

Extract from NBU Board Resolution No. 80  
*On Some Issues Regarding Setting the Official Hryvnia Exchange Rate to Foreign Currencies and Amending the Classifier of Foreign Currencies and Precious Metals*  
dated 19 July 2018

The Procedure for Calculating and Publishing the Official Exchange Rate of the Hryvnia to Foreign Currencies and Precious Metals (hereinafter – the Procedure)

1. The official exchange rate of the hryvnia to foreign currencies and precious metals is set in accordance with the Regulation *On Setting the Official Hryvnia Exchange Rate to Foreign Currencies and Precious Metals Prices and Calculating the Reference Exchange Rate of the Hryvnia to the US Dollar* approved by NBU Board Resolution No. 80 dated 19 July 2018 (hereinafter – the Regulation):

(1) on a daily basis – for convertible currencies that are widely used to make payments under international operations, currencies of EU member countries [group 1 under the Classifier of Foreign Currencies and Precious Metals approved by NBU Board Resolution No. 34 dated 4 February 1998 (as worded in the NBU Board Resolution No. 269 dated 19 April 2016) (as amended)], foreign currencies of other countries that are Ukraine's main foreign trade partners (Annexes 1 and 2 of the Regulation), and precious metals (Annex 4 of the Regulation)

(2) on a monthly basis – for other foreign currencies (Annex 3 of the Regulation)

(3) on a monthly basis – the revised rate for special drawing rights (SDRs)

2. The official exchange rate of the hryvnia to foreign currencies and precious metals is calculated as follows:

(1) To the US dollar – in line with the Calculation of the Official Exchange Rate of the Hryvnia to the US Dollar and the Reference Exchange Rate of the Hryvnia to the US Dollar or the Calculation of the Official Exchange Rate of the Hryvnia to the US Dollar under Special Conditions.

The official UAH/USD exchange rate is set under special conditions if the number of TOD, TOM, and SPOT transactions to buy/sell US dollars that were conducted in the interbank foreign exchange market (hereinafter – the interbank FX market) by banks with other banks and with the NBU on the day of the calculation of the official exchange rate and that were reported to the NBU by trading information systems (hereinafter – TIS) via relevant information exchange channels by 12 p.m. on the same day is less than or equal to 10% of the average daily number of such transactions in the previous running month.

(2) To the following currencies: the Australian dollar, baht, Bulgarian lev, won, Hong Kong dollar, Danish krone, zloty, euro, yen, Indian rupee, Canadian dollar, kuna, Malaysian ringgit, Mexican peso, new Israeli sheqel, New Zealand dollar, Norwegian krone, rand, Romanian leu, rupee, Singapore dollar, Turkish lira, forint, pound sterling, Czech koruna, Swedish krona, Swiss franc, yuan renminbi – based on the information

about the UAH/USD exchange rate set pursuant to paragraph 2, subparagraph 1 hereof and about the daily reference euro exchange rates published by the European Central Bank.

(3) To the following currencies: the Azerbaijani manat, Belarusian ruble, Armenian dram, Egyptian pound, Iranian rial, lari, Moldovan Leu, Russian ruble, Saudi riyal, som, somoni, tenge, new Turkmenistan manat, Uzbekistan sum – based on the information about the UAH/USD exchange rate set pursuant to paragraph 2, subparagraph 1 hereof and about exchange rates of domestic currencies to the US dollar set by the respective central (national) banks.

(4) To the following currencies: the Algerian dinar, Ghana cedi, UAE Dirham, dong, Iraqi dinar, Lebanese pound, Libyan dinar, Moroccan dirham, new Taiwan dollar, Pakistan rupee, Serbian dinar, taka, Tunisian dinar – based on the information about the UAH/USD exchange rate set pursuant to paragraph 2, subparagraph 1 hereof and about current exchange rates of the respective currencies to the US dollar on the international foreign exchange markets transmitted via TIS.

(5) To SDRs – based on the information about the UAH/USD exchange rate set pursuant to paragraph 4, subparagraph 1 hereof and about exchange rate of SDR to US dollar set by the International Monetary Fund (IMF).

(6) To the following precious metals: gold, silver, platinum, and palladium – based on the information about the UAH/USD exchange rate set pursuant to paragraph 2, subparagraph 1 hereof and the information about prices of precious metals published by the London Bullion Market Association (LBMA).

The information about prices of gold, silver, platinum, and palladium that serve as the basis for setting the official prices of these precious metals is received from the official website of the London Bullion Market Association (LBMA) and TIS.

3. Information about the set official exchange rate of the hryvnia to foreign currencies and precious metals prices is published on the NBU's official website and is sent to subscribers of the NBU emailing system.

The information on the set official UAH/USD exchange rate is published by 4 p.m.

The information on the set official exchange rate of the hryvnia to other foreign currencies and precious metals (Annexes 2–4 to the Regulation) is published by 6 p.m.

4. The NBU calculates the reference UAH/USD exchange rate based on interbank FX market transactions as of 12 p.m. (hereinafter – the reference UAH/USD exchange rate) and publishes it on its official website in order to provide market participants with a real-time indicator of UAH/USD exchange rate.

Neither market participants nor the NBU are obliged to conduct transactions using these parameters.

5. The reference UAH/USD exchange rate is calculated every working day in line with the Calculation of the Official Exchange Rate of the Hryvnia to the US Dollar and the Reference Exchange Rate of the Hryvnia to the US Dollar.

The reference UAH/USD exchange rate is published on the NBU's official website by 12:30 p.m. of the day when it is calculated.

The reference UAH/USD exchange rate is not calculated if the number of TOD, TOM, and SPOT transactions to buy/sell US dollars that were conducted on the interbank FX market by banks with other banks and with the NBU on the day of the calculation of the official exchange rate and that were reported to the NBU by TIS via the relevant information exchange channels by 12 p.m. on the same day is less than or equal to 10% of the average daily number of such transactions in the previous running month. In this case, the “–” symbol is displayed in the relevant field of the information published on the NBU's official website.

In the event that the official UAH/USD exchange rate has been calculated using the Calculation Under Special Conditions (Annex 6), the NBU shall post a relevant notification on its official website when publishing information about the official UAH/USD exchange rate.

#### Calculation of the Official Exchange Rate of the Hryvnia to the US Dollar and the Reference Exchange Rate of the Hryvnia to the US Dollar

1. The calculation of the official UAH/USD exchange rate and the reference UAH/USD exchange rate (hereinafter – the Calculation) takes into account the information about all TOD, TOM, and SPOT transactions to buy/sell US dollars that were conducted in the interbank FX market by banks with other banks and with the NBU on the day of the calculation of the official exchange rate and that were reported to the NBU by TIS via the relevant information exchange channels:

(1) by 12 p.m. – for the purposes of calculating the reference UAH/USD exchange rate

(2) by 3:30 p.m. – for the purposes of calculating the official UAH/USD exchange rate.

2. The Calculation is made as follows:

(1) transactions with rates that deviate by more than 2 percent ( $\pm 2\%$ ) from the arithmetic mean of exchange rates of the series of transactions defined in paragraph 1 of the Calculation are excluded from the series of transactions

(2) after subparagraph 1 paragraph 2, of the Calculation has been fulfilled, the obtained series of transactions is used to calculate the standard deviation of the exchange rate according to the formula:

$$\sigma_k = \sqrt{\frac{\sum_{i=1}^n (X_{ki} - \bar{X}_k)^2}{n}},$$

where  $\sigma_k$  is the standard deviation of the exchange rate

$X_{ki}$  is the value of the exchange rate for the i-th transaction

$\bar{X}_k$  is the arithmetic mean value of the series of exchange rates

n is the number of transactions

(3) the series of transactions obtained upon fulfillment of subparagraph 1 paragraph 2, of the Calculation is used to calculate the standard deviation of the transaction amount according to the formula:

$$\sigma_o = \sqrt{\frac{\sum_{i=1}^n (x_{oi} - \bar{x}_o)^2}{n}},$$

where  $\sigma_o$  is the standard deviation of the transaction amount

$X_{oi}$  is the amount of the i-th transaction

$\bar{X}_o$  is the arithmetic mean value of the transaction amount series

n is the number of transactions

(4) the following transactions are excluded from the series of transactions obtained upon fulfillment of paragraph 1 of the Calculation:

transactions with exchange rates deviating from the arithmetic mean value of the exchange rates  $\bar{X}_k$  by more than two standard deviations of the exchange rate  $\sigma_k$

transactions with amounts deviating from the arithmetic mean value of transaction amounts  $\bar{X}_o$  by more than two standard deviations of the transaction amount  $\sigma_o$

5) the transaction series obtained upon fulfillment of subparagraph 4 paragraph 2, of the Calculation is used as the base series for calculating the official UAH/USD exchange rate and the reference UAH/USD exchange rate.

The values of the official UAH/USD exchange rate and the reference UAH/USD exchange rate are calculated as the weighted average exchange rate of the base series using the formula:

$$\bar{K} = \frac{\sum_{i=1}^n (K_i \times O_i)}{\sum_{i=1}^n O_i},$$

where  $\bar{K}$  is the weighted average value of the exchange rate

$O_i$  is the amount of the i-th transaction

$K_i$  is the value of the exchange rate for the i-th transaction

n is the number of transactions.

#### Calculation of the official UAH/USD exchange rate under special conditions

1. The calculation of the official UAH/USD exchange rate under special conditions (Calculation Under Special Conditions) applies when the number of TOD, TOM, and SPOT transactions to buy/sell the US dollar that were conducted by banks

with other banks and with the NBU on the interbank FX market of Ukraine on the day of the calculation of the official exchange rate and that were reported to the NBU by TIS through relevant information exchange channels before 12 p.m. is less than or equal to 10% of the average daily number of such transactions in the previous running month.

2. Within the hour between 12 p.m. and 1 p.m., the NBU requests from banks making transactions in Ukraine's interbank FX market the information on quotes associated with the purchase/sale of USD 1 million when there are grounds for the calculation of the official UAH/USD exchange rate under paragraph 1 of the Calculation Under Special Conditions. The requested information is sent to the NBU via the TIS functionality. The request is sent to the 20 banks on the list of banks that is compiled under NBU regulations (hereinafter – the List). The banks comprising the list are eligible to participate in the best-exchange-rate intervention, which is conducted by requesting the quotes on the purchase/sale of the foreign currency from market participants.

3. The NBU sends a request that is identical to the request outlined in paragraph 2 of the Calculation Under Special Conditions via the phone to 10 banks from the List, if fewer than 5 banks have provided exchange rate quotes to buy and/or sell the US dollar in response to that request or if none of TIS is working, for whatever reason. The request is sent to the first 10 banks on the List, if the day such request is made is an even date. Otherwise the request is sent to the other 10 banks on the List.

4. If responses containing exchange rate quotes to buy and/or sell the US dollar after paragraphs 2 and 3 of the Calculation Under Special Conditions come from no fewer than 5 banks, the NBU can use the quotes so received to calculate the official UAH/USD exchange rate under paragraph 5 of the Calculation Under Special Conditions.

5. The official UAH/USD exchange rate is calculated as follows:

(1) in line with the Calculation of the Official Exchange Rate of the Hryvnia to the US Dollar and the Reference Exchange Rate of the Hryvnia to the US Dollar (Annex 5 to the Regulation *On Setting the Official Hryvnia Exchange Rate to Foreign Currencies and Precious Metals Prices and Calculating the Reference Exchange Rate of the Hryvnia to the US Dollar*) – if the number of TOD, TOM, and SPOT transactions to buy/sell US dollars that were conducted in the interbank FX market by banks with other banks and with the NBU on the day of the calculation of the official exchange rate and that were reported to the NBU by TIS through relevant information exchange channels before 3:30 p.m. on the same day is greater than or equal to 10% of the average daily number of such transactions in the previous running month

(2) as the simple arithmetic mean of all exchange rate quotes to buy and/or sell the US dollar that were obtained under paragraph 2 or paragraph 3 of the Calculation

Under Special Conditions – if the number of TOD, TOM, and SPOT transactions to buy/sell US dollars that were conducted in the interbank FX market by banks with other banks and with the NBU on the day of the calculation of the official exchange rate and that were reported to the NBU by TIS through relevant information exchange channels before 3:30 p.m. on the same day is less than or equal to 10% of the average daily number of such transactions in the previous running month and if the condition stipulated in Paragraph 4 of the Calculation Under Special Conditions is satisfied

(3) as a value that equals the official UAH/USD exchange rate effective on the day of the calculation – if none of the calculation conditions stipulated in paragraph 5, subparagraphs 1 and 2 of the Calculation Under Special Conditions are satisfied.