

**Bond Indexes Calculation
and Maintenance Methodology of
China Securities Index Company Limited**
V1.1

June 2020

Version Number	Change Time	Change Scope
1.0	201809	Rulemaking
1.1	202006	Adjust the example for Index Calculation in Appendix B

Contents

1. Index and Constituents Maintenance	1
1.1 Index Regular Adjustment	1
1.1.1 Effective Date	1
1.1.2 Data Cutoff Date and Data Interval	1
1.1.3 Buffer Zone	1
1.2 Index Temporary Adjustment	1
1.2.1 Issuance of New Securities	1
1.2.2 Delisting	1
1.2.3 Other Special Cases	2
1.3 Constituents Maintenance	2
1.3.1 Suspension from Listing or Delisting	2
1.3.2 Suspension	2
1.3.3 Defaults	2
2. Index Calculation	2
2.1 Total Market Value Calculation	3
2.1.1 Accrued Interest	3
2.1.2 Weight Factor	4
2.1.3 Coupon Payments and Reinvestment	4
2.1.4 Clean Price Market Value and Clean Price Index	5
2.1.5 Gross Price Market Value and Full Price Index	5
2.1.6 Coupon Payments and Reinvestment Market Value & Coupon Payments and Reinvestment Index	5
2.1.7 Market Value Calculation in Constituents Maintenance Cases	6
2.2 Data Source	6
2.2.1 Trading Price	7
2.2.2 Valuation Price	7
2.2.3 Fundamental Information Data	7
2.3 Divisor Adjustment	7
2.3.1 Constituents Adjustment	8
2.3.2 Issued Amount Adjustment	9
2.3.3 Coupon Payments and Reinvestment Adjustment	9
3. Index Dissemination	9
3.1 Dissemination Channels	9
3.2 Publication Frequencies	10
4. Index Methodology Review	10
4.1 Non-scheduled Review	10
4.2 Regular Review	10
5. Information and Data Source	11
Appendix A: Glossary of Terms	12
1. Effective Date	12
2. Data Cutoff Date and Data Interval	12

3. Issued Amount, Amount Outstanding and Market Value	12
4. Base Date and Base Index	13
5. Accrued Interest	13
6. Remaining Maturity.....	13
7. Bond with Embedded Options and Exercise date	13
8. Prepayment	13
9. Coupon Payments and Reinvestment	13
Appendix B: Examples for Index Calculation	14
1. Market Value and Index Calculation at Base Date	14
2. Prepayment	15
3. Divisor Adjustment at the End of Month	17
4. New Entry.....	17
Appendix C	21
1. Data Interval Application.....	21
2. Buffer Zone Application.....	21
3. Reserve List Application	22
Appendix D: CSI Statement of Principles.....	23
Contact Us	24
Disclaimer.....	25

1. Index and Constituents Maintenance

1.1 Index Regular Adjustment

After the data needed is all set, the regular adjustment of Bond Indexes shall be implemented according to detailed index methodology.

1.1.1 Effective Date¹

The Effective Date of index adjustment is specified in the detailed index methodology.

1.1.2 Data Cutoff Date and Data Interval²

Generally, the data cutoff date for regular adjustment is the previous trading day of Effective Date. The data cutoff date for quarterly adjustment is the first trading day in the second week of previous month of the Effective Date.

Where data interval is applicable, it varies among different indexes and its application can be referred to in the Appendix C.

1.1.3 Buffer Zone

Some Bond Indexes adopt buffer zone rules in the regular adjustment for the sake of minimum turnover. The application thereof can be referred in the Appendix C.

1.2 Index Temporary Adjustment

1.2.1 Issuance of New Securities

Fast Entry Rule may be used for certain Bond Indexes, the newly issued securities satisfying the criteria will be added into the index calculation on the next trading day of their issuance. The indexes for which Fast Entry Rule is used can be referred to in detailed index methodology.

1.2.2 Delisting

The delisted securities shall be removed from the index via the following two ways, and details can be referred to in the detailed index methodology:

- (1) Removed from the constituents on the date of its delisting;
- (2) Removed from the constituents on the Effective Date of the next regular adjustment.

1.2.3 Other Special Cases

In circumstances where a future situation may be more complex, the index adjustment shall follow the Measures for the Implementation of Change of Index Methodologies of China Securities Index Company Limited. On rare occasions where a specific event is not covered by the rules or methodology documents, and for which the timetable precludes stakeholder consultation, CSI will determine the appropriate treatment by reference to the guiding principles documented in the CSI Statement of Principles. For further information, please see Appendix D.

1.3 Constituents Maintenance

1.3.1 Suspension from Listing or Delisting

If a constituent is suspended from listing or is delisted, it shall be treated as delisted as appropriate. (See 1.2.2)

1.3.2 Suspension

Neither temporary trading halts nor long term suspension shall affect securities' eligibility to stay in specific index's composition.

1.3.3 Defaults

According to public information, defaulted securities shall be treated as delisted. (See 1.2.2)

2. Index Calculation

The calculation of bond indexes conforms to the Paasche weighted composite price index formula,

¹ Refer to Appendix A.

² Refer to Appendix A.

and the base level of bond indexes is 100:

$$\text{Index} = \frac{\text{Total Market Value}}{\text{Divisor}} \times 100$$

Total Market Value = Bond Market Value + Coupon Payments and Reinvestment

Divisor is the adjusted total market value at the base date. (See 2.3)

2.1 Total Market Value Calculation

The total market value shall be calculated as follows:

Total Market Value = Bond Market Value + Coupon Payments and Reinvestment

$$= \sum_i ((\text{Clean Price}_i + \text{Accrued Interest}_i) \times \text{Issued Amount}_i \times \text{Weight Factor}_i) + \text{Coupon Payments and Reinvestment}$$

Coupon payments is defined as the current issued amount, see Appendix A, multiplying current coupon rate. Unless otherwise stated, coupon payments and reinvestment are coupon payments reinvested in the index, earning the current index yield.

Issued Amount is amount of the security i remaining in the current market.

2.1.1 Accrued Interest

Accrued interest shall be calculated by calendar day. The accrued interest of coupon bond shall be calculated as follows:

$$AI = \frac{c}{f} \times \frac{t}{TS}$$

Where:

AI is the accrued interest;

c is the coupon;

f is the frequency of coupon payments per year;

t is the calendar days between the previous coupon payment date and the settlement date;

TS is the date interval of coupon payment period;

The Accrued interest of discount bond shall be calculated as follows:

$$AI = \frac{100 - P_d}{T} \times t$$

Where:

AI is the accrued interest;

P_d is the issue price;

T is the calendar days between the coupon payment date and maturity date;

t is the calendar days between the coupon payment date and the settlement date;

2.1.2 Weight Factor

The weight factor, a digit between 0 and 1, shall be set to adjust index constituents' issued amount, so the index constituents' weights. Details can be referred to in the detailed index methodology.

2.1.3 Coupon Payments and Reinvestment

Coupon payments and reinvestment earned within this month shall be removed from indexes' total value by the end of the month. There are two methods to deal with coupon payments and reinvestment in the middle of the month:

(1) Holding by cash

$$\begin{aligned} \text{Total Market Value} &= \text{Bond Market Value} + \text{Coupon Payments} \\ &= \sum_i ((\text{Clean Price}_i + \text{Accrued Interest}_i) \times \text{Issued Amount}_i \\ &\quad \times \text{Weight Factor}_i) + \text{Coupon Payments} \end{aligned}$$

(2) Reinvesting on the coupon payments earned in the middle of month

$$\begin{aligned} \text{Total Market Value} &= \text{Bond Market Value} + \text{Coupon Payments and Reinvestment} \\ &= \sum_i ((\text{Clean Price}_i + \text{Accrued Interest}_i) \times \text{Issued Amount}_i \\ &\quad \times \text{Weight Factor}_i) + \text{Coupon Payments and Reinvestment} \end{aligned}$$

2.1.4 Clean Price Market Value and Clean Price Index

The clean price market value shall be calculated as follows:

$$\begin{aligned} \text{Clean Price Market Value} &= \text{Index constituents' clean price market value} \\ &= \sum_i (\text{Clean Price}_i \times \text{Issued Amount}_i \times \text{Weight Factor}_i) \end{aligned}$$

The clean price index measures the return of index constituents' clean price:

$$\text{Clean Price Index} = \frac{\text{Clean Price Market Value}}{\text{Divisor}} \times 100$$

2.1.5 Gross Price Market Value and Full Price Index

The gross price market Value shall be calculated as follows:

$$\begin{aligned} \text{Full Price Market Value} &= \text{Index Constituents' Full Price Market Value} \\ &+ \text{Coupon Payments and Reinvestment} \\ &= \sum_i ((\text{Clean Price}_i + \text{Accrued Interest}_i) \times \text{Issued Amount}_i \\ &\times \text{Weight Factor}_i) + \text{Coupon Payments and Reinvestment} \end{aligned}$$

The full price index measures the return of index constituents' full price:

$$\text{Full Price Index} = \frac{\text{Full Price Market Value}}{\text{Divisor}} \times 100$$

2.1.6 Coupon Payments and Reinvestment Market Value & Coupon Payments and Reinvestment Index

The coupon payments and reinvestment market value shall be calculated as follows:

$$\begin{aligned} \text{Coupon Payments and Reinvestment Market Value} &= \sum_i ((100 + \text{Accrued Interest}_i) \times \text{Issued Amount}_i \times \text{Weight Factor}_i) \\ &+ \text{Coupon Payments and Reinvestment} \end{aligned}$$

The coupon payments and reinvestment index measures the return of index constituents' coupon payments and their reinvestment:

Coupon Payments and Reinvestment index

$$= \frac{\text{Coupon Payments and Reinvestment Market Value}}{\text{Divisor}} \times 100$$

2.1.7 Market Value Calculation in Constituents Maintenance Cases

Constituents Maintenance is involved in both total market value calculation and index divisor adjustment. In certain bond events, the index total market value shall be calculated as follows:

(1) Default, Suspension from listing or Delisting

In the event of default, suspension from listing or delisting, the constituents shall all be treated as delisted as appropriate. For index calculation, different methods are as follows:

- ◆ Removed on its delisting date;
- ◆ Removed on the Effective Date of next regular adjustment. The constituent shall be included in the indexes with a constant market value before the removal takes effect.

(2) Temporary trading halt and Long-term suspension

In the event of temporary trading halt or long-term suspension, the constituents shall not be excluded from the indexes.

For indexes calculated by trading price³, the constituents' latest transaction price shall be used for the calculation of indexes' total market value.

For indexes calculated by bond valuation⁴, the constituents' CSI bond valuation price shall be used for the calculation of indexes' total market value.

2.2 Data Source

Index calculation is based on trading data and fundamental information. Data used for index calculation are as follows:

Table 1 Data used for index calculation

Price Data		Fundamental information data
Trading Price	Valuation Price &Data	
Closing price(full price)	Valuation price(clean price)	Amount outstanding

³ Refer to 2.2.1

⁴ Refer to 2.2.2

Closing price(clean price)	Valuation price(full price)	Par value, coupon rate
Real-time trading price		Accrued interest

2.2.1 Trading Price

The type of bond price used in the index calculation can be referred in detailed index methodology. In case there is no transaction price generated on that vary day, price of the most recent trading day shall be used. Index calculation shall be based on price made public by Shanghai Stock Exchange and Shenzhen Stock Exchange. All the data are publicly available or can be obtained through arms-length transactions. No exercising of “Expert Judgment” with respect to the use of data. There were no disregards of input data where it conformed to the requirements of the index methodology.

2.2.2 Valuation Price

The type of bond price used in the index calculation can be referred in detailed index methodology. Valuation price used in the index calculation is sourced from CSI Bond Valuation, which is accepted by both regulators and institutional investors as a third-party bond valuation, and has been widely used in domestic market. Part of Bond Indexes are calculated based on CSI Full Price and Clean Price. All the data are publicly available or can be obtained through arms-length transactions. No exercising of “Expert Judgment” with respect to the use of data. There were no disregards of input data where it conformed to the requirements of the index methodology.

2.2.3 Fundamental Information Data

Fundamental information data shall be used for Bond Index maintenance and calculation, information including amount outstanding, par value, coupon rate and accrued interest.

Amount outstanding, par value and coupon rate are obtained from the issuers or data providers. Accrued interest shall be calculated according to 2.1.1. All the data are publicly available or can be obtained through arms-length transactions. No exercising of “Expert Judgment” with respect to the use of data. There were no disregards of input data where it conformed to the requirements of the index methodology.

2.3 Divisor Adjustment

When index constituents’ market value changes due to non-trading factors, the divisor shall be

adjusted to keep the index comparable overtime, that is, the Bond Indexes adopts the “Divisor Adjustment Methodology” to adjust the old divisor.

Formula of Divisor Adjustment Methodology:

$$\frac{\text{Market Value before Adjustment}}{\text{Old Divisor}} = \frac{\text{Market Value after Adjustment}}{\text{New Divisor}}$$

Circumstances for adjustment and adjusting methods are as follows.

2.3.1 Constituents Adjustment

Regular or temporary adjustment may cause constituents change of the index, leads to the non-trading change of the index total market value. Divisor shall be adjusted on the previous trading day of the Effective Date of the adjustment, then the result shall be used in the index calculation of the Effective Date:

$$\frac{\text{Market Value}_t}{\text{Old Divisor}} = \frac{\text{New Constituents' Market Value}_t}{\text{New Divisor}}$$

Market Value_t is market Value of index constituents on date t.

The cases such as default and delisting cause constituents change of the index, leads to the non-trading change of the index total market value. Divisor shall be adjusted on the previous trading day of the Effective Date of the adjustment, then the result shall be used in the index calculation of the Effective Date:

$$\frac{\text{Market Value}_t}{\text{Old Divisor}} = \frac{\text{Market Value}_t - \text{Deleted Constituents' Market Value}_t}{\text{New Divisor}}$$

Due to the fast entry rule, some newly issued bonds satisfying the criteria of the index shall be allowed to be selected into the index from the next day of its issuance. This result in non-trading changes to index's market value, and the index shall be adjusted on the previous trading day of the Effective Date of constituents' temporary adjustment:

$$\frac{\text{Market Value}_t}{\text{Old Divisor}} = \frac{\text{Market Value}_t + \text{Newly Entry Constituents' Market Value}_t}{\text{New Divisor}}$$

2.3.2 Issued Amount Adjustment

Events, such as prepayment, repurchase, redemption, etc., may lead to changes to the issued amount of bonds. The index shall be adjusted on the previous trading day of the Effective Date of constituents' issued amount adjustment:

$$\frac{\sum(\text{Price}_t * \text{Issued Amount}_t)}{\text{Old Divisor}} = \frac{\sum[\text{Price}_t * (\text{Issued Amount}_t - \text{Issued Amount Adjustment}_t)]}{\text{New Divisor}}$$

In some prepayment cases, the divisor needs to be adjusted based on the clean price in announcement on the previous trading day of the events effective date.

$$\frac{\sum(\text{Price}_t * \text{Issued Amount}_t)}{\text{Old Divisor}} = \frac{\sum[(\text{Price}_t - \text{Clean Price Adjustment}_t) * \text{Issued Amount}_t]}{\text{New Divisor}}$$

2.3.3 Coupon Payments and Reinvestment Adjustment

Index shall be adjusted on the previous trading day of the Effective Date of adjustment:

$$\frac{\text{Market Value}_t}{\text{Old Divisor}} = \frac{\text{Market Value}_t - \text{Coupon Payments and Reinvestment}_t}{\text{New Divisor}}$$

3. Index Dissemination

3.1 Dissemination Channels

The bond indexes are published through the following official channels:

- (1) Disseminate real time quote via INDEXPRESS and the Data Dissemination System (DDS);
- (2) Daily dissemination via CSI data service platform;
- (3) Daily dissemination on CSI's website: <http://www.csindex.com.cn>.

In case of a doubt as to the index, the information published through CSI official channels shall prevail.

3.2 Publication Frequencies

The real-time bond indexes are calculated and published real time and quotations of the indexes are updated every 5 seconds.

The closing-quotation bond indexes are calculated and published daily on each trading day of the index.

4. Index Methodology Review

4.1 Non-scheduled Review

CSI may take non-scheduled reviews on the index rules documents such as Index Calculation and Maintenance Methodology and index methodologies, based on, but not limited to, one of the following:

- Underlying market environment review;
- Market participant feedback;
- Problems identified in index management;
- Unusual corporate events treatment.

During the process of review, if any circumstance necessitating the changes to index methodologies is identified, such changes shall be effected according to the Measures for the Implementation of Change of Index Methodologies of China Security Index Company.

4.2 Regular Review

CSI annually reviews the Index Calculation and Maintenance Methodology, Index Methodologies and other index rule documents to ensure that the index calculation and maintenance is in line with the objective of indexes. After the regular review is completed, an annual review report shall be produced and presented to the Index Oversight Committee.

During the process of review, if any circumstance necessitating the changes to index methodologies is identified, such changes shall be effected according to the Measures for the Implementation of Change of Index Methodologies of China Security Index Company.

5. Information and Data Source

(1) The information CSI uses to calculate and maintain Bond Indexes is all public information and is required to be disclosed by existing laws and regulations. All the data are publicly available or can be obtained through arms-length transactions. No exercising of “Expert Judgment” with respect to the use of data. There were no disregards of input data where it conformed to the requirements of the index methodology. Such information specifically include:

- ◆ Prospectus: Issued Amount, Listing Date, Maturity Date, Par Value, Coupon Rate.
- ◆ Temporary reports: Option Execution Date, Issued Amount Change, Par Value or Coupon Rate change, Delisting Date.
- ◆ Credit Rating Reports: Bond Rating, Issuer Rating.
- ◆ Accrued Interest and Remaining Maturity are calculated through the general method commonly used in the market practice.

(2) The trading data used for Bond Indexes calculation and maintenance comes from the Exchange. All the data are publicly available or can be obtained through arms-length transactions. No exercising of “Expert Judgment” with respect to the use of data. There were no disregards of input data where it conformed to the requirements of the index methodology.

(3) The valuation data used for Bond Indexes calculation and maintenance comes from CSI Valuation and CSI will evaluate its data periodically. All the data are publicly available or can be obtained through arms-length transactions. No exercising of “Expert Judgment” with respect to the use of data. There were no disregards of input data where it conformed to the requirements of the index methodology.

Appendix A: Glossary of Terms

1. Effective Date

Effective Date is the time point where the new constituents are included in the index calculation. In principle, the adjustment implemented at the end of month shall be effective on the first trading day of next month. The adjustment implemented on the last trading day of second week shall be effective on the next trading day. The adjustment implemented at quarterly interval shall be respectively effective on the first trading day of April, July, October, or January.

2. Data Cutoff Date and Data Interval

Data Cutoff Date is the last day on which the securities' listing date, issued amount, remaining maturity, rating or other attribute information shall be collected for use. The changes of attribute information after the Data Cutoff Date are without prejudice to the result of index regular adjustment. Data varies over time, which may leads to different result of index regular adjustment. In order to cover the latest information and data of securities, we generally set the Data Cutoff Date on the previous trading day of Effective Date.

Data Interval is a period of time for the determination of securities' fundamental and trading data, which generally applies to quarterly adjusted indexes. Changes of securities' fundamental and trading data occurring before or after the Data Interval are without prejudice to the result of index regular adjustment.

3. Issued Amount, Amount Outstanding and Market Value

Issued Amount is the volume of a security, Amount Outstanding is the par value of this security, differ to the Market Value of it. Issued Amount and Market Value is the data used in Bond Indexes calculation, instead of the Amount Outstanding.

The Market Value is the product of security's full price and issued amount:

$$\text{Market Value} = (\text{Clean Price} + \text{Accrued Interest}) \times \text{Issued Amount}$$

4. Base Date and Base Index

Base Date is the inception date of index's calculation. Base Index is the inception value of index.

5. Accrued Interest

The pro-rata interest accrues between the previous coupon date and the settlement date.

6. Remaining Maturity

The remaining maturity is the time remaining from the present date to a security's maturity date, expressed in fractions of years.

7. Bond with Embedded Options and Exercise date

Bond with embedded options generally enables issuers or investors to call or put the bond. Exercise date is the date on which the embedded option can be executed.

8. Prepayment

The prepayment term provides the bond with an embedded option allowing the issuer to repurchase it in whole or in part prior to its maturity date.

9. Coupon Payments and Reinvestment

Coupon payments and reinvestment are coupon payments reinvested in the index.

Appendix B: Examples for Index Calculation

The calculation of bond full price index is illustrated by the following examples, including these events: (1) constituents adjustment (2) interest removal (3) option execution. The key elements of index methodology include:

- ◆ Constituents: A and B. A is a bond with embedded option, while B is a plain vanilla bond.
- ◆ Data source: CSI Bond Valuation.
- ◆ Coupon payments and reinvestment: Coupon payments and reinvestment earning within this month shall be invested into the index. By the end of the month, the coupon payments and reinvestment shall be removed from indexes' total market value.
- ◆ Weight: Market value weighted, thus weight factors are all set "1".
- ◆ Remaining maturity: Over 1 month
- ◆ Adjustment frequency: New constituents shall be allowed to be included in the index from the first trading day after being listed. Constituents which do not comply with the methodology shall be excluded at the end of each month.
- ◆ Base date: 2016/12/30
- ◆ Base index: 100

Table 2 Information about index constituents

	Listed Date	Unlisted Date	Embedded Option
A	2013/2/4	2020/1/17	Callable
B	2017/2/6	2022/1/23	-

1. Market Value and Index Calculation at Base Date

- ◆ Calculation based on the following table (2016/12/30)

Table 3 Information for calculation (2016/12/30)

Trading date	Constituent	Clean price	Accrued interest	Coupon payments and reinvestment	Issued amount (100 million sheet)	Weight factor	Index level
2016/12/30	A	82.7506	5.3978	0	0.03	1	100

Market Value on Base Date

$$\begin{aligned}
 &= (\text{Clean Price} + \text{Accrued Interest}) \times \text{Issued Amount} \times \text{Weight Factor} \\
 &+ \text{Coupon Payments and Reinvestment} \\
 &= (82.7506 + 5.3978) \times 0.03 \times 1 + 0 = 2.644452 = \text{Divisor}
 \end{aligned}$$

$$\text{Index}_{2016/12/30} = \frac{\text{Market Value}}{\text{Divisor}} \times 100 = \frac{2.644452}{2.644452} \times 100 = 100$$

- ◆ The next trading date is 2017/1/3. The index calculation is based on the table below (2017/1/3)

Table 4 Information for calculation (2017/1/3)

Trading date	Constituent	Clean price	Accrued interest	Coupon payments and reinvestment	Issued amount (100 million sheet)	Weight factor	Index level
2017/1/3	A	82.7027	5.4607	0	0.03	1	100.0170

Market Value_{2017/1/3}

$$\begin{aligned}
 &= (\text{Clean Price} + \text{Accrued Interest}) \times \text{Issued Amount} \times \text{Weight Factor} \\
 &+ \text{Coupon Payments and Reinvestment} \\
 &= (82.7027 + 5.4607) \times 0.03 \times 1 + 0 = 2.644902
 \end{aligned}$$

$$\text{Index}_{2017/1/3} = \frac{\text{Market Value}}{\text{Divisor}} \times 100 = \frac{2.644902}{2.644452} \times 100 = 100.017$$

2. Prepayment

Bond A will be partially prepaid on 2017-01-22, which is not a trading day. For 2017-01-19 and 2017-01-20, the calculation is as follows:

Table 5 Information for calculation (from 2017-01-19 to 2017-01-23)

Trading date	Constituent	Clean price	Accrued interest	Coupon payments and reinvestment	Issued amount (100 million sheet)	Weight factor	Index level
--------------	-------------	-------------	------------------	----------------------------------	-----------------------------------	---------------	-------------

2017/1/19	A	82.842 6	5.7125	0	0.03	1	100.461 4
2017/1/20	A	82.808 4	5.7283	0	0.03	1	100.440 5
2017/1/23	A	62.795 9	0.0236	0.17228415	0.03	1	100.478 0

$$\text{Market Value}_{2017/1/19} = (82.8426 + 5.7125) \times 0.03 \times 1 + 0 = 2.656653$$

$$\text{Index}_{2017/1/19} = \frac{\text{Market Value}}{\text{Divisor}} \times 100 = \frac{2.656653}{2.644452} \times 100 = 100.4614$$

$$\text{Market Value}_{2017/1/20} = (82.8084 + 5.7283) \times 0.03 \times 1 + 0 = 2.656101$$

$$\text{Index}_{2017/1/20} = \frac{\text{Market Value}}{\text{Divisor}} \times 100 = \frac{2.656101}{2.644452} \times 100 = 100.4405$$

- ◆ When inter-bank bond A shall be partially prepaid on 2017-01-22, its clean price shall be adjusted rather than issued amount. The divisor shall be adjusted on the previous trading day (2017-01-20) as follows:

$$\frac{\sum(\text{Price}_t * \text{Issued Amount}_t)}{\text{Old Divisor}} = \frac{\sum[(\text{Price}_t - \text{Price Adjustment}_t) * \text{Issued Amount}_t]}{\text{New Divisor}}$$

$$\text{Old divisor} = 2.644452$$

$$\text{New divisor} = \frac{(82.8084 + 5.7283 - 20) \times 0.03 + 0}{((82.8084 + 5.7283) \times 0.03 + 0) / 2.644452} = 2.047083451$$

- ◆ The next trading day is 2017-01-23; the index calculation is as follow:

$$\text{Coupon Payments and Reinvestment} = \text{Coupon Payments} * \text{Reinvestment Yield}$$

$$= 5.744 \times 0.03 \times \frac{\text{Index}_{2017/1/20}}{\text{Index}_{2017/1/19}} = 5.744 \times 0.03 \times \frac{100.4405}{100.4614} = 0.17228415$$

$$\text{Market Value}_{2017/1/23} = (62.7959 + 0.0236) \times 0.03 \times 1 + 0.17228415 = 2.056869195$$

$$\text{Index}_{2017/1/23} = \frac{\text{Market value}}{\text{Divisor}} \times 100 = \frac{2.056869195}{2.047083451} \times 100 = 100.478033$$

3. Divisor Adjustment at the End of Month

- ◆ The divisor shall be adjusted on the last trading day of the month, which is 2017-01-26 in this case.

Table 6 Information for calculation (from 2017-01-25 to 2017-02-03)

Trading date	Constituent	Clean price	Accrued interest	Coupon payments and reinvestment	Issued amount (100 million sheet)	Weight factor	Index level
2017/1/25	A	62.7854	0.0472	0.17241177	0.03	1	100.5035
2017/1/26	A	62.7956	0.0590	0.17239218	0.03	1	100.5347
2017/2/3	A	62.7185	0.1534	0	0.03	1	100.5624

$$\text{Old Divisor} = 2.047083451$$

$$\text{New Divisor} = \frac{(62.7956 + 0.059) \times 0.03 + 0}{((62.7956 + 0.059) \times 0.03 + 0.17239218) / 2.047083451} = 1.875608$$

- ◆ The next trading day is 2017-02-03

$$\text{Market Value}_{2017/2/3} = (62.7185 + 0.1534) \times 0.03 \times 1 + 0 = 1.886157$$

$$\text{Index}_{2017/2/3} = \frac{\text{Market Value}}{\text{Divisor}} \times 100 = \frac{1.886157}{1.875608} \times 100 = 100.5624$$

4. New Entry

- ◆ On 2017-02-06, when bond B shall be listed, the divisor would be adjusted. Bond B would be included in the index on 2017-02-07.

Table 7 Information for calculation (2017-02-06)

Trading date	Constituent	Clean price	Accrued interest	Coupon payments and reinvestment	Issued amount (100 million sheet)	Weight factor	Index level
2017/2/6	A	62.6825	0.1888	0	0.03	1	100.5615
	B	99.7870	0.168	0	0.1	1	-

$$\text{Old Divisor} = 1.875608$$

$$\text{New Divisor} = \frac{(62.6825 + 0.1888) \times 0.03 + (99.787 + 0.168) \times 0.1 + 0}{((62.6825 + 0.1888 + 0) \times 0.03 + 0) / 1.875608} = 11.8153$$

- ◆ The next trading day is 2017-02-07; the index calculation is as follow:

Table 8 Information for calculation (2017-02-07)

Trading date	Constituent	Clean price	Accrued interest	Coupon payments and reinvestment	Issued amount (100 million sheet)	Weight factor	Index level
2017/2/7	A	62.6810	0.2006	0	0.03	1	100.3111
	B	99.4761	0.1800	0	0.1	1	

$$\begin{aligned} \text{Market Value}_{2017/2/7} &= (62.681 + 0.2006) \times 0.03 \times 1 + (99.4761 + 0.18) \times 0.1 \times 1 + 0 \\ &= 1.886157 \end{aligned}$$

$$\text{Index}_{2017/2/7} = \frac{\text{Market value}}{\text{Divisor}} \times 100 = \frac{1.886157}{11.8153} \times 100 = 100.3111$$

According to former calculations, the table below summarizes the calculation from base date to 2017-02-07:

Table 9 Index calculation

	Constituents	Clean price	Accrued interest	Coupon payment (100 million)	Coupon payments and reinvestment (100 million)	Amount outstanding(100 million)	Par value (Yuan)	Issued amount (100 million sheet)	Weight factor	Market value	Divisor	Index level
2016/12/30	A	82.7506	5.3978	0	0	2.4	80	0.03	1	2.6445	2.6445	100.0000
2017/1/3	A	82.7027	5.4607	0	0	2.4	80	0.03	1	2.6449	2.6445	100.0170
2017/1/4	A	82.7693	5.4765	0	0	2.4	80	0.03	1	2.6474	2.6445	100.1105
2017/1/5	A	82.8280	5.4922	0	0	2.4	80	0.03	1	2.6496	2.6445	100.1949
2017/1/6	A	82.8496	5.5079	0	0	2.4	80	0.03	1	2.6507	2.6445	100.2372
2017/1/9	A	82.8578	5.5552	0	0	2.4	80	0.03	1	2.6524	2.6445	100.3002
2017/1/10	A	82.8549	5.5709	0	0	2.4	80	0.03	1	2.6528	2.6445	100.3147
2017/1/11	A	82.8954	5.5866	0	0	2.4	80	0.03	1	2.6545	2.6445	100.3785
2017/1/12	A	82.9524	5.6024	0	0	2.4	80	0.03	1	2.6566	2.6445	100.4610
2017/1/13	A	82.9416	5.6181	0	0	2.4	80	0.03	1	2.6568	2.6445	100.4666
2017/1/16	A	82.9455	5.6653	0	0	2.4	80	0.03	1	2.6583	2.6445	100.5246
2017/1/17	A	82.9308	5.6811	0	0	2.4	80	0.03	1	2.6584	2.6445	100.5258
2017/1/18	A	82.8999	5.6968	0	0	2.4	80	0.03	1	2.6579	2.6445	100.5086
2017/1/19	A	82.8426	5.7125	0	0	2.4	80	0.03	1	2.6567	2.6445	100.4614
2017/1/20	A	82.8084	5.7283	0	0	2.4	80	0.03	1	2.6561	2.6445	100.4405
2017/1/23	A	62.7959	0.0236	0.1723	0.1723	1.8	60	0.03	1	2.0569	2.0471	100.4780
2017/1/24	A	62.8071	0.0354	0.1723	0.1723	1.8	60	0.03	1	2.0576	2.0471	100.5149
2017/1/25	A	62.7854	0.0472	0.1723	0.1724	1.8	60	0.03	1	2.0574	2.0471	100.5035
2017/1/26	A	62.7956	0.059	0.1723	0.1724	1.8	60	0.03	1	2.0580	2.0471	100.5347
2017/2/3	A	62.7185	0.1534	0	0	1.8	60	0.03	1	1.8862	1.8756	100.5624

2017/2/6	A	62.6825	0.1888	0	0	1.8	60	0.03	1	1.8861	1.8756	100.5615
2017/2/7	A	62.6810	0.2006	0	0	1.8	60	0.03	1	11.8521	11.8153	100.3111
	B	99.4761	0.1800	0	0	10	100	0.1	1			

Appendix C

1. Data Interval Application

Data interval applies to certain indexes which are adjusted every 3 months. For instance, for the indexes adjusted on the first trading day in October, the Data Cutoff Date is the first trading day of the second week of September, and the Data Interval is between June and August (the 3 months prior to the adjustment) or between March and August (the 6 months prior to the adjustment)

Table 10 Data interval applications in specific indexes (Sep., 2018)

Index name	Data interval rules
SSE Corporate Bond 30 Index	Data interval is 3 months prior to the adjustment. For example, the quarterly adjustment in June uses the data produced between the first trading day of March and the last trading day of May.
SSE Credit Bond 100 Index	
CSI 1-7 Year Medium-high Yield Enterprise Bond Index	
CSI Medium Term Credit Bond Index	
CSI 50 Bond Index	
CSI Enterprise Bond 100 Index	
CSI Short Term Note 50 Index	
CSI Medium Term Note 50 Index	
CSI Medium Term Universal Bond Index	
CSI Liquid Medium Term Note 50 Index	
CSI Liquid Medium Term Credit Bond 100 Index	
CSI Liquid Medium Term Medium-High Yield Credit Bond Index	
CSI Medium Term Note 100 Index	Data interval is 6 months prior to the adjustment. For example, the quarterly adjustment in June uses the data produced between the first trading day of December of last year and the last trading day of May of this year.

2. Buffer Zone Application

To lower the turnover rate, the buffer zone rules apply to the following indexes:

Table 11 Buffer zone applications in specific indexes (Sep., 2018)

Index name	Buffer zone rules
SSE Corporate Bond 30 Index	New candidate constituents ranked top 24 shall be given priority to be added into the index and old constituents ranked top 36 shall be given priority to remain in the index. The number of constituents removed is usually less than 5.
CSI 50 Bond Index	The constituents ranked lower shall be removed from the index, while the constituents ranked higher shall be added into the index. The number of constituents removed is usually less than 5.
CSI 1-7 Year Medium-high Yield Enterprise Bond Index	The constituents ranked lower shall be removed from the index. The number of constituents removed is usually less than 20. If the median of a constituent's individual trading value is less than the median of all constituents trading value, the constituent is removed from the index.

3. Reserve List Application

In an index temporary adjustment, the reserve list rules apply to following indexes:

Table 12 Reserve list applications in specific indexes (Sep., 2018)

Index name	Reserve list rules
SSE Corporate Bond 30 Index	Constituents on the reserve list shall be added to the index by rankings in turn. (Applicable to temporary adjustment)
CSI 1-7 Year Medium-high Yield Enterprise Bond Index	For each credit-rating group, constituents on the reserve list shall be added to the index by credit rankings in turn. (Applicable to temporary adjustment)
CSI Medium Term Note 100 Index	Constituents on the reserve list shall be added to the index by rankings in turn. (Applicable to temporary adjustment)
SSE Credit Bond 100 Index	The reserve list is comprised of constituents ranking after 100, and the constituents on the reserve list shall be added to the index by rankings in turn. (Applicable to temporary adjustment)

Appendix D: CSI Statement of Principles

For certain events not covered in the Calculation and Maintenance Methodology and index methodologies etc., CSI shall determine the appropriate treatment by reference the statement of principles below. These principles apply to any equity, bond, and multi-asset index families managed by CSI. Where there is an actual or potential conflict between the Index Methodology and this statement of principles concerning any decision on the index families' management, the precedence shall be given to this statement of principles.

1. Generally, in the course of index adjustment, in order to avoid unnecessary changes, it is imperative to ensure the constituents can be invested and conform to the index description.
2. The index calculation methods shall be easy to understand and follow by index users. The index calculation shall use public data whenever possible.
3. The corporate data used for index calculation shall come from an authoritative source, which in principle shall be published by constituent companies and provided by reliable local market vendors. Market prices used for index calculation shall originate from reliable sources to reflect the trading in the market.
4. The treatment about corporate events or bond events shall reflect the impact to the investment portfolios and shall be in line with the requirements in the index methodology. The treatment should normally be designed to minimize the trading activity required by the index users to track the index performance.
5. To promote the predictability of the treatment about corporate events or bond events, the stability in calculation methods and data usage shall be maintained wherever practical. In assessing the best practice, CSI may conduct market consultations it considers appropriate to ensure that the indices continue to meet current and future market needs.
6. To ensure that no index user can procure any advantage from predicting the future composition of an index, the index methodology documents shall include a description of the data used for the determination of the eligibility and weights of index constituents.
7. The interests of all users and stakeholders should be considered in the index management. In determining the index rules, unless a single or specific group of markets is involved, CSI shall maintain the consistency in the treatment at the best effort and make decisions that incorporate the views of all users and stakeholders. The stakeholders include relevant product managers and clients of customized indices who take indices as the investment target or benchmark.

Contact Us

For further details on CSI indexes and ground rules, please contact China Securities Index Company.

Customer Service

China Securities Index Company

Email : csindex@sse.com.cn

Website: <http://www.csindex.com.cn/>

Disclaimer

All information contained herein is provided for reference only, and is not intended to provide professional advice and shall not be relied upon in that regard. This document shall not be used for any unlawful or unauthorized purposes, and is subject to change from time to time without notice. Every effort is made to ensure the accuracy of the contents, but China Securities Index Co., Ltd. (“CSI”) makes no warranty or representation as to the accuracy, completeness or reliability of any of the contents contained herein and accepts no liability whatsoever to any person for any damages or loss of any nature arising from or as a result of reliance on any of the contents, or any errors or omission in the contents.