BOND INDEX SERIES

GROUND RULES AND CALCULATION METHODOLOGY

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# Table of Contents

1. Introduction .................................................................................................................. 2

2. Management of the Indices .......................................................................................... 2
   2.1. BBIS Advisory Committee ................................................................................... 2
   2.2. BSE Responsibilities ............................................................................................. 3

3. Management of the Ground Rules .............................................................................. 4
   3.1 Amendments and Exceptions ................................................................................... 4

4. Index Construction ....................................................................................................... 4
   4.1 Eligible Securities ..................................................................................................... 4
   4.2 Eligibility Criteria .................................................................................................... 4
   4.3 Index Qualification Criteria ....................................................................................... 6

5. Periodic Review of Constituent Securities .................................................................... 6
   5.1 Review Dates ............................................................................................................ 6
   5.2 Responsibilities and Reporting ................................................................................ 6
   5.3 Rules for Insertion and Deletion at the Quarterly Review ........................................ 7
   5.4 Monitoring of Eligible Securities ............................................................................ 7

6. Changes to Constituent Securities ................................................................................ 7
   6.1 Removal .................................................................................................................... 7
   6.2 New Issues ............................................................................................................... 7
   6.3 Changes to Constituent Weightings .......................................................................... 8

7. Index Calculation .......................................................................................................... 8
   7.1 Bond Prices .............................................................................................................. 8
   7.2 Weighting methodology ........................................................................................... 8
   7.3 Index Calculations .................................................................................................... 9

8. Appendix A – Further Information ............................................................................. 11
   8.1. Contacting BSE ..................................................................................................... 11
1. INTRODUCTION

1.1. This document sets out the Ground Rules for the management of the Botswana Stock Exchange ("BSE") Bond Index Series ("BBIS"). Copies of these Ground Rules are available from the BSE (see Appendix A) and on the website www.bse.co.bw.

1.2. The Botswana Stock Exchange Bond Index Series (BBIS) is designed to represent the performance of fixed and floating interest instruments issued in local currency and listed on the BSE, providing investors with a comprehensive and complementary set of indices that measure the performance of this market.

1.3. The BBIS is comprised of different categories of indices, all of which Total Return Indices (incorporates the reinvestment of coupons) of the government, corporate and supranational bonds. The indices may be grouped into the following categories:

1.3.1. Composite Bond Index (BBI)

The overall, composite index represents all eligible bond instruments, including sovereign & non-sovereign, fixed & floating interest and all maturity spectrums.

1.3.2. Composite Fixed Rate Bond Index (BBIFixed)

This composite index represents all eligible fixed rate bond instruments, including sovereign & non-sovereign, and all maturity spectrums.

1.3.3. Government (Sovereign) Bond Index (GovI)

All bond instruments issued by the Central Bank of Botswana and backed by the Government of Botswana are eligible for inclusion in the Government Bond Index (GovI). Currently there are only fixed interest sovereign bonds in issue. Should floating rate sovereign bonds or inflation-linked sovereign bonds be issued in future, separate sub-indices for these may be introduced.

1.3.4. Corporate (Non-sovereign) Bond Index (Corpl)

All local currency bond instruments issued by non-sovereign entities in Botswana, including corporates, parastatals and non-government organisations are eligible for inclusion in the Corporate Bond Index (Corpl). Currently there are both fixed rate and floating rate non-sovereign bonds in issue. Separate sub-indices for these may be introduced in future.

1.3.5. Maturity Indices

Another future development may include the development of a series of indices for different maturity buckets, i.e. 1-3 years, 3-7 years, 7-12 years and 12+ years in terms of time to maturity.

1.4. The BBIS is calculated at the end of each trading day and is published daily.

1.5. The BBIS is calculated on all days when the BSE is open for trading.

2. MANAGEMENT OF THE INDICES

2.1. BBIS Advisory Committee
2.1.1. Committee Responsibilities

The purpose of the Committee is to consider and advise on matters relating to and proposed amendments to the Ground Rules governing the management of the BBIS. The Committee will also ensure that best practice is used in the construction and on-going management of the Indices.

In particular the Committee will:

- ensure that global standards are applied in the Ground Rules,
- advise on how to restructure or replace the existing index methodology,
- oversee the on-going management of the indices, corporate actions and changes to the Ground Rules, and
- advise on the construction and methodology of new indices.

2.1.2 Committee Membership

The BSE appoints the Chairman, Deputy Chairman and members of the BBIS Advisory Committee. The Chairman, or in his absence Deputy Chairman, will chair meetings of the Committee and will represent that Committee outside meetings. No member of the Advisory Committee is on the Advisory Committee to represent that member’s employer but rather is there because of that person’s specific expertise and to represent the interests of the industry generally.

2.1.3 Committee Secretary

A Secretary to the BBIS Advisory Committee is appointed by the BSE to support the work of the Committee.

2.1.4 Consultant to the Committee

A Consultant is appointed by the BSE to advise the BSE and the Committee on the development, construction and management of the BBIS.

2.1.5 Appeals against Decisions of the Committee

Any market participant may appeal against the decisions of the BBIS Advisory Committee on two grounds:

- That the relevant Committee acted outside of the Ground Rules for the management of the BBIS; or
- That the relevant Committee when reaching its decision failed to take into consideration a substantial and material fact. A substantial and material fact is defined as a fact, which would have influenced the decision of the Committee if it had been considered. A request for an appeal must be made in writing to the Secretary of the BBIS Advisory Committee (see Appendix A), within a reasonable time period. Appeals will be heard by a committee appointed by BSE. Members of the BBIS Advisory Committee may not serve on the Appeal Committee.

2.2. BSE Responsibilities

2.2.1 The BSE is responsible for the operation of the BBIS. The BSE will calculate all the indices in the series and will maintain records of all the underlying data required to calculate the indices. Following consultation with the BBIS Advisory Committee, the BSE will make changes to the constituent’s data and their weightings in accordance
with the Ground Rules. The Advisory Committee will carry out the quarterly review and approval of the changes of the BBIS for implementation by the BSE.

2.2.2 Changes to constituent weightings will be made in accordance with the Ground Rules.

2.2.3 The BSE is also responsible for monitoring the performance of the BBIS on all days that the market is open. The BSE will inform the BBIS Advisory Committee of all occasions when an index could not be calculated according to the Ground Rules and provide the reasons for all such occasions at the next regular meeting.

3. MANAGEMENT OF THE GROUND RULES

3.1 Amendments and Exceptions

3.1.1 In the event that the BBIS Advisory Committee or any of those responsible for the operation and administration of the BBIS consider that an exception should be made to any of the Ground Rules, the issue must be brought to the attention of the Chairman or Deputy Chairman of the BBIS Advisory Committee, who will normally put the matter to the full BBIS Advisory Committee for a decision. If, however, the matter is urgent, the Chairman and Deputy Chairman are collectively empowered to authorise an exception on behalf of the BBIS Advisory Committee but must immediately notify, and subsequently refer the matter to, a meeting of the BBIS Advisory Committee.

3.1.2 Where an exception is granted to the Ground Rules under Rule 3.1.1, it shall not be deemed to create a precedent for future decisions of the BBIS Advisory Committee.

3.1.3 Changes to the Ground Rules can only be made by the BBIS Advisory Committee.

3.1.4 Material changes to the Ground Rules are announced after the BBIS Advisory Committee’s meeting at which they are agreed, but will not come into effect until after they have been confirmed at the following meeting, in order to allow for comments from index users and the market in general.

4. INDEX CONSTRUCTION

4.1 Eligible Securities

4.1.1 All local currency fixed and floating rate instruments listed on the BSE, excluding money market instruments, are eligible for inclusion in the BBIS, subject to conforming to all other rules of eligibility.

4.1.2 For the purposes of the BBIS, where a security is listed on the BSE and is traded on the BSE trading system, and that security reflects a local currency security, that security will be considered as eligible for the BBIS, subject to conforming to all other eligibility criteria. In addition, all bond instruments backed by Government of Botswana are automatically eligible for inclusion.

4.2 Eligibility Criteria

Bonds that are appropriate for inclusion meet the following criteria:

4.2.1. Bond type: bonds only, no under one-year bills.
4.2.2. Local currency issues only.

4.2.3. Issuer: Sovereign issuers (i.e. central government debt issued in the local currency), non-sovereign (incl. local governments), sub-sovereign, quasi-sovereign, collateralised and corporate debt.

4.2.4. Minimum maturity at each quarterly index review: for non-callable bonds, at least 12 months to maturity.

4.2.5 Minimum maturity at each quarterly index review: for callable bonds, at least 12 months to first call date.

4.2.6. Minimum maturity at issue: 12 months to maturity and to first call date for non-callable and for callable bonds respectively.

4.2.7. No minimum number of bonds from each issuer that meet the above eligibility criteria is specified.

4.2.8. All listed bonds shall be included without due regard to minimum issue size.

4.2.9. No minimum sovereign credit rating is specified.

4.2.10 Liquidity: there is no liquidity requirement for constituents of the BBIS.

4.2.11 Reliable price: due to the infrequent secondary market trading of many of the bonds in Botswana, it is not a requirement that an accurate and reliable price should exist (or observed outside BSE) for the purposes of determining the market value of a bond. The BBIS is priced off the prevailing term structure of the yield curve as determined by the BSE.
4.3 Index Qualification Criteria

4.3.1 Composite Bond Index (BBI)

The BBI will consist of all eligible instruments, including sovereign & non-sovereign, fixed & floating interest and all maturity spectrums, which qualify under Rules 4.1 to 4.2 as eligible for inclusion in the index.

4.3.2 Composite Fixed Rate Bond Index (BBIFixed)

The BBIFix will consist of only fixed rate eligible instruments, including sovereign & non-sovereign, and all maturity spectrums, which qualify under Rules 4.1 to 4.2 as eligible for inclusion in the index.

4.3.2 Government Bond Index (GovI)

The GovI will consist of all bond instruments issued by the Central Bank of Botswana and backed by the Government of Botswana, which qualify under Rules 4.1 to 4.2 as eligible for inclusion in the index. Currently there are only fixed interest sovereign bonds in issue, but should floating rate sovereign bonds be issued in future, these would also be included in this index.

4.3.3 Corporate Bond Index (CorpI)

The CorpI will consist of all local currency bond instruments issued by non-sovereign entities in Botswana, including corporates, parastatal and non-government organisations, which qualify under Rules 4.1 to 4.2 as eligible for inclusion in the index. Currently there are both fixed interest and floating rate non-sovereign bonds in issue. Separate sub-indices for these may be introduced in future.

5. PERIODIC REVIEW OF CONSTITUENT SECURITIES

5.1 Review Dates

5.1.1 The quarterly review of the BBIS constituents and BBIS levels takes place immediately after the end of each quarter. The results of quarterly reviews will inform the changes in constituent bonds at the end of the following quarter. Any constituent and weight changes will be implemented on the last trading day of each quarter, i.e. March, June, September and December.

5.1.2 Details of the outcome of the review and the dates on which any changes are to be implemented, will be published as soon as possible after the BBIS Advisory Committee meeting has concluded.

5.2 Responsibilities and Reporting

5.2.1 The Consultant to the BBIS Advisory Committee is responsible for conducting the quarterly review of constituents for the BBIS and will very to the BBIS Advisory Committee any constituents to be inserted or deleted at the succeeding quarter as part of the quarterly review.

5.2.2 The BBIS Advisory Committee will decide whether to approve the recommendation presented to it or will determine what other action should be taken in consequence of the outcome of the review of constituents.
5.2.3 The Secretary to the BBIS Advisory Committee is responsible for publishing the outcome of the quarterly review.

5.3 Rules for Insertion and Deletion at the Quarterly Review

5.3.1 The rules for inserting and deleting securities at the quarterly review are designed to provide stability in the selection of constituents for the BBIS, while ensuring that the Index continues to be representative of the market by including or excluding those securities that either become eligible or are no longer eligible, respectively.

5.3.2 A security will be inserted upon listing if it meets all the eligibility criteria as listed in Rules 4.1 and 4.2.

5.3.3 A security will be removed at the periodic review if it has already been announced that it will be redeemed during the upcoming quarter or a notice of early redemption has been issued to the BSE in line with the Debt Listing Rules.

5.3.4 There is no specified number of constituents for any of the Indices.

5.4 Monitoring of Eligible Securities

The eligibility criteria of all securities considered for inclusion in the BBIS is monitored by BSE. All listed, local currency bonds on the BSE will be used to conduct the periodic reviews.

6. CHANGES TO CONSTITUENT SECURITIES

6.1 Removal

6.1.1 If a constituent bond defaults, matures or is redeemed early, or has, in the opinion of the Chairman and Deputy Chairman of the BBIS Advisory Committee (or their nominated deputies), ceased to be a viable constituent as defined by the Ground Rules, it will be removed from the list of constituent securities.

6.1.3 Any changes to the BBIS made intra-quarter will be communicated to the market.

6.1.4 The removal or inclusion of any constituents is undertaken on the actual day on which the event justifying removal or inclusion becomes effective. Announcements made after the close of the index calculation (trading day) with respect to removal or inclusion will be made on the following business day.

6.2 New Issues

6.2.1 If a new bond is issued, or an additional listing of a bond, in the market and it qualifies according to all the eligibility criteria, and is, in the opinion of the Chairman and Deputy Chairman of the BBIS Advisory Committee (or their nominated deputies), a viable constituent as defined by the Ground Rules, it will be included in the list of constituent securities. This would normally be in the view of the BBIS Advisory Committee that a new issue is sufficiently large or such that the effectiveness of the index as a market indicator would be significantly and adversely affected by its omission.

6.2.2 The BBIS Advisory Committee will normally decide to include the new issue as a constituent of the BBIS, if it qualifies, after the close of business on the first day of official trading. In all cases, advance notification confirming the timing of the
inclusion of the new constituent will be given accordingly. An additional issue of an existing Government bond will be reflected in the BBIS on the settlement date of the bond.

6.2.3 If the BBIS Advisory Committee decides to include a new issue as a constituent security other than as part of the normal periodic review procedure, this decision must be publicly announced at the earliest practicable time.

6.2.4 New issues which do not qualify as “automatic” entrants to the BBIS as defined under Rule 6.2.1 will become eligible for inclusion at the next quarterly review of constituents providing they meet all eligibility criteria.

6.3 Changes to Constituent Weightings

6.3.1 For the purposes of computing the BBIS, the determination and possible amendment of constituent weightings for each constituent security will only be considered at the regular quarterly review dates, or when a security is removed intra-quarter (according to Rule 6.1), or when a new issue is included intra-quarter (according to Rule 6.2)

6.3.2 Adjustments to reflect a major change as noted in Rule 6.3.1 must be announced to the market prior to the change being implemented, and must be made before the start of the index calculation on the day on which the change takes effect. Announcements of such events, which are made after the close of the index calculation, are normally deemed to be made on the following day.

7. INDEX CALCULATION

7.1 Bond Prices

7.1.1 Traded yields for index constituents are sourced from the Bank of Botswana. They are subject to quality controls before being consolidated and used in index calculation or other metrics.

7.1.2. Bonds listed on the BSE are traded on a “dirty” basis, i.e. it includes the total amount of interest accrued to the bond since its last coupon date.

7.1.3. The BSE calculates the prevailing Zero Coupon Yield Curve (“ZCYC”) on a daily basis. This risk free curve is derived based on inputs from Bank of Botswana Certificates (BOBCs), Treasury Bills (T-Bills) and government bond yields. Bids and offers are sourced from the registered primary dealers for each respective Government Bond and the best bid and offer is used to determine the mid-point for inclusion in the yield curve derivation. Primary dealers include Stanbic Bank Botswana, Standard Chartered Bank Botswana, BancABC, Barclays Bank Botswana and First National Bank Botswana.

7.1.4. Due to the low level of liquidity of bonds listed on the BSE, the index calculations use “fair value” prices as derived from the ZCYC. This decision may be revisited in future when liquidity on the BSE has improved to the required levels.

7.2 Weighting methodology
7.2.1. Individual bonds are weighted according to their nominal amounts in issue in each of the component bond indices (BBI, BBIF, GovI and CorpI) at each quarterly rebalancing period date.

7.2.2. The Weight \( W \) applicable to each bond for each component index at each quarterly rebalancing date is calculated as:

\[
\begin{align*}
W_{\text{GovI}(j)} &= \frac{\text{GovI}_i \cdot \text{Amount in Issue}}{\sum \text{GovI}_i \cdot \text{Amount in Issue}} \\
W_{\text{CorpI}(j)} &= \frac{\text{CorpI}_i \cdot \text{Amount in Issue}}{\sum \text{CorpI}_i \cdot \text{Amount in Issue}} \\
W_{\text{BBI}(j)} &= \frac{\text{BBI}_i \cdot \text{Amount in Issue}}{\sum \text{BBI}_i \cdot \text{Amount in Issue}} \\
W_{\text{BBIFixed}(j)} &= \frac{\text{BBIFixed}_i \cdot \text{Amount in Issue}}{\sum \text{BBIFixed}_i \cdot \text{Amount in Issue}}
\end{align*}
\]

7.2.3. The weight of each bond may be different in each index in the BBIS.

7.2.4. The weight of each bond in each index will drift from the starting weight as a function of relative price changes over time, however, a fund tracking the index will not be required to rebalance its individual bond exposures as the changes are only as a result of price movements. At the next quarterly rebalancing, the new initial weight for each bond in each index is determined as shown in 7.2.2.

7.3 Index Calculations

7.3.1 The index calculation is based on individual constituent bond prices as discussed in 7.1 and the individual constituent bond weights as discussed in 7.2.

7.3.2. Total Return Index (TRI):

The total returns index captures the changes in the clean price of the security as well as the reinvestment of coupon payments. It reflects the total value of the bond investment over time. The index has an initial value of TRI\(_0\) = 100 on the base date of 1 January 2010. At all subsequent time periods, the TRI is calculated as

\[
\text{TRI}_t = \text{TRI}_{t-1} \times \frac{\sum_i (\text{CP}_{i,t} + \text{C}_{i,t}) \times \text{TW}_{i,t-1}}{\sum_i \text{DP}_{i,t-1} \times \text{TW}_{i,t-1}}
\]

where, the summations are done over all the bonds currently in the index,

- \( \text{DP}_{i,t} \) is the dirty price of the \( i^{th} \) bond at day \( t \)
- \( \text{CP}_{i,t} \) is the clean price of the \( i^{th} \) bond at day \( t \)
- \( \text{C}_{i,t} \) is the coupon paid out on coupon payment day \( t \) for the \( i^{th} \) bond, or 0 on all other days
- \( \text{TW}_{i,t-1} \) is the weight of the \( i^{th} \) bond in the TRI as at the end of day \( t-1 \).

7.3.3. All indices within the BBIS are displayed to two decimal places.
8. APPENDIX A – FURTHER INFORMATION

8.1. Contacting BSE

Further information on the BBIS is available from the BSE, who will also welcome comments on these Ground Rules and on the Index Series on a continuous basis.

Enquiries should be addressed in the first instance to:

Head of Product Development (Secretary of the BBIS Advisory Committee)
Botswana Stock Exchange
4th Floor, Fairgrounds Precinct
Plot 70667, Fairgrounds Office Park
Private Bag 00417
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