

SECURITIES AND EXCHANGE COMMISSION  
(Release No. 34-100470; File No. SR-LCH SA-2023-007)

July 9, 2024

Self-Regulatory Organizations; LCH SA; Order Approving Proposed Rule Change Relating to Liquidity Risk Modelling Framework

**I. Introduction**

On December 22, 2023, Banque Centrale de Compensation, which conducts business under the name LCH SA (“LCH SA”), filed with the Securities and Exchange Commission (“Commission”), pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (“Act”)<sup>1</sup> and Rule 19b-4 thereunder,<sup>2</sup> a proposed rule change (“Proposed Rule Change”) to amend its Liquidity Risk Modelling Framework (the “Framework”). The Proposed Rule Change was published for comment in the *Federal Register* on January 11, 2024.<sup>3</sup> On February 21, 2024, pursuant to Section 19(b)(2) of the Act,<sup>4</sup> the Commission designated a longer period within which to approve, disapprove, or institute proceedings to determine whether to approve or disapprove the Proposed Rule Change, from February 25, 2024 to April 10, 2024.<sup>5</sup> On April 8, 2024, the Commission instituted proceedings, pursuant to Section 19(b)(2)(B) of the Act,<sup>6</sup> to determine whether to approve or disapprove the Proposed Rule Change.<sup>7</sup> The Commission has

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<sup>1</sup> 15 U.S.C. 78s(b)(1).

<sup>2</sup> 17 CFR 240.19b-4.

<sup>3</sup> Exchange Act Release No. 99277 (Jan. 5, 2024), 89 FR 1952 (Jan. 11, 2024) (File No. SR-LCH SA-2023-007) (“Notice”).

<sup>4</sup> 15 U.S.C. 78s(b)(2).

<sup>5</sup> Self-Regulatory Organizations; LCH SA; Notice of Designation of Longer Period for Commission Action on Proposed Rule Change Relating to the Liquidity Risk Modelling Framework, Exchange Act Release No. 99569 (Feb. 21, 2024), 89 FR 14538 (Feb. 27, 2024) (File No. SR-LCH SA-2023-007).

<sup>6</sup> 15 U.S.C. 78s(b)(2)(B).

<sup>7</sup> Self-Regulatory Organizations; LCH SA; Order Instituting Proceedings to Determine Whether to Approve or Disapprove a Proposed Rule Change Relating to Liquidity Risk Modeling Framework, Exchange Act Release No. 99922 (Apr. 8, 2024), 89 FR 25906 (Apr. 12, 2024) (File No. SR-LCH SA-2023-007).

not received any comments on the Proposed Rule Change. For the reasons discussed below, the Commission is approving the Proposed Rule Change.

## **II. Description of the Proposed Rule Change**

### *(i) Background*

LCH SA is a clearing agency that offers clearing of, among other things, credit-default swaps (“CDS”).<sup>8</sup> LCH SA is registered with the Commission for clearing CDS that are security-based swaps and with the Commodity Futures Trading Commission for clearing CDS that are swaps. As part of its clearing business, LCH SA maintains cash and other liquid financial resources to meet its financial obligations. The Framework and other procedures describe how LCH SA maintains these resources and manages its liquidity risk, meaning the risk that LCH SA will not have enough liquid financial resources to meet its financial obligations.<sup>9</sup> The Framework specifically describes how LCH SA’s Collateral and Liquidity Risk Management department (“CaLRM”) assures that LCH SA has enough cash available to meet any financial obligations, both expected and unexpected, that may arise over the liquidation period for each of LCH SA’s clearing services.

The Framework describes LCH SA’s liquidity in terms of sources and needs. The Framework lists various sources of liquidity for LCH SA, such as cash and non-cash collateral provided by Clearing Members to meet their margin and default fund requirements. With respect to needs for liquidity, the Framework places these into three broad categories: (i) those

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<sup>8</sup> Capitalized terms used but not defined herein have the meanings specified in the LCH SA Rule Book or Framework as applicable.

<sup>9</sup> LCH SA, a subsidiary of LCH Group and an indirect subsidiary of the London Stock Exchange Group plc (“LSEG”), manages its liquidity risk pursuant to, among other policies and procedures, the Group Liquidity Risk Policy and the Group Liquidity Plan applicable to each entity within LCH Group. In addition to its CDS Clear service, LCH SA provides clearing services in connection with cash equities and derivatives listed for trading on Euronext (EquityClear), commodity derivatives listed for trading on Euronext (CommodityClear), and tri-party Repo transactions (RepoClear).

arising from LCH SA's business-as-usual operations; (ii) those arising from Clearing Members' defaults; and (iii) those arising from the default of LCH SA's interoperating central counterparty ("CCP").

Section 1 of the Framework describes the scope, purpose, and use of the Framework. Sections 2 and 3 describe certain limitations to, and justifications for, how LCH SA models its liquidity sources and needs. Section 4 details how LCH SA models its liquidity sources and needs. Section 5 describes how LCH SA tests and monitors the performance of these models. Finally, Section 6 contains certain additional information relevant to the Framework, presented as appendices to the Framework.

The purpose of the Proposed Rule Change is to make a variety of updates to the Framework. These updates are described below according to the section of the Framework where they appear. In general, these changes will: (a) revise the manner in which settlement obligation liquidity requirements are calculated; (b) revise the way LCH SA determines the potential value of liquidity obtained from pledging securities to the Banque de France ("BdF"); (c) extend the length of time for which LCH SA must maintain liquidity resources sufficient to meet its liquidity requirements; (d) include the liquidity needs generated by the expiration of physically settled stock futures in determining overall liquidity needs; and (e) require LCH SA, in calculating its required liquidity resources, to consider that Clearing Members may switch from depositing non-cash collateral in a Full Title Transfer Account ("FTTA") to depositing non-cash collateral instead in a Single Pledged Account ("SPA").

*(ii) Section 1 Changes to the Framework*

Section 1 of the Framework details the scope, purpose, and use of the Framework. The Proposed Rule Change would make various updates to this section, as described below.

Currently, Section 1.1, titled Model Objective, Business Scope and Intended Use, states that the Framework is owned by CaLRM and is reviewed on at least a quarterly basis. Currently, Section 1.1 provides that the Framework is reviewed at least on a quarterly basis. LCH SA is proposing to change the frequency the Framework is reviewed from quarterly to annually. LCH SA is making this change to align the review of the Framework with the frequency of the review of the Group Liquidity Risk Policy.

Section 1.1.1, titled Reminder of SA's activities, contains an overall description of LCH SA's activities as a clearing agency. Among other things, Section 1.1.1 currently explains that LCH SA maintains default funds which aim to cover the two largest losses that may exceed the losses covered by initial margins. LCH SA is proposing to revise this description slightly by deleting the phrase "two largest," and noting instead that default funds are calibrated on the assumption of default of the two most exposed groups of affiliated Clearing Members ("Clearing Member Groups").

The Proposed Rule Change would next amended Section 1.1.2, titled Investment Activities. To ensure that the Framework provides an accurate description of the Collateral and Liquidity Management ("CaLM") Front Office team, LCH SA is clarifying the description of this team in this section. LCH SA's CaLM team manages LCH SA's investment activities, among other responsibilities, and the current Framework describes CaLM's tasks related to investment activities as liquidity management, non-cash collateral settlement in case of a Clearing Member's default, and investment management of cash margins, default funds, and

other financial resources. The Proposed Rule Change would revise this description to state that CaLM's task is non-cash collateral liquidation, rather than settlement, in addition to liquidity and investment management.

Section 1.1.3, titled Interoperability of CC&G, describes the interoperability link that LCH SA maintains with another CCP, Cassa di Compensazione e Garanzia, or "CC&G," which has been renamed "Euronext Clearing." The proposed rule change would reflect the renaming by replacing references to CC&G with references to Euronext Clearing, including in the title to this section.

LCH SA is also making changes to reflect the other policies and procedures, in addition to the Framework, that it employs to manage its liquidity risk. As noted above, LCH SA is a subsidiary of LCH Group and an indirect subsidiary of LSEG. As such, LCH SA manages its liquidity risk using the Group Liquidity Risk Policy and the Group Liquidity Plan (which are applicable to each entity within LCH Group). LCH SA uses these other policies in addition to the Framework. The Proposed Rule Change would update Section 1.3, titled Model dependency and interconnectivity, to include summaries of these other policies, including the LCH SA Liquidity Plan, Group Liquidity Risk Policy, Group Financial Resource Adequacy Policy, Group Collateral Risk Policy, Group Investment Risk Policy, LCH SA Collateral Control Framework, and Group Risk Policy: Default Management.

The Proposed Rule Change would next amend Section 1.4, titled Model Governance. Here the Proposed Rule Change would add a footnote to clarify that the core liquidity reserve stress tests are performed monthly according to the Liquidity Risk Policy. LCH is making this change to align the Framework with LCH SA's Liquidity Risk Policy.

Section 1.6.1, titled Liquidity Sources, describes LCH SA’s sources of liquidity. These sources include, among others, cash posted by Clearing Members to meet margin and default fund requirements and non-cash collateral posted by Clearing Members. Section 1.6.1 also describes the tools that CaLM would use to meet LCH SA’s non-Euro liquidity requirements in case of a Clearing Member’s default. Section 1.6.1 currently describes these tools as committed liquidity lines pledged with assets from margin collateral or investments and a rule book arrangement that allows LCH SA to pay its obligations in Euros. The Proposed Rule Change would add further explanation of the tools available to CaLM to meet LCH SA’s non-Euro liquidity requirements in the event of a default. At a broad level, these tools include non-Euro cash deposited as collateral at creditworthy commercial banks; the sale of non-Euro securities of the defaulting member; repo transactions; the use of LCH SA’s multicurrency overdraft facility; the use of FX spot market transactions; ECB weekly tender in U.S. dollars; and the replacement of LCH SA’s liabilities in non-Euro by Euro. This description would be the same as what is currently found in Appendix 5 of the Framework.<sup>10</sup>

The Proposed Rule Change next would make two changes in Section 1.6.1.1, titled Collateral transfer to the 3G pool, which is related to non-cash collateral posted by Clearing Members. LCH SA permits Clearing Members to deposit non-cash collateral either through a FTTA or through a SPA. LCH SA maintains FTTAs at various central securities depositories and maintains SPAs at Euroclear Bank and Bank of New York Mellon (for U.S. Treasuries). As currently described in Section 1.6.1.1, LCH SA can pledge certain of this non-cash collateral—mostly Euro-denominated securities, referred to herein as “Eligible Collateral”—at BdF to obtain a liquidity line on an intraday basis and overnight if needed. Securities denominated in other,

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<sup>10</sup> The Proposed Rule Change would not amend this description as currently found in Appendix 5.

non-Euro currencies are generally not considered Eligible Collateral under the Framework,<sup>11</sup> and LCH SA can only pledge Eligible Collateral that is deposited through a FTTA. LCH SA cannot pledge securities that a Clearing Member deposits via a SPA, regardless of whether they are Eligible Collateral. Section 1.6.1.1 currently states that all non-cash collateral received is deposited via FTTA by LCH SA in various CSDs, except where collateral is deposited via SPA. The Proposed Rule Change would revise this description to clarify that Clearing Members can deposit either via FTTA or SPA, thus better reflecting Clearing Members' ability to choose between the two accounts. Second, the Proposed Rule Change would add a note to explain that there are limits to the amount of pledge collateral that can be deposited for LCH SA's RepoClear, EGC Plus, and EquityClear business lines, and a note to explain that Clearing Members deposit most of their collateral via FTTAs.

Section 1.6.1.2, titled Assessment of Assets Liquidity, describes how LCH SA categorizes its collateral in terms of how liquid that collateral is. LCH SA assigns collateral to a liquidity tiering scale, ranging from 1 to 3. Tier 1 assets are the most liquid and Tier 3 are the least liquid. Currently, Section 1.6.1.2 contains a table that lists out collateral by tier. This table includes, as Tier 1 assets, all Eligible Collateral, UK Gilts and US Treasury Bills, and Dutch and Belgian central bank guarantees (only for the defaulting member that posted the guarantee). The Proposed Rule Change would add to this table, as Tier 3 assets, non-cash collateral denominated in Danish Krone, Norwegian Krone, Swedish Krona, Japanese Yen, Swiss Franc, Canadian Dollar, and Australian Dollar. As noted, such collateral is not Eligible Collateral. The Proposed Rule Change also would note, elsewhere in Section 1.6.1.2, that Tier 1 Assets include Gilt US

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<sup>11</sup> For example, the Framework notes that Gilts, US Treasuries, and securities denominated in Danish Krone, Norwegian Krone, Swedish Krona, Japanese Yen, Swiss Franc, Canadian Dollar, and Australian Dollar are not eligible for pledge at BdF.

securities and the central bank guarantee of the defaulter if the member is based in the same country as the central bank providing the guarantee. This additional language would be consistent with what is currently found in the table regarding Tier 1 assets.

Section 1.6.1.3, titled Synthesis, contains a table that synthesizes information about LCH SA's various liquidity sources. This table categorizes each source as cash, non-cash collateral from Clearing Members, collateral from investment activities, and other. In this table the Proposed Rule Change would replace references to CC&G with references to Euronext Clearing, to reflect the name change noted above. Currently, this table also explains that LCH SA retains the right of collateral re-hypothecation for all Eligible Collateral, but not for collateral deposited under the pledge regime and CDS. The Proposed Rule Change would remove the reference specific to CDS. Because pledge is now available at LCH SA's CDS service, the disclaimer for pledge also applies to CDS, and therefore the CDS business line does not need to be mentioned separately.

In addition, the table currently notes that LCH SA has demonstrated an ability to raise Euro cash using non-Euro, non-cash collateral, based on exercises performed in 2017. The Proposed Rule Change would clarify that CaLM demonstrated in 2021 and 2022 the ability to raise Euro liquidity from non-Euro non-cash collateral in USD and GBP. The table currently notes that when valuing non-Euro non-cash collateral as a liquidity source, LCH SA applies an arbitrary buffer of ten percent as a haircut. The Proposed Rule Change also would revise the description of this buffer from "arbitrary" to "conservative" and would note it is applied to absorb market stress that may occur beyond the volatility already captured by the all-in haircut.

Finally, the table currently identifies as a source of liquidity guarantee letters from central banks, but only for Belgian and Dutch clearing members. The Proposed Rule Change would



confirm that these guarantees can be considered for liquidity purposes only if the relevant Clearing Member posting them is in default, because only in this specific situation would LCH SA acquire full ownership of the guarantee provided by the central bank.

Section 1.6.2, titled Liquidity Needs, describes LCH SA's liquidity needs. As noted, the Framework identifies three broad categories of liquidity needs: (i) those arising from LCH SA's business-as-usual operations; (ii) those arising from Clearing Members' defaults; and (iii) those arising from the default of LCH SA's interoperating CCP.

Section 1.6.2.1, titled Liquidity needs arising from members' defaults, further identifies liquidity needs arising from Clearing Member defaults. These needs include, among others, settlement cash outflows and the value of Eligible Collateral pledged at BdF. With respect to settlement cash outflows, Section 1.6.2.1 provides that cash outflows are generated when LCH SA must step in on behalf of the defaulted member to post cash to non-defaulting member(s) and take in the underlying collateral. The Proposed Rule Change would revise this description, from "underlying collateral" to "underlying securities." Section 1.6.2.1 specifies that LCH SA obtains liquidity based on the value of the Eligible Collateral that it pledges. Given that a Clearing Member's default likely would result in (or result from) stress market conditions, and given that such conditions could lower the value of Eligible Collateral, the Proposed Rule Change would specify that LCH SA would consider stress market conditions in determining the value of Eligible Collateral pledged.

Finally, Section 1.6.2.2, titled Liquidity needs arising from interoperating CCPs' defaults, identifies the liquidity needs arising from the default of LCH SA's interoperating CCP. In Section 1.6.2.2, the Proposed Rule Change would replace references to CC&G with references to Euronext Clearing, consistent with the name change noted above.

*(iii) Section 2 and Section 3*

Section 2, titled Limitations and Compensating Controls, and Section 3, titled Justification of Modelling Approach, describe certain limitations to, and justifications for, how LCH SA models its liquidity sources and needs. The Proposed Rule Change would not make any amendments to Sections 2 and 3.

*(iv) Section 4 Changes to the Framework*

Section 4, titled Model Specification, explains how LCH SA models its liquidity sources and needs. Section 4 is organized according to LCH SA's three broad categories of liquidity needs: (i) those arising from LCH SA's business-as-usual operations; (ii) those arising from Clearing Members' defaults; and (iii) those arising from the default of LCH SA's interoperating CCP.

*Operational Liquidity Needs*

Section 4.1, titled Operational Target, describes how LCH SA determines its liquidity needs arising from business-as-usual operations. LCH SA values its operational liquidity needs by determining the amount of its sources of liquidity from its operations and the amount of its requirements for liquidity from its operations. LCH SA then subtracts the total of its requirements from the total of its sources, to determine whether it has sufficient resources to meet its requirements. As described in Section 4.1.3, titled Model Outputs, LCH SA's CaLRM team generates reports daily to check that operational liquidity sources are sufficient to cover operational liquidity requirements.

The Proposed Rule Change would first amend Section 4.1.2, titled Model Inputs and Variable Selection, to clarify that the repayment of excess cash as well as excess ECB eligible securities deposited to cover margin requirements are considered in the liquidity requirements of

the Operational Target. Operational liquidity requirements currently include, among other items, repayment of excess cash collateral, which is cash that Clearing Members provided to meet their margin and default fund requirements, but that is no longer needed to meet such requirements. This could occur, for example, when a Clearing Member's margin and default fund requirements decrease due to a change in the Clearing Member's positions or risk associated with those positions, and Clearing Members request the return of such excess cash collateral. Like excess cash, Clearing Members may request the return of Eligible Collateral that is no longer needed to meet margin and default fund requirements. Because LCH SA considers Eligible Collateral as a potential source of liquidity, the return of Eligible Collateral represents a potential liquidity requirement for LCH SA. Accordingly, the Proposed Rule Change would note that the return of excess Eligible Collateral represents a potential liquidity requirement.

The Proposed Rule Change also would update a related footnote, which explains that LCH SA excludes certain securities from its liquidity assets, and therefore, LCH SA does not consider these securities as potential excess Eligible Collateral. These include securities denominated in Danish Krone, Norwegian Krone, Swedish Krona, Japanese Yen, Swiss Franc, Canadian Dollar, and Australian Dollar. These securities are not Eligible Collateral because LCH SA is not able to pledge them for a liquidity line. Here the Proposed Rule Change would specify that Portuguese and Finnish government bonds posted via the triparty solution are excluded from the liquid assets because LCH SA cannot pledge these securities at BdF due to operational constraints.

The Proposed Rule Change would next amend Section, 4.1.4, titled Mathematical Formula, Derivation and Algorithm, and Numerical Approximation. This section explains the mathematical formula LCH SA uses to confirm that its sources of operational liquidity are

sufficient to meet its needs. As noted, LCH SA determines the total of its sources and the total of its operational liquidity requirements and then subtracts the total of its requirements from the total of its sources. LCH SA refers to the resulting figure as its “Operational Target.” The Proposed Rule Change would not alter this formula, but it would add language to note that, after subtracting operational liquidity requirements from liquidity resources, the remaining amount must always be greater than zero.

The Proposed Rule Change would next amend Section 4.1.5, titled Model Assumptions, 4.1.5, which details how LCH SA determines the amounts of its operational liquidity resources and needs, and the period for which LCH SA seeks to maintain sufficient liquidity resources. Currently, LCH SA seeks to maintain sufficient liquidity sources for five days in stressed situations. The Proposed Rule Change would revise this time horizon to provide that liquidity resources must be sufficient to meet LCH SA’s liquidity requirements for seven days in stressed situations. Additionally, details related to the management of the former horizon have been removed to state that the horizon is seven days and results will be displayed without any aggregation. LCH SA is making this change to ensure that the time horizon is the same for all business lines. Specifically, this change would make the time horizon for LCH SA’s business lines consistent with the time horizon for its RepoClear business line, which uses a seven-day period for considering the sufficiency of its liquidity sources.

Section 4 contains descriptions of the various components of LCH SA’s operational liquidity requirements, which the Framework calls “liquidity requirements drivers.” One of these drivers is the potential requirement to repay excess collateral. As noted, excess cash collateral is a potential liquidity need because Clearing Members may request the return of such excess cash collateral. The Proposed Rule Change would add a description of the return of

excess Eligible Collateral as a related liquidity need.<sup>12</sup> The Proposed Rule Change also would update a reference to the period for which LCH SA seeks to maintain sufficient liquidity sources. As with the change described above, the Proposed Rule Change would extend this period from five to seven days. Specifically, the assumptions that the two largest individual Clearing Members will withdraw their excess on day one (T) and that the third and fourth largest Clearing Members will withdraw their excess on day two (T+1) will be revised to clarify that (a) the two Clearing Member Groups that have the largest amount of excess collateral will withdraw their excess on T, and (b) the third and fourth Clearing Member Groups that have the next largest amount of excess collateral will withdraw their excess on T+1. In each case, LCH SA would assume the remaining Clearing Members will withdraw their excess on the third day (T+2).

Another liquidity driver is the operational liquidity need created when Clearing Members switch cash collateral with non-cash collateral, or switch Eligible Collateral with other non-cash collateral. LCH SA currently considers the impact of such switches over five days. Under the Proposed Rule Change, LCH SA would consider the switches over seven days rather than five, consistent with the changes described above. To facilitate this change, the Proposed Rule Change would add two additional definitions for the amounts of such switches, corresponding to T+5 and T+6.

This section also currently explains that with respect to switches from cash to Eligible Collateral, LCH SA assumes that it can pledge the Eligible Collateral within the same day. The Proposed Rule Change would clarify that, to confirm this assumption, in quarter 3 of 2022, the CaLM demonstrated the ability to transfer Eligible Collateral to BdF within 30 minutes. The

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<sup>12</sup> Similar to the change described above, the Proposed Rule Change also would specify that Portuguese and Finnish government bonds posted via the triparty solution are excluded from the liquid assets because LCH SA cannot pledge these securities at BdF due to operational constraints.

Framework currently lists the countries for whose securities CaLM demonstrated this ability, in other words, the countries whose sovereign securities are Eligible Collateral. The Proposed Rule Change would remove this list from the Framework because it is subject to change and depends on the collateral that LCH SA itself accepts from Clearing Members. This section also notes that, with respect to the amount of equity lodged, LCH SA takes the maximum amount of switch observed (currently 100 million Euro) and that this assumption is very conservative because the amount of equities lodged over the past 3 years did not exceed 400,000 Euro. The Proposed Rule Change would keep this sentence but delete the reference to the actual amounts (100 million and 400,000 Euro) because, as LCH SA takes the maximum amount of switched observed, both figures are subject to change.

Another liquidity driver is the need created when LCH SA must provide liquidity to facilitate settlement, including fails resulting from delays in posting securities by Clearing Members. Currently, LCH SA determines the amount of this liquidity need based on the historical amount of EOD securities carried overnight, using a two-year lookback period. LCH SA is also making changes that will clarify the specific amount that is calibrated will be determined using the maximum EOD securities carried overnight over the whole time series available, rather than just a two-year lookback period. The Proposed Rule Change would delete the reference to the two-year lookback period and instead note that the estimate is based on the entire time series that is available to LCH SA.

Another liquidity driver is the need created when Clearing Members' stressed margin requirements decrease. If a Clearing Member's margin requirement goes down, then the Clearing Member may request the return of collateral that it provided to cover that requirement, and therefore a reduction in margin could generate a liquidity need for LCH SA. The Proposed

Rule Change would modify the targeted estimated margin reduction of non-defaulting Clearing Members to be consistent with the changes described above. Specifically, the estimated margin reduction will be calculated over seven consecutive days rather than the current three days. To reflect this change, a detailed table and related clarifying footnotes that describe the margin reduction rate per day of the horizon period would be added to the Framework.

The liquidity need generated by LCH SA paying variation margin to its interoperable CCP is also a driver of operational liquidity. As with the changes discussed above, the Proposed Rule Change would replace references to CC&G in this section with references to Euronext Clearing. The Proposed Rule Change also would clarify that LCH SA estimates the variation margin payment based on the Initial Margin posted at LCH SA to cover a 5-day holding period to be spread out over a 5-day period according to a simulated market stress based on historical yield shifts.

Finally, the Proposed Rule Change would make a minor amendment to Section 4.1.5.i, titled Model assumptions, Planned Default Fund (DF) reductions, which discusses how a decrease in the default fund would affect LCH SA's operational liquidity needs. The Proposed Rule Change would clarify that default fund is abbreviated as "DF" in the discussion accompanying Section 4.1.5.i.

#### *Default Liquidity Needs*

Section 4.2 of the Framework, titled LCR, describes how LCH SA determines its liquidity needs arising from the default of a Clearing Member. As described, LCH SA must ensure that it has enough liquidity to satisfy a "Cover 2" requirement, meaning default of the two largest Clearing Member Groups at the same time.

This section details the sources of liquidity and needs for liquidity that would arise in the event of a Clearing Member's default. The Framework refers to these liquidity sources as "Total Available Assets" and liquidity needs as "Total Default Liabilities." To determine how well it is covering its liquidity needs arising from the potential default of a Clearing Member, LCH SA divides its Total Available Assets by its Total Default Liabilities. LCH SA refers to the resulting figure as its "Liquidity Coverage Ratio" or "LCR." LCH SA calculates, monitors, and reviews the LCR daily.

The Proposed Rule Change would revise this section to provide that the purpose of the LCR Cover 2 scenario is to allow LCH SA to ensure that it has enough liquidity in the case of default of the two largest Clearing Member Groups during the seven days following the default, rather than five days, as is currently provided. This change would be consistent with the other changes noted above, extending the time horizon for maintaining liquidity resources from five to seven days.

#### *Model Inputs and Variable Selection*

With respect to the components that make up the LCR, Section 4.2.2, titled Model Inputs and Variable Selection, identifies four categories of Total Available Assets: (i) margin collateral; (ii) cash in the default fund; (iii) Eligible Collateral that LCH SA has pledged; and (iv) liquidity raised from investment activities. With respect to Total Default Liabilities, Section 4.2.2 identifies four categories: (i) the operational liquidity needs discussed above, which will continue during the default of a Clearing Member; (ii) contractual settlements related to LCH SA's RepoClear, EGCPlus, and EquityClear business lines; (iii) the cost of financing those contractual settlements; and (iv) variation margin paid to non-defaulting Clearing Members.



The Proposed Rule Change would add to Section 4.2.2 language regarding the treatment of assets belonging to clients of FCM/BD Clearing Members. As reflected currently in the Framework, LCH SA segregates margin provided by FCM/BD Clearing Members on behalf of their clients. This means that LCH SA can only use a particular Clearing Member's client's margin to cover a shortfall arising from that particular client's default, and not to cover a shortfall arising from a Clearing Member's default or another client's default. The Proposed Rule Change would add language to further clarify LCH SA's treatment of margin provided by FCM/BD Clearing Members on behalf of their clients. This new language would specify that, in the context of default and monitoring of the LCR, LCH SA treats a specific FCM/BD Clearing Member's client's collateral as an available liquidity resource only if the specific client defaults and generates a liquidity need. Otherwise, LCH SA does not treat a specific FCM/BD client's resources as available liquidity assets for any other FCM/BD client, the client's FCM/BD Clearing Member, or any other Clearing Member.

The Proposed Rule Change also would make an amendment regarding LCH SA's Total Available Assets. As noted above, the Framework identifies four categories of Total Available Assets. The Proposed Rule Change would amend the description of the third category, Eligible Collateral pledged at BdF. Currently, Section 4.2.2 describes this as the amount of liquidity that can be provided by BdF when pledging securities and including the haircut effect on the resulting figures. The Proposed Rule Change would revise this description to explain that LCH SA would be pledging the securities at stressed market prices.<sup>13</sup> As noted above, LCH SA may

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<sup>13</sup> The proposed rule change would make the same change to Section 4.2.4, which describes the mathematical formula that LCH SA uses to calculate its total available assets. The proposed rule change also would make a similar change to Appendix 4, which presents a synthesis of LCH SA's liquidity reports. Here the proposed rule change would note that LCH SA would consider stressed market prices and the haircut when pledging securities.

pledge Eligible Collateral to obtain a liquidity line. LCH SA therefore treats this Eligible Collateral as a source of liquidity, the amount of which is based on the value of the collateral at the time of the pledge, minus an applicable haircut. The Proposed Rule Change would therefore amend the Framework to ensure that LCH SA considers the potential stress market conditions (which could decrease the value of the collateral), as well as the applicable haircut, when valuing Eligible Collateral as part of its liquidity resources.

The Proposed Rule Change would make an amendment regarding LCH SA's Total Default Liabilities. As noted above, the Framework identifies four categories of Total Default Liabilities. The Proposed Rule Change would amend the description of the fourth category, the cost of paying variation margin to non-defaulting Clearing Members. The Framework currently describes this liability as the stressed variation margin impact for cash, derivatives, and CDS markets, on top of which is added the market stress risk impact on the contractual settlements for RepoClear. The Proposed Rule Change would describe this instead as the stressed variation margin impact for cash, derivatives, RepoClear, EGC, and CDS markets and would delete the phrase "on top of which is added the market stress risk impact on the contractual settlements for RepoClear." Thus, under the Proposed Rule Change, LCH SA would consider as a liability the general stressed variation margin impact for RepoClear but not include the specific market stress risk impact on the contractual settlements for RepoClear. LCH SA is excluding this component because it will instead treat the market stress risk impact as a decrease in the value of liquidity obtained from pledging Eligible Collateral at BdF. As noted above, under the Proposed Rule Change, LCH SA would use stressed market prices to determine the amount of liquidity that it could obtain from pledging Eligible Collateral at BdF

### *Mathematical Formula Derivation and Algorithm and Numerical Approximation*

The Proposed Rule Change next would amend Section 4.2.4, titled Mathematical Formula Derivation and Algorithm and Numerical Approximation, which describes the mathematical formula that LCH SA uses to calculate its LCR. The Proposed Rule Change would make conforming revisions to the description of the mathematical formula in Section 4.2.4 to carry through the changes from elsewhere in the Framework described herein. For example, the description of the mathematical formula would be revised to clarify that securities pledged at the BdF and included among Total Available Assets will be valued at stressed market prices and will include the ECB haircut effect on the resulting figures, to incorporate the revisions discussed above in Section 4.2.2. Similarly, the Proposed Rule Change would revise the description of the mathematical formula in Section 4.2.4 to incorporate the clarification of LCH SA's treatment of margins provided by FCM/BD Clearing Members on behalf of their clients discussed above. Specifically, the description of the mathematical formula would be revised to clarify that, in the event of default by a specific FCM/BD Clearing Member's client (and for the purpose of LCR monitoring), LCH SA would treat that FCM/BD Clearing Member's client's collateral as available liquidity resources only if that specific FCM/BD client defaults and generates a liquidity need. Consistent with the changes discussed above, the description would also be revised to clarify that LCH SA would not consider these resources as available liquidity assets for any other FCM/BD clients, the FCM/BD Clearing Member, or any other Clearing Member.

### *Model Assumptions*

Section 4.2.5, titled Model Assumptions, describes the various risks and assumptions that LCH SA considers when calculating the LCR. Section 4.2.5 describes these assumptions per LCH SA business line, beginning with LCH SA's RepoClear business. To clarify that LCH SA

must consider certain risks for each business line in determining liquidity requirements, the Proposed Rule Change would change the title of section 4.2.5.1 to “Description of risks per Business Line.”

### *RepoClear*

Section 4.2.5.1.1, titled RepoClear, describes the liquidity needs associated with RepoClear. Section 4.2.5.1.1 currently includes a table summarizing the liquidity requirements according to the direction of the repo transactions. The Proposed Rule Change would delete this summary table and a related paragraph describing the specific treatment of forward starting repo in the calculation of the settlement obligation outflows. The Framework would replace the table with new Sections 4.2.5.1.1.1 and 4.2.4.1.1.2 (discussed below).

Also in Section 4.2.5.1.1, the Proposed Rule Change would amend the period for which LCH SA considers the cash needs associated with purchasing securities on behalf of a defaulting RepoClear clearing member. Currently, LCH SA calculates this liquidity need, which the Framework calls “settlement cash outflows,” over a five-day time horizon. The Proposed Rule Change would extend this to seven days, consistent with the changes discussed above. This change also would align this monitoring period to the RepoClear new maximum holding period to manage a default (five days holding period of margin plus two days of settlement convention).

The Proposed Rule Change also would amend Section 4.2.5.1.1 to clarify that LCH SA will not offset the liquidity needs arising from the defaults of related Clearing Members. As noted above, LCH SA’s Clearing Members may be part of an affiliated Clearing Member Group. As described in Section 4.2.5.1.1, LCH SA calculates these settlement outflows on a gross basis for each Clearing Member. For those Clearing Members that are part of a Clearing Member Group, LCH SA aggregates the gross outflows for each Clearing Member in that group. To

facilitate the prohibition of netting between entities of the same group, the Proposed Rule Change would clarify that settlement cash outflows will be calculated over a period of 7 days and on a gross basis, aggregated by ISIN, settlement date, and Clearing Member level. LCH SA would then aggregate the final settlement outflows at the Clearing Member Group level without allowing any netting across members of the same Clearing Member Group.

The Proposed Rule Change would add a new Section 4.2.5.1.1.1, titled Liabilities Contractual Obligations on Physical Delivery. This section would describe how LCH SA would estimate the liquidity needs associated with the physical settlement of transactions on behalf of a defaulting Clearing Member. In the case of default, LCH SA will assume and honor the obligations of the defaulted Members. In the event of securities with physical settlement, LCH SA might need to source securities to complete a defaulting Clearing Member's transaction, which could represent a substantial liquidity need for LCH SA. This section would describe the way LCH SA would navigate this scenario, and would describe how LCH SA's pledge of Eligible Collateral to obtain liquidity would affect its ability to source securities to settle transactions.

The Proposed Rule Change also would add a new Section 4.2.5.1.1.2, titled Assets: Settlement Securities Pledged at Central Bank. This new section would describe how LCH SA would estimate the value of liquidity it could raise through pledging settlement securities withdrawn from the settlement system on behalf of a defaulting Clearing Member. This new section would describe in detail how LCH SA would determine the value of the liquidity it could raise, including the relevant mathematical formulas and assumptions. As would be described, LCH SA would consider the potential reduction in market price of the securities during unfavorable market conditions. In other words, LCH SA would consider the stressed market

prices of the securities, in line with similar changes described above. LCH SA would also consider the haircut that BdF would apply when lending cash to LCH SA in exchange for the securities. Finally, to remain consistent with the calculation of settlement obligations, as described in this section, after calculating the Liquidity retrieved from the BdF for all dates in the LCR period at Member level, the amounts are aggregated at the Clearing Member Group level.

The Proposed Rule Change would revise Section 4.2.5.1.1.3 (renumbered from 4.2.5.1.1.1), titled Market Risk. This section describes the liquidity need generated by the requirement that LCH SA pay variation margin to non-defaulting Clearing Members on behalf of the defaulting Clearing Member. The Proposed Rule Change would clarify that, in addition to the liquidity flows driven by settlement obligations, the position of the defaulter may generate a liquidity drain for LCH SA in the form of negative mark-to-market to be paid to non-defaulting members. The Proposed Rule Change also would revise the formula that LCH SA uses to estimate the value of this liquidity need. Under the Proposed Rule Change, LCH SA would consider the worst stress loss of the defaulter position according to the relevant RepoClear stress test scenario and add additional margin to model any concentration or market liquidity issues. The Proposed Rule Change further would add a footnote to explain that Appendix 6.7 to the Framework contains a list of stress scenarios.

### *EGCPlus*

Section 4.2.5.1.2, titled EGCPlus, describes the liquidity needs arising from EGCPlus. These liquidity needs could arise from the securities purchased on behalf of a defaulting Clearing Member. LCH SA aggregates these needs by ISIN of the securities and maturity of the contracts. The Proposed Rule Change would revise this section to clarify that, when calculating the settlement-driven cash outflows, the aggregation is based on data provided by the triparty agent and that a liquidity need is generated only by positions in which the defaulter is a cash borrower in the first leg of the repo and the collateral taker when the repo closes. The Proposed Rule Change would further add a footnote that would explain which positions generate a liquidity upon a default. Specifically, a liquidity need is generated by those positions in which the defaulting Clearing Member is a cash borrower (collateral giver) in the first leg of the repo and, therefore, the collateral taker when the repo closes.

To incorporate a recommendation from LCH SA's Model Validation Team to improve the liquidity needs estimation related to Market Risk in the LCR, the Proposed Rule Change also would clarify that, for EGCPlus, the additional liquidity needs generated by negative mark to market payments to non-defaulting Clearing Members is estimated in line with what is done for RepoClear. As noted above, this means LCH SA would consider the worst stress loss of the defaulter position according to the relevant stress test scenario and add any additional margin to model any concentration or market liquidity issues.

### *EquityClear*

Section 4.2.5.1.3, titled EquityClear, describes the liquidity needs arising from EquityClear. In this section, the Proposed Rule Change would incorporate amendments made elsewhere to the Framework. For example, the Proposed Rule Change would update Section

4.2.5.1.3 to clarify that the settlement cash outflows will be calculated on a gross basis at the Clearing Member level and then aggregated at the Clearing Member Group level without allowing any netting across the Clearing Members of the same Clearing Member Group. Doing so would help to ensure that there is no netting across Clearing Members in the same Group, the same as the amendments discussed above. Further, when determining the liquidity need generated by the requirement that LCH SA pay variation margin to non-defaulting Clearing Members on behalf of the defaulting Clearing Member, under the Proposed Rule Change LCH SA would consider the worst stress loss of the defaulter position according to the relevant stress test scenario.

To address a recommendation from LCH SA's Model Validation Team, the Proposed Rule Change would add the liquidity needs related to the expiry of physically delivered single stock futures in the LCR. Where the defaulting Clearing Member holds a long futures position which expires during the LCR horizon, LCH SA will have to pay the future price to the non-defaulting counterparty in order to settle the physical underlying. Therefore, LCH SA would consider this as a potential additional liquidity need.

#### *Listed derivatives*

Section 4.2.5.1.3.2, titled Listed Derivatives, describes the liquidity needs arising from LCH SA's listed derivatives business line. Here the Proposed Rule Change would clarify that futures on equity index contracts are included among the listed derivatives instruments considered in the calculation of the LCR and that derivatives expirations occur on a monthly basis rather than the previously stated quarterly basis. Moreover, when determining the liquidity need generated by the requirement that LCH SA pay variation margin to non-defaulting Clearing Members on behalf of the defaulting Clearing Member, under the Proposed Rule Change LCH



SA would consider the worst stress loss of the defaulter position according to the relevant stress test scenario, consistent with changes elsewhere in the Framework.

*CDSClear*

Section 4.2.5.1.4, titled Credit Default Swaps, describes the liquidity needs arising from LCH SA's CDSClear business line. Here the Proposed Rule Change would clarify that the calculation of the liquidity needs generated by negative mark-to-market payments to be made to non-defaulting members is charged in line with what is done for the other LCH SA services. Specifically, LCH SA will calculate this need as the worst stress loss of the defaulter position according to the relevant stress test scenario. The Proposed Rule Change further would add a footnote to explain that Appendix 6.7 to the Framework contains a list of stress scenarios.

*Additional Components of LCR, section 4.2.5.2*

Section 4.2.5.2 of the Framework, titled Other Liquidity Requirements, describes certain other components that LCH SA considers as part of the LCR.

For example, LCH SA includes the liquidity requirement arising from the operational target as a liquidity need in calculating the LCR. LCH SA does so with two modifications. First, LCH SA removes the cost of paying variation margin to its interoperable CCP. LCH SA makes this modification because it assumes that where its two largest Clearing Member Groups have defaulted, LCH SA would be collecting variation margin from its interoperable CCP rather than paying out variation margin. Second, LCH SA removes the impact of a margin reduction for defaulting Clearing Members. As discussed above, LCH SA considers the liquidity need created when Clearing Members' margin requirements decrease. If a Clearing Member's margin requirement goes down, then the Clearing Member may request the return of collateral that it provided to cover that requirement, and therefore a reduction in margin generates a liquidity

need for LCH SA. The same is true when a Clearing Member requests the return of excess cash collateral. For the sake of accounting for the operational target in the LCR, LCH SA excludes this component with respect to the two Clearing Member Groups that are assumed to be in default. LCH SA does this because, where a Clearing Member is in default, LCH SA has the right to use the collateral of the defaulting Clearing Member, including any excess collateral. LCH SA is already reducing the impact of these two components of the operational target in the current version of the Framework, and the Proposed Rule Change would make clarifying edits to the description of these components.

LCH SA includes margin collateral in its available assets when calculating the LCR. LCH SA does this because, as discussed, LCH SA can obtain liquidity for margin collateral, by pledging Eligible Collateral and otherwise engaging in investment transactions. In doing so, LCH SA considers potential losses to the market value of non-cash collateral because such losses could decrease the amount of liquidity that LCH SA is able to obtain. The Proposed Rule Change would clarify that LCH SA would consider these potential losses by applying the same set of stress scenarios used by LCH SA in the calibration of the default fund for its RepoClear service, and choosing the one that generates the biggest liquidity exposure in terms of Cover 2.

As part of the LCR, LCH SA also considers potential losses related to investment activities involving a defaulting Clearing Member's non-cash collateral. LCH SA does so because it may use the proceeds of its investment activities as a liquidity resource when a Clearing Member defaults, and losses would decrease the amount of these proceeds. The Proposed Rule Change would clarify that LCH SA would consider these potential losses by applying the same set of stress scenarios used by LCH SA in the calibration of the default fund

for its RepoClear service, and choosing the one that generates the biggest liquidity exposure in terms of Cover 2.

The Proposed Rule Change would add a new Section 4.2.5.2.4, titled Collateral Pledge modelling. This new section would describe, in detail, how pledged collateral is modelled when calculating the LCR. As noted, LCH SA may pledge Eligible Collateral deposited via FTTA to obtain a liquidity line, but not collateral deposited via SPA. If Clearing Members switch from depositing Eligible Collateral via FTTA to SPA, that could reduce the amount of liquidity that LCH SA is able to obtain. To account for this, LCH SA would assume that Clearing Members with an active SPA would pledge collateral near the maximum allowed on each LCH SA business line. LCH SA would therefore subtract this amount of Eligible Collateral from its liquidity resources. LCH SA will calculate the expected additional pledge as the difference between the maximum pledge allowed on the business line scaled by a parameter to capture Clearing Member's expected use of pledge and the actual pledge used by Clearing Members. Currently, LCH SA would assume that each Clearing Member with an active SPA would pledge 100% of the securities that it is allowed to pledge.

For Clearing Members without an active SPA, LCH SA would include all Eligible Collateral deposited via FTTA in its liquidity resources. As noted, certain securities, like those denominated in Danish Krone, Norwegian Krone, Swedish Krona, Japanese Yen, Swiss Franc, Canadian Dollar, and Australian Dollar are not considered Eligible Collateral. LCH SA would therefore exclude these securities from its liquidity resources. The Proposed Rule Change would add a notation to that effect in Section 4.2.5.2.4.

### *Market risk stress scenario selection, section 4.2.5.3*

Section 4.2.5.3, titled Stress scenario selection, describes the scenarios that LCH SA uses to factor the effect on market values that could occur in a stressed environment, including a Cover 2 default. Such a situation could, for example, lead to a decrease in the value of the defaulting Clearing Members' non-cash collateral and/or require that LCH SA pay variation margin on behalf of the defaulting Clearing Members. Thus, such a scenario would impact LCH SA's liquidity, both in terms of the amount of liquidity it is able to obtain from non-cash collateral, and the amount of liquidity it may need to pay out in the form of variation margin.

As described, LCH SA uses separate scenarios for each of its clearing services, taken from the set of scenarios used to calibrate the amount of Default Fund for the different services. The Proposed Rule Change would clarify that the stress test scenarios selected for each LCH SA service would be consistent with a market state resulting from Cover 2 default as assumed by the LCR. Moreover, the Proposed Rule Change would update the list of scenarios to include only those most relevant given the LCR assumptions.

Section 4.2.5.3 also contains a table describing the haircuts that would be applied when LCH SA pledges Eligible Collateral. These haircuts reduce the value of collateral that LCH SA can pledge, and therefore ultimately reduce the amount of liquidity that LCH SA is able to obtain. The Proposed Rule Change would update this table to reflect the current haircuts.

### *Cover 2 Selection, section 4.2.5.4*

Section 4.2.5.4, titled Cover 2 selection, describes how LCH SA calculates the liquidity requirements for each Clearing Member in a stressed environment, which it then uses to determine its Cover 2 requirement by Clearing Member Group (*i.e.*, the two largest liquidity exposures).

The Proposed Rule Change will revise this section to specify that LCH SA will determine its Cover 2 requirement in the following manner: LCH SA will first calculate certain liquidity requirements for each individual Clearing Member and then aggregate these amounts per each Clearing Member Group, to arrive at a total requirement for each Clearing Member Group. The Cover 2 requirement would be the two largest amounts per Clearing Member Group.

As would be described in revised Section 4.2.5.4, LCH SA first would calculate the following requirements for each Clearing Member, before determining the aggregate liquidity requirement per Clearing Member Group:

- Stress Variation Margin – for all the services, these variation margins would be modelled by applying the most punitive scenario among the chosen sets and consistent with the LCR assumptions;
- Settlement liquidity requirements due to RepoClear and Cash equity settlement obligations – LCH SA would value securities pledged according to the scenario that would generate the highest loss;
- Non-cash Collateral stress losses – LCH SA would estimate these losses by stressing the Eligible Collateral with the set of scenarios consistent with the LCR assumptions;
- Investment stress losses over haircut – LCH SA would estimate these losses by applying the stress scenarios to the collateral received from the reverse repo activity with each specific counterparty; and
- ECB Haircut – LCH SA would determine the impact by applying the relevant haircut to all the Eligible Collateral received from a specific clearing member.

LCH SA would use the scenarios relevant to each of its clearing services to determine these requirements and then select the scenario that generates the maximum loss of the sum of all

of the above elements for the two most exposed Clearing Member Groups. As noted, this sum would determine LCH SA's Cover 2 requirement for purposes of determining its LCR.

*LCR for Euronext*

Section 4.3 of the Framework, titled LCR Euronext Clearing, describes how LCH SA calculates the liquidity impact resulting from the potential default of its interoperable CCP. Throughout this section, the Proposed Rule Change would change the name of the interoperable CCP from CC&G to Euronext Clearing, including in the title. The Proposed Rule Change also would update the time horizon for which LCH SA would consider this potential liquidity impact from five to seven days. These changes would be consistent with the changes made in other sections of the Framework, as described above.

*(iii) Section 5 Changes to the Framework*

Section 5 of the Framework, titled Model Performance Testing and Ongoing Monitoring, describes how LCH SA monitors and tests its liquidity sources and requirements. Section 5.1, titled Ongoing Monitoring, describes the metrics that LCH SA calculates each day, notes the formula used to determine each metric, how LCH SA reports that metric, the limit associated with the metric, and what action LCH SA would take if the limit is breached. For example, Section 5.1 describes how LCH SA calculates its LCR, how LCH SA reports the LCR daily, and the amount of LCR that would trigger an alert and further actions. Throughout Section 5.1, the Proposed Rule Change would update references to the length of time for which LCH SA must maintain liquidity resources from five to seven days and change the name of LCH SA's interoperable CCP to Euronext Clearing, consistent with changes elsewhere in the Framework.

Section 5.1 also describes how LCH SA monitors the allocation between cash and non-cash collateral and specifies that cash collateral should represent at least 25% of LCH SA's

available liquid resources after the default of its most significant Clearing Member. The Proposed Rule Change would revise this to state that cash collateral and non-cash collateral that is eligible to be pledged at BdF (meaning Eligible Collateral) should represent at least 25% of LCH SA's available liquid resources after the default of its most significant Clearing Member. LCH SA is making this change in recognition that it can pledge Eligible Collateral for liquidity and further to conform the Framework with LCH SA's Liquidity Policy.

The Proposed Rule Change next would amend Section 5.3, titled Reverse Stress Test, which describes the reverse stress tests that LCH SA performs. LCH SA performs these reverse stress tests using extreme market conditions that go beyond what are considered plausible. As described in the introduction to Section 5.3, LCH SA uses these extreme market conditions to satisfy certain requirements of applicable law. The Proposed Rule Change would add to the discussion of applicable law a summary of Commission Rules 17Ad-22(e)(7)(vi)(B) and (C).<sup>14</sup> Throughout Section 5.3 the Proposed Rule Change also would update references to the length of time for which LCH SA must maintain liquidity resources from five to seven days and change the name of LCH SA's interoperable CCP to Euronext clearing, consistent with changes elsewhere in the Framework.

As described in Section 5.3, LCH SA conducts its reverse stress tests using two approaches. First, LCH SA conducts reverse stress tests using seven separate risk factors, with one single factor stressed at a time. The Framework refers to these tests as "single factor reverse stress tests" or "core reverse stress tests." Second, LCH SA tests the same risk factors together, under two different overall combinations of risk factors, which the Framework refers to as "combined scenarios." One combined scenario aims to stress the structure of LCH SA's

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<sup>14</sup> 17 CFR 240.17Ad-22(e)(7)(vi)(B) and (C).

liquidity resources while the other combined scenario aims to simulate the effect of a macro-economic shock on LCH SA's liquidity resources.

Section 5.3.1, titled Independent stress of various risk factors, describes each of the seven risk factors, and the Proposed Rule Change would make various updates to this description. For example, the first risk factor considers the effect on LCH SA's liquid resources arising from a reduction in margin requirements. The description of this risk factor currently notes that a primary source of liquidity is from investment management by LCH SA's CaLM team. The Proposed Rule Change would revise this to note that a primary source of liquidity is from investment management *performed* by LCH SA's CaLM team. The Proposed Rule Change also would add an explanation that another primary source of liquidity for LCH SA is non-cash collateral that LCH SA can pledge to obtain liquidity.

The second risk factor considers the effect on LCH SA's liquidity resources arising from Clearing Members replacing Eligible Collateral that LCH SA can pledge for liquidity at BdF with collateral that LCH SA cannot pledge. The current Framework describes the collateral that LCH SA cannot pledge as, among others, U.K. or U.S. bonds, equities, and other non-Euro non-cash collateral. The Proposed Rule Change would add to this list pledge collateral, meaning collateral deposited in a SPA. As discussed above, LCH SA cannot use collateral deposited via SPA to obtain liquidity at BdF, even if that collateral is Eligible Collateral.

The third risk factor considers the impact from a downgrade in the rating of countries in the Eurozone. Such a downgrade could increase the haircut applied to Eligible Collateral when LCH SA pledges it at BdF to obtain liquidity. Currently, the Framework describes this risk factor as a reverse stress test that aims at modelling the downgrade of the relevant countries and estimating the theoretical ECB haircuts generating a liquidity shortfall. The Proposed Rule



Change would revise this description to modelling the downgrade of the relevant countries and estimating the theoretical ECB haircuts *needed to generate* a liquidity shortfall.

The Proposed Rule Change would not make any amendments to the description of the fourth and fifth risk factors, which consider the effects of the increase of the maturity of the securities from the settlement of repo transactions and the effects of the market-to-market drop of tier 1 assets.

For the sixth risk factor, the Proposed Rule Change would revise the phrase “the direction of the position” to “the direction of the positions.”

The seventh risk factor considers how many defaults LCH SA can sustain before experiencing a shortfall in liquidity. Here the Framework currently includes the following question: given that liquidity requirements are sized to a Cover 2 standard, is it plausible that there are more than 2 members who could lead to a liquidity deficit? The Proposed Rule Change would revise the phrasing of this question to “2 member Groups defaults” instead of “2 members.” Further, the current Framework specifies that, to answer this question, LCH SA rank orders Clearing Member Groups based on their internal credit scores (“ICS”), starting from the ones with the worst ICS. The Proposed Rule Change would revise the wording of this sentence to state instead that to answer this question, LCH SA ranks Clearing Member Groups on their ICS and starts with the one with the worst ICS. Finally, the current Framework notes that, starting from the top of the list, LCH SA assesses how many defaults have to take place to generate a liquidity shortage. The Proposed Rule Change would revise this slightly to state that, starting from the top of the list *and considering all member Group with ICS 6 or bigger*, LCH SA assesses how many defaults have to take place to generate a liquidity shortage.

Section 5.3.2, titled Combined reverse stress test scenarios, describes the combined reverse stress test scenarios. Section 5.3.2.1 currently notes that LCH SA performs these additional combined reverse stress tests quarterly. The Proposed Rule Change would revise this language to *at least* quarterly.

Section 5.3.2.2, titled Behavioural scenario, describes the combined scenario that stresses the structure of LCH SA's liquidity resources, including the individual risk factors that LCH SA combines to create this scenario. This section also describes the overall question that LCH SA seeks to answer with this reverse stress test, which is whether there is any combination of changes in the liquidity resources that could lead to a liquidity shortfall without any stress in the market. In addition to describing the risk factors tested and the overall aim of the scenario, Section 5.3.2.2 also provides an example of how LCH SA reports the results of the test. The Proposed Rule Change would update this example to reflect a new layout for the report.

Section 5.3.2.3, titled Macro-economic scenario, describes the combined scenario that simulates the effect of a macro-economic shock on LCH SA's liquidity resources. This section describes how LCH SA combines the individual risk factors to create the overall scenario, as well as the overall question that LCH SA seeks to answer with this reverse stress test, which is how many multiple defaults LCH SA can sustain until it experiences a liquidity shortfall in a shocked macro-economic environment. To simulate the shocked macro-economic environment, the Framework currently uses two macro-economic scenarios, which are described in Section 5.3.2.3. The Proposed Rule Change would remove these two scenarios and replace them with the same scenarios that it uses to determine its LCR.<sup>15</sup> The Proposed Rule Change would update

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<sup>15</sup> As noted above, these scenarios are set out in Appendix 6.7.

this section and references to the scenarios accordingly. Throughout this section, the Proposed Rule Change also would change references to Clearing Members to Clearing Member Groups to clarify that this scenario considers Clearing Member Groups, rather than individual members, consistent with the overall Cover 2 requirement. Finally, the Proposed Rule Change would update the examples of the reports that LCH SA uses to present the results of this scenario. The Proposed Rule Change would update the layout of these examples to match the current versions used by LCH SA.

Section 5.3.3.3, titled Frequency and Reporting, would be a new section to describe how often LCH SA conducts testing, reviews the results, and reviews the underlying scenarios. As would be specified in Section 5.3.3.3, LCH SA would perform the core reverse stress tests monthly and the combined reverse stress test scenarios quarterly. Through its monthly core reverse stress tests, LCH SA would conduct a comprehensive analysis of the existing stress testing scenarios, models, and underlying parameters and assumptions used in evaluating liquidity needs and resources. In certain circumstances, LCH SA also would perform an ad hoc analysis of the existing stress testing scenarios, models, and underlying parameters and assumptions used in evaluating liquidity needs and resources. LCH SA would do so when the products it clears or markets it serves display high volatility or become less liquid; when the size or concentration of its Clearing Members' positions held increase significantly; or in any other appropriate circumstances that would lead to a liquidity coverage ratio falling below LCH SA's alert threshold. In this last circumstance, the ad hoc analysis would be reported to the LCH SA CRO, the Head of the LCH SA Collateral and Liquidity Management division, and to the LCH SA Risk Committee. Finally, Section 5.3.3 would require that the results and findings of the

reverse stress tests exercise be reported monthly to LCH SA CRO and quarterly to LCH SA Risk Committee.

*(iii) Section 6 Changes to the Framework*

Section 6 of the Framework, titled Appendix, contains appendices to the main document. There are currently six appendices to the Framework. The Proposed Rule Change would revise Appendices two through five and add new Appendices seven and eight.

Appendix two, titled Members behaviour analysis, describes how LCH SA models the behavior of Clearing Members during a period of market stress. This appendix considers behaviors that could affect LCH SA's liquidity resources, such as replacing cash collateral with non-cash collateral, withdrawing excess collateral, and reducing positions (which in turn could reduce margin and guaranty fund requirements and therefore the financial resources available to LCH SA). Throughout this section the Proposed Rule Change would change relevant time horizons from five to seven days, consistent with the changes to main body of the Framework discussed above.

The Proposed Rule Change also would update the description of non-cash collateral that LCH SA cannot pledge at the BdF to obtain a liquidity line of credit. Appendix two currently describes this collateral as mainly Gilts and Central Bank Guarantees. The Proposed Rule Change would expand this list to include U.S. Treasuries, as well as securities denominated in Danish Krone, Norwegian Krone, Swedish Krona, Japanese Yen, Swiss Franc, Canadian Dollar, and Australian Dollar, because LCH SA cannot pledge such securities at BdF. Appendix two also currently notes that, although LCH SA cannot pledge this collateral at BdF, the use of this collateral by Clearing Members would not be material to LCH SA's liquidity resources. This is because, as currently described in Appendix two, this collateral represents a small percentage of total collateral, and LCH SA expects to limit use of this collateral. The Proposed Rule Change

would revise this description to note that LCH SA has imposed concentration limits on collateral that it cannot pledge at BdF, rather than LCH SA expecting to limit the use of such collateral.

Appendix three, titled Reminder of SA's sources of liquidity and related risk drivers, is a table that describes, in summary form, LCH SA's sources of liquidity. For each source of liquidity, the table also describes risks that could affect the amount of liquidity that LCH SA can obtain for the source, as well as how LCH SA mitigates those risks. Here the Proposed Rule Change would change the name of LCH SA's interoperable CCP to Euronext. The Proposed Rule Change also would add an additional risk to one of LCH SA's liquidity sources. Currently the table lists non-cash collateral from Clearing Members as a source of liquidity because LCH SA may obtain liquidity with such collateral through investment transactions or by pledging Eligible Collateral at BdF. The Proposed Rule Change would note that a Clearing Member's ability to pledge non-cash collateral using a SPA is a risk to this liquidity source. This is a risk because LCH SA cannot use collateral deposited via a SPA to obtain liquidity, even if that collateral is Eligible Collateral.

Appendix four, titled Liquidity risk drivers synthesis by reports, is a table that describes, in summary form, LCH SA's liquidity needs. This table presents the liquidity needs according to three broad categories: (i) operational target (needs arising from LCH SA's business-as-usual operations); (ii) LCR (needs arising from Clearing Members' defaults); and (iii) Euronext LCR (needs arising from interoperating CCP's defaults). Here the Proposed Rule Change would change the name of LCH SA's interoperable CCP to Euronext and change the time horizon from five to seven days.

Appendix five, titled Liquidity risk monitoring reports, shows examples of the reports that LCH SA uses to monitor its liquidity. The Proposed Rule Change would update the layout of these examples to match the current versions used by LCH SA.

As noted, the Proposed Rule Change would add a new Appendix seven, which would be titled Stress scenarios list. It would contain a list of stress scenarios that LCH SA uses for each of its clearing services.

The Proposed Rule Change also would add a new Appendix eight, which would be titled Pseudo-code of settlement and market risk calculation. Appendix eight would explain the algorithm that LCH SA uses to calculate the settlement obligation driven liquidity requirements in the monitoring of the LCR and the resulting BdF liquidity raised by pledging the securities withdrawn from the settlement systems. This appendix would present the algorithm in pseudo-code format, meaning the appendix would show how the algorithm would look when programmed into a computer for calculation. This same algorithm would also be described in Section 4.2.5.1.1.1 and Section 4.2.5.1.1.2 of the Framework.

### **III. Discussion and Commission Findings**

Section 19(b)(2)(C) of the Act requires the Commission to approve a proposed rule change of a self-regulatory organization if it finds that the proposed rule change is consistent with the requirements of the Act and the rules and regulations thereunder applicable to the organization.<sup>16</sup> For the reasons given below, the Commission finds that the Proposed Rule

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<sup>16</sup> 15 U.S.C. 78s(b)(2)(C).

Change is consistent with Section 17A(b)(3)(F) of the Act,<sup>17</sup> Rule 17Ad-22(e)(7) thereunder,<sup>18</sup> and Rules 17Ad-22(e)(7)(vi)(B) and (C)<sup>19</sup> thereunder.

A. *Consistency with Section 17A(b)(3)(F) of the Act*

Under Section 17A(b)(3)(F) of the Act, LCH SA's rules, among other things, must be "designed to promote the prompt and accurate clearance and settlement of . . . derivative agreements, contracts, and transactions . . ." <sup>20</sup> Based on its review of the record, and for the reasons discussed below, the Commission believes that the Proposed Rule Change is consistent with Section 17A(b)(3)(F) of the Act because it improves LCH SA's management of its liquidity risk.<sup>21</sup>

LCH SA relies on the Framework to support its management of liquidity risk arising from a potential Clearing Member default, default of Euronext Clearing, and operational liquidity requirements. Managing such risks, such as through the maintenance of liquid resources sufficient to meet payment obligations, reduces the likelihood that LCH SA would fail to make payments when due, thereby avoiding disruptions to the settlement of transactions for which such payments are due. Thus, the Framework, as a rule of LCH SA, supports the prompt and accurate clearance and settlement of the derivatives transactions LCH SA clears, including security-based swaps.

Certain of the changes would update and clarify existing aspects of the Framework. These include the updates to overall scope, purpose, and use of the Framework in Section 1.

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<sup>17</sup> 15 U.S.C. 78q-1(b)(3)(F).

<sup>18</sup> 17 CFR 240.17Ad-22(e)(7)

<sup>19</sup> 17 CFR 240.17Ad-22(e)(7)(vi)(B) and (C).

<sup>20</sup> 15 U.S.C. 78q-1(b)(3)(F).

<sup>21</sup> 15 U.S.C. 78q-1(b)(3)(F).

Throughout the Framework, the Proposed Rule Change also would update the name of LCH SA's interoperable CCP to Euronext Clearing. These updates and clarifications contribute to the effectiveness of the Framework as a tool supporting LCH SA's management of liquidity risk arising from a potential member default, default of Euronext Clearing, and operational liquidity requirements, which facilitates prompt and accurate clearance and settlement.

In addition to updating and clarifying the Framework, the Proposed Rule Change also would revise how LCH SA determines its liquidity sources and needs under the Framework. With respect to sources of liquidity, the Proposed Rule Change would require LCH SA to consider Clearing Members' ability to switch from depositing collateral using FTTAs to SPAs. Such switches could reduce the amount of liquidity that LCH SA is able to obtain when pledging Eligible Collateral at BdF because LCH SA cannot pledge any collateral deposited via SPAs. Similarly, the Proposed Rule Change would require LCH SA to consider stressed market prices when determining the amount of liquidity that it could obtain by pledging Eligible Collateral at BdF. The amount of liquidity that LCH SA could obtain is based on the value of the collateral at the time of the pledge, minus an applicable haircut, and potential stress market conditions could decrease the value of the collateral or increase the haircut.

With respect to LCH SA's liquidity needs, the Proposed Rule Change would prevent netting between Clearing Members of the same group. Eliminating netting potentially could increase the liquidity needs generated among a group of related Clearing Members. The Proposed Rule Change also would extend to seven days (from five days) the time horizon for which LCH SA must maintain liquidity resources sufficient to meet its liquidity requirements. Doing so could potentially increase the amount of LCH SA's liquidity requirements. Finally, the Proposed Rule Change would require that LCH SA consider the liquidity requirements generated



by the expiration of physically settled stock futures, adding another potential liquidity need to LCH SA's existing liquidity needs.

These changes, taken together, would improve LCH SA's ability to determine the amount of its liquidity needs and the amount of its resources to satisfy those liquidity needs. More accurately determining the amount of LCH SA's liquidity needs and resources would thereby improve LCH SA's ability to control and quantify its liquidity risk. Control over and accurate measurement of liquidity risk is necessary to ensure that LCH SA's liquidity needs do not exceed its resources so that LCH SA can meet its payment obligations on time without disrupting settlement. Thus, the proposed changes to the Framework promote prompt and accurate clearance and settlement.

The Commission finds, therefore, that the Proposed Rule Change is consistent with the requirements of Section 17A(b)(3)(F) of the Act.<sup>22</sup>

*B. Consistency with Rule 17Ad-22(e)(7) under the Act*

Rule 17Ad-22(e)(7) requires LCH SA to establish, implement, maintain, and enforce written policies and procedures reasonably designed to effectively measure, monitor, and manage the liquidity risk that arises in or is borne by LCH SA, including measuring, monitoring, and managing its settlement and funding flows on an ongoing and timely basis, and its use of intraday liquidity.<sup>23</sup> As noted above, LCH SA uses the Framework to measure, monitor, and manage its liquidity risk. The Proposed Rule Change would improve the Framework by more accurately determining the amount of LCH SA's liquidity needs and resources. In doing so, the Proposed Rule Change would help ensure that the Framework is designed to effectively measure,

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<sup>22</sup> 15 U.S.C. 78q-1(b)(3)(F).

<sup>23</sup> 17 CFR 240.17Ad-22(e)(7).

monitor, and manage the liquidity risk that arises in or is borne by LCH SA. The Commission therefore finds that the Proposed Rule Change is consistent with rule 17Ad-22(e)(7).<sup>24</sup>

C. *Consistency with Rules 17Ad-22(e)(7)(vi)(B) and (C) under the Act*

Rules 17Ad-22(e)(7)(vi)(B) and (C)<sup>25</sup> require LCH SA to establish, implement, maintain, and enforce written policies and procedures reasonably designed to determine the amount and regularly testing the sufficiency of the liquid resources held for purposes of meeting the minimum liquid resource requirement under Rule 17Ad-22(e)(7)(i) by, at a minimum: (i) conducting a comprehensive analysis on at least a monthly basis of the existing stress testing scenarios, models, and underlying parameters and assumptions used in evaluating liquidity needs and resources, and considering modifications to ensure they are appropriate for determining its identified liquidity needs and resources in light of current and evolving market conditions and (ii) conducting a comprehensive analysis of the scenarios, models, and underlying parameters and assumptions used in evaluating its liquidity needs and resources more frequently than monthly when the products cleared or markets served display high volatility or become less liquid, when the size or concentration of positions held by its participants increases significantly, or in other appropriate circumstances described in such policies and procedures. The Proposed Rule Change would add to the Framework a new Section 5.3.3.3, which would require that LCH SA perform its core reverse stress tests monthly, through which LCH SA would conduct a comprehensive analysis of the existing stress testing scenarios, models, and underlying parameters and assumptions used in evaluating liquidity needs and resources. Section 5.3.3 also would require that an ad-hoc analysis of the existing stress testing scenarios, models, and

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<sup>24</sup> 17 CFR 240.17Ad-22(e)(7).

<sup>25</sup> 17 CFR 240.17Ad-22(e)(7)(vi)(B) and (C).

underlying parameters and assumptions used in evaluating liquidity needs and resources in certain circumstances. LCH SA would do so when the products it clears or markets it serves display high volatility or become less liquid; when the size or concentration of its clearing members' positions held increase significantly; or in any other appropriate circumstances that would lead to a liquidity coverage ratio falling below LCH SA's alert threshold. These changes would be consistent with the requirements of Rules 17Ad-22(e)(7)(vi)(B) and (C).<sup>26</sup> The Commission therefore finds that the Proposed Rule Change is consistent with Rules 17Ad-22(e)(7)(vi)(B) and (C).<sup>27</sup>

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<sup>26</sup> 17 CFR 240.17Ad-22(e)(7)(vi)(B) and (C).

<sup>27</sup> 17 CFR 240.17Ad-22(e)(7)(vi)(B) and (C).

#### **IV. Conclusion**

On the basis of the foregoing, the Commission finds that the Proposed Rule Change is consistent with the requirements of the Act, and in particular, Section 17A(b)(3)(F) of the Act,<sup>28</sup> Rule 17Ad-22(e)(7) thereunder,<sup>29</sup> and Rules 17Ad-22(e)(7)(vi)(B) and (C)<sup>30</sup> thereunder.

IT IS THEREFORE ORDERED pursuant to Section 19(b)(2) of the Act that the Proposed Rule Change (SR-LCH SA-2023-004) be, and hereby is, approved.<sup>31</sup>

For the Commission by the Division of Trading and Markets, pursuant to delegated authority.<sup>32</sup>

**J. Matthew DeLesDernier,**

*Deputy Secretary.*

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<sup>28</sup> 15 U.S.C. 78q-1(b)(3)(F).

<sup>29</sup> 17 CFR 240.17Ad-22(e)(7)

<sup>30</sup> 17 CFR 240.17Ad-22(e)(7)(vi)(B) and (C).

<sup>31</sup> In approving the Proposed Rule Change, the Commission considered the proposal's impacts on efficiency, competition, and capital formation. 15 U.S.C. 78c(f).

<sup>32</sup> 17 CFR 200.30-3(a)(12).