

## METHODOLOGY FOR CALCULATION of the real and effective exchange rates indices of the tenge

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### I. Definitions

Indices of real and effective exchange rates are analytical tools that allow the assessment of a country's **relative price competitiveness** in both domestic and foreign markets.

**The nominal effective exchange rate (NEER)** is an index reflecting the dynamics of a country's nominal exchange rate relative to a basket of currencies of its main trading partners, weighted by their share in trade turnover.

**The real exchange rate (RER)** is an index that reflects the change in a country's nominal exchange rate against the currency of one of its trading partners (nominal bilateral exchange rate), adjusted for inflation in both countries under consideration.

**The real effective exchange rate (REER)** is an index that reflects the dynamics of a country's real (inflation-adjusted) exchange rate relative to a basket of currencies of its main trading partners, weighted by their share in trade turnover.

### II. Calculation method

**The NEER index of the tenge** is calculated as the product of the weighted average changes in the nominal exchange rates of the tenge against a basket of currencies of its trading partner countries.

The formula for calculating the NEER of the tenge:

$$NEER = \prod_{k=1}^n (Ier_k)^{w^k} \times 100$$

The conditional notations in the formula represent the following:

*NEER* – the NEER index of the tenge;

*k* – a trading partner country;

*Ier<sub>k</sub>* – the change in the nominal exchange rate of the tenge against the currency of the *k*-th trading partner country (the amount of foreign currency per one tenge);

*w<sup>k</sup>* – the weight of the *k*-th trading partner country in the trade turnover of Kazakhstan.

**The RER index of the tenge** is calculated as the change in the nominal exchange rate of the tenge against the currency of a trading partner, adjusted for changes in consumer prices in Kazakhstan and the trading partner country.

The formula for calculating the RER of the tenge:

$$RER_k = \frac{Ier_k}{(CPI_k / CPI_{KZ})} \times 100$$

The conditional notations in the formula represent the following:

$RER_k$  – the RER index of the tenge for the  $k$ -th trading partner country;

$Ier_k$  – the change in the nominal exchange rate of the tenge against the currency of the  $k$ -th trading partner country (the amount of foreign currency per one tenge);

$CPI_k$  – the change in the consumer price index in the trading partner country;

$CPI_{KZ}$  – the change in the consumer price index in Kazakhstan.

**The REER index of the tenge** is calculated as the product of the weighted average changes in the real exchange rates of the tenge against a basket of currencies of its trading partner countries.

The formula for calculating the REER of the tenge:

$$REER = \prod_{k=1}^n (RER_k)^{w^k} \times 100,$$

The conditional notations in the formula represent the following:

$REER$  – the REER index of the tenge;

$k$  – a trading partner country;

$RER_k$  – the RER index of the tenge index against the currency of the  $k$ -th trading partner country;

$w^k$  – the weight of the  $k$ -th trading partner country in the trade turnover of Kazakhstan.

An increase in the NEER, RER, and REER indices indicates the relative strengthening of the exchange rate of the tenge, while a decrease in these indices indicates the relative weakening of the exchange rate of the tenge.

### **III. Principles of formation**

The calculation of the real and effective exchange rates of the tenge, due to the lack of data on nominal exchange rates and inflation in some trading partner countries, as well as the insignificant share of some countries in Kazakhstan's international trade, is carried out based on a sample of trading partner countries.

The sample of major trading partner countries is formed annually and fixed for the entire calendar year. It includes countries that account for at least 90% of Kazakhstan's total trade turnover over the past 3 years, as well as those

countries of the European Union (EU) that do not fall within the 90%. The reason for this addition is that the EU, as an economic union, is one of Kazakhstan's main trading partners.

The source of data on Kazakhstan's trade turnover used to calculate the weights of trading partner countries is the official trade statistics from the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan and the State Revenue Committee of the Ministry of Finance of the Republic of Kazakhstan.

In the case of updates to the official trade statistics, the National Bank of the Republic of Kazakhstan may retrospectively recalculate the indices of the real and effective exchange rates of the tenge.