EURONEXT CLEARING

COMMODITY DERIVATIVES RISK ENGINE

File set for margin calculation replication

Content and format specifications

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1 Introduction

The present document contains the content and format specifications of the public risk data files which can be employed to replicate Euronext legacy Commodity derivatives EOD margins.

2 What's new

REVISION NO./ VERSION NO.	DATE	CHANGE DESCRIPTION
1.0	30/06/2023	Publication of the first version of the specifications of the public margin replication (risk data) files
2.0	23/02/2024	• Addition of file naming convention • Addition of the *und_price* field to the 'RF05C' file • Introduction of some refinements to the specifications
3.0	24/04/2024	• Refinement of the description of *sub_ptf* field in 'RF04C' file (expired instruments)

3 Scope of replicable margin components

- *Mark-to-market* (*Premium*) *Margins*;
- *Variation Margins*;
- *Initial Margins* (including margins on futures positions under physical delivery);
- *Decorrelation risk add-on*.

4 Model parameters ('RF01C1')

4.1 Content

Model parameters for the calculation of the *Initial Margins* and of the *Decorrelation risk add-on*.

.csv file composed by a first header row + *1* value row (delimiter: comma; decimal separator: dot):

Field name	Field type	Possible field values	Field description
ord_cl	Float	∈ (0, 1)	Ordinary *Initial Margins* confidence level
stress_cl	Float	∈ (0, 1)	Stressed *Initial Margins* confidence level
deco	Float	∈ [0, 1]	*Decorrelation risk add-on* parameter
ord_w	Float	∈ [0, 1]	Ordinary weight
stress_w	Float	∈ [0, 1]	Stressed weight
hp	Integer	1, 2, 3, …	(Model) Holding period
sub	Integer	1, 2, 3, …	SUB1-SUB2 sub-portfolio separator (number of markets days between evaluation date and expiry date of the physical delivery futures)

5 Model parameters for physical delivery ('RF01C2')

5.1 Content

Additional model parameters for the calculation of the *Initial Margins* for futures positions approaching and under physical delivery (SUB2 and SUB3 sub-portfolios).

.csv file composed by a first header row + *n* value rows (delimiter: comma; decimal separator: dot):

Field name	Field type	Possible field values	Field description
symbol_code	String		Euronext contract code
instr_curcy	String		Product denomination currency code (ISO 4217, 3 chars)
pos_sign	String	'L', 'S'	'L': long, 'S': short
extra_pct	Float	∈ [0, 1]	Extra percentage
margin_pct	Float	∈ [0, 1]	Margin percentage
fee_pct	Float	∈ [0, 1]	Fee percentage

6 Instrument scenario prices ('RF02C1')

6.1 Content

Instrument scenario prices (including current scenario, which must be employed to compute instrument scenario profits/losses) for the calculation of the *Initial Margins* and of the *Decorrelation risk add-on* for positions not under physical delivery (SUB1 and SUB2 sub-portfolios).

A product is represented by the **instr_id**-**instr_curcy** combination.

.csv file composed by a first header row + *n* value rows (delimiter: comma; decimal separator: dot):

Field name	Field type	Possible field values	Field description
scenario	String	'C', 'S', 'U'	Scenario type, current ('C' – single record per product), ordinary (scaled, 'S' – multiple records per product) or stressed (unscaled, 'U' – multiple records per product)
instr_id	String		Product ISIN code
instr_curcy	String		Product denomination currency code (ISO 4217, 3 chars)
ref_dt	Integer		Evaluation date YYYYMMDD for (current) **scenario** = 'C' (single record)/scenario date YYYYMMDD for both **scenario** = 'S' and **scenario** = 'U' (multiple records each – the

			number of ordinary and stressed scenarios may differ)
value	Float		Product scenario value

File will be produced even if empty.

6.2 Minimum scope of instruments contained in the file

Options with non-0 EOD O/I and all (unexpired) futures.

7 Instrument scenario prices for physical delivery ('RF02C2')

7.1 Content

Instrument scenario prices (including current scenario, which must be employed to compute instrument scenario profits/losses) for the calculation of the *Initial Margins* for futures positions under physical delivery (SUB3 sub-portfolio).

A product is represented by the **instr_id**-**instr_curcy** combination.

.csv file composed by a first header row + *n* value rows (delimiter: comma; decimal separator: dot):

Field name	Field type	Possible field values	Field description
scenario	String	'C', 'S', 'U'	Scenario type, current ('C' – single record per product), ordinary (scaled, 'S' – multiple records per product) or stressed (unscaled, 'U' – multiple records per product)
instr_id	String		Product ISIN code
instr_curcy	String		Product denomination currency code (ISO 4217, 3 chars)
symbol_code	String		Euronext contract code
mult	Float		Product multiplier
hppd	Integer	1, 2, 3, …	(Physical delivery) Holding period employed to compute the scenario prices for a given product

ref_dt	Integer		Evaluation date YYYYMMDD for (current) **scenario** = 'C' (single record)/scenario date YYYYMMDD for both **scenario** = 'S' and **scenario** = 'U' (multiple records each – the number of ordinary and stressed scenarios may differ)
value	Float		Product scenario value (equal to delivery settlement price for **current** scenario = 'C')

File will be produced even if empty.

7.2 Minimum scope of instruments contained in the file

Expired futures under physical delivery.

8 FX scenario values ('RF03C1')

8.1 Content

Exchange rate scenario values (including current scenario) for the calculation of the *Initial Margins* and of the *Decorrelation risk add-on* for positions not under physical delivery (SUB1 and SUB2 sub-portfolios).
Current scenario exchange rates can be employed to compute *Mark-to-market* (*Premium) Margins*.

A FX is represented by the **base_curcy-counter_curcy** combination.

.csv file composed by a first header row + *n* value rows (delimiter: comma; decimal separator: dot):

Field name	Field type	Possible field values	Field description
scenario	String	'C', 'S', 'U'	Scenario type, current ('C' – single record per FX), ordinary (scaled, 'S' – multiple records per FX) or stressed (unscaled, 'U' – multiple records per FX)
base_curcy	String		Product currency code (ISO 4217, 3 chars, e.g. 'USD')
counter_curcy	String	'EUR'	Clearing currency code (ISO 4217, 3 chars, i.e. 'EUR')
ref_dt	Integer		Evaluation date YYYYMMDD for (current) **scenario** = 'C' (single record)/scenario date YYYYMMDD for both **scenario** = 'S' and **scenario** = 'U' (multiple

			records each – the number of ordinary and stressed scenarios may differ)
value	Float		FX scenario value

File will be produced even if empty.

8.1 Minimum scope of FXs contained in the file

Based on RF02C1's **instr_curcy** list (RF03C1's **base_curcy** – RF03C1's **counter_curcy** will always equal 'EUR').

9 FX scenario values for physical delivery ('RF03C2')

9.1 Content

Exchange rate scenario values (including current scenario) for the calculation of the *Initial Margins* for futures positions under physical delivery (SUB3 sub-portfolio).

An FX is represented by the **base_curcy-counter_curcy** combination.

.csv file composed by a first header row + *n* value rows (delimiter: comma; decimal separator: dot):

Field name	Field type	Possible field values	Field description
scenario	String	'C', 'S', 'U'	Scenario type, current ('C' – single record per FX), ordinary (scaled, 'S' – multiple records per FX) or stressed (unscaled, 'U' – multiple records per FX)
base_curcy	String		Product currency code (ISO 4217, 3 chars, e.g. 'USD')
counter_curcy	String	'EUR'	Clearing currency code (ISO 4217, 3 chars, i.e. 'EUR')
hppd	Integer	1, 2, 3, …	(Physical delivery) Holding period employed to compute the scenario values for a given FX
ref_dt	Integer		Evaluation date YYYYMMDD for (current) **scenario** = 'C' (single record)/scenario date YYYYMMDD

			for both **scenario** = 'S' and **scenario** = 'U' (multiple records each – the number of ordinary and stressed scenarios may differ)
value	Float		FX scenario value

File will be produced even if empty.

9.1 Minimum scope of FXs contained in the file

Based on RF02C2's **instr_curcy** list (RF03C2's **base_curcy** – RF03C2's **counter_curcy** will always equal 'EUR').

10 Instrument prices & referential data ('RF04C')

10.1 Content

Instrument price and referential (static) data.

A product is represented by the **instr_id**-**instr_curcy** combination.

.csv file composed by a first header row + *n* value rows (delimiter: comma; decimal separator: dot):

Field name	Field type	Possible field values	Field description
instr_id	String		Product ISIN code
instr_curcy	String		Product denomination currency code (ISO 4217, 3 chars)
symbol_code	String		Euronext contract code
asset_type	String	'F', 'O'	Product type, futures ('F') or option ('O')
mat_dt	Integer		Product expiry date YYYYMMDD
mult	Float		Product multiplier
settl_type	String	'C', 'P'	Product settlement type, cash settlement ('C') or physical delivery ('P')
option_type	String	'C', 'P', 'N'	Option type, call ('C') or put ('P') ('N' for futures)
strike	Float		Option strike price (0.0 for futures)
und_instr_id	String		Underlying product ISIN code (equal to **instr_id** for futures)

und_curcy	String		Underlying product currency code (ISO 4217, 3 chars - equal to **instr_curcy** for futures)
deco_code	String		Code for *Decorrelation risk add-on* grouping
prod_group	String		Product group for separate SUB1 sub-portfolio margining
sub_ptf	String	'SUB1', 'SUB2', 'SUB3'	Sub-portfolio the product belongs to: 'SUB1' or 'SUB2' value for unexpired instruments; as for expired instruments, 'SUB3' value in case of physical delivery futures and 'SUB1' value in all other cases
price	Float		Product settlement/closing price

File will be produced even if empty.

10.2 Minimum scope of instruments contained in the file

Based on RF02C1's instrument list.

11 Derivative instrument expiry data ('RF05C')

11.1 Content

Final settlement price and underlying price (taken as reference for option exercise) of derivative instruments expiring on evaluation date.

.csv file composed by a first header row + *n* value rows (delimiter: comma; decimal separator: dot):

Field name	Field type	Possible field values	Field description
instr_id	String		Product ISIN code
instr_curcy	String		Product denomination currency code (ISO 4217, 3 chars)
price	Float		Product final settlement price
und_price	Float		Product underlying price (taken as reference for option exercise)

File will be produced even if empty.

11.2 Minimum scope of instruments contained in the file

All derivative instruments expired on evaluation date.

12 Option deltas ('RF07C')

12.1 Content

Delta of options.

.csv file composed by a first header row + *n* value rows (delimiter: comma; decimal separator: dot):

Field name	Field type	Possible field values	Field description
instr_id	String		Product ISIN code
instr_curcy	String		Product denomination currency code (ISO 4217, 3 chars)
delta	Float		Option delta

File will be produced even if empty.

12.2 Minimum scope of instruments contained in the file

Options with non-0 EOD O/I.

13 Market calendar ('RF08C')

13.1 Content

Employed market calendar (from evaluation date – included – onwards, for a sufficient number of dates equal to 250) for SUB2 sub-portfolio *Initial Margins* calculation purposes.

.csv file composed by a first header row + *n* value rows (delimiter: comma; decimal separator: dot):

Field name	Field type	Possible field values	Field description
mkt_dt	Integer		Market date YYYYMMDD

14 File naming convention

Archive file: 'COMDER_<yyyymmddhhmmss>.zip'

Data files: 'COMDER_<yyyymmdd>_rf<id>_<subtype>.csv', with:

- <id> ∈ ['01', '02', '03', '04', '05', '07', '08'];
- <subtype> ∈ ['STD', 'PD'] so that:
  - 'RF01C1': 'rf01_STD';
  - 'RF01C2': 'rf01_PD';
  - 'RF02C1': 'rf02_STD';
  - 'RF02C2': 'rf02_PD';
  - 'RF03C1': 'rf03_STD';
  - 'RF03C2': 'rf03_PD';
  - 'RF04C': 'rf04_STD';
  - 'RF05C': 'rf05_STD';
  - 'RF07C': 'rf07_STD';
  - 'RF08C': 'rf08_STD'.

Example:
'COMDER_20240223233015.zip'\'COMDER_20240223_rf02_STD.csv'