average interest rates for 30-year fixed rate conforming loan mortgages in the United States.

2.4 Governance

Optimal Blue has established robust and transparent governance, oversight, and accountability procedures for the OBMMI determination process. This includes its Index Oversight Committee for the purpose of providing governance and internal oversight with respect to Optimal Blue's Index Administration activities.

Optimal Blue has established an Index Oversight Committee Terms of Reference document which outlines the roles and responsibilities of the committee to provide effective review of Optimal Blue's processes and procedures.

Additionally, Optimal Blue's Senior Leadership Team (SLT), which consists of the Chief Executive Officer (CEO), Chief Operations Officer (COO), and other senior leaders, oversees all critical aspects of the Index decision-making and approvals.



2.5 Index Technology Infrastructure

Optimal Blue follows stringent industry best practices to ensure that the technology supporting Optimal Blue's 30-Year Fixed Rate Conforming Index is dependable, secure and adheres to all relevant regulatory standards.

- **System Architecture and Design** – Optimal Blue leverages a modern, scalable platform using industry-standard technologies and cloud services through Microsoft Azure. The system design incorporates redundant technical resources as well as multiple Azure regions to ensure high availability. Scalability is supported through elastic cloud infrastructure, allowing the system to handle increased demand without performance degradation.
- **Data Security and Integrity** – Optimal Blue's data is secured through advanced encryption protocols, both at rest and in transit, using AES-256 encryption for stored data and TLS 1.2 for data in transit. We employ multi-factor authentication (MFA) and role-based access control (RBAC) to secure access to critical systems and ensure that only authorized personnel can access sensitive information. Regular data validation checks ensure the integrity and accuracy of the Index's underlying data.
- **System Availability and Uptime** – Optimal Blue has implemented modern controls and technologies to provide robust uptime for the system that the Index data is derived from, which is backed by detailed service-level agreements (SLAs). Real-time system monitoring is in place to detect any anomalies or performance issues, with alerts configured to notify the IT team of potential incidents 24x7x365. A well-defined Incident Response Plan ensures swift resolution of any system issues.
- **Compliance with Regulations and Standards** – Optimal Blue complies with relevant industry certifications, including the a robust cybersecurity framework and SOC 2, which attest to our rigorous information security management practices. Audits ensure compliance with these standards, and the Company maintains detailed audit trails to track system access and data changes.
- **Business Continuity and Disaster Recovery** – Optimal Blue has robust disaster recovery plans in place, which includes the use of multiple Azure regions as well as daily backups of all critical data. In disaster scenarios, the Recovery Point Objective (RPO) is 1 hour, and the Recovery Time Objective (RTO) is 12 hours.
- **Cybersecurity Measures** – Optimal Blue conducts regular testing/scanning to identify and address any vulnerabilities within its infrastructure. A combination of firewalls and intrusion protection systems (IPS) provide real-time protection against unauthorized access and cyber threats. Patch management processes ensure all software is routinely updated with the latest security fixes. Additionally, a modern Security Incident and Event Management (SIEM) platform is implemented to help detect any malicious security events in real time.
- **Vendor and Third-Party Management** – Optimal Blue carefully vets all third-party vendors, ensuring they meet our high security and compliance standards. Vendor relationships are governed by SLAs, ensuring that the third-party services meet performance and security requirements. Ongoing vendor audits are conducted to ensure continuous compliance.
- **Change Management** – Optimal Blue employs a change management process for updates and system modifications. All changes are logged and tracked through a ticketing system, and comprehensive testing is conducted in a staging environment before changes are deployed to production to ensure that updates do not introduce new vulnerabilities or operational issues.

2.6 Index Determination Process

Optimal Blue collects rate lock data from its Product and Pricing Engine (PPE) platform, which currently captures roughly one-third of all residential mortgage transactions in the United States. This data includes all variables relevant for determining pricing and eligibility for a given loan scenario as well as loan product details such as interest rate, loan type, loan amount, credit score, and loan-to-value ratio.

Rate locks included in the daily OBMMI 30-Year Fixed Rate Conforming Index determination are collected from the PPE between 12:00am and 11:59pm Central Time (CT) on the previous non-holiday business day.



Extreme values that could distort the index are identified and removed using statistical techniques. The data is further filtered to include only loans that meet the conforming loan limits established by the Federal Housing Finance Agency (FHFA). Furthermore, to increase the homogeneity of the rates in the Index, a consistent set of variables representing the most common lock scenarios is used to ensure that the Index accurately reflects the conforming loan mortgage market.

The Index is calculated by computing the simple average interest rate from the filtered rate lock data, where each rate lock contributes equally to the average.

The Index is published in the morning from Tuesday to Saturday, typically before 7am (CT), based on the rate locks from the previous non-holiday business day. The Index is not published for Saturday or Sunday or holidays listed on the Optimal Blue website.

The Index is disseminated through the Optimal Blue website, data vendors, and other designated channels. Historical Index data is also available on the Optimal Blue website.

3. Optimal Blue Executive Statement

As Management of Optimal Blue, LLC (“Optimal Blue” or “OB”) we are, and shall be, responsible for identifying controls objectives in relation to the provision of benchmark administration activities for the Optimal Blue Mortgage Market Indices (OBMMI) 30-Year Fixed Rate Conforming Index and the design, implementation and operation of Optimal Blue’s control activities to provide reasonable assurance that the control objectives in relation to the Principles for Financial Benchmarks published by the International Organization of Securities Commissions dated July 2013 (the “IOSCO Principles” or “the Principles”) are achieved.

We confirm that Optimal Blue has designed and implemented control activities to provide reasonable assurance that the control objectives in relation to the IOSCO Principles for the Optimal Blue Mortgage Market Indices (OBMMI) 30-Year Fixed Rate Conforming Index were achieved as at 08 November 2024.

We have prepared the accompanying description in Section 5 (the “Description”) to set out the details of the IOSCO Principles together with Optimal Blue’s benchmark administration activities for the OBMMI 30-Year Fixed Rate Conforming Index as at 08 November 2024, and the control activities that were designed and implemented to provide reasonable assurance that the control objectives in relation to the IOSCO Principles for the OBMMI 30-Year Fixed Rate Conforming Index were achieved as at 08 November 2024.

The Description was prepared given the requirement in the IOSCO Principles that Benchmark Administrators should publicly disclose the extent of their compliance with the IOSCO Principles annually and that, if implementation in any way deviates from the IOSCO Principles, the Administrators should explain why they believe it meets the objectives and functions of the IOSCO Principles, including the extent to which they are relying on a proportionate view of the IOSCO Principles (as that concept is described and permitted within the IOSCO Principles).

The Description has been prepared for stakeholders who have a sufficient understanding to consider the Description.

Statement of Compliance

We confirm that, to the best of our knowledge and belief, the accompanying description ‘IOSCO Principles and Responses’ in Section 5 is fairly presented in that it presents the policies, procedures and controls undertaken by Optimal Blue as at 08 November 2024 to achieve compliance with the IOSCO Principles. Where we have applied a proportionate approach (as described and permitted by the IOSCO Principles), it has been articulated against each relevant IOSCO Principle within Section 5 of this report. The Statement of Compliance comprises this affirmation statement in Section 3, and the accompanying description ‘IOSCO Principles and Control Responses’ set out in Section 5.

Criteria

We confirm that:

- 1) The accompanying Description, set out in Section 5, fairly presents Optimal Blue’s benchmark administration activities for the OBMMI 30-Year Fixed Rate Conforming Index as at 08 November 2024. The criteria used in making this statement were that the accompanying Description:
 - a. Presents how the processes and systems were designed and implemented, including, if applicable:
 - The type of benchmark administered, and as appropriate, the nature of those benchmarks;
 - The procedures, both automated and manual, by which the input data is gathered and processed, and the benchmark is calculated, published, corrected (as necessary) and administered;
 - Relevant control objectives and control activities designed to achieve those control objectives; and
 - Other aspects of our control system, risk assessment process, control activities and monitoring control activities that were relevant to administering the benchmark.
 - b. Does not omit or distort the information relevant to the described scope of the benchmark administration activities being described, while acknowledging that the Description is prepared to meet the needs of a broad range of stakeholders and may not, therefore, include every element



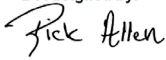
of the services that each individual stakeholder may consider important in its own particular environment.

2) The control activities related to the control objectives stated in the accompanying Description were suitably designed as at 08 November 2024 to achieve those control objectives if the described control activities operated effectively as at 08 November 2024. The criteria used in making this statement were that:

- The risks that threatened achievement of the control objectives stated in the Description were identified; and
- The identified control activities would, if operated as described, provide reasonable assurance that those risks did not prevent the control objectives stated in the Description from being achieved.

We acknowledge our responsibility for establishing appropriate internal controls to ensure continued compliance with the IOSCO Principles.

Yours Faithfully,

DocuSigned by:


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Rick Allen, Chief Operating Officer

Signed on Behalf of Optimal Blue, LLC



4. KPMG Independent Assurance Report

Independent Practitioner’s Reasonable Assurance Report to Optimal Blue, LLC in respect of internal control activities over the benchmark administration activities for the Optimal Blue Mortgage Market Indices 30-Year Fixed Rate Conforming Index in relation to the IOSCO Principles for Financial Benchmarks

Scope

In accordance with our engagement letter dated 24 July 2024 and our subsequent variation letter dated 19 December 2024 (together our “Engagement Letter”), we have been engaged to report to Optimal Blue, LLC (“Optimal Blue” or “OB”) and carried out procedures to enable us to form an independent opinion on whether OB has fairly described, in all material respects, its control system over the benchmark administration activities for the Optimal Blue Mortgage Market Indices (“OBMMI”) 30-Year Fixed Rate Conforming Index as at 08 November 2024 in the accompanying description set out on pages 12 to 74, Section 5 (the “Description”) and on the suitability of the design of control activities to achieve the related control objectives stated in the Description, based on the criteria identified in the Optimal Blue Executive Statement in Section 3. Our opinion is set out below and should be read and considered in conjunction with this report in full.

The scope of our engagement covers the control objectives and control activities applicable to the benchmark administration activities for the OBMMI 30-Year Fixed Rate Conforming Index determined by OB.

While the control activities and related control objectives may be informed by OB’s need to satisfy legal or regulatory requirements and the *Principles for Financial Benchmarks Final Report by the Board of the International Organization of Securities Commissions (IOSCO) published in July 2013* (the “IOSCO Principles”), our scope of work and our opinions do not constitute assurance over compliance with those laws and regulations or the IOSCO Principles.

Use of Our Report

Our report and the description of tests of control activities has been prepared for OB solely in accordance with the terms of our Engagement Letter. We have consented to publication of our report on www2.optimalblue.com for the purpose of OB showing that it has obtained an independent assurance report in connection with its control system over the benchmark administration activities for the OBMMI 30-Year Fixed Rate Conforming Index.

Our report was designed to meet the agreed requirements of OB determined by OB’s needs at the time. Our report should not therefore be regarded as suitable to be used or relied on by any party wishing to acquire rights against us other than OB for any purpose or in any context. Any party other than OB who obtains access to our report or a copy and chooses to rely on our report (or any part of it) will do so at its own risk. To the fullest extent permitted by law, KPMG LLP will accept no responsibility or liability in respect of our report to any other party.

Management’s Responsibilities

In this report, references to Optimal Blue’s management or Management means the Executive Officers of Optimal Blue, LLC and those employees to whom the Executive Officers of Optimal Blue have properly delegated day-to-day conduct over matters for which the Executive Officers of Optimal Blue retain ultimate responsibility.

Management is responsible for ensuring that Optimal Blue complies with the IOSCO Principles. This includes having responsibility for specifying the control objectives which they assert achieve compliance with the IOSCO Principles and designing, implementing and monitoring compliance with policies, procedures and control activities to achieve those control objectives. Management are also responsible for: (i) preparing the Description in Section 5 and the accompanying Optimal Blue Executive Statement set out in Section 3, including the completeness, accuracy, and method of presentation of the Description and the Optimal Blue Executive Statement; (ii) providing the benchmark administration activities for the OBMMI 30-Year Fixed Rate Conforming Index covered by the Description; (iii) selecting the criteria to be used and stating them in the Optimal Blue Executive Statement; (iv) specifying the control objectives and stating them in the Description; (v) identifying the risks that threaten the achievement of the control objectives; and (vi) designing, implementing



and documenting control activities that are suitably designed and operating effectively to achieve the related control objectives stated in the Description.

Our Responsibilities

Our responsibility, based on the procedures performed and evidence obtained, is to express an independent opinion on the fairness of the presentation of the Description and on the suitability of the design of the control activities to achieve the related control objectives stated in the Description. The criteria we used to form our judgements are the criteria used by Management in making the Optimal Blue Executive Statement and are set out in 3.

We conducted our engagement in accordance with International Standard on Assurance Engagements (UK) 3000 *Assurance Engagements Other Than Audits or Reviews of Historical Financial Information* ("ISAE (UK) 3000") issued by the Financial Reporting Council ("FRC") and having regard to the guidance in the Institute of Chartered Accountants in England and Wales ("ICAEW") Technical Release 02/14 *FSF Assurance Reports on Benchmarks and Indices* ("TECH 02/14"). That standard and guidance requires us to comply with ethical requirements and to plan and perform our procedures to obtain reasonable assurance about whether, in all material respects, based on the criteria described in the Optimal Blue Executive Statement in 3, the Description is fairly presented, and the control activities were suitably designed to achieve the related control objectives stated in the Description.

Our assurance engagement to report on the Description and design of control activities at Optimal Blue involved:

- performing procedures to obtain evidence about the fairness of the presentation of the Description of the benchmark administration activities for the OBMMI 30-Year Fixed Rate Conforming Index and the suitability of the design of the control activities to achieve the related control objectives stated in the Description;
- assessing the risks that the Description is not fairly presented and that the control activities were not suitably designed to achieve the related control objectives stated in the Description;
- evaluating the overall presentation of the Description, the suitability of the control objectives stated therein, and the suitability of the criteria specified by Optimal Blue and described in the Optimal Blue Executive Statement in section 3; and
- performing such other procedures as we considered necessary in the circumstances.

We did not perform any procedures regarding the operating effectiveness of control activities included in the Description and, accordingly, do not express an opinion thereon.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our Independence and Quality Management

We have complied with the ICAEW Code of Ethics, which includes independence, and other ethical requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour, that are at least as demanding as the applicable provisions of the International Ethics Standards Board for Accountants' ("IESBA") *International Code of Ethics for Professional Accountants (including International Independence Standards)*.

Our firm applies International Standard on Quality Management (UK) 1 *Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements* ("ISQM (UK) 1"), issued by the FRC, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Inherent Limitations of Control Activities

The Description is prepared to meet the common needs of a broad range of stakeholders and may not, therefore, include every aspect of Optimal Blue's benchmark administration activities for the OBMMI 30-Year Fixed Rate Conforming Index that each individual stakeholder may consider important in its own particular environment. Also, because of their nature, control activities at a benchmark administrator may not prevent or detect and correct all errors or omissions in processing or administering indices. Such control activities cannot guarantee protection against (among other things) fraudulent collusion especially on the part of those holding positions of authority or trust.

Management is responsible for ensuring that Optimal Blue complies with the IOSCO Principles and so have specified control objectives which they assert, in the Optimal Blue Executive Statement in Section 3, achieve compliance with the IOSCO Principles. Whilst we perform procedures to test whether the control activities are



suitably designed to achieve the related control objectives stated in the Description, we provide no assurance over whether Management's specified control objectives achieve compliance with the IOSCO Principles.

The validity and reliability of a benchmark is dependent on input data utilised by the benchmark administrators. Third parties providing this input data are solely responsible for the completeness, accuracy, and integrity of this input data. Our procedures did not extend to control activities at third parties inputting loan data onto the Optimal Blue Product and Pricing Engine, and we have not evaluated the suitability of the design or operating effectiveness of control activities at such third party input data providers. As a result, we do not express assurance over the third party input data.

Our opinion is based on historical information and the projection to the future of any evaluation of the fairness of the presentation of the Description, or the suitability of the design of the control activities to achieve the related control objectives is subject to the risk that control activities at a benchmark administrator may become ineffective.

Opinion

Our opinion has been formed on the basis of the matters outlined in this report. The criteria we used in forming our opinion are those described in the Optimal Blue Executive Statement in Section 3, which were designed by Management in context of the requirements of the IOSCO Principles.

In our opinion, in all material respects:

- The Description in Section 5 fairly presents Optimal Blue's control system over the benchmark administration activities for the OBMMI 30-Year Fixed Rate Conforming Index as designed and implemented as at 08 November 2024; and
- the control activities related to the control objectives stated in the Description in Section 5 were suitably designed to provide reasonable, but not absolute, assurance that the specified control objectives would be achieved if the described control activities operated effectively as at 08 November 2024.

Signed by:
KPMG LLP
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United Kingdom

23 December 2024



5. IOSCO Principles and Control Responses

Optimal Blue is an administrator of Optimal Blue Mortgage Market Indices 30-Year Fixed Rate Conforming Index (the “Index”). Optimal Blue has defined and implemented a governance and oversight framework that covers the design, implementation and calculation of its indices. The framework includes committees, policies, procedures and controls.

The tables below in this section include the IOSCO Principles’ requirements, set out the related control objectives specified by OB together with the related control activities and KPMG’s test procedures and associated results. The OB responses and KPMG work performed in Section 5 of this Report relate to the Index only.

Description of tests performed by KPMG LLP

Test performed in connection with determining the design of control activities as detailed in this section are described below:

Test Procedure	Description
Enquiry	Enquire of appropriate OB personnel. Enquiries were used to obtain, among other things, knowledge, and additional information about the control.
Inspection	Read documents and reports that contain an indication of performance of the control. This includes, among other things, examining management reports, operational logs, and other relevant documentation.
Observation	Observe the application of a specific control.

KPMG’s tests of design may identify exceptions in control activities. KPMG evaluate whether those control activities exceptions are material, i.e., are such that the related control objective is not achieved and so whether their opinion should be qualified. This evaluation may include assessing the materiality of individual exceptions in control activities in the context of the related control objective as a whole, and considering whether there are compensating control activities and aggregating exceptions in all control activities related to the same control objectives



IOSCO Principle	Optimal Blue Response Control Objectives and Controls	Work performed by KPMG
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1. Overall responsibility of the Administrator

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

- a) Development: The definition of the Benchmark and Benchmark Methodology;

Control Objective
To provide reasonable assurance that Optimal Blue maintains primary responsibility across all aspects of their benchmark determination process, including the definition and methodology of their benchmark.

Response
The *30-Year Fixed Rate Conforming Index Methodology* is updated and authored by the Director of Data Solutions.
The *Index Administrator Handbook* is updated and authored by the Director of Risk Management.

Controls
The *30-Year Fixed Rate Conforming Index Methodology* and the *Index Administrator Handbook* are reviewed by the Index Oversight Committee (IOC) and approved by the Chief Operating Officer (COO) at least annually.

Test Procedures

- 1) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that it is updated and authored by the Director of Data Solutions.
- 2) Obtained the *Index Administrator Handbook* and inspected for evidence that it is updated and authored by the Director of Risk Management.
- 3) Obtained the *Index Administrator Handbook* and inspected for evidence that it sets out OB's responsibilities as the Benchmark administrator for OBMMI.
- 4) Obtained the meeting minutes of the Index Oversight Committee (IOC) and inspected for evidence that the methodology was reviewed by the IOC at least annually.
- 5) Obtained the meeting minutes of the IOC and inspected for evidence that the document was reviewed by the IOC at least annually.
- 6) Obtained approval email by the COO and inspected for evidence that the *30-Year Fixed Rate Conforming Index Methodology* and *Index Administrator Handbook* were approved by the COO at least annually.

Test Results
No exceptions noted.



IOSCO Principle	Optimal Blue Response Control Objectives and Controls	Work performed by KPMG
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b) Determination and Dissemination: Accurate and timely compilation and publication and distribution of the Benchmark

Control Objective
To provide reasonable assurance that Optimal Blue maintains primary responsibility of the accurate and timely compilation, publication, and distribution of their benchmark.

Response
The *Index Administrator Handbook* states that OB is the sole entity responsible for the Index’s development, determination, dissemination, and day-to-day management.

Controls
The Index Administrator Handbook is reviewed by the Index Oversight Committee (IOC) and approved by the COO at least annually to ensure that it includes the elements in OB’s response.

Test Procedures
1) Obtained the *Index Administrator Handbook* and inspected for evidence that it sets out OB’s responsibilities for OBMMI’s development, determination, dissemination, and day-to-day management.

2) Please see Principle 1(a) for test results for review and approval of the *Index Administrator Handbook*.

Test Results
No exceptions noted.



IOSCO Principle	Optimal Blue Response Control Objectives and Controls	Work performed by KPMG
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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

Control Objective

To provide reasonable assurance that Optimal Blue maintains primary responsibility of the operations of their benchmark, including:

- Transparency of decisions affecting their benchmark compilation and determination process;
- Contingency measures if inputs are absent or inefficient;
- Market stress or disruption;
- Failure of critical infrastructure; or
- Other relevant factors.

Response

OB retains the management responsibility of the Index operation and compilation, including significant decisions related to the determination of the Index.

Please refer to Principle 9 for further details of transparency of benchmark determination.

Controls

The Index Administrator Handbook is reviewed by the Index Oversight Committee (IOC) and approved by the COO at least annually to ensure that it includes the elements in OB's response.

Please refer to Principle 9 for further details of transparency of benchmark determination.

Test Procedures

- 1) Obtained the *Index Administrator Handbook* and inspected for evidence that it sets out OB's management responsibility for the Index operation and compilation.
- 2) Please see Principle 1(a) for test results for review and approval of the *Index Administrator Handbook*.

Please refer to Principle 9 for further details of transparency of benchmark determination.

Test Results

No exceptions noted.



IOSCO Principle	Optimal Blue Response Control Objectives and Controls	Work performed by KPMG
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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

Control Objective
 To provide reasonable assurance that Optimal Blue maintains primary responsibility of the governance of their benchmark, including:

- Establishing credible and transparent governance;
- Maintaining oversight and accountability procedures for their benchmark determination process; and
- Having an identifiable oversight function that is accountable for developing, issuing, and operating the benchmark.

Responses
 OB retains the management responsibility for the governance of the Index. Please refer to Principle 5 for further details of internal oversight function.

Controls
 The Index Administrator Handbook is reviewed by the Index Oversight Committee (IOC) and approved by the COO at least annually to ensure that it includes the elements in OB's response.
 Please refer to Principle 5 for further details of internal oversight function.

Test Procedures

- 1) Obtained the *Index Administrator Handbook* and inspected for evidence that it sets out OB's management responsibility for the Index governance.
- 2) Please see Principle 1(a) for test results on review and approval of the *Index Administrator Handbook*.

Please refer to Principle 5 for further details of internal oversight function.

Test Results
 No exceptions noted.

2. Oversight of third parties

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	N/A - IOSCO text is introductory, with no explicit requirements
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IOSCO Principle	Optimal Blue Response Control Objectives and Controls	Work performed by KPMG
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function) should consider adopting policies and procedures that:		
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a) Clearly define and substantiate through appropriate written arrangements the roles and obligations of third parties who participate in the Benchmark determination process, as well as the standards the Administrator expects these third parties to comply with;

b) Monitor third parties' compliance with the standards set out by the Administrator

c) Make Available to Stakeholders and any relevant Regulatory Authority the identity and roles of third parties who participate in the Benchmark determination process; and

d) Take reasonable steps, including contingency plans, to avoid undue operational risk related to the participation of third parties in the Benchmark determination process.

Control Objective
To provide reasonable assurance that when a third party undertakes activities relating to their benchmark determination process (e.g., collecting input data, publication, or acting as a calculation agent), Optimal Blue should maintain appropriate oversight through policies and procedures that:

- Clearly define written arrangements outlining the roles and obligations of third parties participating in the benchmark determination process, including the standards they are expected to comply with;
- Monitor the third parties' compliance with Optimal Blue's standards;
- Define the identities and roles of these third parties to stakeholders and relevant Regulatory Authorities; and
- Include reasonable steps (e.g., contingency plans) to avoid undue operational risk from the participation of these third parties.

Response
The *Index Administrator Handbook* states that "Optimal Blue adheres to the requirements outlined in the Optimal Blue *Third-Party Risk Management Policy* for all third-party engagements. Although Optimal Blue relies on third-party software to collect data needed to calculate the Index, no third parties are involved in determining the Index calculation, methodology, or reporting. Optimal Blue reevaluates the Index process annually to determine if any new third parties are used to ensure proper oversight is enforced."

OB maintains a *Third-Party Risk Management Policy* which details OB's control framework over third parties. This

Test Procedures

- 1) Obtained the *Third-Party Risk Management Policy* and inspected for evidence that it contains the elements described in OB's response.
- 2) Obtained the *Index Administrator Handbook* and inspected for evidence that it states that no third parties are involved in determining the index calculation, methodology, or reporting.
- 3) Obtained the *Index Administrator Handbook* and inspected for evidence that it requires OB to adhere to the *Third-Party Risk Management Policy*.
- 4) Obtained the Index Oversight Committee (IOC) minutes and inspected for evidence that the index process is reevaluated annually to determine if any new third parties are used.
- 5) Obtained the OB *Third-Party Risk Management Policy* and inspected for evidence that the document was reviewed and approved by the CIO at least annually.

Test Results
No exceptions noted.



IOSCO Principle	Optimal Blue Response Control Objectives and Controls	Work performed by KPMG
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includes planning, risk assessment, due diligence, periodic risk assessments, ongoing monitoring, contractual standards, termination, and system of record.

Controls

The *Third-Party Risk Management Policy* is updated and authored by the Director of Risk Management. The document is reviewed and approved by Chief Information Officer (CIO) at least annually.

Optimal Blue reevaluates the Index process annually to determine if any new third parties are used to ensure proper oversight is enforced.”

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.

3. Conflicts of Interests for Administrators

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

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

- a) Existing or potential conflicts of interest do not inappropriately influence Benchmark determinations

Control Objective

To provide reasonable assurance that Optimal Blue protects the integrity and independence of their benchmark determination by documenting, implementing, and enforcing policies and procedures for the identification, disclosure, management, mitigation or avoidance of conflicts of interest. These policies should be reviewed and updated as appropriate.

To provide reasonable assurance that Optimal Blue discloses material conflicts of interest to their users and relevant Regulatory Authority, and that the framework is tailored to the degree of potential or existing conflicts of interest and the risk their benchmark poses and should

Test Procedures

- 1) Obtained the *Index Administrator Handbook* and inspected for evidence that it sets out the controls over conflicts of interest, including the elements described in OB’s response.
- 2) For a sample of individuals associated with the Index, obtained their disclosure of any potential conflicts of interest and inspected for evidence that they had disclosed all potential conflicts of interest to the relevant person(s) as soon as they are identified.
- 3) For a sample of individuals associated with the Index, obtained their attestation to the *Conflicts of Interest Attestation* and inspected for evidence that they have attested to the *Conflicts of Interest Attestation* at least annually.



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ensure that potential or existing conflicts do not inappropriately influence their benchmark determinations.

Response

The *Index Administrator Handbook* sets out OB's expectations over the management of conflicts of interest, including the identification, management, documentation, and prohibited activities of Optimal Blue employees due to potential conflicts of interest.

Controls

OB requires all individuals associated with the Index (OB employees involved with OBMMI determination and members of the IOC) to disclose any potential conflicts of interest, including any personal or professional relationships that could influence their judgement regarding the Index.

All potential conflicts of interest should be reported to OB's Whistleblowing service, Human Resource Manager, Senior Leadership Team (SLT), or Index Oversight Committee (IOC) immediately.

For all OB employees who have responsibilities related to the OBMMI 30-Year Fixed Rate Conforming Index process, they must attest to the *Conflicts of Interest Attestation* at least annually.

Please refer to response to Principle 3(f) for OB employees' attestations to their compliance with the *Code of Conduct*.

4) Please refer to response to Principle 3(f) for OB employees' attestations to their compliance with the *Code of Conduct*.

Test Results

No exceptions noted except for:

Conflicts of Interest Attestation

OB requires all employees with responsibilities related to the OBMMI 30-Year Fixed Rate Conforming Index process to attest to the Conflicts of Interest Attestation at least annually.

As of the date of assurance, the Conflicts of Interest Attestation was scheduled for 12 December 2024.

b) Personal interests and connections or business connections do not compromise the Administrator's performance of its functions;

Control Objective

To provide reasonable assurance that Optimal Blue's conflicts of interest framework ensures personal interests and connections or business connections do not compromise the performance of their functions.

Response

Please refer to response to Principle 3(a).



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Please refer to response to Principle 3(a).

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;

Control Objective

To provide reasonable assurance that Optimal Blue’s conflicts of interest framework ensures the segregation of reporting lines to clearly define different responsibilities and prevent unnecessary or undisclosed conflicts.

Response

The *OB Information Security Policy* requires OB to separate assignment of duties of employees to reduce the potential for abuse of authorised privileges and reduce the risk of malicious activity.

The *Index Administrator Handbook* sets out further segregation of duties related to the Index. A list of prohibited activities is detailed in the *Handbook* for specific teams within OB.

In particular, Software Engineering Team employees who are responsible for developing and maintaining the code used to collect and report on Index data, and Product Management Team employees who are responsible for managing Index changes must not:

- Share non-public Index-related information with Hedging and Trading Client Services Team employees responsible for conducting trades on behalf of Optimal Blue hedging clients, including pre-release Index data, methodology changes under consideration, confidential data associated with the Index, testing results, and upcoming product launches;
- Implement any Index changes outside of Optimal Blue’s current SDLC requirements; and
- Be a member of the IOC.

Test Procedures

- 1) Obtained the *OB Information Security Policy* and inspected for evidence that it documents the requirements for OB to separate assignment of duties of employees.
- 2) Obtained the *OB Information Security Policy* and inspected for evidence that the policy was reviewed and approved by the CIO at least annually.
- 3) Obtained the *Index Administrator Handbook* and inspected for evidence that a list of prohibited activities is detailed in the *Handbook* for specific teams within OB.
- 4) Obtained the list of users with access to OBMMI production environment and inspected for evidence that, for a selection of OB employees not associated with the OBMMI determination process, including those in the OB Hedging and Trading Client Services Team, they do not have access the OBMMI production environment.
- 5) Please see Principle 1(a) for test results on review and approval of the *Index Administrator Handbook*.

Test Results

No exceptions noted



IOSCO Principle

Optimal Blue Response

Work performed by KPMG

Control Objectives and Controls

Hedging and Trading Client Services Team employees responsible for conducting trades on behalf of OB's clients must not:

- Encourage or attempt to influence clients to trade in Optimal Blue's Index solely for Optimal Blue's benefit;
- Request non-public Index-related information from Software Engineering Team employees who are responsible for developing and maintaining the code used to collect and report on Index data, and Product Management Team employees who are responsible for managing Index changes, including pre-release Index data, methodology changes under consideration, confidential data associated with the Index, testing results, and upcoming product launches;
- Participate in any meetings where Index-related processes and methodology changes are discussed; and
- Be a member of the IOC.

Controls

The *Information Security Policy* is authored and updated by the Director of Enterprise Security. The document is reviewed and approved by the Chief Information Officer (CIO) at least annually to ensure that it sets out the requirements for OB to separate assignment of duties to employees.

The Index Administrator Handbook is reviewed by the Index Oversight Committee (IOC) and approved by the COO at least annually to ensure that it details the lists of prohibited activities for the Software Engineering Team, Product Management Team, and the Hedging and Trading Client Services Team.



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d) Adequate supervision and sign-off by authorised or qualified employees prior to releasing Benchmark determinations;

Control Objective

To provide reasonable assurance that Optimal Blue’s conflicts of interest framework ensures adequate supervision and sign-off by authorised employees prior to publishing their benchmark determinations.

Response

The OBMMI 30-Year Conforming Index determination process is automatic in nature with no manual input. Controls are in place for the Index’s input data and training is in place for relevant OB employees to ensure that they are qualified for their roles associated with the determination of the Index.

The *30-Year Fixed Rate Conforming Index Methodology* states that “Given the rules-based nature of the methodology, the daily calculation of the OBMMI Index does not require expert judgment. However, expert judgment may be applied in the following situations:

- When data is incomplete or insufficient.
- During unusual market conditions that may not be adequately captured by the usual data collection and calculation methods.

Controls

Documentation of the use of expert judgment includes the reasons for its application and the potential impact on the Index Value. All instances of expert judgment are published via the Optimal Blue Website and reviewed by the Index Oversight Committee.”

The *30-Year Fixed Rate Conforming Index Methodology* is reviewed by the Index Oversight Committee (IOC) and approved by the COO at least annually to ensure that it details the automated nature of the Index determination and guideline for Expert Judgement.

Test Procedures

- 1) On the date of the review, if Expert Judgement was involved in the Index’s determination, obtained the documentation of the use of Expert Judgement and inspected for evidence that it includes the reasons for its application and the potential impact on the Index Value.
- 2) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that it sets out the automated nature of the Index determination and guideline for Expert Judgement.
- 3) Please see Principle 7 for controls on input data for the Index’s determination.
- 4) Please see Principle 4(d) for the provision of training to relevant OB employees.
- 5) Please see Principle 1(a) for review and approval on the *30-Year Fixed Rate Conforming Index Methodology*.

Test Results

No exceptions noted.



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Please see Principle 7 for controls in input data for the Index's determination.

Please see Principle 4(d) for the provision of training to relevant OB employees.

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;

Control Objective

To provide reasonable assurance that Optimal Blue's conflicts of interest framework ensures confidentiality of data, information, and other inputs submitted to, received by, or produced by Optimal Blue (subject to their disclosure obligations).

Response

The *OB Information Security Policy* sets out the key objectives of the policy, which includes "to protect and maintain the confidentiality, integrity, and availability of information and related infrastructure assets."

The policy sets out restrictions on disclosure of confidential data outside of OB without prior approval, and the copy, use, or transfer of proprietary materials or confidential information without appropriate authorisation.

The policy also sets out the controls in place to ensure the confidentiality of data and information (encryption requirements, clean desk requirements, data backups requirements, data loss prevention, and vulnerability management).

Controls

The *Information Security Policy* is authored and updated by the Director of Enterprise Security. The document is reviewed and approved by the Chief Information Officer (CIO) at least annually to ensure that it sets out the key objectives of the policy, restrictions on disclosure of

Test Procedures

- 1) Obtained the *OB Information Security Policy* and inspected for evidence that it sets out the key objectives of the policy, restrictions on disclosure of confidential data outside of OB, and controls in place to ensure the confidentiality of data and information.
- 2) Please refer to Principle 3(c) for controls on the confidentiality of data, information, and other inputs submitted to, received by, or produced by OB.

Test Results

No exceptions noted.



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confidential data outside of OB, and controls in place to ensure the confidentiality of data and information.

Please refer to Principle 3(c) for controls on the confidentiality of data, information, and other inputs submitted to, received by, or produced by OB.

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

Control Objective

To provide reasonable assurance that Optimal Blue’s conflicts of interest framework ensures effective procedures to control information exchange between staff and third parties (where that information may affect benchmark determinations).

Response

The *Information Security Policy* sets out OB’s control framework on the exchange of information amongst staff and between staff and third parties.

The *Index Administrator Handbook* states that "OB employees and IOC members involved in the index are prohibited from engaging in activities that could compromise its integrity."

Moreover, the *Index Administrator Handbook* also requires employees whose job responsibilities involve collecting data for and reporting on the index to protect confidential and material non-public information related to the Index.

All OB employees must adhere to the requirements outlined within the *Code of Conduct* ("*Perseus Code of Conduct*" or "*Optimal Blue Code of Conduct*"), which sets out "OB’s commitment to conducting business professionally and ethically and specifically addressing the following:

- Compliance with laws, including financial reporting, insider trading, protection of personal information, and anti-bribery and anti-corruption

Test Procedures

- 1) Obtained the *Information Security Policy* and inspected for evidence that it sets out OB’s control framework on the exchange of information amongst staff and between staff and third parties.
- 2) Obtained the *Index Administrator Handbook* and inspected for evidence that it includes the prohibition from engaging in activities that could compromise its integrity for OB employees and IOC members involved in the index.
- 3) Obtained the *Index Administrator Handbook* and inspected for evidence that it requires employees whose job responsibilities involve collecting data for and reporting on the index to protect confidential and material non-public information related to the Index.
- 4) For a selection of OB employees, obtained the record of their *Code of Conduct* attestations on OB’s HR portal and inspected for evidence that the employees had attested at least annually.
- 5) Please see Principle 3(c) for review and approval of the *Information Security Policy*.
- 6) Please see Principle 1(a) for review and approval of the *Index Administrator Handbook*.

Test Results

No exceptions noted.



IOSCO Principle	Optimal Blue Response Control Objectives and Controls	Work performed by KPMG
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- Conflicts of Interest
- Use of Company Property
- Fair Competition
- Reporting Violations of the Code
- Disciplinary Action Related to the Code

All employees who know of a potential, suspected, or known violation of the Code are obligated to report this information. They can do so directly to Optimal Blue's Senior Leadership Team (SLT), Human Resources Manager, or through our Whistleblower service. Optimal Blue does not permit retaliation against good faith reports of violations or other illegal or unethical conduct."

Controls

All OB employees must attest to their compliance with the OB *Code of Conduct* at least annually. A record of attestations is stored in OB's HR portal.

The *Information Security Policy* is authored and updated by the Director of Enterprise Security. The document is reviewed and approved by the Chief Information Officer (CIO) at least annually to ensure that

The Index Administrator Handbook is reviewed by the Index Oversight Committee (IOC) and approved by the COO at least annually to ensure that it details the lists of prohibited activities for the Software Engineering Team, Product Management Team, and the Hedging and Trading Client Services Team.

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

Control Objective

To provide reasonable assurance that Optimal Blue's conflicts of interest framework ensures adequate remuneration policies for staff who participate in their

Test Procedures

1) Obtained the *Index Administrator Handbook* and inspected for evidence that it includes the requirement for OB to not reward or incentivise directly or indirectly, any Optimal Blue employee



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	<p>benchmark determination such that they are not directly or indirectly rewarded/incentivised by benchmark levels.</p> <p>Response</p> <p>The <i>Index Administrator Handbook</i> states that “Optimal Blue must not reward or incentivize either directly or indirectly, any Optimal Blue employee responsible for determining, calculating, or maintaining the Index based on the performance of the Index.”</p> <p>Controls</p> <p>The <i>Index Administrator Handbook</i> is reviewed by the Index Oversight Committee (IOC) and approved by the COO at least annually to ensure that it includes the requirement for OB to not reward or incentivise directly or indirectly, any Optimal Blue employee responsible for determining, calculating, or maintaining the Index based on the performance of the Index.</p>	<p>responsible for determining, calculating, or maintaining the Index based on the performance of the Index.</p> <p>2) Please see Principle 1(a) for review and approval of the Index Administrator Handbook.</p> <p>Test Results</p> <p>No exceptions noted.</p>
<p>An Administrator’s conflict of interest framework should seek to mitigate existing or potential conflicts created by its ownership structure or control, or due to other interests the Administrator’s staff or wider group may have in relation to Benchmark determinations. To this end, the framework should:</p>	<p>N/A - IOSCO text is introductory, with no explicit requirements</p>	
<p>a) Include measures to avoid, mitigate or disclose conflicts of interest that may exist between its Benchmark determination business (including all staff who perform or otherwise participate in Benchmark production responsibilities), and any other business of the Administrator or any of its affiliates; and</p> <p>b) Provide that an Administrator discloses conflicts of interest arising from the ownership structure or the control of the Administrator to its Stakeholders and any relevant Regulatory Authority in a timely manner.</p>	<p>Control Objective</p> <p>To provide reasonable assurance that Optimal Blue’s conflicts of interest framework aims to mitigate existing/potential conflicts due to their ownership structure, or due to other interest their staff or wider group may have with respect to the benchmark determinations. Optimal Blue’s framework should:</p> <ul style="list-style-type: none"> • Include ways to avoid, mitigate, or disclose conflicts that may exist between their benchmark 	<p>Test Procedures</p> <p>1) Obtained the <i>Index Administrator Handbook</i> and inspected for evidence that it details OB’s approach to avoid, mitigate, or disclose conflicts of interest at its entity level.</p> <p>2) Please see Principle 1(a) for review and approval of the <i>Index Administrator Handbook</i>.</p>



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Control Objectives and Controls

- determination business and any other business they (or their affiliates) have; and
- Provide that they disclose conflicts arising from their ownership structure or control to stakeholders and relevant Regulatory Authorities in a timely fashion.

Test Results

No exceptions noted.

Responses

The *Index Administrator Handbook* states that “Optimal Blue considers all current and future processes across the Company, including those not related to the Index, to ensure there are no conflicts of interest impacting the provision of the Index. If conflicts are present, they are mitigated and disclosed.”

Controls

The *Index Administrator Handbook* is reviewed by the Index Oversight Committee (IOC) and approved by the COO at least annually.

4. Control Framework for Administrators

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:

Control Objective

To provide reasonable assurance that Optimal Blue implements a control framework for determining and distributing their benchmark. The framework should be tailored to the materiality of potential/existing conflicts of interest identified and the extent of usage of discretion in their benchmark setting process and nature of inputs and outputs.

To provide reasonable assurance that Optimal Blue’s control framework is made readily available to the relevant Regulatory Authorities, with a summary of key features also

Test Procedures

- 1) Obtained the *Enterprise Risk Policy* and inspected for evidence that it sets out OB’s risk management framework.
- 2) Obtained the *Enterprise Risk Policy* and inspected for evidence that it was reviewed and approved by the CIO at least annually.
- 3) Obtained the *Index Administrator Handbook* and inspected for evidence that it sets out OB’s control framework over its benchmark determination activities.
- 4) Please see Principle 1(a) for review and approval of the *Index Administrator Handbook*.



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<p>a) Conflicts of interest in line with Principle 3 on conflicts of interests;</p> <hr/> <p>b) Integrity and quality of Benchmark determination:</p> <p>i) Arrangements to ensure that the quality and integrity of Benchmarks is maintained, in line with principles 6 to 15 on the quality of the Benchmark and Methodology;</p> <p>ii) Arrangements to promote the integrity of Benchmark inputs, including adequate due diligence on input sources;</p> <p>iii) Arrangements to ensure accountability and complaints mechanisms are effective, in line with principles 16 to 19; and</p> <p>iv) Providing robust infrastructure, policies and procedures for the management of risk, including operational risk.</p>	<p>made available to stakeholders. The framework should be reviewed and updated appropriately, and address:</p> <ul style="list-style-type: none"> • Conflicts of interest in line with Principle 3; and • Integrity and quality of benchmark determination: <ul style="list-style-type: none"> ○ Means to ensure quality and integrity of the benchmark is maintained (in line with Principles 6 to 15); ○ Arrangements to promote benchmark input integrity, including due diligence on input sources; ○ Means to ensure accountability and complaints mechanisms are effective (in line with Principles 16 to 19); and ○ Provide robust infrastructure, policies and procedures for managing risk (incl. operational risk). <p>Response</p> <p>OB has implemented a control framework through two policies: the <i>OB Enterprise Risk Policy</i> and the <i>Index Administrator Handbook</i>.</p> <p>The <i>OB Enterprise Risk Policy</i> sets out OB's overall risk management framework, including risk identification, assessment, response, and mitigation, monitoring and escalation, and reporting.</p> <p>The <i>Index Administrator Handbook</i> that sets out OB's control framework in relations to its Index determination activities, including risk management, process management, and quality assurance.</p> <p>For details of specific topics covered in the control framework, please see:</p> <p>a. Principle 3 in relation to Conflicts of Interest</p> <p>b) i) The <i>Index Administrator Handbook</i> states that "To ensure the integrity and accuracy of the Index, a second Index calculation is performed daily to validate there are no</p>	<p>5) Obtained the monthly review by OB's Chief Information Officer (CIO) on the list of privileged users and inspected for evidence that the CIO reviewed and approved all individuals with "WRITE" and "OWNER" access to the Enterprise Data Warehouse DB.</p> <p>6) For a sample of changes to OB's benchmark calculation logic, obtained the meeting minutes of the IOC and inspected for evidence that the changes were reviewed and approved by the IOC prior to implementation.</p> <p>7) For a sample of alerts on the processes relevant to OB's benchmark determination, obtained the alerts and inspected for evidence that they were investigated by the Technical Operations Team and resolved in accordance with the <i>Incident Response Procedure</i>.</p> <p>8) For the referenced date, obtained evidence of secondary Index calculation validation and inspected for evidence that the benchmark determination was subjected to automatic checks.</p> <p>Test Results</p> <p>No exceptions noted</p>
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IOSCO Principle

Optimal Blue Response

Work performed by KPMG

Control Objectives and Controls

errors with the primary Index calculation. If any discrepancies are identified between the two calculations, troubleshooting is initiated and if necessary, a ticket is opened in Optimal Blue's issue/incident ticketing system for tracking and resolution."

b) ii) Principle 7 in relation to Data Sufficiency

b) iii) Principles 16 to 19 in relation to the accountability and complaints mechanisms

b) iv) The risk management framework in the *Enterprise Risk Policy* includes compliance, emerging, financial, information technology and security, legal, operational, reputational, and strategic risks.

The *Enterprise Risk Policy* also includes the process for identification, assessment, response, mitigation, monitoring, escalation and reporting of risks.

The *Index Administrator Handbook* sets out OB's control framework for its benchmark determination activities, covering internal oversight, conflicts of interest, complaints handling, index cessation, index changes, record retention requirements and audit requirements.

Controls

Access to OB's benchmark calculation engine and production environment, the Enterprise Data Warehouse DB, is restricted to a small group of OB employees with "WRITE" and "OWNER" access. Access requests must be approved by the OB Chief Information Officer (CIO). A monthly review is conducted by OB's CIO on the list of privileged users to ensure it is up to date.

Changes to OB's benchmark calculation must be approved by the Index Oversight Committee. Implementation of any changes to the underlying calculation logic for OB's benchmarks is conducted in accordance with Optimal Blue Software Development Life Cycle.



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There have not been any changes to the OBMMI production environment since the inception of the OBMMI 30 Year Conforming Index. There are three alert rules in place to monitor the processes relevant to OB's benchmark determination. These cover:

- Delays between data refresh intervals;
- Instances where transaction records are not loading; and
- SQL Server Integration Services (SSIS) Job failed to move to its next step.

Where one of the alert rules is triggered, the Technical Operations Team is responsible for responding to the incident in accordance with OB's *Incident Response Procedure* to resolve and remediate the incident.

A second Index calculation is performed daily to validate there are no errors with the primary Index calculation. If any discrepancies are identified between the two calculations, troubleshooting is initiated and if necessary, a ticket is opened in Optimal Blue's issue/incident ticketing system for tracking and resolution.

The *Enterprise Risk Policy* is authored and updated by the Director of Risk Management. It is reviewed and approved by Chief Information Officer (CIO) at least annually.

The *Index Administrator Handbook* is reviewed by the Index Oversight Committee (IOC) and approved by the COO at least annually.

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.

Control Objective

To provide reasonable assurance that Optimal Blue's control framework addresses their whistleblowing mechanism, which facilitates early awareness of potential misconduct or

Test Procedures

- 1) Obtained screenshots from an employee of OB accessing the Perseus whistleblowing platform and inspected for evidence that it is readily available for all OB employees to report potential, suspected, or known violation of the *Code of Conduct*.



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irregularities, and allows for external reporting of such cases where appropriate.

Response

Optimal Blue operates as an independent business under the Perseus Operating Group of Constellation Software, Inc., Perseus provides a whistleblowing platform for all OB employees. The platform is hosted on secure servers provided by a third-party ("EthicsPoint") to ensure reports are anonymous.

Controls

OB's *Code of Conduct* and the *Index Administrator Handbook* details the obligation for all employees who have knowledge of a potential, suspected, or known violation of the *Code of Conduct* to report this information directly to the operating group management or by using OB's whistleblowing service. OB does not permit retaliation of any kind against good faith reports of violations or any other illegal or unethical conduct.

OB's *Code of Conduct* and the *Index Administrator Handbook* are reviewed by the Index Oversight Committee (IOC) and approved by the COO at least annually.

- 2) Obtained the *Code of Conduct* and *Index Administrator Handbook* and inspected for evidence that it includes the requirements detailed in OB's response.
- 3) Please refer to Principle 3(f) for testing on annual attestation to the Code of Conduct.
- 4) Please refer to Principle 1(a) for testing on review and approval of the *Index Administrator Handbook* and the embedded *Code of Conduct*.

Test Results

No exceptions noted

d) Expertise:

i) Ensuring Benchmark determinations are made by personnel who possess the relevant levels of expertise, with a process for periodic review of their competence; and

ii) Staff training, including ethics and conflicts of interest training, and continuity and succession planning for personnel.

Control Objective

To provide reasonable assurance that Optimal Blue's control framework addresses expertise, specifically:

- Ensuring personnel involved in their benchmark determinations possess relevant levels of expertise, with periodic competence reviews; and
- Staff training (incl. ethics and conflicts of interest training) and continuity and succession planning.

Response

Test Procedures

- 1) For a sampled employee, obtained the Workday hiring extract and inspected for evidence that their employment was signed off by the relevant Manager and HR Partner prior to being offered the position.
- 2) For a sampled list of employees, obtained the annual information security training completion log and inspected for evidence that the sampled employees completed the training.
- 3) Obtained the *Index Administrator Handbook* and inspected for evidence that it includes details on IOSCO Principles and OBMMI-specific training requirements.



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For all OB employees, the hiring process is documented on Workday and their employments were signed off by the relevant Manager and HR Partner to ensure that the individuals possess the relevant levels of expertise for the jobs.

Staff training is provided on an annual basis to all OB employees, including information security training. Additionally, employees involved in OBMMI determination process are subjected to IOSCO Principles training.

Controls

OB documents each step in the hiring process on Workday and the relevant Manager and HR Partner must sign-off on the platform prior to offering a position to a potential employee.

All OB employees are required to attend mandatory trainings, including information security training, on an annual basis.

The *Index Administrator Handbook* also states that “On an annual basis, Optimal Blue provides Index training to all employees associated with the Index, including the Product Teams, Data Solutions Team, Hedging & Trading Team, Software Engineering Team, Risk Management Team, and designated members of Optimal Blue’s SLT.”

The *Index Administrator Handbook* is reviewed by the Index Oversight Committee (IOC) and approved by the COO at least annually.

4) Obtained the training materials for IOSCO Principles and OBMMI-specific trainings and inspected for evidence that they cover the details stipulated in the *Index Administrator Handbook*.

5) Please refer to Principle 1(a) for testing on review and approval of the *Index Administrator Handbook*.

Test Results

No exceptions noted except for:

Annual Index Training

The *Index Administrator Handbook* requires all OB employees associated with OBMMI to complete the Index training on an annual basis.

As of the date of assurance, the Index training material was yet to be finalised. The training was scheduled to be delivered to the in-scope OB employees on 12 December 2024.

<p>Where a Benchmark is based on Submissions: Administrators should promote the integrity of inputs by:</p> <p>a) Ensuring as far as possible that the Submitters comprise an appropriately representative group of participants taking into consideration the underlying Interest measured by the Benchmark;</p>	<p>N/A – See response to Principle 14</p>	<p>N/A – See response to Principle 14</p>
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b) Employing a system of appropriate measures so that, to the extent possible, Submitters comply with the Submission guidelines, as defined in the Submitter Code of Conduct and the Administrators' applicable quality and integrity standards for Submission;

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

d) Establishing and employing measures to effectively monitor and scrutinise inputs or Submissions. This should include pre-compilation or pre-publication monitoring to identify and avoid errors in inputs or Submissions, as well as ex-post analysis of trends and outliers.



5. Internal Oversight

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

Control Objective

To provide reasonable assurance that Optimal Blue establishes an oversight function that reviews and challenges all aspects of their benchmark determination process, including the consideration of features and expected/known usage of their benchmark and the materiality of potential or existing conflicts of interest.

The oversight function shall be carried out by either a separate committee or other relevant governance arrangements. Its composition shall be appropriate to provide effective scrutiny of Optimal Blue and can consider groups of benchmarks by type/asset class.

To provide reasonable assurance that Optimal Blue develops and maintains robust procedures with respect to their oversight function. These should be documented and made readily available to relevant Regulatory Authorities, with main

Test Procedures

- 1) Obtained the *Index Oversight Committee Terms of Reference (ToR)* and inspected for evidence that it includes all the elements detailed in OB's response.
- 2) Obtained the IOC minutes and inspected for evidence that the IOC ToR was reviewed and approved by the IOC.

Test Results

No exceptions noted.

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any. The main features of the procedures should be Made Available to Stakeholders. These procedures should include:

a) The terms of reference of the oversight function;

features made available to stakeholders. The procedures must include the terms of reference of the oversight function.

Response

The *Index Oversight Committee Terms of Reference (ToR)* sets out the roles and responsibilities of the Index Oversight Committee (IOC). Specifically, it is mandated to:

- Review the benchmark definition and the benchmark methodology at least annually.
- Oversee any changes that need to be made to the benchmark methodology and able to request the Administrator to consult on any changes with wider stakeholders.
- Oversee the administrator's control framework, the management and operation of the benchmark.
- Oversee any third-party involvement in the benchmark determination process, including calculation or dissemination agents.
- Assess internal and external audits or reviews and monitor the implementation of recommended actions.
- Oversee the benchmark conflicts of interest via a conflict register.
- Oversee any complaints related to the benchmark via the complaints register.
- Oversee delays or suspensions, errors and corrections, and uses of expert judgement in benchmark determination.
- Address recommendations on benchmark oversight to the management body of the Administrator.
- Report to the competent authority of any anomalous or suspicious input data; and any other matters considered relevant to the oversight and integrity of the benchmark.
- Review and approve cessation plans, including any consultations on cessation of the benchmark."



IOSCO Principle

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Controls

The Index Oversight Committee ToR is reviewed and approved by the IOC at least annually.

b) Criteria to select members of the oversight function;

c) The summary details of membership of any committee or arrangement charged with the oversight function, along with any declarations of conflicts of interest and processes for election, nomination or removal and replacement of committee members.

Control Objective

To provide reasonable assurance that Optimal Blue's oversight function procedures include:

- Criteria for selecting members of the function; and
- Summary details of the membership of committees/arrangements charged with the function, in addition to any declarations of conflicts of interest and processes for electing, nominating, or replacing members.

Response

The *Index Oversight Committee (IOC) Terms of Reference (ToR)* sets out the selection criteria for IOC members.

Specifically, the document states that "Oversight Committee members may include: benchmark users, market infrastructure providers, staff of the Administrator and other industry experts. Delegates from competent authorities may sit on the Oversight Committee as observers.

Members shall be elected, nominated, made inactive, removed and replaced in accordance with the following procedures:

- a. Nomination: The initial proposed members of the Oversight Committee, and any further proposed members, shall be nominated by the Administrator.
- b. Election: The Oversight Committee will vote on election of any proposed new member that has been nominated by the Administrator. The proposed new member will be appointed if the Oversight Committee votes in favour by a simple majority. There will be no election for the initial members of the Oversight Committee.
- c. Resignation: Members may resign by giving reasonable written notice to the Administrator.
- d. Inactivity: Members of the Oversight Committee may have their membership suspended by the Administrator in the event of their inability to participate in the Oversight Committee for a period of time, such as where the member is on long-term leave (including but not limited to sickness or

Test Procedures

- 1) Obtained the *Index Administrator Handbook* and inspected for evidence that the selection criteria for IOC members are documented.
- 2) Please see Principle 1(a) for test procedure on the review and approval of the *Index Administrator Handbook*.

Test Results

No exception noted.

family leave). Such suspension may include an automatic reinstatement at the end of that period.

e. Removal: Members of the Oversight Committee can be removed by the Administrator, as ratified by the vote of the remaining members of the Oversight Committee.

f. Replacement: Where a member resigns or is removed, a replacement may be appointed, at the discretion of the Administrator, through the nomination and election process.

Nominations, votes and ratification of new members can be done in writing or by way of an Oversight Committee meeting.

Each member will serve for a term of up to two years, which may be extended by the Administrator.

The intention of the Administrator in determining the composition of the Oversight Committee is that the members together shall have the skills and expertise appropriate to the oversight of the provision of the benchmark and to the responsibilities that the Oversight Committee is required to fulfil.

The members of the Oversight Committee, taken together as a whole:

- a. Shall have appropriate knowledge of the underlying market or economic reality that the benchmark seeks to measure (as set out in the benchmark methodology).
- b. Shall have relevant expertise and skills, in a function relevant to the determination of the benchmark such as market expertise, control and risk expertise, operational expertise, benchmark and regulation expertise, general financial market expertise, or legal and compliance expertise.
- c. Must confirm that they can meet the time commitments required; and
- d. Shall not include persons who have been subject to sanctions of administrative or criminal nature relating to financial services.

Persons that are directly involved in the provision of the benchmark may sit on the Oversight Committee but may only do so as observers or non-voting members.

Observers of the Oversight Committee shall be those who the Administrator determines have a relevant interest in the determination, oversight or use of the benchmark.

Summary details of the Oversight Committee members may be disclosed and made public from time to time. Declarations of conflicts of interest of Oversight Committee members and any measures to mitigate them may be made public."

Controls

The *Index Administrator Handbook* is reviewed by the IOC and approved by the COO annually.



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The responsibilities of the oversight function include:

- a) Oversight of the Benchmark design:
- i) Periodic review of the definition of the Benchmark and its Methodology;
- ii) Taking measures to remain informed about issues and risks to the Benchmark, as well as commissioning external reviews of the Benchmark (as appropriate);
- iii) Overseeing any changes to the Benchmark Methodology, including assessing whether the Methodology continues to appropriately measure the underlying Interest, reviewing proposed and implemented changes to the Methodology, and authorising or requesting the Administrator to undertake a consultation with Stakeholders where known or its Subscribers on such changes as per Principle 12; and
- iv) Reviewing and approving procedures for termination of the Benchmark, including guidelines that set out how the Administrator should consult with Stakeholders about such cessation

Control Objective

To provide reasonable assurance that Optimal Blue's oversight function responsibilities include the oversight of benchmark design through:

- Periodic review of benchmark definition and methodology;
- Taking measures to stay informed on issues and risks to the benchmark, in addition to commissioning external benchmark reviews;
- Overseeing changes to the benchmark methodology (including whether it continues to appropriately measure underlying interest), reviewing proposed and implemented changes, and authorising/requesting Optimal Blue to undertake consultations with stakeholders or subscribers on these changes (as per Principle 12); and
- Reviewing and approving procedures to terminate the benchmark (incl. guidelines setting out how Optimal Blue should consult the cessation with stakeholders).

Response

The *Index Oversight Committee (IOC) Terms of Reference (ToR)* sets out the requirements for the IOC to:

- a) i) Review the benchmark definition and the benchmark methodology at least annually;
- a) ii) Assess internal and external audits or reviews and monitor the implementation of recommended actions;
- a) iii) Oversee any changes that need to be made to the benchmark methodology and able to request the Administrator to consult on any changes with wider stakeholders; and

Test Procedures

- 1) Obtained the *IOC ToR* and inspected for evidence that the mandates detailed in OB's response are documented.
- 2) Obtained the *IOC minutes* and inspected for evidence that the mandated actions included in OB's response were conducted and recorded in the minutes.

Test Results

No exception noted.



IOSCO Principle	Optimal Blue Response Control Objectives and Controls	Work performed by KPMG
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a) iv) Review and approve cessation plans, including any consultations on cessation of the benchmark.

Controls

The IOC is mandated to conduct the actions listed in OB's response, the results of which are documented in the IOC's minutes.

b) Oversight of the integrity of Benchmark determination and control framework:

i) Overseeing the management and operation of the Benchmark, including activities related to Benchmark determination undertaken by a third party;

ii) Considering the results of internal and external audits, and following up on the implementation of remedial actions highlighted in the results of these audits; and

iii) Overseeing any exercise of Expert Judgement by the Administrator and ensuring Published Methodologies have been followed.

Control Objective

To provide reasonable assurance that Optimal Blue's oversight function responsibilities include the oversight of the integrity of benchmark determination and control framework through:

- Overseeing management and operations of the benchmark (incl. activities related to benchmark determination by a third party);
- Considering results of internal and external audits and monitoring the implementation of any remedial actions (if any); and
- Overseeing exercise of expert judgement following the published methodologies.

Response

The *Index Oversight Committee (IOC) Terms of Reference (ToR)* sets out the requirements for IOC to:

- b) i) Oversee the administrator's control framework, the management and operation of the benchmark and oversee any third-party involvement in the benchmark determination process, including calculation or dissemination agents; and
- b) ii) Assess internal and external audits or reviews and monitor the implementation of recommended actions.
- b) iii) Oversee delays or suspensions, errors and corrections, and uses of expert judgement in benchmark determination.

Test Procedures

- 1) Obtained the *IOC ToR* and inspected for evidence that the mandates detailed in OB's response are documented.
- 2) Obtained the *Index Oversight Committee (IOC) minutes* and inspected for evidence that the mandated actions described in OB's response were conducted and recorded in the IOC meeting minutes.
- 3) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that the mandate detailed in OB's response is documented.
- 4) Please see Principle 1(a) for test procedure on the review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.

Test Results

No exceptions noted.



IOSCO Principle	Optimal Blue Response Control Objectives and Controls	Work performed by KPMG
	<p>In addition to the IOC ToR, the <i>30-Year Fixed Rate Conforming Index Methodology</i> sets out the requirement for IOC to:</p> <p>b) iii) Review all instances of Expert Judgement.</p> <p>Controls</p> <p>The IOC is mandated to conduct the actions listed in OB's response, the results of which are documented in the IOC's minutes.</p> <p>The <i>30-Year Fixed Rate Conforming Index Methodology</i> is reviewed by the IOC and approved by the COO annually.</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.</p>	<p>Currently, OB does not consider there to be any conflicts of interest arising from its ownership structures or controlling interests, or from other activities conducted by any entity owning or controlling OB or by OB or any of its affiliates.</p>	<p>N/A</p>
<p>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>N/A - See response to Principle 14</p>	<p>N/A - See response to Principle 14</p>



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d) Establishing measures to detect potential anomalous or suspicious Submissions and in case of suspicious activities, to report them, as well as any misconduct by Submitters of which it becomes aware to the relevant Regulatory Authorities, if any.		
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6. Benchmark Design

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

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

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

Control Objective

To provide reasonable assurance that Optimal Blue’s design of their benchmark seeks to achieve, and result in, the accurate representation of economic realities of the interest it measures, in addition to eliminating factors that could result in distortion of the price, rate, or value of the benchmark.

The design shall consider the following generic features (with other factors considered if appropriate):

- Adequacy of the sample used to represent the interest;
- Liquidity and size of the market (e.g., if there is sufficient trading for transparent pricing);
- Relative size of the underlying market with respect to trading volume in the market referencing the benchmark;
- Distribution of trading among market participants; and
- Market dynamics to ensure the benchmark reflects changes to assets underpinning it.

Response

The *30-Year Fixed Rate Conforming Index Methodology* states that “the design of the methodology takes the following factors into consideration:

- a) Adequacy of the sample used to represent the Interest;
- b) Size and liquidity of the relevant market;

Test Procedures

- 1) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that the factors detailed in OB’s response are documented.
- 2) Please see Principle 1(a) for test procedures on review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.

Test Results

No exception noted.



IOSCO Principle	Optimal Blue Response Control Objectives and Controls	Work performed by KPMG
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- c) Relative size of the underlying market in relation to the volume of trading in the market that references the Benchmark;
- d) The distribution of trading among Market Participants (market concentration); and
- e) Market dynamics (e.g. to ensure that the Benchmark reflects changes to the assets underpinning a Benchmark)."

Controls

The *30-Year Fixed Rate Conforming Index Methodology* is reviewed by the IOC and approved by the COO annually.

7. Data Sufficiency

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

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

This Principle requires that a Benchmark be based upon (i.e., anchored in) an active market having observable Bona Fide, Arms-Length Transactions. This does not mean that every individual Benchmark determination must be constructed solely of transaction data. Provided that an active market exists, conditions in the market on any given day might require the Administrator to rely on different forms of data tied to observable market data as an adjunct or supplement to

Control Objective

To provide reasonable assurance that Optimal Blue's data used to construct their benchmark determination should be sufficient to accurately and reliably demonstrate the interest measured by the benchmark, and should be:

- Based on prices, rates, indices, or values formed by competitive forces of supply & demand to provide confidence that the price discovery system is reliable; and
- Anchored by observable transactions entered at arm's length between buyers and sellers for the interest the benchmark measures for it to function as a credible indicator of prices, rates, indices, or values.

Response

The Optimal Blue 30-Year Conforming Index is based on the average of applicable rates for the day for loans locked on

Test Procedures

- 1) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that the elements described in OB's response are documented.
- 2) Obtained the evidence of rate lock characteristics implementation and inspected for evidence that the benchmark determination tool only includes rate locks that conform with the characteristics set out in the methodology.
- 3) Obtained the evidence of the extreme value identification and removal logic and inspected for evidence that the outlier removal process is implemented accurately and completely in the benchmark determination tool.
- 4) Please see Principle 1(a) for review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.

Test Results



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transactions. Depending upon the Administrator’s Methodology, this could result in an individual Benchmark determination being based predominantly, or exclusively, on bids and offers or extrapolations from prior transactions. This is further clarified in Principle 8.

Provided that subparagraphs (a) and (b) above are met, Principle 7 does not preclude Benchmark Administrators from using executable bids or offers as a means to construct Benchmarks where anchored in an observable market consisting of Bona Fide, Arms-Length transactions.

This Principle also recognizes that various indices may be designed to measure or reflect the performance of a rule-based investment strategy, the volatility or 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

the Optimal Blue Product and Pricing Engine (PPE) platform by lenders in the United States. Transactions are limited to purchase and rate/term refinances on owner-occupied, single-family residences, thus eliminating transactions like cash-out refinances and investor properties that typically include significant pricing adjustments.

The *30-Year Fixed Rate Conforming Index Methodology* states that “the collected data is filtered to include only loans that meet the conforming loan limits established by the Federal Housing Finance Agency (FHFA).”

To increase the homogeneity of the rates in each index, a consistent set of variables representing the most common loan scenarios is used.

Rate Locks included in the calculation have the following characteristics:

- Single family residences;
- Purchase and rate/term refinances (cash-out refinances are excluded);
- Conventional loans;
- Loan amounts are below the conforming loan limits by county and year;
- Fixed rate loans;
- Single unit properties;
- Owner occupied residences;
- 30-year amortization term;
- Excludes loans with subordinate financing; and
- Retail and correspondent originations (excludes wholesale channel originations).

The document also states that "extreme values that could distort the index are identified and removed using statistical techniques" which removes potential outliers from the input data population according to:

- Loan amount;
- Lock period;

No exceptions noted.



IOSCO Principle	Optimal Blue Response	Work performed by KPMG
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Control Objectives and Controls

- Loan to Value (LTV);
- Note rate; and
- Price.

Controls

The rate lock characteristics logic and extreme value removal logic are embedded in the production environment of OBMMI. All input data from OB's PPE platform must pass through the logic prior to being included in the day's determination process.

The *30-Year Fixed Rate Conforming Index Methodology* is reviewed by the IOC and approved by the COO annually.

8. Hierarchy of data inputs

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

The hierarchy of data inputs should include:

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

Control Objective

To provide reasonable assurance that Optimal Blue establishes and publish (or make available) clear guidelines for the hierarchy of data inputs and exercise of expert judgement. The hierarchy should include:

- The Submitter's own concluded arms-length transactions in underlying interest/related markets (if dependent on Submissions);
- Reported/observed concluded arm's-length transactions in the underlying interest;
- Reported/observed concluded arm's-length transactions in related markets;
- Executable bids and offers; and
- Other market information (or expert judgement).

Response

The *30-Year Fixed Rate Conforming Index Methodology* states that OB "collects Rate Lock data from its Product and Pricing Engine platform, which currently captures roughly

Test Procedures

- Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that it states that OB collects rate lock data of residential mortgage transactions in the United States for the determination of OBMMI.
- Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that all instances of expert judgement to be published via the Optimal Blue website and subject to retrospective review by the IOC.
- Please see Principle 1(a) for review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.
- On the date of this assurance, if Expert Judgement was involved in the Index determination, accessed the OBMMI website and inspected for evidence that the instance of application of expert judgement is published via the website.



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one-third of all residential mortgage transactions in the United States. This data includes all variables relevant for determining pricing and eligibility for a given loan scenario as well as loan product details such as interest rate, loan type, loan amount, credit score, and loan-to-value ratio."

Controls

All instances of application of expert judgement are published via the Optimal Blue website and are subjected to retrospective review by the Index Oversight Committee (IOC).

The *30-Year Fixed Rate Conforming Index Methodology* is reviewed by the IOC and approved by the COO annually.

5) On the date of this assurance, if Expert Judgement was involved in the Index determination, obtained the relevant IOC ToR meeting minutes and inspected for evidence that the instance of Expert Judgement was reviewed retrospectively by the IOC.

Test Results

No exception noted.

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 Judgement 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.

N/A - IOSCO text provides contextual / proportionality consideration only, with no explicit requirements

N/A - IOSCO text provides contextual / proportionality consideration only, with no explicit requirements

9. Transparency of Benchmark determinations



IOSCO Principle	Optimal Blue Response Control Objectives and Controls	Work performed by KPMG
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The Administrator should describe and publish with each Benchmark determination, to the extent reasonable without delaying an Administrator publication deadline:

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

b) A concise explanation of the extent to which and the basis upon which Expert Judgement if any, was used in establishing a Benchmark determination.

Control Objective

To provide reasonable assurance that Optimal Blue describes and publishes, with each benchmark determination (to a reasonable extent without delaying their publication deadline), a:

- Concise explanation (sufficient for a stakeholder or market authority to understand how the determination was developed), including at a minimum:
 - Size and liquidity of the assessed market (the number and volume of submitted transactions);
 - Range, average volume and average price; and
 - Indicative percentages of each market data type considered in the benchmark determination (including terms referring to pricing methodology i.e. transaction-based, spread-based, or inter/extrapolated)
- Concise explanation of the extent to which and the basis upon which expert judgement (if any) was used in the benchmark determination.

Response

The *30-Year Fixed Rate Conforming Index Methodology* states that " All instances of application of expert judgment are published via the Optimal Blue Website and subject to retrospective review by the Index Oversight Committee. "

Controls

The *30-Year Fixed Rate Conforming Index Methodology* is reviewed by the Index Oversight Committee (IOC) and approved by the COO at least annually.

Where Expert Judgement is required to determine OBMMI, OB publishes details of the application of Expert Judgement

Test Procedures

- 1) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that the document states that any benchmark determinations that deviate from primary methodology must have a description of the methodology used in the value determination published on OB's website.
- 2) For the reference date, if benchmark determinations deviated from the primary methodology, accessed OB's website and inspected for evidence that a description of the methodology used in the value determination was published.
- 3) Please see Principle 1(a) for test procedures on review and approval of the 30-Year Fixed Rate Conforming Index Methodology.

Test Results

No exception noted.



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on the OBMMI website. The Expert Judgement and OBMMI determination is retrospectively reviewed by the IOC.

10. Periodic Review

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.

Control Objective

To provide reasonable assurance that Optimal Blue periodically reviews:

- the conditions in the underlying interest that their benchmark measures for determining whether the interest has undergone structural changes requiring changes to methodology design; and
- whether the interest has diminished or is non-functioning (such that it can no longer be the basis for a credible benchmark).

Response

The *Index Administrator Handbook* states "Optimal Blue periodically reviews its methodology to assess whether changing market conditions suggest the need for a change in the Index methodology."

It also states that "The methodology for the Index undergoes a comprehensive review annually or more frequently if needed. The review process evaluates the current design in the context of each of the Design factors described in the Methodology document. The Index Oversight Committee oversees the methodology review process.

Any material changes to the methodology are communicated via the Optimal Blue Website.

The Oversight Committee may direct Optimal Blue, the Index Administrator to consult on any changes to the methodology with Stakeholders and the wider market."

Test Procedures

- 1) Obtained the *Index Administrator Handbook* and inspected for evidence that it includes the elements in OB's response.
- 2) Please see Principle 1(a) for test procedures on review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.
- 3) Please see Principle 1(a) for test procedures on review and approval of the *Index Administrator Handbook*.

Test Results

No exception noted.



IOSCO Principle	Optimal Blue Response Control Objectives and Controls	Work performed by KPMG
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Controls

The *30-Year Fixed Rate Conforming Index Methodology* and the *Index Administrator Handbook* are reviewed by the IOC and approved by the COO at least annually.

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.

Response

The *30-Year Fixed Rate Conforming Index Methodology* states that "any proposed changes to the methodology are communicated in advance via the OB website, and feedback is solicited."

Test Procedures

1) For a sample of proposed change to the methodology, assessed OB's website and inspected for evidence that the proposed change to the methodology was communicated in advance on OB's website, and feedback was solicited.

Controls

Any proposed changes to the *30-Year Fixed Rate Conforming Index Methodology* are communicated in advance via the OBMMI website ([30-Year Fixed Rate Conforming Index – Optimal Blue](#)) where feedback is solicited.

Test Results

No exception noted.

The *30-Year Fixed Rate Conforming Index Methodology* and the *Index Administrator Handbook* are reviewed by the IOC and approved by the COO at least annually.

11. Content of the Methodology

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.

Control Objective

To provide reasonable assurance that Optimal Blue documents and makes available the methodology used for their benchmark determinations. They shall provide the rationale for adopting a particular methodology, with the published (made available) one providing sufficient detail for stakeholders to understand how the benchmark is derived, and to assess its (i) representativeness, (ii) relevance to

Test Procedures

1) Inspected OBMMI's website for evidence that the *30-Year Fixed Rate Conforming Index Methodology* is available on the website.

Test Results

No exception noted.



IOSCO Principle	Optimal Blue Response	Work performed by KPMG
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particular stakeholders, and (iii) appropriateness as a reference for financial instruments.

Response

The *30-Year Fixed Rate Conforming Index Methodology* is made available on OBMMI's website ([30-Year Fixed Rate Conforming Index – Optimal Blue](#)).

Please see responses below for controls relating to this Principle.

At a minimum, the Methodology should contain:

- a) Definitions of key terms;

Control Objective

To provide reasonable assurance that Optimal Blue's methodology contains definitions of key terms.

Response

The *30-Year Fixed Rate Conforming Index Methodology* contains definitions of key terms.

Specifically, the document sets out the definitions for

- Conforming Loans;
- FHFA;
- Product and Pricing Engine;
- Rate Lock;
- Simple Average;
- Index Value;
- Index Oversight Committee; and
- Website.

Controls

The *30-Year Fixed Rate Conforming Index Methodology* is reviewed by the IOC and approved by the COO at least annually.

Test Procedures

- 1) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that it includes definitions of key terms.
- 2) Please see Principle 1(a) for test procedures on review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.

Test Results

No exception noted.



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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;

Control Objective

To provide reasonable assurance that Optimal Blue’s methodology contains all criteria and procedures used in developing their benchmark, including:

- Input selection;
- Mix of inputs used to derive the benchmark;
- Guidelines controlling the exercise of expert judgement;
- Priority to certain data types;
- Minimum data to determine a benchmark; and
- Models or extrapolation methods.

Response

The *30-Year Fixed Rate Conforming Index Methodology* contains descriptions of all criteria and procedures used to develop OBMMI. Specifically, it includes details on:

- Data collection;
- Minimum data;
- Data filtering;
- Calculation;
- Publication;
- Exceptional market conditions;
- Errors and corrections;
- Expert Judgement;
- Methodology review;
- Stakeholder consultation; and
- Benchmark limitations.

Controls

The *30-Year Fixed Rate Conforming Index Methodology* is reviewed by the IOC and approved by the COO at least annually.

Test Procedures

- 1) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that it contains all the elements in OB’s response.
- 2) Please see Principle 1(a) for test procedures on review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.

Test Results

No exception noted.



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c) Procedures and practices designed to promote consistency in the exercise of Expert Judgement between Benchmark determinations;

Control Objective

To provide reasonable assurance that Optimal Blue’s methodology contains procedures and practices to promote consistency in exercising expert judgement between their benchmark determinations.

Response

The *30-Year Fixed Rate Conforming Index Methodology* contains procedures for promoting consistency in the exercise of Expert Judgement for the determination of the index.

Specifically, the document states that “Given the rules-based nature of the methodology, the daily calculation of the OBMMI Index does not require expert judgment. However, expert judgment may be applied in the following situations:

- When data is incomplete or insufficient.
- During unusual market conditions that may not be adequately captured by the usual data collection and calculation methods.

Documentation of the use of expert judgment includes the reasons for its application and the potential impact on the Index Value. All instances of expert judgment are published via the Optimal Blue Website and reviewed by the Index Oversight Committee.”

Controls

The *30-Year Fixed Rate Conforming Index Methodology* is reviewed by the IOC and approved by the COO at least annually.

Where Expert Judgement is required to determine OBMMI, OB publishes details of the application of Expert Judgement on the OBMMI website. The Expert Judgement and OBMMI determination is retrospectively reviewed by the IOC.

Test Procedures

- 1) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that it contains procedures for promoting consistency in the exercise of Expert Judgement for the determination of the index.
- 2) For the referenced date, obtained the relevant IOC minutes and inspected for evidence that Expert Judgement is reviewed by the IOC retrospectively.
- 3) For the referenced date, observed OBMMI’s website and inspected for evidence that the Expert Judgement is published on the website.
- 4) Please see Principle 1(a) for test procedures on review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.

Test Results

No exception noted.



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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);

Control Objective
To provide reasonable assurance that Optimal Blue’s methodology contains procedures governing their benchmark determination in periods of market stress or disruption, or periods where data sources become absent.

Response
The *30-Year Fixed Rate Conforming Index Methodology* contains procedures which govern the index determination in exceptional market conditions.
Specifically, the document states that “In exceptional market conditions, such as extreme volatility or disruptions in data collection, Optimal Blue may delay or suspend the publication of the index. Any such decisions will be communicated promptly via the Optimal Blue Website, with a clear explanation of the circumstances and expected duration of the disruption. Any delays or suspensions of the Index will be subsequently reviewed by the Index Oversight Committee.”

Controls
The *30-Year Fixed Rate Conforming Index Methodology* is reviewed by the IOC and approved by the COO at least annually.
Where OBMMI’s publication is delayed or suspended, the decision is communicated via the OBMMI website, with a clear explanation of the circumstances and expected duration of the disruption. The decision is subsequently reviewed by the IOC.

Test Procedures

- 1) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that it contains procedures for index determination in exceptional market conditions.
- 2) For the referenced date, obtained the relevant IOC minutes and inspected for evidence that the IOC reviewed OBMMI’s publication delay or suspension.
- 3) For the referenced date, accessed the OBMMI website and inspected for evidence that the decision to delay or suspend OBMMI’s publication was communicated via the website, with a clear explanation of the circumstances and expected duration of the delay.
- 4) Please see Principle 1(a) for test procedures on review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.

Test Results
No exception noted.

e) The procedures for dealing with error reports, including when a revision of a Benchmark would be applicable;

Control Objective
To provide reasonable assurance that Optimal Blue’s methodology contains procedures for dealing with error

Test Procedures

- 1) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that it contains procedures for dealing with error and correction reports.



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reports (incl. when a revision of a benchmark would be applicable).

Response

The *30-Year Fixed Rate Conforming Index Methodology* contains procedures for dealing with error and correction reports.

Specifically, the document states that “Any identified errors in the index calculation or publication process are corrected promptly. The corrected Index Values are republished if the error is greater than 1 basis point and the error is identified within 24 hours of publication of the Index Value. Notification of the correction is posted to the Optimal Blue Website. A log of errors and corrections is maintained for audit purposes. Errors and corrections are reviewed by the Index Oversight Committee (IOC).”

Controls

The *30-Year Fixed Rate Conforming Index Methodology* is reviewed by the IOC and approved by the COO at least annually.

For any identified errors in the index calculation greater than 1 basis point and identified within 24 hours of OBMMI publication, OB publishes a notification of the correction on OBMMI’s website.

All errors and corrections are recorded in the *30-Year Fixed Rate Conforming Index Deviations Log*. All instances of errors and corrections are reviewed by the IOC.

- 2) For the referenced date, accessed the OBMMI website and inspected for evidence that notifications on any error or correction in the index calculation greater than 1 basis point and identified within 24 hours of OBMMI publication were published on the website.
- 3) Obtained the 30-Year Fixed Rate Conforming Index Deviations Log and inspected for evidence that any error or correction in the OBMMI calculation were recorded in the Log.
- 4) Obtained the relevant IOC minutes and inspected for evidence that all errors and corrections were reviewed by the IOC.
- 5) Please see Principle 1(a) for test procedures on review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.

Test Results

No exception noted.

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;

Control Objective

To provide reasonable assurance that Optimal Blue’s methodology contains information on the frequency for internal reviews and approvals of the methodology. Where applicable, the published methodologies should include

Test Procedures

- 1) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that it refers to the *Index Administrator Handbook* for information regarding the annual cycle for internal reviews and approvals of the methodology by the IOC.



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information on the procedures and frequency for external methodology review.

Response

The *30-Year Fixed Rate Conforming Index Methodology* refers to the *Index Administrator Handbook* for the frequency of internal reviews and approvals of the methodology.

The *Index Administrator Handbook* contains information regarding the frequency for internal reviews and approvals of the methodology by the IOC.

Specifically, the document states that “The methodology for the Index undergoes a comprehensive review annually or more frequently if needed. The review process evaluates the current design in the context of each of the Design factors described in the Methodology document. The Index Oversight Committee oversees the methodology review process.

Any material changes to the methodology are communicated via the Optimal Blue Website.

The Oversight Committee may direct Optimal Blue, the Index Administrator to consult on any changes to the methodology with Stakeholders and the wider market.”

Controls

The *Index Administrator Handbook* and the *30-Year Fixed Rate Conforming Index Methodology* are reviewed by the IOC and approved by the COO at least annually.

- 2) Obtained the *Index Administrator Handbook* and inspected for evidence that it details the frequency for internal reviews and approvals of 30-Year Fixed Rate Conforming Index Methodology.
- 3) Please see Principle 1(a) for test procedures on the review and approval of the *Index Administrator Handbook*.
- 4) Please see Principle 1(a) for test procedures on the review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.

Test Results
No exception noted.

g) The circumstances and procedures under which the Administrator will consult with Stakeholders, as appropriate; and

Control Objective

To provide reasonable assurance that Optimal Blue’s methodology contains the circumstances and procedures where they will consult with stakeholders (as appropriate).

Response

- Test Procedures**
- 1) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that it refers to the *Index Administrator Handbook* for information on the circumstances and procedures under which OB will consult with its stakeholders.



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The *30-Year Fixed Rate Conforming Index Methodology* refers to the *Index Administrator Handbook* for details on the circumstances and procedures under which OB will consult with its stakeholders.

The *Index Administrator Handbook* contains details on the circumstances and procedures under which OB will consult with its stakeholders.

Specifically, the document states that “Stakeholder engagement is a critical component of the index methodology and material changes to the methodology will be subject to a public consultation process overseen by the Index Oversight Committee (IOC).

Optimal Blue will engage relevant stakeholders and end users on material changes to the methodology, if required in accordance with the IOSCO principles or where the Oversight Committee requests such consultation. Changes to the Methodology are deemed material on the basis of an assessment conducted by the Administrator and submitted to the Oversight Committee for advice and feedback.

Optimal Blue will encourage feedback via the Optimal Blue Website from stakeholders, including mortgage lenders, market makers, regulators, and investors, to ensure the Index remains relevant and reliable.”

Controls

The *Index Administrator Handbook* and the *30-Year Fixed Rate Conforming Index Methodology* are reviewed by the IOC and approved by the COO at least annually.

Where material changes are required to be made to the methodology, OB is required to conduct a public consultation process overseen by the IOC.

Feedback is encouraged by OB via the OBMMI website.

- 2) Obtained the *Index Administrator Handbook* and inspected for evidence that it contains information on the circumstances and procedures under which OB will consult with its stakeholders.
- 3) Where material changes are required to be made to the methodology, accessed OBMMI’s website and inspected for evidence that feedback is encouraged by OB via the website.
- 4) Where material changes are required to be made to the methodology, obtained the public consultation documentations and inspected for evidence that OB facilitated a public consultation process overseen by the IOC for the material change.
- 5) Please see Principle 1(a) for test procedures on the review and approval of the *Index Administrator Handbook*.
- 6) Please see Principle 1(a) for test procedures on the review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.

Test Results

No exception noted.



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h) The identification of potential limitations of a Benchmark, including its operation in illiquid or fragmented markets and the possible concentration of inputs.

Control Objective

To provide reasonable assurance that Optimal Blue’s methodology contains the identification of potential limitations of their benchmark (incl. how it operates in illiquid or fragmented markets and potential concentration of inputs).

Response

The *30-Year Fixed Rate Conforming Index Methodology* contains information on potential limitations of OBMMI, including its operation in illiquid or fragmented markets and the possible concentration of inputs.

Specifically, the document states that “The Index represents the average rates for 30-year fixed rate Conforming mortgages based on the available data in the Optimal Blue Product and Pricing Engine. It may not capture all market nuances or account for every factor influencing mortgage rates. Users should be aware of these limitations when utilizing the Index for financial or investment decisions.”

Controls

The *30-Year Fixed Rate Conforming Index Methodology* is reviewed by the IOC and approved by the COO at least annually.

Test Procedures

- 1) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that it contains information on potential limitations of OBMMI, including its operation in illiquid or fragmented markets and the possible concentration of inputs.
- 2) Please see Principle 1(a) for test procedures on the review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.

Test Results

No exception noted.

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.

N/A – Please see response to Principle 14.

N/A – Please see response to Principle 14.



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12. Changes to Methodology

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:

- 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

Control Objective

To provide reasonable assurance that Optimal Blue makes available proposed material changes in their methodology, in addition to the procedures for making such changes. These should clearly define what includes a material change, and the method and timing for notifying subscribers/stakeholders of changes.

Optimal blue shall ensure the continued integrity of their benchmark determinations. When changes are proposed, they will specify exactly what these entail and when they will be applied. They shall also specify how changes will be scrutinised by the oversight function.

To provide reasonable assurance that Optimal Blue develops stakeholder consultation procedures with respect to changes to the methodology deemed material by the oversight function and are proportional to the depth of the benchmark's use and nature to stakeholders. These procedures should provide:

- Advance notice and timeframe for stakeholders to analyse and comment on the impact of such material changes, with regards to Optimal Blue's assessment; and
- Summary comments for stakeholders, with Optimal Blue's summary response to those comments made accessible after any given consultation period (except where commenter requests confidentiality).

Response

Test Procedures

- 1) Obtained the *Index Administrator Handbook* and inspected for evidence that it contains OB's approach to proposed material changes to the OBMMI methodology.
- 2) For the latest proposed change to the methodology, obtained the assessment conducted by OB and inspected for evidence that an assessment is conducted on the proposal and the result was submitted to the IOC for advice and feedback.
- 3) For the latest proposed material change to the methodology, accessed OBMMI's website and inspected for evidence that feedback is encouraged by OB via the website.
- 4) For the latest proposed material change to the methodology, obtained the public consultation documentations and inspected for evidence that OB facilitated a public consultation process overseen by the IOC for the material change
- 5) Obtained the *30-Year Fixed Rate Conforming Index Change Log* and inspected for evidence that it captured a summary of the methodology changes, approvals, and public feedback received.
- 6) Please see Principle 1(a) for test procedures on the review and approval of the *Index Administrator Handbook*.

Test Results

No exception noted.



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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.

The *Index Administrator Handbook* describes OB's approach to proposed material changes in the OBMMI methodology.

Specifically, "to ensure that changes related to the Index methodology are transparent, justified, and communicated effectively to stakeholders, changes are evaluated by the Administrator and submitted to the Index Oversight Committee (IOC) for advice and feedback."

"Stakeholder engagement is a critical component of the index methodology and material changes to the methodology will be subject to a public consultation process overseen by the Index Oversight Committee

Optimal Blue will engage relevant stakeholders and end users on material changes to the methodology, if required in accordance with the IOSCO principles or where the Oversight Committee requests such consultation. Changes to the Methodology are deemed material on the basis of an assessment conducted by the Administrator and submitted to the Oversight Committee for advice and feedback.

Optimal Blue will encourage feedback via the Optimal Blue Website from stakeholders, including mortgage lenders, market makers, regulators, and investors, to ensure the Index remains relevant and reliable."

Controls

The *Index Administrator Handbook* is reviewed by the IOC and approved by the COO at least annually.

For proposed changes to the methodology, an assessment is conducted by OB and submitted to the IOC for advice and feedback.

Where a proposed change to the methodology is deemed to be material in accordance with the IOSCO Principles or by the IOC, the proposal is subjected to a public consultation process overseen by the IOC.



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OB maintains the *30-Year Fixed Rate Conforming Index Change Log* and captures a summary of the change, approvals, and public feedback received.

13. Transition

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.

Control Objective

To provide reasonable assurance that Optimal Blue has clear written policies and procedures to address the possible cessation of a benchmark due to (i) market structure change, (ii) product definition change, or (iii) other conditions making the benchmark no longer representative of its intended interest. Such procedures should be proportional to the breadth and depth of the financial instruments that reference the benchmark and the economic and financial stability impact resulting from its cessation.

Optimal Blue shall consider the stakeholders views and any relevant Regulatory and National Authorities in determining what policies and procedures are appropriate. These policies should be published and made available to all stakeholders.

Response

The *Index Administrator Handbook* describes OB's approach to index cessation.

Specifically, it contains sections on cessation triggers, evaluation process, and communication.

Controls

The *Index Administrator Handbook* is reviewed by the IOC and approved by the COO at least annually.

Test Procedures

- 1) Obtained the *Index Administrator Handbook* and inspected for evidence that it includes details of OB's approach to index cessation, including triggers, process, and communication.
- 2) Please see Principle 1(a) for test procedures on the review and approval of the *Index Administrator Handbook*.

Test Results

No exception noted.



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Administrators should encourage Subscribers and other Stakeholders who have financial instruments that reference a Benchmark to take steps to make sure that:

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

Control Objective

To provide reasonable assurance that Optimal Blue encourages subscribers and stakeholders (who have instruments that reference the benchmark) to ensure that:

- Contracts or other financial instruments referencing the benchmark have robust fall-back provisions if any material changes or cessation of the benchmark occurs; and
- Stakeholders are aware of the possibility that various (incl. external) factors beyond Optimal Blue’s control might lead to material benchmark changes.

Response

The *Index Administrator Handbook* states that "As the Index administrator, Optimal Blue has policies and processes in place to ensure the Index’s accuracy, integrity, and reliability. The Optimal Blue 30-Year Fixed Rate Conforming Index webpage includes a comprehensive guide on how Optimal Blue calculates the Index, a historical view of the 30-Year Conforming Fixed Rate Index, Index change notifications, an Index Conflict of Interest Log, and this Handbook. Optimal Blue encourages Index Subscribers and Stakeholders to review these materials and have robust fallback provisions in place to mitigate Index-related risks."

The *Index Administrator Handbook* also sets out the potential triggers for index cessation, including but not limited to:

- Lack of market interest or relevance.
- Regulatory changes that make the Index non-viable.
- Significant methodological challenges that Optimal Blue cannot resolve.

Controls

Test Procedures

- 1) Obtained the *Index Administrator Handbook* and inspected for evidence that it includes encouragement for stakeholders who have financial instruments that reference OBMMI to take steps to make sure that they have robust fall-back provisions in the event of material changes to, or cessation of, OBMMI.
- 2) Obtained the *Index Administrator Handbook* and inspected for evidence that it sets out the potential triggers for index cessation.
- 3) Please see Principle 1(a) for test procedures on the review and approval of the *Index Administrator Handbook*.

Test Results

No exception noted.



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The *Index Administrator Handbook* is reviewed by the IOC and approved by the COO at least annually.

<p>Administrators' written policies and procedures to address the possibility of Benchmark cessation could include the following factors, if determined to be reasonable and appropriate by the Administrator:</p> <p>a) Criteria to guide the selection of a credible, alternative Benchmark such as, but not limited to, criteria that seek to match to the extent practicable the existing Benchmark's characteristics (e.g., credit quality, maturities and liquidity of the alternative market), differentials between Benchmarks, the extent to which an alternative Benchmark meets the asset/liability needs of Stakeholders, whether the revised Benchmark is investable, the availability of transparent transaction data, the impact on Stakeholders and impact of existing legislation;</p> <p>b) The practicality of maintaining parallel Benchmarks (e.g., where feasible, maintain the existing Benchmark for a defined period of time to permit existing contracts and financial instruments to mature and publish a new Benchmark) in order to accommodate an orderly transition to a new Benchmark;</p> <p>c) The procedures that the Administrator would follow in the event that a suitable alternative cannot be identified;</p> <p>d) In the case of a Benchmark or a tenor of a Benchmark that will be discontinued completely, the policy defining the period of time in which the Benchmark will continue to be produced in order to permit existing contracts to migrate to an alternative Benchmark if necessary; and</p> <p>e) The process by which the Administrator will engage Stakeholders and relevant Market and National Authorities, as appropriate, in the process for selecting and moving towards an alternative Benchmark, including the timeframe for any such action commensurate with the tenors of the financial</p>	<p>N/A - IOSCO text provides contextual / proportionality considerations only, with no explicit requirements</p>
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<p>instruments referencing the Benchmarks and the adequacy of notice that will be provided to Stakeholders.</p>		
<p>14. Submitter Code of Conduct</p>		
<p>Where a Benchmark is based on Submissions, the following additional Principle also applies:</p> <p>The Administrator should develop guidelines for Submitters (“Submitter Code of Conduct”), which should be available to any relevant Regulatory Authorities, if any and Published or Made Available to Stakeholders.</p> <p>The Administrator should only use inputs or Submissions from entities which adhere to the Submitter Code of Conduct and the Administrator should appropriately monitor and record adherence from Submitters. The Administrator should require Submitters to confirm adherence to the Submitter Code of Conduct annually and whenever a change to the Submitter Code of Conduct has occurred.</p>	<p>N/A – Currently, OB does not consider any of its Benchmarks to be based on Submissions.</p>	
<p>The Submitter Code of Conduct should address:</p> <ul style="list-style-type: none"> a) The selection of inputs; b) Who may submit data and information to the Administrator; c) Quality control procedures to verify the identity of a Submitter and any employee(s) of a Submitter who report(s) data or information and the authorization of such person(s) to report market data on behalf of a Submitter; d) Criteria applied to employees of a Submitter who are permitted to submit data or information to an Administrator on behalf of a Submitter; 		



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<p>e) Policies to discourage the interim withdrawal of Submitters from surveys or Panels;</p> <p>f) Policies to encourage Submitters to submit all relevant data; and</p> <p>g) The Submitters' internal systems and controls, which should include:</p> <p>i) Procedures for submitting inputs, including Methodologies to determine the type of eligible inputs, in line with the Administrator's Methodologies;</p> <p>ii) Procedures to detect and evaluate suspicious inputs or transactions, including inter-group transactions, and to ensure the Bona Fide nature of such inputs, where appropriate;</p> <p>iii) Policies guiding and detailing the use of Expert Judgement, including documentation requirements;</p> <p>iv) Record keeping policies;</p> <p>v) Pre-Submission validation of inputs, and procedures for multiple reviews by senior staff to check inputs;</p> <p>vi) Training, including training with respect to any relevant regulation (covering Benchmark regulation or any market abuse regime);</p> <p>vii) Suspicious Submission reporting;</p> <p>viii) Roles and responsibilities of key personnel and accountability lines;</p> <p>ix) Internal sign off procedures by management for submitting inputs;</p> <p>x) Whistle blowing policies (in line with Principle 4); and</p> <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</p>		



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(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.

15. Internal Controls over Data Collection

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.

Control Objective

To provide reasonable assurance that when Optimal Blue collects data from external sources, they will ensure there are internal controls over their data collection and transmission processes. The controls should address how the source selection, collection of the data, and the protection of the integrity and confidentiality of the data.

Response

The *Index Administrator Handbook* states that "Optimal Blue does not rely on any external source for data collection related to the Index. If Optimal Blue begins using third parties to collect data for the Index, the sources will be subject to a due diligence review to ensure they provide timely and quality data."

The *30-Year Fixed Rate Conforming Index Methodology* states that "Optimal Blue collects Rate Lock data from its Product and Pricing Engine platform, which currently

Test Procedures

- 1) Obtained the *Index Administrator Handbook* and inspected for evidence that it states that OB does not rely on any external sources for data collection related to the Index.
- 2) Obtained the *30-Year Fixed Rate Conforming Index Methodology* and inspected for evidence that all input data to the Benchmark is sourced from Optimal Blue's PPE platform.
- 3) Please see Principle 7 for test procedures on controls over input data used in OB's index determination.
- 4) Please see Principle 1(a) for test procedures on review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.
- 5) Please see Principle 1(a) for test procedures on review and approval of the *Index Administrator Handbook*.



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captures roughly one-third of all residential mortgage transactions in the United States. This data includes all variables relevant for determining pricing and eligibility for a given loan scenario as well as loan product details such as interest rate, loan type, loan amount, credit score, and loan-to-value ratio.”

Please refer to Principle 7 for further details on controls over input data used in OB’s index determination.

Controls

The *Index Administrator Handbook* and *30-Year Fixed Rate Conforming Index Methodology* are reviewed by the IOC and approved by the COO at least annually.

Test Results

No exception noted.

Where Administrators receive data from employees of the Front Office Function, the Administrator should seek corroborating data from other sources.

Response

Optimal Blue does not consider that it receives data from its Front Office Function.

16. Complaints Process

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:

Control Objective

To provide reasonable assurance that Optimal Blue establishes and makes available a complaints procedures policy, for stakeholders to be able to submit complaints including (i) whether a benchmark determination is representative of the underlying interest it measures, (ii) applications of the methodology with respect to a specific benchmark determination, and (iii) other Optimal Blue decisions in relation to benchmark determination.

Response

The *Index Administrator Handbook* describes OB’s approach to complaints resolution, which is available to the public on



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OB's website (<https://www2.optimalblue.com/iosco-compliant/>).

Please see responses below for details on each sub-articles.

a) Permit complaints to be submitted through a user-friendly complaints process such as an electronic Submission process;

Control Objective

To provide reasonable assurance that Optimal Blue's complaints procedure policy permits complaints to be submitted through a user-friendly process (e.g., electronic submission).

Response

The *Index Administrator Handbook* details the method of submitting a complaint to OB.

Specifically, it states that "entities and individuals can submit complaints through an online form on the OB 30-Year Conforming Index webpage ([30-Year Fixed Rate Conforming Index – Optimal Blue](#))."

Controls

The *Index Administrator Handbook* is reviewed by the IOC and approved by the COO at least annually.

Test Procedures

- 1) Accessed OB 30-Year Conforming Index webpage ([30-Year Fixed Rate Conforming Index – Optimal Blue](#)) and inspected for evidence that entities and individuals can submit complaints through the online form on the webpage.
- 2) Obtained the *Index Administrator Handbook* and inspected for evidence that it details the method of submitting a complaint to OB.
- 3) Please see Principle 1(a) for test procedure on review and approval of the *Index Administrator Handbook*.

Test Results

No exceptions noted

b) Contain procedures for receiving and investigating a complaint made about the Administrator's Benchmark determination process on a timely and fair basis by personnel who are independent of any personnel who may be or may have been involved in the subject of the complaint, advising the complaint and other relevant parties of the outcome of its investigation within a reasonable period and retaining all records concerning complaints;

Control Objective

To provide reasonable assurance that Optimal Blue's complaints procedure policy contains steps to receive and investigate a complaint regarding Optimal Blue's benchmark determination process on a timely and fair basis. This will be done by personnel independent of those involved in the subject of the complaint, those advising the complaint, and all relevant parties of the outcome of the investigation.

Response

Test Procedures

- 1) Obtained the *Index Administrator Handbook* and inspected for evidence that it contains procedures for receiving and investigating a complaint.
- 2) Obtained the *30-Year Fixed Rate Conforming Index Complaint Register* and inspected for evidence that all complaints were logged and tracked by the Data Solutions team on the Register, including information related to reported complaints, details on the investigations, resolutions, and outcomes.



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The *Index Administrator Handbook* contains procedures for receiving and investigating a complaint.

Specifically, it states that:

“• Optimal Blue’s Data Solutions Team is responsible for investigating complaints and ensuring impartiality and confidentiality.

• Investigations must be completed within thirty business days, with extensions communicated to the complainant.

• Optimal Blue must report any complaints received that indicate potential issues related to the integrity or governance of the Index to the appropriate regulator if applicable.

• Optimal Blue must provide a written response to the complainant detailing the findings and any actions taken.”

OB maintains the *30-Year Fixed Rate Conforming Index Complaint Register*, where all complaints are logged and tracked by the Data Solutions team. The *Register* also includes information related to reported complaints, details on the investigations, resolutions, and outcomes.

Controls

The *Index Administrator Handbook* is reviewed by the IOC and approved by the COO at least annually.

The Data Solutions team maintains the *30-Year Fixed Rate Conforming Index Complaint Register* and provides the IOC with a summary of the information on the *Register* in the IOC meetings.

- 3) For the latest complaint received, obtained the *30-Year Fixed Rate Conforming Index Complaint Register* and inspected for evidence that the Data Solutions team handled the complaints in accordance with the guidance set out in the *Index Administrator Handbook*.
- 4) For the latest complaint received, obtained the relevant *IOC minutes* and inspected for evidence that the Data Solutions team presented a summary of the complaint to the IOC.
- 5) Please see Principle 1(a) for test procedure on review and approval of the *Index Administrator Handbook*.

Test Results

No exceptions noted

c) Contain a process for escalating complaints, as appropriate, to the Administrator’s governance body; and

Control Objective

To provide reasonable assurance that Optimal Blue’s complaints procedure policy contains a process for escalating complaints to their governance body.

Test Procedures

- 1) Obtained the *Index Administrator Handbook* and inspected for evidence that it includes the responsibility of the Data Solutions team on investigating complaints.



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	<p>Response</p> <p>The <i>Index Administrator Handbook</i> states that “Optimal Blue’s Data Solutions Team is responsible for investigating complaints and ensuring impartiality and confidentiality.”</p> <p>The Index Oversight Committee (IOC) Terms of Reference (ToR) requires the IOC to oversee any complaints related to the benchmark via the complaints register.</p> <p>Controls</p> <p>The <i>Index Administrator Handbook</i> is reviewed by the IOC and approved by the COO at least annually.</p> <p>The Data Solutions team maintains the <i>30-Year Fixed Rate Conforming Index Complaint Register</i> and provides the IOC with a summary of the information on the <i>Register</i> in the IOC meetings.</p>	<p>2) Obtained the Index Oversight Committee (IOC) Terms of Reference (ToR) and inspected for evidence that it includes the responsibility for the IOC to oversee complaints related to the benchmark via the complaints register.</p> <p>3) Please see Principle 1(a) for test procedure on review and approval of the <i>Index Administrator Handbook</i>.</p> <p>Test Results</p> <p>No exceptions noted</p>
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d) Require all documents relating to a complaint, including those submitted by the complainant as well as the Administrator’s own record, to be retained for a minimum of five years, subject to applicable national legal or regulatory requirements.

Control Objective

To provide reasonable assurance that Optimal Blue’s complaints procedure policy requires all documents relating to a complaint, including those submitted by the complainant as well as Optimal Blue’s own record, to be retained for a minimum of five years, subject to applicable national legal or regulatory requirements.

Response

Please see response to Principle 16(b)

Please see test procedures in Principle 16(b)



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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.

Control Objective
To provide reasonable assurance that Optimal Blue resolves any disputes about a benchmark determination (not formal complaints) by referencing their standard procedures. If a complaint were to result in a change in a benchmark determination, they shall publish or make available to subscribers and stakeholders as soon as possible.

Response
OB does not distinguish between disputes and complaints.

The *30-Year Fixed Rate Conforming Index Methodology* states that " Any identified errors in the index calculation or publication process are corrected promptly. The corrected Index Values are republished if the error is greater than 1 basis point and the error is identified within 24 hours of publication of the Index Value. Notification of the correction is posted to the Optimal Blue Website. A log of errors and corrections is maintained for audit purposes. Errors and corrections are reviewed by the Index Oversight Committee."

Controls
The *30-Year Fixed Rate Conforming Index Methodology* is reviewed by the IOC and approved by the COO at least annually.

Test Procedures
1) Please see Principle 11(e) for test procedures on error and correction of OBMMI publication.
2) Please see Principle 1(a) for test procedures on review and approval of the *30-Year Fixed Rate Conforming Index Methodology*.

Test Results
No exceptions noted

17. Audits

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.

Control Objective
To provide reasonable assurance that Optimal Blue appoints an independent internal or external auditor with appropriate experience and capability to periodically review and report on the adherence to their stated criteria and with the Principles.

Response

Please see Section 4 of this report for KPMG's Independent Assurance Report.



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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.

Optimal Blue have engaged KPMG to carry out a Reasonable Assurance review with regard to the IOSCO Principles.

18. Audit Trail

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

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

Control Objective

To provide reasonable assurance that Optimal Blue retains written records for five years (subject to applicable national legal/regulatory requirements) on:

- Market data, submission, and other data relied upon for benchmark determination;
- Optimal Blue's exercise of expert judgement when reaching their benchmark determination;
- Changes/deviations from standard methodologies and procedures (incl. those made during market stress);
- Identities of those involved in producing a benchmark determination; and
- Queries and responses related to data inputs.

Response

The *Index Administrator Handbook* details the requirement for OB to retain all Index process-related documents for five years or longer, subject to applicable national legal or regulatory requirements.

Test Procedures

- 1) Obtained the *Index Administrator Handbook* and inspected for evidence that it requires OB to retain all index process-related documents, including lock data transactions, IOC meeting minutes, methodology updates, complaint register, and conflict of interest identification logs, for at least five years.
- 2) For the lock data transactions, obtained screenshot of the lock data transactions used as input to the OBMMI determination five years ago and inspected for evidence that these transactions are readily assessable from OBMMI's database.
- 3) Obtained the historic benchmark values for OBMMI 30Y and inspected for evidence that they are stored on OB's official website.
- 4) Please see Principle 1(a) for test procedure on review and approval of the *Index Administrator Handbook*.

Test Results



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	<p>Specifically, the requirement covers the following documents and data:</p> <ul style="list-style-type: none"> a) Lock Data Transactions; b) IOC Meeting Minutes; c) Methodology updates; d) Complaint Registers; and e) Conflict of Interest Identification Logs. <p>OB's historic Benchmarks values (since inception of the Benchmark) are also available on OB's official website.</p> <p>Controls</p> <p>The <i>Index Administrator Handbook</i> details the requirement for OB to retain all Index process-related documents for five years or longer, subject to applicable national legal or regulatory requirements.</p> <p>Specifically, the requirement covers the following documents and data:</p> <ul style="list-style-type: none"> a) Lock Data Transactions; b) IOC Meeting Minutes; c) Methodology updates; d) Complaint Registers; and e) Conflict of Interest Identification Logs. <p>The <i>Index Administrator Handbook</i> is reviewed by the IOC and approved by the COO at least annually.</p>	<p>No exceptions noted</p>
<p>If these records are held by a Regulated Market or Exchange the Administrator may rely on these records for compliance with this Principle, subject to appropriate written record sharing agreements.</p>	<p>Optimal Blue's records are not held by a Regulated Market or Exchange and therefore does not rely on this provision of the IOSCO.</p>	<p>N/A</p>
<p>When a Benchmark is based on Submissions, the following additional Principle also applies: Submitters should retain</p>	<p>N/A – See response to Principle 14</p>	<p>N/A</p>



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

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

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19. Co-operation with Regulatory Authorities

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.

Control Objective
 To provide reasonable assurance that Optimal Blue makes any relevant documents, audit trails and other documents subject to the Principles readily available (and handed promptly) to the relevant regulatory authorities for performing their regulatory/supervisory roles.

Test Procedures
 1) Obtained the *Index Administration Handbook* and inspected for evidence that it subjects OB to make readily available the relevant documents, audit trails, and other documents subjected to the IOSCO Principles to the relevant Regulatory Authorities in carrying out their regulatory or supervisory duties and handed over promptly upon request.



IOSCO Principle	Optimal Blue Response Control Objectives and Controls	Work performed by KPMG
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Response
 The *Index Administration Handbook* states that "Optimal Blue is committed to fully complying with all applicable regulatory authorities governing the Index and agrees to make Index-related documentation readily available to auditors. Optimal Blue diligently adheres to the applicable laws, regulations, and guidelines to maintain the highest standards of integrity and accountability. Should an auditor or regulator identify a gap in compliance, Optimal Blue commits to investigating the cause of the control breakdown and swiftly remediating the issue. "

Controls
 The *Index Administrator Handbook* is reviewed by the IOC and approved by the COO at least annually.

- 2) For the latest Regulatory Authorities request, obtained OB's communication with the Authority and inspected for evidence that OB handed over requested materials subjected to the IOSCO Principles promptly upon request.
- 3) Please see Principle 1(a) for test procedure on review and approval of the *Index Administrator Handbook*.

Test Results
 No exceptions noted.