

THOMSON REUTERS

Commodities Benchmark Methodologies LBMA SILVER PRICE

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CONTENTS

1	Introduction	4
2	Methodology Process	5
3	Conformance with IOSCO Principles for Financial Benchmarks	6
4	Glossary of Defined Terms & Acronyms	8

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1 Introduction

1.1 Overview

The LBMA Silver Price is an electronic, auction-based benchmark price for spot Silver transactions.

1.2 Purpose of Document

This document specifies the Methodology established by Thomson Reuters ('TR') as the Administrator of the LBMA Silver Price.

The Methodology has been developed in accordance with the Thomson Reuters Commodities Benchmark Design & Methodologies policy in consideration of the recommendations of the International Organization of Securities Commissions (IOSCO) Principles for Financial Benchmarks¹ and the IOSCO Principles for Oil Reporting Agencies (PRA)².

1.3 Document Ownership & Approval

The LBMA Silver Price Methodology is owned and approved by the Thomson Reuters CF50.

1.4 Document Publication

The LBMA Silver Price Methodology will be Published through a Thomson Reuters portal or Made Available to Stakeholders upon request.

1.5 Document Review

The LBMA Silver Price Methodology will be subject to a review by the Administrator on a periodic basis.

1.6 Rationale for methodology

The LBMA Silver Price has been developed in response to the consultation process run by the London Bullion Market Association in May/June 2014 to create a replacement for the "Silver Fix" – the price benchmark historically produced by London Silver Market Fixing Ltd. The consultation received 440 responses from a diverse set of silver market participants and was supplemented by discussion with market, regulatory and industry bodies including the Financial Conduct Authority, Bank of England and ISDA.

The consensus from the consultation was to retain the auction element of the historic "Silver Fix" but to improve transparency, distribution, audit and market confidence by moving to a transaction based price calculated via an electronic platform.

Thomson Reuters and CME Benchmark Europe Ltd, with the support of LBMA and market participants, will continue to review and enhance the methodology over time to increase further the robustness of the Benchmark. Potential actions include initiatives to increase direct participation in the auction, thereby increasing the number of participants, and to introduce clearing of the auction transactions.

¹ <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf>

² www.iosco.org/library/pubdocs/pdf/IOSCOPD391.pdf

2 Methodology Process

2.1 Overview

The LBMA Silver Price is determined using a daily auction process that is conducted over as many auction rounds as necessary to determine a final silver benchmark price.

2.2 Timing and frequency

Daily: 12:00:00 LDN (London) time, Monday to Friday, excluding weekends and UK bank holidays

2.3 Auction process

Access to the CME Direct Auction Platform Calculation Methodology and Rulebook can be found through the following links:

<http://www.cmegroup.com/international/files/cme-direct-auction-platform-calculation-methodology.pdf>

<http://www.cmegroup.com/international/files/auction-platform-rules-2016-03.pdf>

2.4 Thomson Reuters Operational Procedure

Once the auction is balanced, TR receives and publishes the USD fixing from the CME, at which point TR automatically calculates a currency conversion to EUR & GBP, based on the top of the order book from the Thomson Reuters Matching Platform.

Currency conversion and spot-rate tolerance checks evaluate the data and the calculations to identify data irregularities.

Once all checks are completed, TR will publish the EUR & GBP converted rates to the market, with Delayed Content published 15 minutes after the publication time.

Thomson Reuters, like any other firm, is exposed to a potential risk that we will not be able to provide our products and services to customers if there is a disastrous incident at a data centre, or a critical Application outage, for example Thomson Reuters Matching. Thomson Reuters ensures adequate disaster recovery (DR) solutions exist for our Applications and services. Disaster recovery means that an application, for example Thomson Reuters Matching, has a replicated, functional, usable and operationally managed DR instance available in an alternate data centre that is capable of providing appropriate service in the event of suffering a disastrous incident.

3 Conformance with IOSCO Principles for Financial Benchmarks

3.1 IOSCO Principles

Financial Benchmark design and methodology principles have been developed in consideration of principles 6-15 of the IOSCO Principles for Financial Benchmarks. These principles underpin the Design and Methodologies for the Commodities Benchmarks to which IOSCO principles for Financial Benchmarks apply.

3.2 Financial Benchmarks Design Principles

Reliable representation of the interest:

- i. Adequacy of the sample:
No sampling - the auction price is determined on bid and offer volumes from all participants in the process.
- ii. Size and liquidity of the market:
Trading pool underlying the auction is substantial, representative and liquid.
- iii. Relative size of the underlying market in relation to the volume of trading
Volumes in the LBMA Silver Price auction are a fraction of the daily volume traded in the silver futures and OTC markets.
- iv. Market concentration
Estimated 500-1000 active trading entities
- v. Market dynamics
“Loco London” trading accounts for ~90% of global spot transactions. Futures volumes (in Oz) are 6x spot traded ~2/3 on SHFE and ~1/3 on Comex (CME Group). Comex and Shanghai typically have peak trading volumes during and around the Silver Fix – the predecessor to the LBMA Silver Price.

3.3 Exercise of Expert Judgement

No expert judgement will be levied – calculation-based methodology.

3.4 Transparency of Determination

Prices are published on Thomson Reuters systems, through 3rd party data vendors and on the LBMA website. Methodology document is published.

3.5 Periodic Review

- i. Review of the conditions in the underlying Interest - to be performed on a periodic basis
- ii. Review to identify if the Interest has diminished or is non-functioning - to be performed on a periodic basis
- iii. Publication of summary of Benchmark reviews where revisions have been made
- iv. Any changes to LBMA Silver Price Benchmark methodology, CME Auction Platform Rules or the CME Auction Platform Methodology will be published along with the summary of any underlying review findings.

Ensuring consistency of Benchmark integrity

The Administrator will ensure that Financial Benchmark material change procedures are consistent with the overriding objective of ensuring the continued integrity of Benchmark determinations. When changes are proposed, the Administrator will specify exactly what these changes entail and when they are intended to apply.

Procedure and frequency of internal review and approval of the methodology

The Administration Manager will periodically conduct a review of the methodology including commissioning such reports or expert inputs as are deemed necessary to support the review. A review summary will be made available to the LBMA Silver Price Oversight Committee (the "Committee")

Scrutiny of methodology changes

Methodology changes will be presented for review by the Committee prior to being adopted.

The Administrator will consult with stakeholders in relation to materials methodology changes. This consultation will be, in the first instance, with the Committee, and through the LBMA.

3.6 Benchmark Participant Codes of Conduct

All participants are required to adopt the LBMA Silver Price Participant Code of Conduct.

4 Glossary of Defined Terms & Acronyms

Capitalised terms used in this document are defined in the following table, some definitions sourced from IOSCO Principles for Financial Benchmarks³ and IOSCO Principles for Price Reporting Agencies (PRA)⁴.

Glossary of Defined Terms & Acronyms	
Term	Definition
Administration	Includes all stages and processes involved in the production and dissemination of a Benchmark, including: <ul style="list-style-type: none"> a) Collecting, analysing and/or processing information or expressions of opinion for the purposes of the determination of a Benchmark; b) Determining a Benchmark through the application of a formula or another method of calculating the information or expressions of opinions provided for that purpose; and c) Dissemination to users, including any review, adjustment and modification to this process.
Administrator	An organisation or legal person that controls the creation and operation of the Benchmark Administration process, whether or not it owns the intellectual property relating to the Benchmark. In particular, it has responsibility for all stages of the Benchmark Administration process, including: <ul style="list-style-type: none"> a) The calculation of the Benchmark; b) Determining and applying the Benchmark Methodology; and c) Disseminating the Benchmark.
Benchmark	Prices, estimates, rates, indices or values that are: <ul style="list-style-type: none"> a) Made available to users, whether free of charge or for payment; b) Calculated periodically, entirely or partially by the application of a formula or another method of calculation to, or an assessment of, the value of one or more underlying Interests; c) Used for reference for purposes that include one or more of the following: <ul style="list-style-type: none"> • determining the interest payable, or other sums due, under loan agreements or under other financial contracts or instruments; • determining the price at which a financial instrument may be bought or sold or traded or redeemed, or the value of a financial instrument; and/or • measuring the performance of a financial instrument. For the purposes of this document, Benchmarks can also include oil price or other commodity derivative Assessments.
Calculation Agent	A legal entity with delegated responsibility for determining a Benchmark through the application of a formula or other method of calculating the information or expressions of opinions provided for that purpose, in accordance with the Methodology set out by the Administrator.
Expert Judgment	Refers to the exercise of discretion by an Administrator or Submitter with respect to the use of data in determining a Benchmark. Expert Judgment includes extrapolating values from prior or related transactions, adjusting values for factors that might influence the quality of data such as market events or impairment of a buyer or seller's credit quality, or weighting firm bids or offers greater than a particular concluded transaction.
IOSCO	International Organization of Securities Commissions
IOSCO Benchmarks	IOSCO Principles for Financial Benchmarks and IOSCO Principles for Oil Reporting Agencies (PRA). These are collectively referred as "IOSCO Benchmarks" to differentiate from "Regulated Benchmarks".
Make Available	See "Publish or Make Available"
Market Data	The specific volume, concluded and reported transactions, bids, offers and any other market information that are considered in developing a price assessment.
Market Participants	Legal entities involved in the production, structuring, use or trading of financial contracts or financial instruments used to inform the Benchmark, or which reference the Benchmark.
Methodology	The written rules and procedures according to which information is collected and the Benchmark is determined.
Stakeholder	Refers to Subscribers and other persons or entities who own contracts or financial instruments that reference a Benchmark.

³ <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf>

⁴ www.iosco.org/library/pubdocs/pdf/IOSCOPD391.pdf