Instruction IV.2-1 Margin requirements

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Pursuant to Chapter 2 of Title IV of the Digital Asset Derivatives Clearing Rule Book.

For any information regarding Margins payment arrangement, Collateral accepted to meet Margin requirements and Cash Payments, including such payments arising from Variation Margin requirement, please refer to Instruction IV.4-1 (*Collateral, Variation Margin and Cash Payments*).

For the purpose of this Instruction, the relevant Settlement Prices will be the ones received by LCH SA from:

(i) primarily, the relevant Trading Venue, at the end of each trading day on such Trading Venue; or
(ii) any other data providers.

The method of calculation of the Settlement Prices received from a Trading Venue is set out in the relevant Trading Rules.

Chapter 1 General provisions

Article 1

This Instruction describes the method for calculating Margin requirements and payment obligations, as well as the means to fulfil these requirements for Digital Asset Derivatives Transactions registered in the Digital Asset Derivatives Clearing System.

LCH SA informs Clearing Members of the amount relative to the Margin requirements during the day of the payment of the Margin.

Notwithstanding the provisions of Chapter 5 of this Instruction, LCH SA calculates Margin requirements several times a day as set out in a Notice and on the basis of such calculation, each Clearing Member will be required to transfer the relevant amount of Collateral at such frequency as set out in that Notice.

Article 2

LCH SA compares the amount of Margin requirements to the amount of the latest Margin call. It then performs the following process:

(i) if the Margin requirements is greater than the value of the Collateral deposited, a call for covering this requirement is made; and

(ii) if the Margin requirements is lower than the value of the Collateral deposited, refunds are made according to the conditions and timetable set forth in a Notice.

Chapter 2 Calculation methodology

Section 2.1 Initial Margin and total Initial Margin

Article 3 General Provisions

The Margin requirements for the liquidation risk are calculated using the Value-at-Risk (VaR) model as described below.

LCH SA calculates margins in order to cover the liquidation risk that it bears regarding the Open Positions in case of an Event of Default.

This risk is calculated each Clearing Day per Clearing Member, per Currency, at the Margin Accounts level.

The detailed methodology is available on LCH SA's website.

Article 4 Initial Margin

The Initial Margin covers the potential adverse movements in the risk factors, such as the price of underlying Digital Assets or other indices or measures relating to Digital Assets determining the value of Digital Asset Derivatives, in a confidence level defined by LCH SA and published on its website.

The Initial Margin calculation is based on a VaR measure based on the historical VaR and expected shortfall.

LCH SA inputs parameters and historical data into the Initial Margin model which are either provided in a Notice or in technical files. The values of these parameters and historical data are determined by LCH SA according to the risk level against which LCH SA intends to protect itself.

Article 5 Total Initial Margin

The "total Initial Margin" intends to cover all the potential future price fluctuations in case of unfavourable markets movements in different circumstances.

It consists of two components covering the liquidation risk:

(i) the Initial Margin; and

(ii) the vega add-on Margin to cover non-parallel move of the volatility surface.

LCH SA inputs parameters and historical data into the risk models which are either provided in a Notice or in technical files. The values of these parameters and historical data are determined by LCH SA according to the risk level against which LCH SA intends to protect itself.

Section 2.2 Variation Margin and Option Premium

Article 6 Variation Margin

Variation Margin applies with respect to option and futures contracts.

Variation Margin are calculated from price fluctuations based on the historical data.

Variation Margin is calculated on a daily "marked to market" basis for each Margin Account and each Digital Asset Derivative Contract.

The prices used for such calculation are as follows:

(i) in respect of the previous day's Open Positions: the previous day's relevant Settlement Prices; and
(ii) in respect of the day's Digital Asset Derivatives Transactions: the recorded trade prices.

The end of the day Open Positions are marked to market at the day's relevant Settlement Prices (i.e. long Open Positions are hypothetically "*sold out*" and short Open Positions are "*bought in*").

Article 7 Option Premium

The Option Premium is calculated on the basis of the relevant Digital Asset Derivatives Transaction price and with regard to the characteristics of each option contract and is exchanged through LCH SA between members.

Chapter 3 Additional Margins

Article 8

In accordance with Article 4.2.1.1 and Article 4.2.1.2 of the Digital Asset Derivatives Clearing Rule Book and this Instruction, LCH SA may call for Additional Margins, in addition to the Variation Margin and Initial Margin, in the conditions set out in a Notice.

Additional Margins are calculated using the VaR model.

Chapter 4 Intra-day Margins

Article 9 General provisions

In addition to the Variation Margin, Initial Margin and Additional Margins calculated and called pursuant to Article 4.2.1.1 and Article 4.2.1.2 of the Digital Asset Derivatives Clearing Rule Book and this Instruction, LCH SA calculates Intra-day Margins pursuant to Article 4.2.1.3 of the Digital Asset Derivatives Clearing Rule Book and this Instruction.

Intra-day Margins are calculated using the VaR model.

Article 10 Revaluation scope

The revaluation process mentioned in this Instruction, and described in a Notice, applies to the prices of both Digital Asset Derivatives and their related underlying Digital Assets or other indices or measures.

Article 11 Intra-day Margin session

Pursuant to Article 4.2.1.3 of the Digital Asset Derivatives Clearing Rule Book, Intra-day Margins calculation is performed several times per Clearing Day in the course of Intra-day Margin calculation session and consists in calculating Intra-day Margin requirement based on re-evaluated clearing Members' Open Positions and real-time prices. This calculation process may result in an Intra-day Margin call in the conditions described in this Instruction and the related Notice.

Each Intra-day Margin calculation session is qualified as either "*With Margin call*" or "*Without Margin call*" as set-up in a Notice.

In any event, there is at least one "*With Margin call*" Intra-day session per Clearing Day. However, LCH SA can, as it deems necessary, re-qualify any "Without Margin call" sessions into "With Margin call" sessions or the other way around.

A "With Margin call" session implies that, for each Clearing Member, LCH SA compares the amount of Intra-day Margin requirement to the amount of the latest Margin call.

Article 12 Intra-day Margin calculation

LCH SA proceeds to the following calculations for each Clearing Member:

1. Calculation of Open Positions per Margin Account

LCH SA performs snapshots on Open Positions, where each Open Position is valued, applying the real time prices where available or using the last reference price. If the last reference price is unknown, LCH SA will use the last known price. The price used is hereinafter referred to as the "**New Reference Price**".

2. Intra-day Margins calculation

Based upon these Open Positions valuation, LCH SA calculates the total Initial Margin and some Additional Margins as set out in a Notice.

These Margins are calculated applying the same methodologies as described under Chapter 2 of this Instruction and using the New Reference Price.

The Intra-day Margin requirement is the aggregate amount of the revaluation of the total Initial Margin and the relevant Additional Margins.

LCH SA compares the amount of Intra-day Margin requirement to the amount of the latest Margin call. It then performs the following process:

- for each Clearing Member (at Collateral Account level) for which:

  latest Margin call < latest Intra-day Margin requirement

LCH SA values the amount of available Collateral and compares such amount to the amount of the latest Intra-day Margin requirement.

And then,

- for each Clearing Member (at Collateral Account level) for which as a result of such comparison it appears that:

  available valued Collateral < Intra-day Margin requirement

LCH SA actually performs an Intra-day Margin call amounting to the difference between the Intra-day Margin requirement and the available valued Collateral.

3. Collateral valuation

There is at least one Intra-day Margin calculation session "*With Margin call*" per day where Collateral is valuated. The details of the Collateral valuation schedule are set out in a Notice.

Chapter 5 Extraordinary Margin

Article 13

In accordance with Article 4.2.1.4 of the Digital Asset Derivatives Clearing Rule Book and this Instruction, LCH SA may call for extraordinary Margin and require from each relevant Clearing Member to transfer the relevant amount of Collateral in the form and by such time as is required by LCH SA.

LCH SA shall have the right to debit a Clearing Member's TARGET2 Account or as the case may be, any cash account in US Dollar, using the Power of Attorney issued in its favour in accordance with Article 2.2.1.1(x) of the Digital Asset Derivatives Clearing Rule Book to cover any such extraordinary Margin requirement, provided LCH SA notifies each relevant Clearing Member, as soon as is reasonably practicable, by any means.

LCH SA shall use all reasonable endeavours, from the time at which the decision to call for extraordinary Margin is made and until the time at which the Clearing Member is required to transfer Collateral, to contact each relevant Clearing Member, by any method of communication available to it, to inform the Clearing Member of this decision.