



Member Notification

Risk Notice 2020-042

2nd June 2020

Margin parameters on cash securities

LCH SA sets the margin parameters for the SPAN® Cash algorithm pursuant to the Instruction IV.2-1 margin parameters for the additional margins to cover de-netting risk and the thresholds on additional margin requirement pursuant to the Article 4.2.0.3 regarding additional margins .

This notice concerns parameters review on Equities and assimilated products and on Currency risk.

For reminder, Cash Equity Initial Margin is calculated at Liquidity Class level. The different Liquidity Classes are specified below and the security assignment to the liquidity classes are given in the cash security SPAN® parameter file.

This enhancement shall come into effect with the margin call on the morning of the 3rd June 2020 for the positions at the close of the 2nd June 2020

The changed SPAN® algorithm parameters are printed in bold.

These parameters are applied as part of the SPAN® methodology available on the LCH web site:

http://www.lch.com/risk_management/sa/margining_methodology/securities.asp

For further information please contact:

Margin Management | LCH| Tel +33 170 37 65 16
Email: margin.fr@lseg.com
Site Web: www.lch.com



@LCH SA

Liquidity classes

Liquidity Class LIQ01: Stocks in main indices (AEX, BEL20, CAC40, PSI,...)

- o LQ1ZZ: Standard
- o L11ZZ: Penny Stocks
- o L12ZZ: High Volatility

Liquidity Class LIQ02: Ordinary Equity - Continuous

- o LQ2ZZ: Standard
- o L21ZZ: Penny Stocks
- o L22ZZ: High Volatility

Liquidity Class LIQ03: ETF/Trackers - Continuous

- o LQ3ZZ: One homogeneous class

Liquidity Class LIQ04: Certificates & Warrants

- o LQ4ZZ: One homogeneous class

Liquidity Class LIQ05: all other products (Fixing products, Convertibles Bonds, EVT vehicles, Other illiquid products)

- o LQ5ZZ: One homogeneous class

Liquidity Class LIQ08: Euronext Growth - Continuous

- o LQ8ZZ: Standard
- o L81ZZ: Penny Stocks

ZZ = Currency Code

I. Liquidation Risk parameters

Equities and assimilated products (algorithm using the Liquidity Classes)

Parameters for the intermediary liquidation risk

Liquidity Class ¹	x % ²	y % ³
LQ1ZZ	7.31%	7.80%
L11ZZ	17.33%	12.89%
L12ZZ	14.10%	7.80%
LQ2ZZ	10.32%	7.80%
L21ZZ	30.39%	10.84%
L22ZZ	20.70%	7.80%
LQ3ZZ	8.60%	7.75%
LQ4ZZ	62.47%	0,00%
LQ5ZZ	7.04%	4.48%
LQ8ZZ	19.59%	8.71%
L81ZZ	37.73%	11.64%

Liquidity inter-classes credit

Priority	Coefficient inter ⁴	Liquidity Class 1	Side of the overall net position ⁴	Liquidity Class 2	Side of the overall net position ⁵
1	3.99%	LQ1ZZ	A	LQ2ZZ	B
2	3.99%	LQ1ZZ	A	L22ZZ	B
3	3.99%	L12ZZ	A	LQ2ZZ	B
4	3.99%	L12ZZ	A	L22ZZ	B
5	3.29%	LQ1ZZ	A	LQ3ZZ	B
6	3.29%	L12ZZ	A	LQ3ZZ	B
7	2.63%	LQ2ZZ	A	LQ3ZZ	B
8	2.63%	L22ZZ	A	LQ3ZZ	B
9	2.54%	LQ1ZZ	A	LQ8ZZ	B
10	2.54%	L12ZZ	A	LQ8ZZ	B
11	2.68%	LQ2ZZ	A	LQ8ZZ	B
12	2.68%	L22ZZ	A	LQ8ZZ	B

Note that the study concerning the correlation between the various Liquidity Classes shows that the general market risk (y) could be reduced by:

- 89.88% between (LQ1ZZ and LQ2ZZ). (LQ1ZZ and L22ZZ). (L12ZZ and LQ2ZZ) and (L12ZZ and L22ZZ)
- 73.6% between (LQ1ZZ and LQ3ZZ). (L12ZZ and LQ3ZZ)
- 67.24% between (LQ2ZZ and LQ3ZZ). (L22ZZ and LQ3ZZ)
- 57.57% between (LQ1ZZ et LQ8ZZ). (L12ZZ et LQ8ZZ)
- 75.9% between (LQ2ZZ et LQ8ZZ). (L22ZZ et LQ8ZZ)

1 ZZ= Currency Code

2 X = Specific risk applied to the overall gross position (PA + PV)

3 Y = General market risk applied to the overall net position (PA - PV)

4 The Inter Coefficient is applied to the smallest common overall net position (PA - PV) between the concerned liquidity classes

4 The A/B side means that positions on the liquidity classes must have opposite sides

To obtain the inter coefficient for each priority, the following formula is applied:

- for priority 1 to 4 : $0.8988 * \text{Min}(y1;y2)$
- for priority 5 to 6 : $0.736 * \text{Min}(y1;y2)$
- for priority 7 to 8 : $0.6724 * \text{Min}(y1;y2)$
- for priority 9 to 10 : $0.5757 * \text{Min}(y1;y2)$
- for priority 11 to 12 : $0.759 * \text{Min}(y1;y2)$

BONDS (algorithm using Duration Classes)

FOR EURONEXT CASH AMSTERDAM. BRUSSELS. LISBON. PARIS. BOURSE DE LUXEMBOURG AND EQUIDUCT

Parameters for the intermediary liquidation risk

Duration Class	Maturities	x % ¹	y % ²
DR4ZZ	[0;1Y[	0.88%	0.38%
DR5ZZ	[1;4Y[	1.25%	0.49%
DR6ZZ	From 4Y included	2.04%	0.44%

Duration intra-class charge

Duration Class	Maturities	Intra Coefficient ³
DR4ZZ	[0;1Y[	0.27 %
DR5ZZ	[1;4Y[	0.25 %
DR6ZZ	From 4Y included	0.18 %

1 X = Specific risk applied to the overall gross position (PA + PV)

2 Y = General market risk applied to the overall net position (PA - PV)

3 The intra coefficient is applied to the smallest common value between the net buying positions and the net selling positions of the concerned duration classes

II. Negotiation Risk parameters

These Parameters are applied in order to increase the Negotiation Risk. when no quotation or significant price variations are observed.

Equities and assimilated products (parameters applied on Liquidity Classes)

In case of non quotation

Liquidity Class	Buying C _{a2}	Selling C _{v2}
LQ1ZZ	4.29%	4.29%
L11ZZ	6.19%	6.19%
L12ZZ	6.14%	6.14%
LQ2ZZ	4.82%	4.82%
L21ZZ	12.67%	47.54%
L22ZZ	7.97%	11.28%
LQ3ZZ	3.85%	3.85%
LQ4ZZ	16.80%	80.00%
LQ5ZZ	50.96%	80.00%
LQ8ZZ	6.64%	6.64%
L81ZZ	25.76%	80.00%

In case of significant variations

Liquidity Class	Buying C _{a1}	Selling C _{v1}	Stop-loss threshold (1)
LQ1ZZ	4.29%	4.29%	10%
L11ZZ	6.19%	6.19%	6.19%
L12ZZ	6.14%	6.14%	10%
LQ2ZZ	4.82%	4.82%	10%
L21ZZ	12.67%	49.22%	12.67%
L22ZZ	7.97%	9.76%	10%
LQ3ZZ	3.85%	3.85%	3.85%
LQ4ZZ	16.80%	40.50%	16.80%
LQ5ZZ	10.00%	21.14%	3.01%
LQ8ZZ	6.64%	6.64%	6.64%
L81ZZ	13.64%	59.09%	13.64%

(1) The variation to the "stop-loss" threshold compared with previous day prices must be:

- strictly inferior for negative variation prices
- strictly superior for positive variation prices

BONDS (parameters applied on Duration Classes)

FOR EURONEXT CASH AMSTERDAM. BRUSSELS. LISBON. PARIS. BOURSE DE LUXEMBOURG AND EQUIDUCT

In case of non quotation

Duration class	Maturities	Buying C ₁	Selling C ₂
DR4ZZ	[0;1Y[	0.2 %	0.2 %
DR5ZZ	[1;4Y[	1.0 %	1.0 %
DR6ZZ	From 4Y included	2.0 %	2.0 %

In case of significant variations

Duration class	Maturities	Stop-loss threshold (1)	Buying C ₃	Selling C ₄
DR4ZZ	[0;1Y[	1 %	0.2 %	0.2 %
DR5ZZ	[1;4Y[	5 %	1.0 %	1.0 %
DR6ZZ	From 4Y included	10 %	2.0 %	2.0 %

III. De-netting Risk

The de-netting risk consists in covering the risk due to:

1- Several Delivery Accounts (DA) in front of one Margin Account (MA):

An Additional De-netting Margin is called on a daily basis from Clearing Members, which have implemented more than one Delivery Account, per Margin Account in their Account Structure, to cover the de-netting risks related to the use of multiple Delivery Accounts in the settlement process. These risks are not covered by the existing Margins nor by Default Fund which only take into account the Open Positions per ISIN code on the House and Client Margins Accounts opened in the books of LCH SA.

2- De-offsetting between different Settlement Dates:

An additional de-netting Margin is called on a daily basis from Margin Account to cover the de-netting risks related to the netting of the Open Positions per ISIN code between all Settlement Dates. These risks are not covered by the existing Margins nor by Default Fund that only take into account the Open Positions per ISIN code on all Settlement Dates on the House and Client Margins Accounts opened in the books of LCH SA.

SCOPE OF POSITION

Non-settled positions on all eligible assets guaranteed (equities, warrants, trackers, Funds, bonds...) are concerned by the De-netting Risk.

DAILY ADDITIONAL MARGIN CALL

The additional margin due to De-netting Risk is calculated and called daily as described on the following table:

De-netting Additional Margins	Margin Call 8:00-9:00 am CET	Margin Call 2:30-3:00 pm CET
Due to several Delivery Accounts	Call	No Call
Due to several Settlement Dates	Call	Call

PARAMETERS

The parameters used for the De-netting Risk are the same than the regular Liquidation Risk calculation provided in the Chapter I – Liquidation Risk parameters (specific risk (x%), general risk (y%), inter coefficient and intra coefficient).

An estimate of non-settled positions is determined thanks to two different parameters:

- For the calculation of the De-netting Risk due to several DA:
DARP (Delivery Account Rate Parameter) which is set at 27%.

For the calculation of the De-netting Risk due to de-offsetting:
DORP (De-Offsetting Rate Parameter) which is set at 12%.

TREASURY REPORTS

DNR amount appears on the treasury report under the "Additional Margins (DNR)" tab.

IV. Wrong Way Risk (WWR)

SCOPE OF POSITION

The positions on all issued guaranteed securities (equities, bonds, warrants....) by Clearing Members and their own group company (ies) are concerned by the WWR.
Note that trackers and funds are not concerned by WWR.

MONTHLY ADDITIONAL CALL

The WWR is called monthly on the same day as the Default Fund contribution (4th business day of the month) and is based on the daily WWR average of the previous month. A positive value generates a cover requirement at Collateral Account level if the WWR margin is greater than a threshold A.

DAILY ADDITIONAL MARGIN CALL

The additional margin due to WWR is calculated daily. When the daily uncovered WWR exceeds a threshold B, a daily additional margin requirement is performed.

- If Daily WWR > WWR_{latest month} + Threshold_B => Daily WWR is required as additional margin
- If Daily WWR < WWR_{latest month} + Threshold_B => WWR remains as additional margin

THRESHOLD LEVELS

Threshold A:

For the monthly additional margin call, the minimum call is set up to 0€ by Collateral Account.

Threshold B:

For the daily additional margin call, the variation threshold is set up to 0€.

TREASURY REPORTS

WWR amount appears on the treasury report under the "Additional Margins (WWR)" tab.

V. Liquidity & Concentration Risk Margin (LCRM)

SCOPE OF POSITION

The positions on all eligible assets cleared (equities, warrants, trackers, funds...) are concerned by the LCRM.
Note that Bonds are not concerned by LCRM.

MONTHLY ADDITIONAL MARGIN CALL

The LCRM is called monthly on the same day as the Default Fund contribution (4th business day of the month) and is based on the daily LCRM average of the previous month. A positive value generates a cover requirement at Collateral Account level if the LCRM margin is greater than a threshold A.

DAILY ADDITIONAL MARGIN CALL

The additional margin due to LCRM is calculated daily. When the daily un-margined LCRM exceeds a threshold B, a daily additional margin requirement is performed.

- If Daily LCRM > LCRM latest month + ThresholdB => Daily LCRM is required as additional margin
- If Daily LCRM < LCRM latest month + ThresholdB=> LCRM remains as additional margin

THRESHOLD LEVELS

Threshold A:

For the monthly additional margin call, the minimum call is set up to 0€ by Collateral Account.

Threshold B:

For the daily additional margin call, the variation threshold is set up to 0€

HOLDING PERIOD CAPS

For long positions: 10 days
For short positions: 5 days

USAGE OF MARKET AVERAGE DAILY TRADED VOLUME

25% per day (which lead to a threshold at 75% in regards to the standard holding period of 3 days) of the Market Average Daily Traded Volume considering a 60 business days look up period.

REPORTS

LCRM amount appears on the treasury report under the "Additional Margins (LCRM)" tab.

VI. Currency risk parameters

Currency	SPAN Currency code "ZZ"	Name	Parameters for currency risk
AUD	AU	Australian dollar	5.7%
CAD	CA	Canadian dollar	5.1%
CHF	CH	Swiss franc	5.4%
CNY	CN	Yuan Ren-Min-Bi	6.6%
DKK	DK	Danish krone	0.2%
EUR	EU	Euro	0%
GBP	GB	Pound sterling	4.5%
HKD	HK	Dollar Hong-Kong	3.8%
HUF	HU	Hungarian forint	4.5%
JPY	JP	Japanese yen	4.8%
NOK	NO	Norwegian krone	8.3%
NZD	NZ	New Zealand dollar	3.8%
PLN	PL	Polish zloty	4.1%
SEK	SE	Swede krone	2.7%
SGD	SG	Singaporean dollar	5.2%
USD	US	American dollar	3.8%
ZAR	ZA	South Africa rand	7.4%

Note: Only securities quoted in EUR and currencies presented in this table are guaranteed by LCH SA.

FOREIGN EXCHANGE RISK METHODOLOGY:

Conversion of Initial Margin is done at Member Code / Segregation type / Margin Account / Currency level.

Negotiation Risk

A negative Negotiation Risk is a charge and the parameter for the currency risk is used to increase the risk amount (to cover the foreign exchange risk). The conversion formula for the Negotiation Risk is therefore:

$$\text{Negotiation Risk in Euro} = \text{Negotiation Risk in currency} / \text{currency exchange rate} * A$$

With:

A = 1 + rate for currency risk if Negotiation Risk is negative (to increase charge)

A = 1 - rate for currency risk if Negotiation Risk is positive (to decrease credit)

Liquidation Risk

The Liquidation Risk is always a charge, so we use the same conversion formula than for the negative negotiation risk.

$$\text{Liquidation Risk in Euro} = \text{Liquidation Risk in currency} / \text{currency exchange rate} * B$$

With:

B = 1 + rate for currency risk (to increase charge).

VII. Intra-day margin call thresholds

Intra-day margin calls are required to Clearing Members active on Cash Securities markets as following:

Pursuant to the Article 4.2.0.2 of the Clearing Rule Book and the Instruction IV.2-1 regarding the basis or the calculation of the margin for transactions on securities traded on a cash market operated by a market undertaking, LCH SA fixed the threshold for additional calls as following:

For all members, the Intraday Margin will be called from the 1st Euro cent.