

Household Term Deposits Index (HTDI) as a reference interest rate for loans denominated in BGN or EUR

Detailed information about Methodology application and calculation examples

1. Purpose

The Methodology governs the methods of calculating the Household Term Deposits Index in EUR (HTDI) as a reference interest rate of UniCredit Bulbank AD (the Bank) for loans denominated in BGN or EUR as well as its application and periodic change.

2. Scope

HTDI is a reference interest rate applicable to loans with a floating interest rate, denominated in BGN or EUR, granted by the Bank to business entities.

3. Data Source and Calculation Method

The Interest Rate Statistics of the Bulgarian National Bank (BNB) serves as a data source about HTDI, and more specifically the table “Interest Rates and Volumes of Outstanding Amounts on Time Deposits of Households Sector” published on the website of the BNB:

http://www.bnb.bg/Statistics/StMonetaryInterestRate/StInterestRate/StIRInterestRate/index.htm?toLang=_EN hereinafter referred to as the “Interest Rate Statistics” or the “Table”.

HTDI is an average (weighted average) interest rate of the volume of term deposits in BGN or EUR of households sectors in the Bulgarian banking system.

Since presently BNB itself does not publish the weighted average interest rate but nonetheless provides all necessary data for its calculation, the Bank calculates it entirely on the basis of this data as follows:

3.1. For loans in BGN only data on term deposits in BGN are used

A. Client categories and deposits types are identified and more specifically the columns in the Table listed below:

- Households:
 - Time deposits in BGN over 1 day up to 2 years;
 - Time deposits in BGN over 2 years;

In order to avoid any misunderstanding it shall be noted that the current Table contains other categories of time deposits as well (over 1 day up to 1 month, over 1 month up to 3 months, over 3 months up to 6 months, over 6 months up to 12 months and over 1 year up to 2 years),

but they shall be ignored for the purposes of the calculation, since they are presented in aggregate under the “time deposits in BGN over 1 day up to 2 years” category.

- B. The row of the Table corresponding to an annual effective interest rate and volumes (in million BGN) for the respective (one and the same) month is identified. The first section contains the values to be averaged, and the second – the weights of each value.
- C. For each of the categories under item A the two values from the row under item B shall be multiplied, i.e. the annual effective interest rate by the volume, in million BGN, representing its weight.
- D. The products in item C shall be summed up.
- E. Separately, only the weights (volumes in million BGN) shall be summed up for each of the categories (columns) under item A.
- F. The result in item D shall be divided by the result in item E.
- G. The result in item F shall be rounded to the second digit after the decimal point.

In brief, the following formula shall be applied:

$$\frac{\sum_i^n (AEIR_i \times W_i)}{\sum W_i}$$

where:

- AEIR is the annual effective interest rate;
- W is the respective volume which represents the weight;
- i is the clients category, type of deposits, respectively, listed in item A;
- n is the finite number of the clients categories and type of deposits respectively, listed in item A.

Below is an example of calculation of HTDI value as of November 2023:

Interest Rates and Volumes of Outstanding Amounts on Time Deposits of Households Sector

	Effective Annual Rate							Volumes mn BGN						
	in BGN							in BGN						
	over 1 day up to 2 years						over 2 years	over 1 day up to 2 years					over 2 years	
	1 day 1 month	over 1 M up to 3 M	over 3 M up to 6 M	over 6 M up to 12 M	over 12M up to 2 years			1 day 1 month	over 1 M up to 3 M	over 3 M up to 6 M	over 6 M up to 12 M	over 12M up to 2 years		
03.2023	0.08	0.01	0.02	0.10	0.10	0.33	0.56	10457.3	2509.3	1052.6	1495.9	4785.5	614.0	487.5
04.2023	0.09	0.01	0.03	0.10	0.11	0.35	0.57	10480.6	2504.9	1052.1	1495.6	4807.9	620.1	482.5
05.2023	0.10	0.01	0.02	0.08	0.13	0.37	0.60	10500.8	2515.1	1043.7	1495.0	4824.9	622.1	478.5
06.2023	0.11	0.01	0.02	0.10	0.15	0.40	0.63	10533.0	2512.4	1033.1	1522.0	4841.1	624.4	498.1
07.2023	0.12	0.01	0.02	0.11	0.16	0.42	0.67	10546.1	2510.2	1024.3	1534.7	4852.1	624.7	518.5
08.2023	0.13	0.01	0.02	0.11	0.18	0.45	0.68	10589.8	2516.7	1017.6	1541.4	4884.1	630.1	544.4
09.2023	0.14	0.01	0.02	0.12	0.20	0.47	0.69	10621.0	2521.4	1013.6	1550.8	4899.9	635.3	570.1

$$HTDI=(0.14*10621+0.69*570.1)/(10621+570.1)=0.17$$

3.2. For loans in EUR only data on term deposits in EUR are used

- A. Client categories and deposits types are identified and more specifically the columns in the Table listed below:
- Households:
 - Time deposits in EUR over 1 day up to 2 years;
 - Time deposits in EUR over 2 years;

In order to avoid any misunderstanding it shall be noted that the current Table contains other categories of time deposits as well (over 1 day up to 1 month, over 1 month up to 3 months, over 3 months up to 6 months, over 6 months up to 12 months and over 1 year up to 2 years), but they shall be ignored for the purposes of the calculation, since they are presented in aggregate under the “time deposits in EUR over 1 day up to 2 years” category.

- B. The row of the Table corresponding to an annual effective interest rate and volumes (in million BGN) for the respective (one and the same) month is identified. The first section contains the values to be averaged, and the second – the weights of each value.
- C. For each of the categories under item A the two values from the row under item B shall be multiplied, i.e. the annual effective interest rate by the volume, in million BGN, representing its weight.
- D. The products in item C shall be summed up.
- E. Separately, only the weights (volumes in million BGN) shall be summed up for each of the categories (columns) under item A.
- F. The result in item D shall be divided by the result in item E.
- G. The result in item F shall be rounded to the second digit after the decimal point.

In brief, the following formula shall be applied:

$$\frac{\sum_i^n (AEIR_i \times W_i)}{\sum W_i}$$

where:

- AEIR is the annual effective interest rate;
- W is the respective volume which represents the weight;
- i is the clients category, type of deposits, respectively, listed in item A;
- n is the finite number of the clients categories and type of deposits respectively, listed in item A.

Below is an example of calculation of HTDI value with data as of May 2024:

INTEREST RATES AND VOLUMES of OUTSTANDING AMOUNTS on TIME DEPOSITS OF HOUSEHOLDS SECTOR

TIME_OA_HH	Effective Annual Rate							Volumes, in mn BGN						
	in EUR							in EUR						
	over 1 day up to 2 years						over 2 years	over 1 day up to 2 years						over 2 years
	1 day 1 month	over 1 M up to 3 M	over 3 M up to 6 M	over 6 M up to 12 M	over 12 M up to 2 Y	1 day 1 month		over 1 M up to 3 M	over 3 M up to 6 M	over 6 M up to 12 M	over 12 M up to 2 Y			
01.2024	0.29	0.02	0.03	0.19	0.37	0.94	1.10	9 332.95	2 006.83	912.38	1 293.96	4 332.33	787.43	926.20
02.2024	0.30	0.02	0.03	0.20	0.39	0.97	1.11	9 326.12	1 997.59	903.41	1 295.49	4 336.53	793.10	953.32
03.2024	0.31	0.02	0.04	0.21	0.40	0.99	1.11	9 318.15	1 994.52	905.44	1 291.73	4 331.99	794.48	977.77
04.2024	0.33	0.03	0.09	0.22	0.43	0.97	1.09	9 356.06	1 986.22	932.75	1 291.93	4 344.90	800.26	1 028.39
05.2024	0.35	0.07	0.10	0.23	0.45	0.95	1.20	9 418.36	2 013.24	930.75	1 289.03	4 355.12	830.22	1 055.22

$$HTDIE=(0.35*9418.36+1.2*1055.22)/(9418.36+1055.22)=0.43$$

In the process of calculating HTDI value for the respective currency, as described above, the Bank does not exercise own discretion, but only applies the generally adopted formula for calculation of weighted average value to statistical data published by the BNB.

In case that at any future time the BNB changes the format of data of the Interest Rate Statistics with regard to the categories of the clients and/or the types of the term deposits, the Bank shall adjust the calculations to the new format so as to always ensure that the final result will be an accurately and consistently calculated average interest rate of the volume of term deposits in BGN or EUR of households sector in the Bulgarian banking system.

In case that at any future time the BNB itself starts calculating and publishing a weighted average interest rate of HTDI for the respective currency, the Bank shall proceed to its direct use by rounding it to the second digit after the decimal point, if necessary.

4. Procedure and frequency of announcement and period of validity.

The value of HTDI is changed on a monthly basis.

On its website

http://www.bnb.bg/Statistics/StMonetaryInterestRate/StInterestRate/StIRInterestRate/index.htm?toLang=_EN

BNB publishes the Interest Rate Statistics before the end of each calendar month based on data as of the preceding calendar month.

Based on the afore mentioned statistical data published by the BNB as at the last month available in the Table, the Bank shall calculate the new value of HTDI following the methodology for the respective currency described in item 3 (above) and publish it on its website <https://www.unicreditbulbank.bg/bg/pazarni-lihveni-indeksi/> on the first business day of each calendar month.

The value of HTDI calculated and announced in this way shall apply from the first business day (for the Republic of Bulgaria) of the calendar month following the publishing of the respective statistical data by the BNB until the day preceding the first business day of the following calendar month, inclusive.

Example:

- 27 of June: BNB publishes the Interest Rate Statistics on its website with the most recent data as at the month of May.
- 1 July (and if this date is a non-business day for Bulgaria – the first following business day): The Bank publishes on its website the respective new value of HTDI for the respective currency calculated on the basis of the data published by the BNB on 27 June.
- 1 July (and if this date is a non-business day for Bulgaria – the first following business day): The new value of HTDI for the respective currency, that shall be valid for the month of July, becomes effective.

In the event that the BNB ceases the continuity in relation to the publishing of the data from the Interest Rate Statistics, thus making the Bank unable to calculate HTDI for the respective currency for the following month, the Bank shall reserve the right to take a decision for extending the validity of the last available value of HTDI for the respective currency for a period ruled by its Management Board (MB) after the end of the month in which the BNB ceases the publishing of the data from the Interest Rate Statistics until the date of identification and approval by the MB of a suitable substituting index for the respective currency.