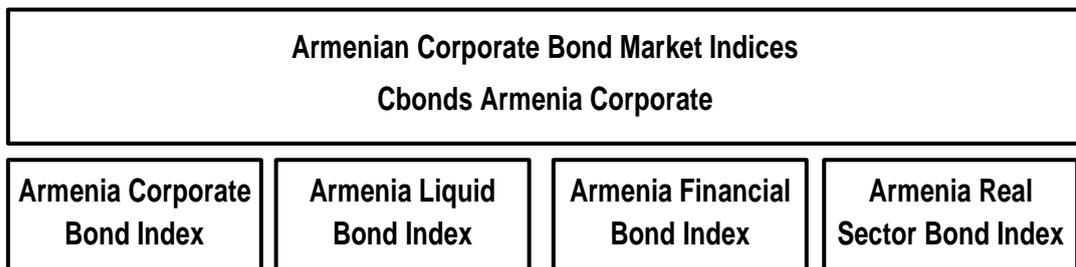




# INDEX CALCULATION METHODOLOGY

## Cbonds Armenia Corporate





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## Index Calculation Formula

The bond indices proposed by Cbonds.ru are total return indices and are calculated using the following formula:

$$I_0 = 100 \quad I_t = I_{t-1} \frac{\sum_{i=1}^n [P_{i,t} + HKД_{i,t} + G_{i,t}] N_{i,t}}{\sum_{i=1}^n [P_{i,t-1} + HKД_{i,t-1}] N_{i,t}}$$

where:

$n$  - number of issues included in the index list;

$P_{i,t}$  - price of the  $i$ -th issue at time  $t$  (clean price, in monetary terms);

$ACI_{i,t}$  - accrued coupon income for the  $i$ -th issue at time  $t$  (on the coupon payment date, which is also the beginning of a new coupon period, this value equals zero);

$G_{i,t}$  - coupon payments and/or amortization payments received for the  $i$ -th issue at time  $t$  (the value of  $G_{i,t}$  differs from zero only on the coupon payment date and/or amortization redemption date for the  $i$ -th bond, when it equals the coupon payment and/or amortization payment);

$N_{i,t}$  - volume of the  $i$ -th bond issue included in the index list (in units) at time  $t$ , adjusted by the issuer and sector weights.

In fact, the expression in the numerator represents the capitalization of the issues included in the index list at time  $t$ , while the expression in the denominator represents the capitalization at time  $t-1$ .

The index is calculated once per trading day (at close) and published at the beginning of the next day.

In addition to the main index, an auxiliary ("conjunctural") index is also calculated. This index represents a price index and is calculated as follows:

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

The notation corresponds to the definitions given above.



## Calculation of Additional Indicators

In addition to the total return indices and the price index, indicators characterizing the weighted average yield and duration of the index portfolio are also calculated.

Both “simple” weighted average yield (without taking into account intra-year reinvestment of coupons) and “effective” weighted average yield (taking into account intra-year reinvestment of coupons) are calculated.

The weighted average duration represents the portfolio-average duration, where weighting is performed based on the share of each security in the total capitalization. If both yield-to-maturity duration and yield-to-offer duration are calculated for an issue, the yield-to-offer duration is used when calculating the weighted average duration of the index portfolio.

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

where:

$D_p$  - portfolio duration;

$D_{i,p}$  - duration of the i-th issue at time t.

The weighted average yields represent the weighted yield of the securities included in the index portfolio. Weighting is performed taking into account the share of each security in the market capitalization and its duration.

If both yield to maturity and yield to offer are calculated for an issue, the yield to offer is used when calculating the weighted average yield of the index portfolio.

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

where:

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

$Y_{i,t}^*$  – yield of the i-th issue at time t (effective).

Detailed information on the calculation of accrued coupon income (ACI), yield, and duration is provided in the [Calculator Reference Guide](#).



## Methodology for the Formation of the Index List

### ***Armenia Corporate Bond Index (ARMCB)***

#### ***Armenia Corporate Bond AMD Index (ARMCB AMD)***

#### ***Armenia Corporate Bond USD Index (ARMCB USD)***

#### **Selection of Securities:**

1. For the index calculation, corporate bonds of Armenian issuers admitted to trading on the Armenian Stock Exchange are initially considered. Securitized securities, structured products, and securities issued by defaulted issuers are excluded.
2. Zero-coupon and coupon bonds with a fixed coupon rate and a finite maturity are considered for inclusion in the indices.
3. From the total set of issues formed in accordance with clause 2:
  - for the Armenia Corporate Bond AMD Index (ARMCB AMD) index family, securities with a currency of issue other than AMD are excluded;
  - for the Armenia Corporate Bond USD Index (ARMCB USD) index family, securities with a currency of issue other than USD are excluded;
4. Bonds with a remaining time to maturity (nearest offer, put option, or call option) of less than 182 days from the effective date of the index list are excluded.
5. Securities with fewer than 5 quotation days on the Cbonds website during the previous month are excluded.
6. The lists obtained for each index as a result of the procedures described in clauses 1-5 are referred to as Index Lists.
7. The review of the list in accordance with this methodology, as well as the inclusion of new issues, is carried out by Cbonds on a monthly basis.
8. The indices are calculated daily on dates when quotations are updated for at least 50% of the securities included in the index portfolio.



## ***Armenia Liquid Bond Index (ARMLQ)***

### ***Armenia Liquid Bond AMD Index (ARMLQ AMD)***

### ***Armenia Liquid Bond USD Index (ARMLQ USD)***

#### **Selection of Securities:**

1. The selection of securities is carried out from corporate bonds of Armenian issuers admitted to trading on the Armenian Stock Exchange. Securitized securities, structured products, and securities issued by defaulted issuers are excluded.
2. Zero-coupon and coupon bonds with a fixed coupon rate and a finite maturity are considered for inclusion in the indices.
3. From the total set of issues formed in accordance with clause 2:
  - or the Armenia Liquid Bond AMD Index (ARMLQ AMD) index family, securities with a currency of issue other than AMD are excluded;
  - or the Armenia Liquid Bond USD Index (ARMLQ USD) index family, securities with a currency of issue other than USD are excluded;
4. Bonds with a remaining time to maturity (nearest offer, put option, or call option) of less than 182 days from the effective date of the index list are excluded.
5. Securities with fewer than 30 quotation days on the Cbonds website during the previous quarter are excluded.
6. An additional liquidity criterion based on trading turnover is applied. The median trading turnover of bonds for the previous quarter is calculated among the issues meeting the conditions specified in clauses 1-5.
7. Bonds whose trading turnover during the considered period exceeds the median turnover calculated in accordance with clause 6 are included in the index list.
8. For bonds included in the previous quarter's index list, a relaxed liquidity criterion is applied. Such securities remain in the index list provided that their trading turnover exceeds 50% of the median turnover calculated in accordance with clause 6.
9. The lists obtained for each index as a result of the procedures described in clauses 1-8 are referred to as Index Lists.
10. The review of the list in accordance with this methodology, as well as the inclusion of new issues, is carried out by Cbonds on a quarterly basis.

The indices are calculated daily on dates when quotations are updated for at least 50% of the securities included in the index portfolio.



## ***Armenia Financial Bond AMD Index (ARMFI)***

### ***Armenia Financial Bond AMD Index (ARMFI AMD)***

### ***Armenia Financial Bond USD Index (ARMFI USD)***

#### **Selection of Securities:**

1. The selection of securities is carried out from corporate bonds of Armenian issuers admitted to trading on the Armenian Stock Exchange. Securitized securities, structured products, and securities issued by defaulted issuers are excluded.
2. Zero-coupon and coupon bonds with a fixed coupon rate and a finite maturity issued by companies belonging to the financial sector of the economy (including insurance, banking, and microfinance) are considered for inclusion in the indices.
3. From the total set of issues formed in accordance with clause 2:
  - or the Armenia Financial Bond AMD Index (ARMFI AMD) index family, securities with a currency of issue other than AMD are excluded;
  - for the Armenia Financial Bond USD Index (ARMFI USD) index family, securities with a currency of issue other than USD are excluded.
4. Bonds with a remaining time to maturity (nearest offer, put option, or call option) of less than 182 days from the effective date of the index list are excluded.
5. Securities with fewer than 5 quotation days on the Cbonds website during the previous month are excluded.
6. The lists obtained for each index as a result of the procedures described in clauses 1-5 are referred to as Index Lists.
7. The review of the list in accordance with this methodology, as well as the inclusion of new issues, is carried out by Cbonds on a monthly basis.
8. The indices are calculated daily on dates when quotations are updated for at least 50% of the securities included in the index portfolio.



## ***Armenia Real Sector Bond Index (ARMRE)***

### ***Armenia Real Sector Bond AMD Index (ARMRE AMD)***

### ***Armenia Real Sector Bond USD Index (ARMRE USD)***

#### **Selection of Securities:**

1. The selection of securities is carried out from corporate bonds of Armenian issuers admitted to trading on the Armenian Stock Exchange. Securitized securities, structured products, and securities issued by defaulted issuers are excluded.
2. Zero-coupon and coupon bonds with a fixed coupon rate and a finite maturity issued by companies belonging to the non-financial sector of the economy are considered for inclusion in the indices.
3. From the total set of issues formed in accordance with clause 2:
  - for the Armenia Real Sector Bond AMD Index (ARMRE AMD) index family, securities with a currency of issue other than AMD are excluded;
  - for the Armenia Real Sector Bond USD Index (ARMRE USD) index family, securities with a currency of issue other than USD are excluded;
4. Bonds with a remaining time to maturity (nearest offer, put option, or call option) of less than 182 days from the effective date of the index list are excluded.
5. Securities with fewer than 5 quotation days on the Cbonds website during the previous month are excluded.
6. The lists obtained for each index as a result of the procedures described in clauses 1-5 are referred to as Index Lists.
7. The review of the list in accordance with this methodology, as well as the inclusion of new issues, is carried out by Cbonds on a monthly basis.
8. The indices are calculated daily on dates when quotations are updated for at least 50% of the securities included in the index portfolio.



## Review of Index Lists

In accordance with the calculation methodology, the Index Lists are reviewed in the following cases:

### Scheduled review:

- Monthly – on the first business day of each month (for the Armenia Liquid Bond Index (ARMLQ) – quarterly).

### Unscheduled review:

- On the first business day after significant non-market price fluctuations are recorded for one or more issues included in the Index List;
- By decision of the Index Committee in the event of exceptional circumstances requiring a revision of the index composition.
- If an issuer enters a technical default, the issues of this issuer are not excluded from the Index List until the next scheduled review.
- If the technical default changes to the status of “default”, all issues of this issuer will be excluded from all Index Lists on the next business day after the official announcement of the default.

## Appendix 1: Summary Table of Index List Criteria

Index Name	Sub-region	Country	Security Type	Segment	Currency	Minimum Remaining Maturity (days)			
Armenia Corporate Bond AMD Index (ARMCB AMD)	CIS	Armenia	Bonds	Corporate	AMD	182	03.01.2022	5	All sectors
Armenia Corporate Bond USD Index (ARMCB USD)	CIS	Armenia	Bonds	Corporate	USD	182	03.01.2022	5	All sectors
Armenia Liquid Bond AMD Index (ARMLQ AMD)	CIS	Armenia	Bonds	Corporate	AMD	182	03.01.2022	30	All sectors
Armenia Liquid Bond USD Index (ARMLQ USD)	CIS	Armenia	Bonds	Corporate	USD	182	03.01.2022	30	All sectors
Armenia Financial Bond AMD Index (ARCFI AMD)	CIS	Armenia	Bonds	Corporate	AMD	182	03.01.2025	5	Financial sector (including insurance, banking, and microfinance)
Armenia Financial Bond USD Index (ARCFI USD)	CIS	Armenia	Bonds	Corporate	USD	182	03.01.2025	5	Financial sector (including insurance, banking, and microfinance)
Armenia Real Sector Bond AMD Index (ARMRE AMD)	CIS	Armenia	Bonds	Corporate	AMD	182	03.01.2025	5	Non-financial sector
Armenia Real Sector Bond USD Index (ARMRE USD)	CIS	Armenia	Bonds	Corporate	USD	182	03.01.2025	5	Non-financial sector