

BSE Fixed Income Indices *Methodology*

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Introduction

Index Objectives and Highlights

The BSE Fixed Income Indices are market capitalization weighted indices covering the principal sectors of the Indian fixed income markets. The family currently consists of the following:

BSE India 10 Year Sovereign Bond Index. The index seeks to measure the performance of the Benchmark 10 Year Indian Sovereign Bond (“Benchmark”). For more information on the Benchmark, please refer to *Appendix I*.

BSE Liquid Rate Index. The index represents the returns from a daily rolling deposit at the Tri-Party Repo (TREP) rate. For more information on Tri-Party Repo, please refer to *Appendix I*.

Please refer to Appendix I for a list of defined terms used throughout this document.

Index returns and other statistics are calculated daily.

This methodology was created by Asia Index Private Limited to achieve the aforementioned objective of measuring the underlying interest of each index governed by this methodology document. Any changes to or deviations from this methodology are made in the sole judgment and discretion of Asia Index Private Limited so that the index continues to achieve its objective.

Eligibility Criteria

Eligibility Factors

BSE India 10 Year Sovereign Bond Index. The index contains only one security, the Benchmark bond. Bid price is provided by Refinitiv. Bonds not priced by the designated pricing source are ineligible for index inclusion.

BSE Liquid Rate Index. The index is calculated using the TREP rate for transactions maturing on the following business day and with settlement type T+0. Rates used are provided by Clearing Corporation of India Ltd (CCIL).¹

¹ TREP rate is from CCIL website: <https://www.ccilindia.com/TripartyRepo/Pages/Statistics.aspx>.

Index Construction

Index Calculations

BSE India 10 Year Sovereign Bond Index. The total return for the index is calculated by aggregating the interest return (reflecting the return due to paid and accrued interest) and price return (reflecting the gains or losses due to changes in the end-of-day price). Coupons are reinvested into the index on the coupon payment dates.

BSE Liquid Rate Index. The index is calculated by applying the return implied by the TREP rate as defined in the eligibility criteria to the previous day's index level. Please refer to *Appendix II* for further details.

Index Maintenance

Rebalancing

BSE India 10 Year Sovereign Bond Index. In order to keep the index current, the index is reviewed and rebalanced monthly in accordance with the below stated schedule. The Index Committee, nevertheless, reserves the right to make adjustments to an index at any time that it believes appropriate.

Rebalancing Schedule	
Rebalancing Frequency	Monthly
Rebalancing Date	Last day of the rebalancing period (T)
Announcement Date	T minus 3
Reference Date	T minus 4

All days reflect after the close and count business days

Additions, deletions and other changes to the index arising from the rebalancing are made provided the security's reference information and pricing are available by designated pricing and data providers on the rebalancing reference date. Changes to the index are published on the announcement date and become effective on the rebalancing date. Information related to the rebalancing is obtained and disseminated after the close of business.

Additions

A replacement security is added to the index at the rebalancing, as long as Asia Index Private Limited has access to price and coupon information from Refinitiv.

Deletions

A constituent is deleted from the index at the rebalancing when the corresponding replacement security is added to the index.

BSE Liquid Rate Index. The index represents the performance of a daily rolling deposit and does not undergo a rebalancing, unlike the BSE India 10 Year Sovereign Bond Index.

Under unusual circumstances, the Index Committee reserves the right to not publish the index on a specific date.

Where applicable, index changes published in the announcement are not normally subject to revision and become effective on the rebalancing date, as long as Asia Index Private Limited has access to price and coupon information.

Currency of Calculation

The indices are calculated in Indian rupees.

Base Dates and History Availability

Index history availability, base dates, and base values are shown in the table below.

Index	Launch Date	First Value Date	Base Date	Base Value
BSE India 10 Year Sovereign Bond Index ²	06-Dec-13	07-Apr-99	07-Apr-99	100
BSE Liquid Rate Index	26-Jul-16	31-Dec-15	31-Dec-15	1000

² Note that the historical prices of the securities used for index construction have been compiled using multiple sources.

Index Governance

Index Committee

The Asia Index Pvt. Ltd.'s Index Committee oversees the indices. The Index Committee meets regularly. At each meeting, the Index Committee may review pending corporate actions that may affect index constituents, statistics comparing the composition of the indices to the market, companies that are being considered as candidates for addition to an index, and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting companies, treatment of dividends, share counts or other matters.

Asia Index Private Limited considers information about changes to its indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

Asia Index Private Limited's Index Committee reserve the right to make exceptions when applying the methodology if the need arises. In any scenario where the treatment differs from the general rules stated in this document or supplemental documents, clients will receive sufficient notice, whenever possible.

In addition to the daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, Asia Index Private Limited may publish a consultation inviting comments from external parties.

Index Committees reserve the right to make exceptions when applying the methodology if the need arises. In any scenario where the treatment differs from the general rules stated in this document or supplemental documents, clients will receive sufficient notice, whenever possible.

In addition to the daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, Asia Index Pvt. Ltd. may publish a consultation inviting comments from external parties.

Index Policy

Announcements

Announcements of any relevant information pertaining to the Indices are made after the close. Press releases are posted on the BSE Ltd. Web site at www.bseindia.com, and Asia Index Private Limited's Web site at www.asiaindex.co.in.

Holiday Schedule

The indices are calculated daily on days when the CCIL is open, excluding Saturdays and Sundays.

Rebalancing

The Index Committee may change the date of a given rebalancing for reasons including market holidays occurring on or around the scheduled rebalancing date. Any such change will be announced with proper advance notice where possible.

End-of-Day Calculation

Index levels are calculated at the end of every business day. They are distributed via Asia Index Private Limited's Web site, and the BSE Ltd. Web site.

Contact Information

For questions regarding an index, please contact: bseindex@bseindia.com

Index Dissemination

The Index levels are available through the BSE Ltd. Web site at www.bseindia.com, Asia Index Private Limited's Web site at www.asiaindex.co.in, major quote vendors (see codes below), numerous investment-oriented Web sites, and various print and electronic media.

Tickers

The table below lists headline indices covered by this document. All versions of the below indices that may exist are also covered by this document.

Index	Return Type	Bloomberg
BSE India 10 Year Sovereign Bond Index	Price Return	BDISBP
	Total Return	BDISBT
BSE Liquid Rate Index	Total Return	BSELIQT

Index Data

Daily index level data is available via subscription.

For product information, please contact bseindex@bseindia.com

Web site

For further information, please refer to AIPL's Web site at www.asiaindex.co.in.

Appendix I

Defined Terms

Benchmark. For the BSE India 10 Year Sovereign Bond Index, the Benchmark is the most recently issued ten-year, fixed rate India Sovereign Bond.

Tri-Party Repo. A repo contract where a third party (apart from the borrower and lender), called a Tri-Party Agent, acts as an intermediary between the two parties to the repo to facilitate services like collateral selection, payment and settlement, custody and management during the life of the transaction.

Announcement Date. The date on which changes to the index are published, as further described in the Index Maintenance chapter.

Rebalancing Date. The date when the announcement becomes effective, as further described in the Index Maintenance chapter.

Business Days. Those days on which the Reserve Bank of India declares the Indian fixed income markets open.

Close. The end of a business day for the purpose of calculating index values and other statistics, currently 10:00 PM Indian Standard Time for regular business days. Asia Index Private Limited may calculate index values and other statistics at an earlier time for pre-holiday days, when there is a recommended early close as determined by the Reserve Bank of India.

Eligible Security. A security that meets all of the eligibility criteria, based on publicly available information as of the close of the reference date.

Index. The BSE India 10 Year Sovereign Bond Index or BSE Liquid Rate Index.

Par Amount. The total par or “face value” amount outstanding of an index security.

Appendix II

BSE Liquid Rate Index Calculation

$$IndexTR_t = \left(1 + \frac{n[T + 1, T]}{365} * r_t \right) \times IndexTR_{t-1}$$

where:

$IndexTR_t$ = Index Value on current index calculation day t

$IndexTR_{t-1}$ = Index Value on previous index calculation day $t - 1$

$n[T + 1, T]$ = Number of days between next index calculation day $t + 1$ and current index calculation day t

r_t = Weighted Average TREP Rate published by CCIL on current index calculation day t for T+0 settlement type with $n[T + 1, T]$ days to maturity

Note: $IndexTR_t$ calculated on current day is the face value of the rolling deposit maturing on following business day.

Appendix III

Methodology Changes

Methodology changes since January 1, 2015 are as follows:

Change	Effective Date (After Close)	Methodology	
		Previous	Updated
Deposit Rate Source Change: S&P BSE Liquid Rate Index	11/02/2018	The rate is provided through Clearing Corporation of India Ltd.'s Collateralized Borrowing and Lending Obligation data feed.	The rate is provided through the Tri-Party Repo Dealing System data feed by Clearing Corporation of India Ltd.
Elimination of the Liquidity Criteria: S&P BSE India 10 Year Sovereign Bond Index	09/25/2017	At each regularly scheduled monthly rebalancing, all Indian sovereign bonds with remaining maturities close or equal to 10 years are identified and screened for liquidity (the total trading volume over the last 30 days, ending five business days prior to the rebalancing effective date). The most liquid bond that meets the maturity criterion is added to the index subject to Index Committee review.	At each monthly rebalancing the most recently issued 10 year on-the-run bond is selected as the index constituent.
Changing the Rebalancing Effective Date: S&P BSE India 10 Year Sovereign Bond Index	09/25/2017	The regularly scheduled monthly rebalancing is effective on the first Monday of each month.	The monthly rebalancing is effective on the first business day of each month.
Elimination of ad-hoc Rebalancing: S&P BSE India 10 Year Sovereign Bond Index	09/25/2017	In the event the Reserve Bank of India announces a new 10 Year on-the-run Sovereign Bond an additional rebalancing is conducted.	---
Cessation of Advisory Opinion Poll: S&P BSE India 10 Year Sovereign Bond Index	04/11/2017	The Index Committee may obtain feedback from major market participants including primary dealers, fund management companies, banks and insurance companies, by conducting an advisory opinion poll.	The Index Committee ceased conducting an advisory opinion poll.
Liquidity Definition: S&P BSE India 10 Year Sovereign Bond Index	04/11/2017	The total trading volume over the last 30 trading days, ending seven business days prior to the rebalancing effective date).	The total trading volume over the last 30 trading days, ending five business days prior to the rebalancing effective date).

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