

Excessive System Usage Fee

Update on Regulatory Requirements

December 2023



Key facts at a glance

Reason

- With the introduction of the German HFT Law, Eurex introduced the Excessive System Usage (ESU) Fee to encourage a responsible attitude towards the use of the T7 system resources. As of 1 February 2023, Eurex adapted the current ESU framework by recalibrating the parameter used to calculate the ESU Fee.
- As of December 2023, Eurex adapted the current ESU framework by
 - Introducing a volatility factor, making the limit regime more dynamic with respect to changing market conditions

Objective

- Provide information on regulatory framework
- Provide model and parameters for the German HFT Law compliant ESU

Agenda

1 Definition of the ESU Fee

2 Transaction Limit

3 Parameters

4 Reports

1 Definition of the ESU Fee

Definition of the ESU Fee

Eurex Exchange defines limits for the number of transactions sent by each participant. If a participant exceeds the defined limits, then a fee for **Excessive System Usage (ESU)** may apply,

$$ESU\ Fee = [Transaction\ count - Transaction\ limit] * Fee\ (\text{€})$$

while a **transaction** is defined as a system message that reaches the matching engine and yields a response. The **transaction limit** is calculated per participant, per product, per trading day, and per limit type. There are three types of transaction limits: a transaction limit for standard orders, a transaction limit for all transactions which do not lead to a market data update as well as order modifications which lead to a cancellation without a trade, and a transaction limit for all transactions.

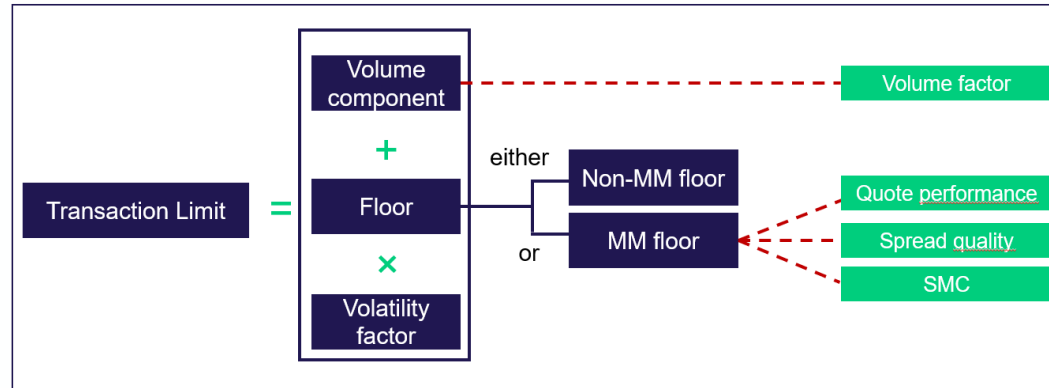
Every day, for each Participant, the actual transactions are counted per product. If this transaction count exceeds the predefined transaction limit, then such instance is considered as a **violation of the limit**. It is important to note that violations are **counted per product across the three limit types**.

2 Transaction Limit

Transaction limit (1/2)

Overview

The transaction limit calculation consists of three main components: (i) **volume component**, (ii) **volatility factor**, and (iii) **floor**.



- (i) A **volume component** is calculated by multiplying the order book volume by the predefined **volume factor** and is, therefore, proportional to the traded order book volume.
- (ii) A volatility factor is calculated as monotonic increasing step function based on the volatility indicator. It is increasing with increasing volatility
- (iii) There are two types of **floor** components. The values for the **Non-Market Maker floor** are predefined depending on the product, while the values for the **Market Maker floor** are initially dependent on whether the Market Maker meets the condition under consideration related to the **quote performance** described as follows,

$$\begin{aligned} & \text{MM floor,} && \textit{if} [\textit{Grace factor} * \textit{MM performance requirement}] < \textit{Quote performance} \\ & \text{Non - MM floor,} && \textit{if} [\textit{Grace factor} * \textit{MM performance requirement}] \geq \textit{Quote performance} \end{aligned}$$

in which the **grace factor** allows Market Maker with a **quote performance** lower than the **quote performance of the Market Maker performance requirement** to be eligible for the Market Maker floor.

Transaction limit (2/2)

MM floor

The **Market Maker floor** is used in case of products where Market-Making is applicable (i.e. the Minimum Quotation Requirements are defined) and for the Market Makers that satisfy the condition shown in the previous slide, which is then calculated using the following equation,

$$MM \text{ floor} = \max [\text{Non} - \text{MM floor}, (MQ \text{ base}_{SQ} * \text{Quote performance})]$$

in which, the **quote performance** is the ratio of “covered time” to “required time”. The **spread quality (SQ)** is a performance measure based on the average spread in relation to the required spread calculated for all outright instruments quoted by a participant in a product for a day. It is calculated using the following formula on a tick by tick basis for each instrument and aggregated per day using time weighted averages,

$$SQ = \begin{cases} \frac{\text{Max Spread Allowed} - \text{Quoted Spread}}{\text{Max Spread Allowed} - \text{Tick Size}}, & \text{if Max Spread Allowed} > \text{Tick Size} \\ 1, & \text{if Max Spread Allowed} = \text{Tick Size} \end{cases}$$

depending on the **spread quality**, values of the **MQ base** factor change.

3 Parameters

Parameters (1/3)

Limit parameters

Product group*	Product Type	Grace Factor	Volume Factor	All transactions				Standard orders				Transactions w/o market data impact and order modifications which lead to an order cancellation			
				Non-MM Floor	Spread Quality	MQ Base	Volume Factor	Non-MM Floor	Spread Quality	MQ Base	Volume Factor	Non-MM Floor	Spread Quality	MQ Base	
Equity Options	OSTK	0.25	50	350,000	0	225,000	10	45,000	0	45,000	10	225,000	n/a	n/a	
					0.2	450,000			0.2	90,000			n/a	n/a	
					0.3	675,000			0.3	135,000			n/a	n/a	
					0.4	900,000			0.4	180,000			n/a	n/a	
					0	225,000			0	45,000			n/a	n/a	
Single Stock Futures	FSTK	0.25	50	350,000	0.2	450,000	10	45,000	0.2	90,000	10	45,000	n/a	n/a	
					0.3	675,000			0.3	135,000			n/a	n/a	
					0.4	900,000			0.4	180,000			n/a	n/a	
					0	375,000			0	75,000			n/a	n/a	
					0.2	750,000			0.2	150,000			n/a	n/a	
Equity Index Futures	FINX	0.25	50	375,000	0.3	1,125,000	10	75,000	0.3	225,000	10	187,500	n/a	n/a	
					0.4	1,500,000			0.4	300,000			n/a	n/a	
					0	375,000			0	75,000			n/a	n/a	
					0.2	750,000			0.2	150,000			n/a	n/a	
					0.3	1,125,000			0.3	225,000			n/a	n/a	
Volatility Index Futures	FVOL	0.25	50	375,000	0.4	1,500,000	10	75,000	0.4	300,000	10	75,000	n/a	n/a	
					0	375,000			0	75,000			n/a	n/a	
					0.2	750,000			0.2	150,000			n/a	n/a	
					0.3	1,125,000			0.3	225,000			n/a	n/a	
					0.4	1,500,000			0.4	300,000			n/a	n/a	
Equity Index Dividend Options	OFIX	0.25	50	375,000	0	1,500,000	10	75,000	0	75,000	10	225,000	n/a	n/a	
					0.2	3,000,000			0.2	150,000			n/a	n/a	
					0.3	4,500,000			0.3	225,000			n/a	n/a	
					0.4	1,500,000			0.4	300,000			n/a	n/a	
					0	1,500,000			0	75,000			n/a	n/a	
Equity Index Options	OINX	0.25	50	1,500,000	0.2	3,000,000	10	75,000	0.2	150,000	10	750,000	n/a	n/a	
					0.3	4,500,000			0.3	225,000			n/a	n/a	
					0.4	6,000,000			0.4	300,000			n/a	n/a	
					0	400,000			0	60,000			n/a	n/a	
					0.2	450,000			0.2	90,000			n/a	n/a	
Fixed Income Futures	FBND	0.25	50	300,000	0.3	750,000	10	60,000	0.3	150,000	10	150,000	n/a	n/a	
					0.4	1,500,000			0.4	300,000			n/a	n/a	
					0	400,000			0	60,000			n/a	n/a	
					0.2	450,000			0.2	90,000			n/a	n/a	
					0.3	750,000			0.3	150,000			n/a	n/a	
Money Market Futures	FINT	0.25	50	300,000	0.4	1,500,000	10	60,000	0.4	300,000	10	60,000	n/a	n/a	
					0	900,000			0	60,000			n/a	n/a	
					0.2	1,350,000			0.2	90,000			n/a	n/a	
					0.3	2,250,000			0.3	150,000			n/a	n/a	
					0.4	4,500,000			0.4	300,000			n/a	n/a	
Options on Fixed Income Futures	OFBD	0.25	50	450,000	0	2,250,000	10	60,000	0	75,000	10	225,000	n/a	n/a	
Options on Money Market Futures	OFIT				0.2	3,000,000			0.2	150,000			n/a	n/a	
					0.3	3,750,000			0.3	225,000			n/a	n/a	
					0.4	4,500,000			0.4	300,000			n/a	n/a	
					0	2,250,000			0	75,000			n/a	n/a	
Foreign Exchange Futures	FCUR	0.25	50	750,000	0.2	3,000,000	10	75,000	0.2	150,000	10 n/a	n/a	n/a	n/a	
					0.3	3,750,000			0.3	225,000			n/a	n/a	
					0.4	4,500,000			0.4	300,000			n/a	n/a	
					0	2,250,000			0	75,000			n/a	n/a	
					0.2	3,000,000			0.2	150,000			n/a	n/a	
Foreign Exchange Options	OCUR	0.25	50	1,500,000	0.3	3,750,000	10	75,000	0.3	225,000	10 n/a	n/a	n/a	n/a	
					0.4	4,500,000			0.4	300,000			n/a	n/a	
					0	1,500,000			0	75,000			n/a	n/a	
					0.2	3,000,000			0.2	150,000			n/a	n/a	
					0.3	4,500,000			0.3	225,000			n/a	n/a	
New asset classes	New asset classes	0.25	50	1,500,000	0.4	6,000,000	10	75,000	0.4	300,000	10	75,000	n/a	n/a	

Parameters (2/3)

Volatility indicator

Volatility Indicator					All transactions		Standard orders		Transactions w/o market data impact and order modifications which lead to an order cancelation	
Product group*	Product Type	Reference Product	Rollover Window	Averaging Window	Volatility Indicator	Volatility Factor	Volatility Indicator	Volatility Factor	Volatility Indicator	Volatility Factor
Equity Options	OSTK	FESX	1	10	0.0	1	0.0	1	0.0	1
Single Stock Futures	FSTK				8.0	1.5	8.0	1.5	8.0	1.5
Equity Index Futures	FINX				12.0	2	12.0	2	12.0	2
Volatility Index Futures	FVOL				20.0	4	20.0	4	20.0	4
Equity Index Options	OINX									
Equity Index Dividend Options	OFIX									
Foreign Exchange Futures	FCUR	FCEU	2	10	0.0	1	0.0	1	0.0	1
Foreign Exchange Options	OCUR				3	1.5	3	1.5	3	1.5
					4	2	4	2	4	2
					6.0	4	6.0	4	6.0	4
Fixed Income Futures	FBND	FGBL	2	10	0.0	1	0.0	1	0.0	1
Options on Fixed Income	OFBD				3	1.5	3	1.5	3	1.5
Futures					5	2	5	2	5	2
Money Market Futures					10.0	4	10.0	4	10.0	4
Options on Money Market	FINT	FGBS	2	10	0	1	0	1	0	1
Futures	OFIT				0.5	1.5	0.5	1.5	0.5	1.5
					1	2	1	2	1	2
					2	4	2	4	2	4
New asset classes	New asset classes	FESX	1	10	0.0	1	0.0	1	0.0	1
					8.0	1.5	8.0	1.5	8.0	1.5
					12.0	2	12.0	2	12.0	2
					20.0	4	20.0	4	20.0	4

Parameters (3/3)

Fee parameters

ESU Fee per exceeded transaction	With a violation of the transaction limit by
EUR 0.05	Up to 50%
EUR 0.10	50% - 100%
EUR 0.25	> 100%



4 Reports

Reports

- The ESU is reported in the **TR102** report. The report is available daily and contains the data per product per limit type for each elapsed trading day of the month.
- The **CB069** report (daily + intraday) allows participants to calculate and to identify their own ESU Fee.
- The **TD954** report provides information of the fulfilment of the Minimum Quotation Requirement during Stressed Market Conditions for all trading days in the current month and the fulfilment month-to-date.
- The **TR104** report contains the parameters per product and limit type and is available on a daily basis.
- The **TR105** report shows the Minimum Quotation Requirements per product and is generated on a daily basis.
- The **TR107** report combines the information from the TR102 and the CB069 for cases close to an ESU violation.

Thank you!

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