



Member Notification

Risk Notice 2017-001

2nd January 2017

Notice margin parameters

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 linked to the use of several delivery accounts pursuant to the instruction IV.2-3 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

Cash Equity Initial Margin is calculated at Liquidity Class level.

The different Liquidity Classes are specified below

This enhancement shall come into effect with the margin call on the morning of the 3rd January 2017 for the positions at the close of the 2nd January 2017.

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

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@LCH SA



Liquidity classification

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

- o LQ1ZZ: Standard (already exists)
- o L11ZZ: Penny Stocks
- o L12ZZ: High Volatility

Liquidity Class LIQ02: Ordinary Equity - Continuous

- o LQ2ZZ: Standard (already exists)
- o L21ZZ: Penny Stocks
- o L22ZZ: High Volatility

Liquidity Class LIQ03: ETF/Trackers - Continuous

- o LQ3ZZ: One homogeneous class (already exists)

Liquidity Class LIQ04: Certificates & Warrants

- o LQ4ZZ: One homogeneous class (already exists)

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

- o LQ5ZZ: One homogeneous class

Liquidity Class LIQ08: AlterNext - Continuous

- o LQ8ZZ: Standard (previously L12ZZ)
- o L81ZZ: Penny Stocks

ZZ = Currency Code

I. Liquidation Risk -Clearing Organization SBF

Equities and assimilated products (algorithm using the Liquidity Classes)

Parameters for the intermediary liquidation risk

Liquidity Class ¹	x % ²	y % ³
LQ1ZZ	7.63%	8.42%
L11ZZ	19.44%	12.66%
L12ZZ	12.43%	8.42%
LQ2ZZ	9.63%	5.39%
L21ZZ	27.64%	8.27%
L22ZZ	20.35%	5.39%
LQ3ZZ	5.44%	5.87%
LQ4ZZ	42.52%	7.78%
LQ5ZZ	5.71%	3.76%
LQ8ZZ	15.29%	4.56%
L81ZZ	32.09%	11.46%

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	5.19%	LQ1ZZ	A	LQ2ZZ	B
2	5.19%	LQ1ZZ	A	L22ZZ	B
3	5.19%	L12ZZ	A	LQ2ZZ	B
4	5.19%	L12ZZ	A	L22ZZ	B
5	5.53%	LQ1ZZ	A	LQ3ZZ	B
6	5.53%	L12ZZ	A	LQ3ZZ	B
7	5.01%	LQ2ZZ	A	LQ3ZZ	B
8	5.01%	L22ZZ	A	LQ3ZZ	B

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

- 92.12% between (LQ1ZZ and LQ2ZZ), (LQ1ZZ and L22ZZ), (L12ZZ and LQ2ZZ) and (L12ZZ and L22ZZ)
- 94.49% between (LQ1ZZ and LQ3ZZ), (L12ZZ and LQ3ZZ)
- 88.92% between (LQ2ZZ and LQ3ZZ), (L22ZZ and LQ3ZZ)

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

- for priority 1: $0.9212 * \text{Min}(y1;y2)$
- for priority 2: $0.9449 * \text{Min}(y1;y2)$
- for priority 3: $0.8892 * \text{Min}(y1;y2)$

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

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 %

FOR NYSE BONDMATCH AND GALAXY TRADING SYSTEM

Parameters for the intermediary liquidation risk

Duration Class	Maturities	x % ¹	y % ²
CAP04	]0;1Y[	1.16 %	0.51 %
CAP05	]1Y;2Y[	1.16 %	0.39 %
CAP06	]2Y;7Y[	1.28 %	0.40 %
CAP07	From 7Y included	2.00 %	0.53 %
CAP00	All maturities*	2.00 %	0.53 %
CABWL	All maturities**	9.00 %	0.53 %

Duration intra-class charge

Duration Class	Maturities	Intra Coefficient ³
CAP04	]0;1Y[	0.45 %
CAP05	]1Y;2Y[	0.24 %
CAP06	]2Y;7Y[	0.35 %
CAP07	From 7Y included	0.33 %
CAP00	All maturities*	0.45 %
CABWL	All maturities**	0.50 %

*CAP00 is a Duration Class by default used in case of no automatic allocation of bonds.

** CABWL is a Duration Class to impose exceptionally high conservative parameters list on bonds under Watch due to the deterioration of their creditworthiness.

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 - Clearing Organization SBF

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	5.35%	5.35%
L11ZZ	10.70%	10.70%
L12ZZ	6.95%	6.95%
LQ2ZZ	5.01%	5.01%
L21ZZ	14.08%	53.11%
L22ZZ	8.58%	15.01%
LQ3ZZ	3.77%	3.77%
LQ4ZZ	16.77%	66.36%
LQ5ZZ	45.08%	68.31%
LQ8ZZ	6.62%	15.74%
L81ZZ	14.52%	73.12%

In case of significant variations

Liquidity Class	Stop-loss threshold (1)	Buying C_{a1}	Selling C_{v1}
LQ1ZZ	5.35%	5.35%	5.35%
L11ZZ	10.70%	10.70%	10.70%
L12ZZ	6.95%	6.95%	6.95%
LQ2ZZ	5.01%	5.01%	5.01%
L21ZZ	11.97%	18.20%	64.08%
L22ZZ	8.58%	8.58%	12.55%
LQ3ZZ	3.77%	3.77%	3.77%
LQ4ZZ	16.77%	16.77%	39.72%
LQ5ZZ	4.06%	12.81%	21.14%
LQ8ZZ	6.62%	6.62%	17.15%
L81ZZ	14.52%	14.52%	77.28%

(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 %

FOR NYSE BONDMATCH AND GALAXY TRADING SYSTEM

In case of non quotation

Duration Class	Maturities	Buying C ₁
CAP04	]0;1Y[	20 %
CAP05	[1Y;2Y[	20 %
CAP06	[2Y;7Y[	20 %
CAP07	From 7Y included	20 %
CAP00*	All maturities	20 %
CABWL**	All maturities	20 %

In case of significant variations

Duration Class	Maturities	Stop-loss threshold (1)	Buying C ₃	Selling C ₄
CAP04	]0;1Y[	6 %	10 %	10 %
CAP05	[1Y;2Y[	6 %	10 %	10 %
CAP06	[2Y;7Y[	6 %	10 %	10 %
CAP07	From 7Y included	6 %	10 %	10 %
CAP00*	All maturities	6 %	10 %	10 %
CABWL**	All maturities	6 %	10 %	10 %

(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

*CAP00 is a Duration Class by default used in case of no automatic allocation of bonds.

** CABWL is a Duration Class to impose exceptionally high conservative parameters list on bonds under Watch due to the deterioration of their creditworthiness.

III. De-Netting Risk (parameters applied for additional margins to cover the risk linked to the use of several Delivery Accounts)

The de-netting risk is measured by comparing the Open Positions due for settlement the next Clearing Day to the de-netted Open Position which could result from the settlement process.

The following algorithm is used:

A = the risk of the Open Position to be settled =

$$\begin{aligned} & (\text{Buying Open Positions to be settled} + \text{selling Open Positions to be settled}) \times X\% \\ & + \\ & (\text{Buying Open Positions to be settled} - \text{selling Open Positions to be settled}) \times Y\% \end{aligned}$$

B = the risk of the buying Open Position to be settled at Delivery Account level =

$$\text{Buying Open Position to be settled at Delivery Account level} \times (X\% + Y\%)$$

The **A** and **B** risk are calculated using the regular SPAN[®] methodology for liquidation risk. The level of calculation for A will be the Margin Account level.

If **B > A**, the settlement process entails potential additional de-netting risk and this risk (**B-A**) is taken into consideration in the calculation.

Equities and assimilated products (parameters applied on Liquidity classes)

Parameters for the intermediary liquidation risk

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LQ3ZZ	5.44%	5.87%
LQ4ZZ	42.52%	7.78%
LQ5ZZ	5.71%	3.76%
LQ8ZZ	15.29%	4.56%
L81ZZ	32.09%	11.46%

The parameters used in the A and B risk for inter class credits and intra class charges are zero percent for all liquidity and duration classes.

BONDS (parameters applied on Duration Classes)

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

Parameters for the intermediary liquidation risk

Duration Class	Maturities	x % ⁴	y % ⁵
DR4ZZ	[0;1Y[	0.88%	0.38%
DR5ZZ	[1;4Y[	1.25%	0.49%
DR6ZZ	From 4Y included	2.04%	0.44%

The parameters used in the A and B risk for inter class credits and intra class charges are zero percent for all liquidity and duration classes.

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

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Parameters for the intermediary liquidation risk

Duration Class	Maturities	x % ¹	y % ²
CAP04	]0;1Y[	1.16 %	0.51 %
CAP05	[1Y;2Y[	1.16 %	0.39 %
CAP06	[2Y;7Y[	1.28 %	0.40 %
CAP07	From 7Y included	2.00 %	0.53 %
CAP00	All maturities*	2.00 %	0.53 %
CABWL	All maturities**	9.00 %	0.53 %

The parameters used in the A and B risk for inter class credits and intra class charges are zero percent for all Liquidity and Duration Classes.

IV. Wrong Way Risk

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 > $WWR_{\text{latest month}} + \text{Threshold}_B$ => Daily WWR is required as additional margin
- If Daily WWR < $WWR_{\text{latest month}} + \text{Threshold}_B$ => 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 is added to others additional margin amounts and appears on the treasury report under the "Additional Margins" tab.

V. Liquidity & Concentration Risk Margin

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 is added to others additional margin amounts and appears on the treasury report under the "Additional Margins" tab.

VI. Currency risk parameters

Currency	SPAN Currency code "ZZ"	Name	Parameters for currency risk
AUD	AU	Australian dollar	9.5%
BTN	BT	Bouthan ngultrul	8%
CAD	CA	Canadian dollar	4.5%
CHF	CH	Swiss franc	5.5%
CNY	CN	YUAN REN-MIN-BI	8%
DKK	DK	Danish krone	4%
EUR	EU	Euro	0%
GBP	GB	Pound sterling	5.5%
HKD	HK	Dollar Hong-Kong	5.5%
HUF	HU	Hungarian forint	8%
JPY	JP	Japanese yen	9%
MXN	MX	Mexican peso	8.5%
NOK	NO	Norwegian krone	5.5%
NZD	NZ	New Zealand dollar	6%
PLN	PL	Polish zloty	9%
RON	RO	Lei Roumain	9.5%
SEK	SE	Swede krone	4%
SGD	SG	Singaporean dollar	8%
TRY	TR	Turkish lira	10%
USD	US	American dollar	5.5%
ZAR	ZA	South Africa rand	13.5%

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.