

**Algorithm for updating contributions paid in by clearing members to the basic resource of the Guarantee Fund for the Settlement of Stock Exchange Transactions (GFSSET) and the Guarantee Fund for the Settlement of CeTO Market Transactions (GFSCeTOT)**

**Identifiers**

- $i$  - clearing member index;  
 $s$  - securities code (ISIN number);  
 $t$  - unsettled transaction index (including suspended transactions);  
 $N$  - Number of members whose contributions are subject to update;

**Data:**

- $K_{i,s,t}$  number of securities designated with ISIN number  $s$ , purchased as part of a purchase transaction  $t$ , for which the clearing member is participant  $i$  according to the balance on the day of the update;
- $S_{i,s,t}$  number of securities with ISIN number  $s$ , sold as part of a sell transaction  $t$ , for which the clearing member is participant  $i$  according to the balance on the day of the update;
- $PR_s$  settlement price of the security designated with ISIN number  $s$ , on the day of the update;  
(The settlement price is calculated as follows:  
- for bonds: the final closing price multiplied by the nominal value of the bond augmented by the value of interest accrued on the day of the update,  
- for all other securities – the final closing price.  
Where a corporate action is underway, the settlement price is adjusted accordingly.)
- $PT_{i,s,t}$  price of transaction  $t$  involving securities designated with ISIN number  $s$ , executed by clearing member  $i$ .

$ExR_s$	average National Bank of Poland currency price on the day of the update, corresponding to the currency of the listing of securities $s$ ; for PLN $ExR = 1$
$M_i$	latest updated value of contribution of clearing member $i$ ,

### **Variables:**

$W_{i,s}$	balance of value of purchase and sale transactions, involving securities designated with ISIN number $s$ , for which the clearing member is participant $i$ ,
$WR_i$	mark-to-market correction price for clearing member $i$ ,
$WROZ_{is}$	settlement price calculated for net balanced transactions involving securities designated with ISIN number $s$ , for which the clearing member is participant $i$ ,
$WREF_{is}$	reference price of the transaction calculated for net balanced transactions involving securities designated with ISIN number $s$ , for which the clearing member is participant $i$ ,
$WW_i$	initial value of calculated contribution of clearing member $i$ on the day of the update,
$W_i$	value of calculated contribution of clearing member $i$ on the day of the update,
$Wo_i$	actual value of contribution of clearing member $i$ on the day of the update.

### **Parameters:**

$R_s$	risk parameter (expressed as a percentage) for securities designated with ISIN number $s$ , determined on the basis of the maximum value of 1- 2- and 3- day volatility of the WIG index over the preceding 256-day period. In exceptional circumstances, with the intention of maintaining security of trading, KDPW may determine the value of parameters on an individual basis for each security, however, up to a level not exceeding the permitted price fluctuation level. The value of the parameter is determined each day and sent out at the end of the session;
$W_{\min}$	minimal level of contribution to the Fund ( $W_{\min} = 100\,000\text{ PLN} - \text{GFSSET}$ , $W_{\min} = 50\,000\text{ PLN} - \text{GFSCeTOT}$ )
$Q$	threshold parameter (expressed as a percentage), whose degree of deviation of the calculated contribution to the Fund from the contribution as a result of the previous update creates the need for changing the value of the contribution to the separate part of the Fund ( $Q = 10\%$ );

**Calculation of contributions to be paid by clearing members to the basic resource of the Guarantee Fund for the Settlement of Stock Exchange Transactions and the Guarantee Fund for the Settlement of CeTO Market Transactions**

1. Calculation of the balance of purchase and sale transactions of securities for separate ISIN numbers, for which the clearing member is participant  $i$ ,

$$W_{i,s} = \left| \sum_t (K_{i,s,t} - S_{i,s,t}) \right| \times PR_s$$

2. Calculation of the mark-to-market correction price for clearing member  $i$ ,

$$WR_i = \max \left( \sum_s (WROZ_{i,s} - WREF_{i,s}) \times ExR_s; 0 \right) \text{ where:}$$

$$WROZ_{i,s} = \sum_t (K_{i,s,t} - S_{i,s,t}) \times PT_{i,s,t}$$

$$WREF_{i,s} = \sum_t (K_{i,s,t} - S_{i,s,t}) \times PR_s$$

3. Preliminary calculation of contribution by clearing member  $i$  on the day of the update:

$$WW_i = \sum_s (W_{i,s} \times R_s \times ExR_s) + WR_i$$

4. Calculation of contribution to be paid to the Fund by clearing member  $i$  on the day of the update:

$$W_i = \begin{cases} WW_i & \text{if } WW_i > W_{\min} \\ W_{\min} & \text{if } WW_i \leq W_{\min} \end{cases}$$

5. Determining the updated value of contribution  $Wo_i$  of clearing member  $i$ :

- a. If  $|W_i - M_i| \leq M_i \times Q$ , then  $Wo_i = M_i$

- b. If  $|W_i - M_i| > M_i \times Q$ , then  $Wo_i = W_i$