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## Ground Rules for the Management of the FTSE Global Bond Index Series

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# SECTION ONE: GROUND RULES

## Introduction - Ground Rule 1

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### **1.1 The FTSE Global Bond Index Series**

1.1.1 The FTSE Global Bond Index Series was launched in 2002, and is owned by FTSE International Limited. It is a series of fixed income indices covering the principal government bond markets and selected corporate markets.

1.1.2 The series currently consists of four homogenously constructed bond families:

- FTSE Global Government Bond Indices
- FTSE Global Pfandbrief Indices
- FTSE Corporate Bond Indices
- FTSE Euro Emerging Markets Bond Indices

A full list of the indices and sub indices is available in Appendix A.

### **1.2 These Ground Rules**

1.2.1 This paper sets out the Ground Rules for the management of the FTSE Global Bond Index Series, as adopted by the FTSE Policy Group, an independent group of market participants.

1.2.2 There is a separate set of Ground Rules available for FTSE UK Gilts. These can be accessed from [www.ftse.com](http://www.ftse.com).

### **1.3 Index Series Objectives**

1.3.1 The objective is to create and maintain a series of indices for the international bond markets for use as a benchmark by the global investment community. To achieve this, we have sought to establish the Index Series as being:

- Comprehensive
- Consistent
- Flexible
- Accurate
- Investable
- Transparent
- Predictable
- Representative
- User-driven

### **1.4 Indices**

1.4.1 All FTSE Global Bond indices except the FTSE Euro Emerging Markets Bond Indices are calculated as real-time indices and fixed at the end of each individual country's business day. For the Eurozone, a business day is, by definition of the European Central Bank, when the TARGET system is open for business – 'a TARGET business day'. The FTSE Euro Emerging Markets Bond Index is calculated once a day only.

1.4.2 All indices have the following five maturity sub indices:

- 1– 3 years
- 3– 5 years
- 5– 7 years
- 7– 10 years
- over 10 years

<sup>1</sup>The sub indices in which each bond is assigned depends on the maturity term from the appropriate settlement day (T+3) for trades performed on the first business day of the month.

<sup>1</sup> this excludes China where the appropriate settlement day is T+2 and Turkey where settlement is T+0 during morning trading and T+1 in the

## Introduction - Ground Rule 1

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- 1.4.3 FTSE Sterling Corporate and Euro Corporate Bond Indices have the following additional sub-indices:

<b>Maturity</b>	<b>ICB Industry Group</b>	
1-5 years	Oil & Gas	Basic Materials
5-10 years	Industrials	Consumer Goods
5-15 years	Health Care	Consumer Services
10-15 years	Telecommunications Services	Utilities
over 15 years	Financials	Technology

- 1.4.4 Besides the maturity bands sub indices, the FTSE Corporate Bond Indices (Euro and Sterling) and the FTSE Emerging Markets Bond Indices also cover the following rating indices:

Sub Indices Rating Definition	Agency Equivalent Ratings		
	Fitch	S&P	Moodys
AAA	AAA	AAA	Aaa
AA	AA- to AA+	AA- to AA+	Aa3 to Aa1
A	A- to A+	A- to A+	A3 to A1
BBB	BBB- to BBB+	BBB- to BBB+	Baa3 to Baa1

For Corporate Bond Indices, where Fitch, S&P and Moodys have applied different ratings, the lowest credit rating from the rating agencies is used, taken at the time of the monthly portfolio-rearrangement. For new issues, the credit rating assigned on issue is used. If this is not available, the long-term credit rating of the issuer will be used in its place.

To be eligible for Emerging Market Bond Indices, where Fitch, S&P and Moodys have applied different ratings, the highest credit rating from the rating agencies is used, taken at the time of the monthly portfolio-rearrangement. For new issues, the credit rating assigned on issue is used. If this is not available, the long-term credit rating of the issuer will be used in its place.

- 1.4.5 A sub index, which begins at a later time, starts with index values of a suitable parent index as of the sub index start date.

### 1.5 Characteristics of the Index Series

- 1.5.1 FTSE Global Government Bond Indices consist only of issues by central governments in their home currencies or, for EMU countries, in Euro.

- 1.5.2 FTSE Pfandbrief Indices

Only Jumbo Pfandbrief bonds from German Issuers or issues that are comparable in structure and quality to the German Jumbo Pfandbrief market, from other EU countries in Euro currency, are included:

Germany	Pfandbrief (Jumbo Pfandbrief)	Netherlands	Pfandbrief (Covered Bond)
Spain	Pfandbrief (Cedulas Hipotecarias)	Finland	Pfandbrief (Covered Bond)
France	Pfandbrief (Obligations Foncières)		
Luxembourg	Pfandbrief (Lettres de gage)		
Ireland	Pfandbrief (Asset Backed Securities)		
Austria	Pfandbrief (Pfandbrief)		
UK	Pfandbrief (Asset Backed Securities)		

# Introduction - Ground Rule 1

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## 1.5.3 FTSE Euro Emerging Market Bond Index Series

The eligible bonds are government securities from central states and authorities, central banks, regions, and cities from countries, which belong to the Emerging markets, as defined by FTSE country classification (available from [www.ftse.com](http://www.ftse.com)).

## 1.5.4 FTSE Corporate Bond Indices

### *FTSE Euro and Sterling Corporate Bond*

Euro and Sterling issues from corporate entities are included. This excludes Government authorities or other public issuers. The index also includes issues of corporate entities, with a mi. Each bond is classified under the FTSE Industry Classification Benchmark system. Non-Financials (headline index less Banks) is calculated as an additional separate index.

## 1.6 Index Methodology

1.6.1 The purpose of the family of FTSE Global Bond Indices is to measure the average performance that holders of the relevant types of bonds experience over time. This is achieved by creating for each index a representative portfolio of bonds, and measuring their performance. At the end of each month the constituents of the portfolio are reviewed. At this review bonds may be removed or added to the index portfolio. It is assumed that any rebalancing does not have a cost. The contents of a portfolio do not change during any month, except in exceptional circumstances.

The rules used in their construction broadly follow the EFFAS standardized ones for bond indices. The formulae used are described in Appendix B.

## 1.7 <sup>1</sup>Capital Index

1.7.1 The capital index of all the listed indices in Appendix A are calculated every business day. Each capital index is an arithmetically weighted index based on the clean price, and weighted by the nominal amount outstanding.

## 1.8 <sup>2</sup>Total Return Index

1.8.1 A total return index is calculated for all the indices. A total return index takes into account the price changes and interest accrual and payments of each bond.

1.8.2 In addition to the Capital Index and Total Return Index, the following fundamentals of bond indices are also calculated:

- Average Coupon
- Average Gross Redemption Yield
- Average Time to Maturity
- Average (Macaulay) Duration
- Average Modified Duration
- Average Convexity
- The sum of the nominal value of all bonds in each index
- The number of bonds in each Index, and
- The weight of the index in relation to its relevant aggregated index (when applicable)

1.8.3 In the case of FTSE Sterling Corporate Bond Indices, semi-annual yields are calculated where appropriate.

## Eligibility of Securities - Ground Rule 2

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### 2.1 Eligibility of Bonds

2.1.1 All straight bullet bonds denominated in the appropriate currency and issued by qualifying issuers, maturing in one year or more are considered for inclusion in the FTSE Global Bond Index Series.

For the Turkish Lira Government Bond Index both bullet and zero coupon bonds are included with minimum maturity eligibility being 6months or more.

2.1.2 Zero coupon bonds may be included.

Strippable bonds are included in the indices with weights which assume that they have not been stripped.

Excluded from the indices are:

- Coupon strips and maturity strips (separated interest and capital repayment securities)
- Partly-paid bonds
- Variable interest bonds (including floating rate bonds)
- Index linked bonds
- Callable, puttable and extendible bonds
- Convertible bonds
- Bonds with no final redemption date

2.1.3 The bonds must have a current market quotation to be included. Government bonds traditionally have far more price quotes than corporate bonds. An issue is generally not included if there are prices available from only one market maker.

2.1.4 For Jumbo Pfandbrief the German Association of Mortgage banks 'VDH' rules that a minimum of three market maker quotes must be available at the time of issue launch. If the number of price contributors falls below three after some time, this does not automatically lead to the exclusion of the referring bond from the Index portfolio.

### 2.2 Minimum Nominal Issuance of a Bond

2.2.1 The minimum nominal issuance of a bond for FTSE Global Government Bonds Index Series is shown in the table:

Country/Region	Minimum Issuance
Australia	750 million AUD
Canada	750 million CAD
China	10 billion CNY
Denmark	3,750 million DKK
Eurozone	500 million EUR
Japan	50 billion JPY
Norway	4,000 million NOK
New Zealand	1,000 million NZD
Poland	1,000 million PLN
Sweden	4,000 million SEK
Switzerland	800 million CHF
United Kingdom	1,000 million GBP
United States	500 million USD
Turkey	1,000 million TRY

## Eligibility of Securities - Ground Rule 2

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2.2.2. The minimum issuance of a bond for other indices is shown in the table:

Bond Type	Minimum Issuance
FTSE Pfandbrief	500 million EUR
FTSE Euro Corporate Bond	500 million EUR
FTSE Sterling Corporate Bond	100 million GBP
FTSE Euro Emerging Markets Bond	200 million EUR

## Price Sources - Ground Rule 3

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### **3.1 Price Sources**

3.1.1 The design of the methodology and availability of the price sources ensures a single price for each bond in the index. FTSE and Moosmüller and Knauf (MMKF), the leading bond specialist, apply quality controls to ensure each single price in the index is unbiased and representative of the market.

The prices used for the calculation of the indices are based on data sourced from Dealer Banks accessed via Reuters. To calculate the price the arithmetic mean between bid and ask quotes (mid prices) is used in the indices.

Every bond price is subject to a quality control procedure that was developed and is applied by MMKF. The prices are continually monitored to ensure prices that do not represent the market are removed. In certain circumstances, MMKF will reserve their position to directly contact bond dealers to clarify the price and then action as required.

The indices consists only of bonds that have price quotes and are then filtered through a quality control process to ensure they provide an accurate representation of the market.

3.1.2 Istanbul Stock Exchange prices are used to calculate the Turkish Lira Government Bond Index.

## Periodic Change to the Portfolios - Ground Rule 4

### **4.1 Rebalancing the Indices**

4.1.1 All FTSE Global Bond Indices are rebalanced every month at the end of the month and at the close of the last business day.

### **4.2 Addition of Constituents**

4.2.1 New issues are included in the indices once a month after the close of the last business day of the month.

### **4.3 Removal of Constituents**

4.3.1 The bonds are removed from the indices at the end of the month after the close of last business day, when the maturity falls below one year, or in the case of the Turkish Lira Government Bond Index when maturity falls below 6 months.

4.3.2 If bonds are illiquid, i.e. cease to have market maker prices, they are removed from the indices after the close of the last business day of the month.

### **4.4 Alterations to Constituents**

Alterations to nominal amounts outstanding are adjusted at the close of last business day of the month.

### **4.5 Implementation of Changes in the Portfolio**

4.5.1 The research is made three business days before the month end regarding which bonds will be part of the index in the next period. This is in accordance with the index scheme, and the issue volume of these bonds (rounded to the nearest 1 million Euros or as appropriate, according to currency). The residual life are all bonds which on the first trading day of the new month have a full year (6 months for Turkey) or more to run as per the value date plus three days.

4.5.2 Bonds to be removed from the index, e.g. because their residual life at the beginning of the next month is less than a year (6 months for Turkey), are treated as sold at the fixing price (defined as 4:30pm CET) on the last trading day of the old month, and reinvested uniformly across the whole Index.

4.5.3 A "Shortener" is where a bond is moved, at its fixing price, from one maturity sub index to a shorter maturity sub index. This occurs after the close of the last business day of the previous month when the remaining lifetime of this bond is within this shorter life band index.

It may occur that some sub-indices are only temporarily active. When a bond in a maturity band sub index is moved into its neighbouring sub index and no other bond remains in that portfolio, the calculations will no longer be performed for the empty sub index. If a new issue makes the re-activation of this index necessary, the new starting value of this sub index will be amended to a value that includes the market changes occurred since the sub index was de-activated.

4.5.4 New issues are bought at the fixing price of the last trading day of the old month and integrated into the index.

4.5.5 Changes to amounts in issue are included or removed by way of sale or purchase at the closing price on the last trading day of the old month, provided that the change amounts to a minimum value of 1 million Euros or the respective non-EUR domestic currency over the previous month.

4.5.6 After the decisions to the portfolio changes have been made, any removed or newly joined bonds are announced to the market one day before the last business day of the month. These decisions are based on the information available three business days before the last business day of the month. The issuance applicable to bonds in the portfolio for the coming month are also published.

## Periodic Change to the Portfolios - Ground Rule 4

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- 4.5.7 If an issuer fails to pay a coupon on the coupon date (i.e. in the event of default), it will be treated as if it is sold with the latest price considered to be fair, and the proceeds reinvested in the index. In this case, the change of the index portfolio is not postponed until next month-end.
- 4.5.8 All changes take effect on the first trading day of the new month. Should countries have different holiday regulations at the beginning or end of a month, this will have no effect. The business day of the local market will be employed (TARGET business days apply in the Eurozone – see 1.4.1).

## Amendments and Exceptions – Ground Rule 5

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- 5.1 In the event that the FTSE Global Bond Indices Committee or any Committee responsible for the operation and administration of the FTSE Global Bond Index Series consider that a change of principle or exceptions should be made to any of the Ground Rules, the issue must be brought to the attention of the Chairman or Deputy Chairman (or their deputies) of the FTSE Global Bond Indices Committee, who will normally put the matter to the full FTSE Global Bond Indices Committee for a decision.
- 5.2 If, however, the matter is urgent, the Chairman and Deputy Chairman (or their deputies) are collectively empowered to authorise an exception on behalf of the FTSE Global Bond Indices Committee but must immediately notify, and subsequently refer the matter to a meeting of the FTSE Global Bond Indices Committee. Where an exception is granted to the Ground Rules under Rule 5.1, it shall not be deemed to create a precedent for future decisions of the FTSE Global Bond Indices Committee. Significant changes or exceptions to these Ground Rules can be authorised only by the FTSE Policy Group.

## SECTION 2: MANAGEMENT RESPONSIBILITIES AND CONTACT DETAILS

### Management Responsibilities – Ground Rule 6

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#### **6.1 FTSE Policy Group**

6.1.1 The FTSE Policy Group advises on the creation of new indices and reviews the ongoing management of the FTSE family of indices. The FTSE Policy Group ensures compliance with the standards that apply to all FTSE's Indices and assists in determining development priorities. It approves major policy matters and monitors the activities of the other Committees. Significant exceptions and/or changes to the Ground Rules may be made only as permitted by Ground Rule 5. FTSE appoint the Chairman and Deputy Chairman of the FTSE Policy Group.

#### **6.2 FTSE Global Bond Indices Committee**

6.2.1 The FTSE Global Bond Indices Committee is established jointly by FTSE and the Faculty and Institute of Actuaries. The Committee may approve changes to the Ground Rules as permitted by Section 5.

#### **6.3 Committee membership**

6.3.1 The FTSE Policy Group appoints the Chairman of the FTSE Global Bond Indices Committee. The Chairman of this committee will be a member of the FTSE Policy Group. The members of the Global Bond Indices Committee are appointed by its Chairman in consultation with FTSE. The Deputy Chairman is selected by the Committee from its members. The Chairman, or in his absence the Deputy Chairman, chairs meetings of the Committee and represents that committee outside meetings. Subcommittees are appointed from the Committee when additional viewpoints are required by the Chairman and Deputy Chairman.

6.3.2 The Chairman and Deputy Chairman of the FTSE Global Bond Indices Committee are collectively responsible for approving any exceptional changes to the FTSE Global Bond Indices for the Government Securities at Committee meetings on advice from the Secretary to the Committee and as permitted and as specified by these Ground Rules. Other Committee members can deputise for the Chairman and Deputy Chairman in their absence.

#### **6.4 Secretary to the Policy Group and Bond Indices Committee**

Secretaries to the FTSE Policy Group and Global Bond Indices Committee are appointed by FTSE to support the work of the FTSE Policy Group and the Global Bond Indices Committee. The Secretary maintains a record of constituent changes to the FTSE Global Bond Indices for the Government Securities and is responsible for the timely publication of all constituent changes.

#### **6.5 FTSE**

6.5.1 FTSE is responsible for the operation of the FTSE Global Bond Index Series, including the daily calculation of all the index values in accordance with the Ground Rules. FTSE maintains records of all the constituents and is responsible for the addition and deletion of bonds and changes of nominal amounts, in accordance with the Ground Rules.

6.5.2 FTSE informs the Secretary to the FTSE Global Index Series Committee of all changes to constituents as soon as possible after they have occurred.

## 7. Contact Us

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Further information on the FTSE Global Bond Index Series is available from FTSE. We would also welcome comments on these Ground Rules and on the Index Series.

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## SECTION THREE: APPENDICES

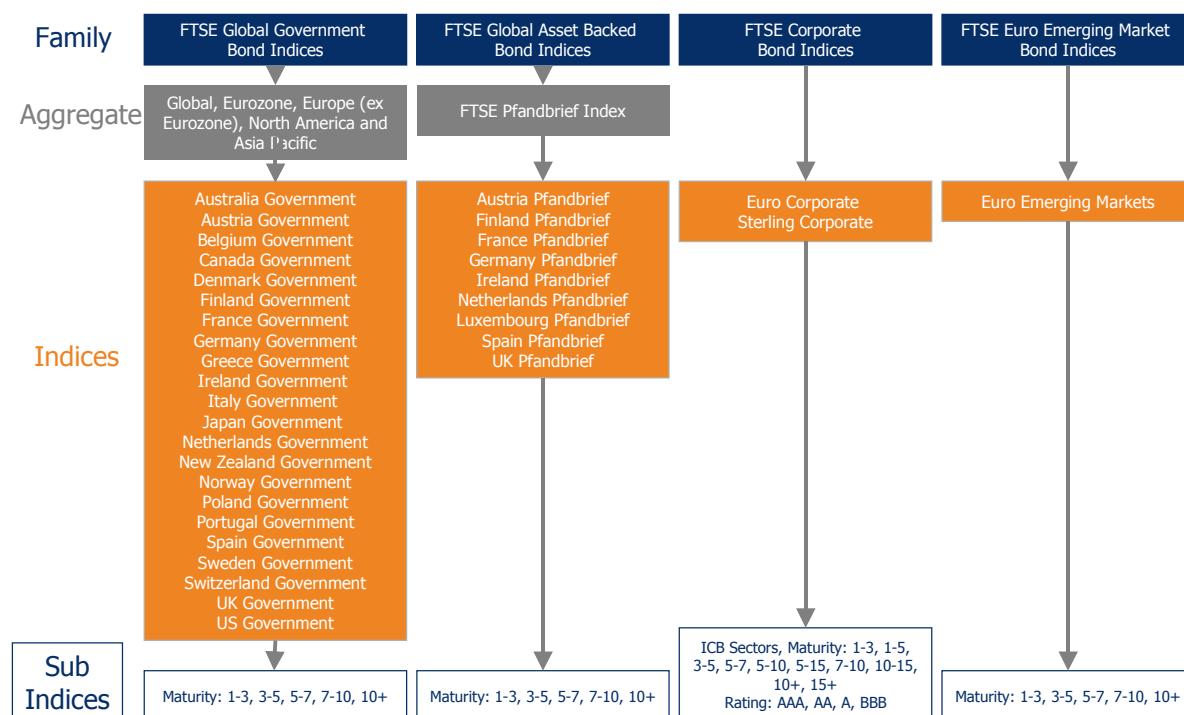
### Appendix A – FTSE Global Bond Index Series Family

#### Calculated FTSE Global Bond Index Series

The following indices are calculated daily:

The Turkish Lira Government Bond Index and the FTSE Global Bond Index Series. See the indices included in the Global Bond Index Series in the below diagram.

#### FTSE Global Bond Index Series



## Appendix B – FTSE Global Bond Index Series Calculation Formulae

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The following notation is used in the following calculations.

$Z_t$	value of criterion $Z$ at time $t$
$Z_{t-1}$	value of criterion $Z$ at time $(t-1)$
$Z_0$	initial value of criterion $Z$
$P_{i,t}$	clean price of the $i$ th bond at time $t$
$A$	accrued interest to the normal settlement date
$N$	nominal value of amount outstanding
$Y$	redemption yield to maturity
$L$	life to maturity
$D$	(Macaulay) duration
$M$	Modified duration
$X$	Convexity
$G_{i,t}$	value of any coupon payment received from the $i$ th bond for the assumed settlement date at time $t$ or since time $(t-1)$ . If none the value = 0

### Clean Price Index (Capital Index)

The clean price ( $PI$ ) or capital index is given by:

$$PI_0 = 100$$

$$PI_t = PI_{t-1} \times \frac{\sum_i P_{i,t} \times N_{i,t-1}}{\sum_i P_{i,t-1} \times N_{i,t-1}}$$

where the summations are over the bonds currently in the index.

### Total Return Index

For a market where securities do not go XD, the total return index ( $TR$ ) is calculated as follows:

$$TR_0 = 100$$

$$TR_t = TR_{t-1} \times \frac{\sum_i (P_{i,t} + A_{i,t} + G_{i,t}) \times N_{i,t-1}}{\sum_i (P_{i,t-1} + A_{i,t-1}) \times N_{i,t-1}}$$

where the summations are over the bonds currently in the index.

For markets where securities do go XD such as UK Government Bonds (Gilt-edged Securities), the formulae have to be modified as follows:

$$TR_0 = 100$$

$$TR_t = TR_{t-1} \times \frac{\sum_i (P_{i,t} + A_{i,t} + CP_{i,t} + G_{i,t}) \times N_{i,t-1}}{\sum_i (P_{i,t-1} + A_{i,t-1} + CP_{i,t-1}) \times N_{i,t-1}}$$

where the summations are over the bonds currently in the index, and where  $CP$  is an amount that compensates, if necessary, for the quoted price not including the next coupon payment.

If the price at time  $t$  includes the next coupon payment then  $CP_t = 0$ . If the price at time  $t$  is ex the next coupon then  $CP_t$  is the next coupon payment.

### Average Coupon

The average coupon ( $CO$ ) for an index is given by:

$$CO_t = \frac{\sum_i C_{i,t} \times N_{i,t}}{\sum_i N_{i,t}}$$

where the summations are over the bonds currently in the index.

### Average Gross Redemption Yield

The average gross redemption yield ( $RY$ ) is the average of the bond yields weighted by both their sizes and their modified durations.

$$RY_t = \frac{\sum_i Y_{i,t} \times M_{i,t} \times (P_{i,t} + A_{i,t}) \times N_{i,t}}{\sum_i M_{i,t} \times (P_{i,t} + A_{i,t}) \times N_{i,t}}$$

where the summations are over the bonds currently in the index.

The yields are usually compounded on an annual basis. However, for those markets where coupons are paid on a semi-annual basis, semi-annual yields are also shown.

The relationship between a semi-annual redemption yield  $Y_s$  and an annualized yield  $Y_a$  is given by:

$$\left(1 + \frac{Y_a}{100}\right) = \left(1 + \frac{Y_s}{200}\right)^2$$

### Average Time to Maturity

The average life ( $LF$ ) or time to maturity for an index is given by:

$$LF_t = \frac{\sum_i L_{i,t} \times N_{i,t}}{\sum_i N_{i,t}}$$

where the summations are over the bonds currently in the index.

### Average (Macaulay) Duration

The average (Macaulay) duration ( $DU$ ) for an index is given by:

$$DU_t = \frac{\sum_i D_{i,t} \times (P_{i,t} + A_{i,t}) \times N_{i,t}}{\sum_i (P_{i,t} + A_{i,t}) \times N_{i,t}}$$

where the summations are over the bonds currently in the index.

### Average Modified Duration

The average modified duration ( $MD$ ) for an index is given by:

$$MD_t = \frac{\sum_i M_{i,t} \times (P_{i,t} + A_{i,t}) \times N_{i,t}}{\sum_i (P_{i,t} + A_{i,t}) \times N_{i,t}}$$

where the summations are over the bonds currently in the index.

### Average Convexity

The average convexity ( $CX$ ) of an index is given by:

$$CX_t = \frac{\sum_i X_{i,t} \times (P_{i,t} + A_{i,t}) \times N_{i,t}}{\sum_i (P_{i,t} + A_{i,t}) \times N_{i,t}}$$

where the summations are over the bonds currently in the index.

### Nominal size of Index

The sum ( $SZ$ ) of the nominal values of all the bonds in an index is:

$$SZ_t = \sum_i N_{i,t}$$

where the summations are over the bonds currently in the index.

### Index Weight

The weight ( $W$ ) of the index  $j$  in relation to the weight of the All Bonds aggregate index is:

$$W_{j,t} = \frac{SZ_{j,t}}{\sum_i SZ_{i,t}} \times 100$$

where the summation is now over all the sub-indices that make up the aggregate index.

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