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## CBONDS RUSSIAN DOMESTIC BOND MARKET INDICES

Russian Government Bonds Indices			Russian Municipal Bonds Indices			Russian Corporate Bonds Indices		
Composite Index			Composite Index			IFX-Cbonds		
1-3Y	3-5Y	more than 5Y				Composite Index BBB/ruAA-	Composite Index BB/ruBBB	Composite Index B/ruB-
						Composite Index 1-3Y	Composite Index 3-5Y	Composite Index more than 5Y

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## Calculation Formula

The International Bond Indices offered by Cbonds.ru are total return indices calculated according to the following formula:

$$I_0 = 100 \qquad I(t) = I(t-1) * \frac{\sum_{i=1}^n [P(i,t) + ACI(i,t) + G(i,t)] * V(i)}{[P(i,t-1) + ACI(i,t-1)] * \sum_{j=1}^n V(j)}$$

$n$  – number of securities on the Index List;

$P_{i,t}$  – price of the  $i$ -th security at moment  $t$  (net price in monetary terms);

$ACI_{i,t}$  - accrued coupon income on the  $i$ -th security at moment  $t$  (this figure equals 0 on the coupon payment date being simultaneously the beginning of a new coupon period);

$G_{i,t}$  – coupon and / or amortization payments made on the  $i$ -th security at moment  $t$  (this figure is different from 0 only at the date of payment of the coupon or amortization);

$V_{i,t}$  – par amount of the  $i$ -th issue on the Index List at moment  $t$ .

The expression in the numerator is the capitalization of the index list at moment  $t$ , the denominator expression is capitalization at time  $t-1$ .

The Index is calculated in the beginning of a trading day (every trading day) using the data from the previous trading day at its closure.

Apart In addition to the main index, we also calculate an auxiliary (“conjuncture”) index. It us a price-based index calculated the following way:

$$IP_0 = 100 \qquad IP_t = IP_{t-1} \frac{\sum_{i=1}^n P_{i,t} N_{i,t}}{\sum_{i=1}^n P_{i,t-1} N_{i,t}}$$

The designations correspond to those entered earlier.

## Concomitant figures

In addition to the indices, we calculate a number of gauges characterizing weighted average yield to maturity and weighted average duration of the index portfolio.

We calculate “simple” weighted average yield (not including within-year coupon investments) and “effective” weighted average yield (including within-year coupon investments).

Weighted average duration is average duration weighted according to the share of each security in general capitalization. If the duration to maturity and to put option is calculated, the duration to put option will be used to calculate the average duration of the index portfolio.

$$D_p = \frac{\sum_i D_{i,t} * [P_{i,t} + ACI_{i,t}] * V_{i,t}}{\sum_i [P_{i,t} + ACI_{i,t}] * V_{i,t}}$$

$D_p$  – duration for portfolio;

$D_{i,t}$  – duration of  $i$ -th at moment  $t$ .

Weighted average yields are weighted yields either to maturity or to put option of securities included in the Index portfolio. Yields are weighted according to the security’s share in the market capitalization and duration. If the yield to maturity and to put option is calculated the yield to put option will be used in calculation of the weighted average yield of the index portfolio.

$$Y_p = \frac{\sum_i Y_{i,t} * D_{i,t} * [P_{i,t} + ACI_{i,t}] * V_{i,t}}{\sum_i D_{i,t} * [P_{i,t} + ACI_{i,t}] * V_{i,t}},$$

$$Y_p^* = \frac{\sum_i Y_{i,t}^* * D_{i,t} * [P_{i,t} + ACI_{i,t}] * V_{i,t}}{\sum_i D_{i,t} * [P_{i,t} + ACI_{i,t}] * V_{i,t}}.$$

$Y_p$  – weighted average yield on portfolio (simple);

$Y_{i,t}$  – yield on  $i$ -th security at moment  $t$  (simple);

$Y_p^*$  – weighted average yield on portfolio (effective);

$Y_{i,t}^*$  – yield on  $i$ -th security at moment  $t$  (effective).

## Methodology of Index List Formation

### *Russian government bonds Index family*

#### **Cbonds-GBI RU**

#### **Cbonds-GBI RU 1-3Y**

#### **Cbonds-GBI RU 3-5Y**

#### **Cbonds-GBI RU 5Y**

1. When calculating the index we primarily take into account all government bonds traded on the Moscow Exchange.
2. Foreign currency-pegged bonds are excluded from the list of bonds described in 1.
3. Bonds having a maturity (call option) of less than 360 days are excluded from the list described in 2. For Cbonds-GBI RU 1-3Y with maturity (call option) of more than 1080 days are also excluded. For Cbonds-GBI RU 3-5Y with maturity (call option) of less than 1080 days and more than 1800 days are also excluded. For Cbonds-GBI RU 5Y with maturity (call option) of less than 1800 days are also excluded.
4. Floating rate bonds are excluded from the list of bonds described in 3.
5. Low liquidity bonds defined according to the following criteria are excluded from the list described in 4:
  - 5.1. The number of days when the issue was not traded on at least one of the trading floors mentioned in 1 exceeds half the trading days of the quarter when the issue was admitted for trading.
6. The list formed in line with the above mentioned criteria is referred to as the Index List.

The archive values of the indices are calculated from 2010 (the archive values for the period from 01.01.2010 to 31.12.2012 are calculated based on the volume of emissions as of December 31, 2012)

The Index List is reviewed on a quarterly basis according to this methodology.

## ***Russian municipal bonds Index family:***

### **Cbonds-Muni**

1. When calculating the index we primarily take into account all municipal bonds traded on the Moscow Exchange.
2. Foreign currency-pegged bonds are excluded from the list of bonds described in 1.
3. Bonds having a maturity (call option) of less than 4 months are excluded from the list described in 2.
4. Low liquidity bonds defined according to the following criteria are excluded from the list described in 3:
  - 4.1. The number of days when the issue was not traded on at least one of the trading floors mentioned in 1 exceeds half the trading days of the quarter when the issue was admitted for trading.
  - 4.2. Bonds of this issue had a turnover below 10 M RUB in the previous month.
5. The list formed in line with the above mentioned criteria is referred to as the Market Securities List and is used for formation of the Index List.

#### *Index List Formation*

1. The index list includes 20 bond issues having the biggest par amount.
2. If the sample represents 25% of the par amount of bonds included in the market securities list, the list is considered to be completed. If there are several issues having the same par amount and it is possible to include only some of them, the selection is done based on the highest turnover per month.
3. If 20 securities have been selected but they do not account for 25%, we continue to select bonds till we reach the 25% cap.

The list is reviewed on a quarterly basis according to this methodology and criteria set out in 4.

## ***Russian corporate bonds Index family:***

### **IFX-Cbonds**

**Cbonds-CBI RU BBB/ruAA-**

**Cbonds-CBI RU BB/ruBBB**

**Cbonds-CBI RU B/ruB-**

**Cbonds-CBI RU 1-3Y**

**Cbonds-CBI RU 3-5Y**

**Cbonds-CBI RU 5Y**

### ***IFX-Cbonds Index List Formation***

*IFX-Cbonds is calculated jointly by Cbonds.Ru LLC and Interfax Ltd.*

1. We start forming the list for calculating IFX-Cbonds by picking all ruble-denominated corporate bonds listed on quotation lists of the Moscow Exchange.
2. Foreign currency-pegged bonds are excluded from the list of bonds described in 1.
3. Then we exclude bonds maturing or puttable/callable in less than 120 days from the array of bonds selected in Clause 2.
4. Then we exclude bonds with low secondary market liquidity from the array of bonds selected in Clause 3. Bonds are excluded if:
  - 4.1. the number of days when the bond issue was not traded in the main trading mode on the Moscow Exchange exceeds half of the trading days in the quarter;
  - 4.2. the average daily trading turnover for this bond issue in the previous quarter over the period when the issue was admitted for trading on the trading floor was below 3 M RUB.
5. The list formed in line with the above mentioned rules is called the Market Securities List and is used for formation of the Index List.
6. The Index List includes all bonds from the Market Securities List if their market capitalization accounts for 5% or more of the total market value of bonds on the Moscow Exchange quotation lists.
7. If this list accounts for 95% of the market value of all bonds from the Market Securities List but counts fewer than 10 issuers, it is expanded by bond issues having the biggest share by market value until the number of issuers reaches 10 whereby the formation of the list is completed.
8. If this list does not account for 95% of the market value of all bonds from the Market Securities List, it is expanded by bond issues having the biggest share by market value until either the 95% threshold is reached (and then all steps to meet conditions outlined in Clause 7 are taken) or the number of bond issues reaches 30.
9. If the selection process outlined in Clause 8 is completed based on the criterion of the number of securities on the list, but all securities on the list account for 25% or more of market value of all bonds but the number of issuers on the index list is fewer than 10, then the index list formation is completed. Otherwise the list is expanded by bond issues having the biggest share by market value until the number of issuers reaches 10.
10. If 30 bonds are selected, but the 25% threshold is not reached, the list is expanded by bonds until this threshold is reached and until the number of issuers on the Index List is no fewer than 10.

[Detailed methodology for calculating IFX-Cbonds and the formation of Index List \(rus.\)](#)

### *Russian Corporate Bond Index (CBI) List Formation*

1. When calculating the index we primarily take into account all corporate bonds traded on the Moscow Exchange.
2. Foreign currency-pegged bonds and floating rate bonds are excluded from the list of bonds described in item 1.
3. Bonds with maturity (put/call offer) less than 1 year are excluded from the list of bonds described in 2.
4. Bonds with total value less than 1 BN RUB are excluded from the list of bonds described in 3.
5. Bonds with the maximum rating under the national scale of ACRA and RAEX of the issuer or issue lower than B-(RU) from ACRA, ruB- from RAEX; or/and the international rating in the national currency of the issuer or issue lower than B3 from Moody's, B- from S&P or/and Fitch; or which have less than two ratings are excluded from the list of bonds described in 4 (the last condition is not taken into account when forming the index B/ruB-, 1-3Y, 3-5Y, 5Y).
6. Low liquidity bonds are excluded from the list of bonds described in 5. Low liquidity bonds defined according to the following criteria: the number of days when the issue was not traded on the trading floor mentioned in item 1 exceeds 2/3 the trading days of the quarter when the issue was admitted for trading.
7. The list formed in line with the above mentioned criteria is referred to as the Market Securities List.

### *Index List Formation*

1. The Market Securities List is divided into three sub-lists by credit quality: BBB/ruAA-, BB/ruBBB, B/ruB- and three sub-lists by maturity.
2. The lists with the breakdown by credit quality form a lot of index lists.
3. Cbonds-CBI RU BBB/ruAA- Index List includes bonds from Market Securities List, with the maximum rating under the national scale of ACRA and RAEX of the issuer or issue not lower than AA-(RU) from ACRA or/and ruAA- from RAEX; or/and the international rating in the national currency of the issuer or issue 1 step lower than the sovereign rating from Moody's, S&P or/and Fitch (having at least two out of five ratings).
4. Cbonds-CBI RU BB/ruBBB Index List includes bonds from Market Securities List, with the maximum rating under the national scale of ACRA and RAEX of the issuer or issue not lower than BBB(RU) from ACRA or/and ruBBB from RAEX but not higher than A+(RU) from ACRA or/and ruA+ from RAEX; or/and the international rating in the national currency of the issuer or issue 2 or 3 steps lower than the sovereign rating from Moody's, S&P or/and Fitch (having at least two out of five ratings).
5. Cbonds-CBI RU B/ruB- Index List includes bonds from Market Securities List, with the maximum rating under the national scale of ACRA and RAEX of the issuer or issue not lower than B-(RU) from ACRA or/and ruB- from RAEX but not higher than BBB-(RU) from ACRA or/and ruBBB- from RAEX; or/and the international rating in the national currency of the issuer or issue 4 or 5 steps lower than the sovereign rating from Moody's, S&P or/and Fitch.
6. Cbonds-CBI RU 1-3Y Index List includes bonds from Market Securities List with the maturity/early redemption from 360 to 1080 days.
7. Cbonds-CBI RU 3-5Y Index List includes bonds from Market Securities List with the maturity/early redemption from 1080 to 1800 days.
8. Cbonds-CBI RU 5Y Index List includes bonds from Market Securities List with the maturity/early redemption from 1800 days.
9. If the issue rating and the issuer rating vary, the issue rating is taken into account to form the Index List. If the issue fits criteria of two Index Lists, it is included in the lower-level Index List.



The Index Lists are reviewed according to the following criteria:

1. on a quarterly basis, on the first working day of January, April, July, October;
2. on the first business day of the month, following the month, during which the assignment of a credit rating below B- (Fitch, Standard&Poor's), B3 (Moody's), B-(RU) (ACRA) or ruB- (RAEX) to the issuer, whose securities are listed in any number of Index Lists;
3. on the first business day following the day during which significant non-market fluctuations in the price of at least one of the issues from the Index List were observed.

*Cbonds.ru thanks for assistance in the development of the corporate index calculation methodology*

- *Egor Fedorov (ING Commercial Banking);*
- *Eugene Dorofeev (Bank Petrocommerce);*
- *Alexander Zvyagintsev (IC «NORD-West»);*
- *Alexander Ermak (BC «REGION»);*
- *Vitaly Okulov (GSOM);*
- *Konstantin Nemnov (State Street Global Advisors);*
- *Experts of the Research and Forecasting group at ACRA;*
- *Methodological department of RAEX.*

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## Annex 1: summary table of index lists criteria

Index	Region	Country	Type of notes	Coupon	Segment	Currency	Min. term to maturity (days)	Max. term to maturity (days)	Rating	Review frequency	Index calculated since	Minimum number of trading days in the previous quarter	The issue minimum amount
<b>Russian government bonds Index family</b>													
<b>Cbonds-GBI RU</b>	CIS	Russia	Bonds	fixed	gov	RUB	360	-	-	quarterly	01.01.2010	half the trading days of the quarter	-
<b>Cbonds-GBI RU 1-3Y</b>	CIS	Russia	Bonds	fixed	gov	RUB	360	1080	-	quarterly	01.01.2010	half the trading days of the quarter	-
<b>Cbonds-GBI RU 3-5Y</b>	CIS	Russia	Bonds	fixed	gov	RUB	1080	1800	-	quarterly	01.01.2010	half the trading days of the quarter	-
<b>Cbonds-GBI RU 5Y</b>	CIS	Russia	Bonds	fixed	gov	RUB	1800	-	-	quarterly	01.01.2010	half the trading days of the quarter	-
<b>Russian municipal bonds Index family</b>													
<b>Cbonds-Muni</b>	CIS	Russia	Bonds	fixed	muni	RUB	4 months	-	-	quarterly	01.09.2003	half the trading days of the quarter, turnover below RUR10bn	-

Index	Region	Country	Type of notes	Coupon	Segment	Currency	Min. term to maturity (days)	Max. term to maturity (days)	Rating	Review frequency	Index calculated since	Minimum number of trading days in the previous quarter	The issue minimum amount
<b>Russian corporate bonds Index family</b>													
<b>IFX-Cbonds</b>	CIS	Russia	Bonds	fixed	corp	RUB	120	-	-	quarterly	01.01.2002	half the trading days of the quarter, turnover below RUR3bn	-
<b>Cbonds-CBI RU BBB/ruAA-</b>	CIS	Russia	Bonds	fixed	corp	RUB	360	-	not lower than AA-(RU) from ACRA or/and ruAA- from RAEX; or/and the international rating in the national currency of the issuer or issue 1 step lower than the sovereign rating from Moody's, S&P or/and Fitch (2 from 5)	quarterly	01.01.2011	1/3 the trading days of the quarter	1 000 000 000
<b>Cbonds-CBI RU BB/ruBBB</b>	CIS	Russia	Bonds	fixed	corp	RUB	360	-	not lower than BBB(RU) from ACRA or/and ruBBB from RAEX but not higher than A+(RU) from ACRA or/and ruA+ from RAEX; or/and the international rating in the national currency of the issuer or issue 2 or 3 steps lower than the sovereign rating from Moody's, S&P or/and Fitch (2 from 5).	quarterly	01.01.2011	1/3 the trading days of the quarter	1 000 000 000
<b>Cbonds-CBI RU B/ruB-</b>	CIS	Russia	Bonds	fixed	corp	RUB	360	-	not lower than B-(RU) from ACRA or/and ruB- from RAEX but not higher than BBB-(RU) from ACRA or/and ruBBB- from RAEX; or/and the international rating in the national currency of the issuer or issue 4 or 5 steps lower than the sovereign rating from Moody's, S&P or/and Fitch (1 from 5).	quarterly	01.01.2011	1/3 the trading days of the quarter	1 000 000 000
<b>Cbonds-CBI RU 1-3Y</b>	CIS	Russia	Bonds	fixed	corp	RUB	360	1080	not lower than B-(RU) from ACRA, ruB- from RAEX, B3 from Moody's or B- from S&P and Fitch	quarterly	01.01.2011	1/3 the trading days of the quarter	1 000 000 000

<b>Cbonds-CBI RU 3-5Y</b>	CIS	Russia	Bonds	fixed	corp	RUB	1080	1800	not lower than B-(RU) from ACRA, ruB- from RAEX, B3 from Moody's or B- from S&P and Fitch	quarterly	01.01.2011	1/3 the trading days of the quarter	1 000 000 000
<b>Cbonds-CBI RU 5Y</b>	CIS	Russia	Bonds	fixed	corp	RUB	1800	-	not lower than B-(RU) from ACRA, ruB- from RAEX, B3 from Moody's or B- from S&P and Fitch	quarterly	01.07.2017	1/3 the trading days of the quarter	1 000 000 000

## Annex 2: the history of indices methodology adjustments

Date	Index	Adjusted criterion	Before adjustments	After adjustments
01.05.2018	Cbonds-CBI RU 1-3Y	Calculation period	from 01.01.2011 to 01.01.2018	calculated from 01.01.2011 according to new methodology
01.05.2018	Cbonds-CBI RU 3-5Y	Calculation period	from 01.01.2011 to 01.01.2018	calculated from 01.01.2011 according to new methodology
01.05.2018	Cbonds-CBI RU 1-3Y	Rating	the maximum rating not lower than B3 from Moody's or B- from S&P and Fitch	the maximum rating not lower than B-(RU) from ACRA, ruB- from RAEX, B3 from Moody's or B- from S&P and Fitch
01.05.2018	Cbonds-CBI RU 3-5Y	Rating	the maximum rating not lower than B3 from Moody's or B- from S&P and Fitch	the maximum rating not lower than B-(RU) from ACRA, ruB- from RAEX, B3 from Moody's or B- from S&P and Fitch
01.01.2018	Cbonds-CBI RU BB/ruBBB	Rating	the maximum rating not lower than Ba3 from Moody's or BB- from S&P and Fitch, but not higher than Ba1 from Moody's or BB+ from S&P and Fitch.	the maximum rating under the national scale of ACRA and RAEX of the issuer or issue not lower than BBB(RU) from ACRA or/and ruBBB from RAEX but not higher than A+(RU) from ACRA or/and ruA+ from RAEX; or/and the international rating in the national currency of the issuer or issue 2 or 3 steps lower than the sovereign rating from Moody's, S&P or/and Fitch (having at least two out of five ratings).
01.01.2018	Cbonds-CBI RU B/ruB-	Rating	the maximum rating not lower than B3 from Moody's or B- from S&P and Fitch, but not higher than B1 from Moody's or B+ from S&P and Fitch.	the maximum rating under the national scale of ACRA and RAEX of the issuer or issue not lower than B-(RU) from ACRA or/and ruB- from RAEX but not higher than BBB-(RU) from ACRA or/and ruBBB- from RAEX; or/and the international rating in the national currency of the issuer or issue 4 or 5 steps lower than the sovereign rating from Moody's, S&P or/and Fitch.
01.01.2018	Cbonds-CBI RU BBB/ruAA-	Calculation period	from 01.01.2011 to 01.01.2018	calculated from 01.01.2015 according to new methodology
01.01.2018	Cbonds-CBI RU BB/ruBBB	Calculation period	from 01.01.2011 to 01.01.2018	calculated from 01.01.2015 according to new methodology
01.01.2018	Cbonds-CBI RU B/ruB-	Calculation period	from 01.01.2011 to 01.01.2018	calculated from 01.01.2014 according to new methodology
01.01.2018	Cbonds-CBI RU 3-5Y	Calculation period	from 01.01.2011 to 01.01.2018	calculation suspended from 01.01.2018
01.01.2018	Cbonds-CBI RU 1-3Y	Calculation period	from 01.01.2011 to 01.01.2018	calculation suspended from 01.01.2018
01.01.2018	Cbonds-CBI RU BBB/ruAA-	Index name	Cbonds-CBI RU BBB	Cbonds-CBI RU BBB/ruAA-
01.01.2018	Cbonds-CBI RU BB/ruBBB	Index name	Cbonds-CBI RU BB	Cbonds-CBI RU BB/ruBBB
01.01.2018	Cbonds-CBI RU B/ruB-	Index name	Cbonds-CBI RU B	Cbonds-CBI RU B/ruB-
01.04.2016	Cbonds-CBI RU BBB	Rating	not lower than Baa3 by Moody's and/ or BBB- by S&P and Fitch (2 of 3)	the maximum rating not lower than Baa3 from Moody's or BBB- from S&P and Fitch.
01.04.2016	Cbonds-CBI RU BB	Rating	not lower than Ba3 by Moody's and/ or BB- by S&P and Fitch (2 of 3)	the maximum rating not lower than Ba3 from Moody's or BB- from S&P and Fitch, but not higher than Ba1 from Moody's or BB+ from S&P and Fitch.
01.04.2016	Cbonds-CBI RU B	Rating	not lower than B3 by Moody's and/ or B- by S&P and Fitch (2 of 3)	the maximum rating not lower than B3 from Moody's or B- from S&P and Fitch, but not higher than B1 from Moody's or B+ from S&P and Fitch.
01.04.2016	Cbonds-CBI RU 1-3Y	Rating	not lower than B3 by Moody's and/ or B- by S&P and Fitch (2 of 3)	the maximum rating not lower than B3 from Moody's or B- from S&P and Fitch
01.04.2016	Cbonds-CBI RU 3-5Y	Rating	not lower than B3 by Moody's and/ or B- by S&P and Fitch (2 of 3)	the maximum rating not lower than B3 from Moody's or B- from S&P and Fitch

01.04.2016	Cbonds-CBI RU BBB	Number of days when quotes were posted on Cbonds	half the trading days of the quarter	1/3 the trading days of the quarter
01.04.2016	Cbonds-CBI RU BB	Number of days when quotes were posted on Cbonds	half the trading days of the quarter	1/3 the trading days of the quarter
01.04.2016	Cbonds-CBI RU B	Number of days when quotes were posted on Cbonds	half the trading days of the quarter	1/3 the trading days of the quarter
01.04.2016	Cbonds-CBI RU 1-3Y	Number of days when quotes were posted on Cbonds	half the trading days of the quarter	1/3 the trading days of the quarter
01.04.2016	Cbonds-CBI RU 3-5Y	Number of days when quotes were posted on Cbonds	half the trading days of the quarter	1/3 the trading days of the quarter
01.04.2016	Cbonds-CBI RU BBB	Calculation period	not calculated from 01.04.2015	calculated from 01.04.2015 to 31.03.2016 according to the current criteria