

SECURITIES AND EXCHANGE COMMISSION  
(Release No. 34-82109; File Nos. SR-LCH SA-2017-006; SR-LCH SA-2017-007)

November 17, 2017

Self-Regulatory Organizations; LCH SA; Order Approving Proposed Rule Changes to Add Rules Related to the Clearing of Options on Index Credit Default Swaps

I. Introduction

On August 1, 2017 and August 18, 2017, 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> proposed rule changes (SR-LCH SA-2017-007 and SR-LCH SA-2017-006, respectively) to amend LCH SA’s (1) CDS Clearing Rule Book (the “Rule Book”); (2) CDS Clearing Supplement (the “Clearing Supplement”); (3) CDS Clearing Procedures (the “CDS Clearing Procedures”); (4) CDS Dispute Resolution Protocol (the “Dispute Resolution Protocol”); (5) Reference Guide: CDS Margin Framework (“CDSClear Margin Framework”); and (6) CDSClear Default Fund Methodology (“Default Fund Methodology” together “LCH SA Rules”)) in order to permit LCH SA to clear options on index credit default swaps (“CDS Options”).<sup>3</sup> The proposed rule changes were published in the Federal Register on August 21, 2017 and August 31, 2017.<sup>4</sup> On October 4, 2017,

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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> All capitalized terms used but not defined in this Order have the same meaning as in the LCH SA Rules.

<sup>4</sup> Securities Exchange Act Release No. 34-81399 (Aug. 15, 2017), 82 FR 39622 (Aug. 21, 2017) (SR-LCH SA-2017-007) (“Notice 007”); and Securities

the Commission extended the time period in which to approve, disapprove, or institute proceedings to determine whether to disapprove the proposed rule changes to November 19, 2017 for proposed rule change SR-LCH SA-2017-007,<sup>5</sup> and to November 29, 2017 for proposed rule change SR-LCH SA-2017-006.<sup>6</sup> The Commission received no comment letters regarding the proposed changes. For the reasons discussed below, the Commission is approving the proposed rule changes.

## II. Description of the Proposed Rule Changes

LCH SA proposed to offer clearing services for certain options on index credit default swaps. A CDS Option is a contract that provides the buyer of the option the right, but not the obligation, to either buy or sell protection on the underlying index CDS, with the seller of the CDS Option standing as the counterparty, at a predefined exercise price on a specified exercise date. LCH SA proposed to clear CDS Options for which the underlying is a European index CDS that is currently cleared by LCH SA through its CDSClear service. Specifically, LCH SA represented that it would offer clearing services only for CDS Options for those contracts whose underlying index CDS is either the on-the-run or on-the-run minus one Markit iTraxx Europe Index or the Markit iTraxx Europe

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Exchange Act Release No. 34-81487 (Aug. 25, 2017), 82 FR 41438 (Aug. 31, 2017) (SR-LCH SA-2017-006) (“Notice 006” and jointly, the “Notices”).

<sup>5</sup> Securities Exchange Act Release No. 34-81818 (October 4, 2017), 82 FR 47277 (Oct. 11, 2017).

<sup>6</sup> Securities Exchange Act Release No. 34-81819 (October 4, 2017) 82 FR 47257 (October 11, 2017).

Crossover Index with 5-year tenors, and which will have expiries of one, two, or three months.<sup>7</sup>

In order to effectuate this initiative, LCH SA has proposed rule changes to its Rule Book, Clearing Supplement, CDS Clearing Procedures, Dispute Resolution Protocol, CDSClear Margin Framework, and Default Fund Methodology.

A. Changes to CDS Clearing Rule Book

As discussed in greater detail in the Notices, LCH SA proposed to amend its Rule Book to adopt several new terms defining, and related to, CDS Options. In addition, LCH SA proposed to modify the substance of certain existing defined terms to account for the clearing of CDS Options, and also proposed certain conforming and clarifying edits to terms and provisions throughout the Rule Book. Furthermore, LCH SA proposed additional edits to clarify the cross-border application of its operations, and to correct inconsistencies, or make clarifications, related to certain defined terms unrelated to the clearing of CDS Options.<sup>8</sup> The most significant changes to the Rule Book concern end-of-day pricing procedures for CDS Options, the default management of CDS positions, including CDS Options, and changes relating to the mechanics of clearing CDS Options. Each of these changes is further described below.

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<sup>7</sup> See generally, Notice 006, 82 FR at 41438. LCH SA represented that extension of the CDS Clearing Service to clear CDS Options that reference indices other than the Markit Itraxx Europe Index would require amendments to the CDS Clearing Supplement, and potentially to the Rule Book and certain risk methodology documentation, and would therefore likely be subject to regulatory review and approval. See Notice 006, 82 FR at 41438-39.

<sup>8</sup> Notice 006, 82 FR at 41439-41440.

LCH SA proposed to add new processes for calculating end of day prices for CDS Options, which will be used for related risk calculations, valuing open positions, and calculating a Clearing Member's margin requirement in connection with CDS Options. LCH SA also proposed to amend its Rule Book to permit Clearing Members to make use of the LCH SA settlement prices with respect to CDS Options in the same way that Clearing Members are permitted to use the settlement prices for CDS.<sup>9</sup>

LCH SA's proposed rule changes also set forth amendments to its Default Management Process, as set forth in Appendix 1 of its Rule Book. In addition to proposing various conforming edits and amendments to existing terms, as described in greater detail in the Notices, LCH SA proposed to amend its Default Management Process to provide that Clearing Members that are not registered for the CDS Option Clearing Service would not be required to participate in the bidding process for any Auction Package that contains cleared CDS Options. However, to the extent that a Clearing Member that is not registered to clear CDS Options submits winning bids for an Auction Package containing cleared CDS Options, LCH SA proposed to establish a process for automatic registration of that Clearing Member for the CDS Option clearing service and an update to such Clearing Member's Product Family Forms.<sup>10</sup>

Finally, LCH SA proposed a number of operational changes with respect to clearing CDS Options. For example, with respect to membership, LCH SA proposed to add, among other things, a new article setting forth the procedures for registration for LCH SA's CDS Option clearing service. With respect to the clearing of CDS Options,

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<sup>9</sup> Notice 006, 82 FR at 41440-41.

<sup>10</sup> Notice 006, 82 FR at 41441-42.

LCH SA proposed rule changes regarding the novation of contracts that would provide that a cleared CDS Option would be replaced by two cleared transactions, and also proposed edits to clarify that LCH SA would calculate Clearing Member open positions by netting such cleared transactions. Moreover, LCH SA proposed amending its Rule Book to clarify that following a restructuring credit event or during other specified periods, LCH SA is permitted to compress cleared CDS Option transactions, and that premiums for such cleared transactions will be netted.<sup>11</sup>

B. Changes to Clearing Supplement

LCH SA also proposed amendments to its Clearing Supplement. Under these proposed amendments, LCH SA would add a new Part C to the Clearing Supplement to establish the economic terms specific to cleared CDS Options transactions. Proposed Section 1 of Part C would generally set forth definitions for terms contained in Part C of the Clearing Supplement. Proposed Section 2 of Part C would set forth provisions for the creation of cleared CDS Options, as well as for the creation of cleared CDS Options transactions involving restructuring events, and transactions resulting from the exercise of the option. In particular, this section would provide the specific terms under which LCH SA and the Clearing Member enter into such transactions upon their creation and provides for the particulars of the confirmations of such transactions, as well as the procedures for compression exercises for cleared CDS Options transactions.<sup>12</sup> Section 3 of proposed Part C would establish relevant payment obligations for LCH SA and Clearing Members in connection with CDS Options.

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<sup>11</sup> Notice 006, 82 FR at 41440.

<sup>12</sup> Notice 006, 82 FR at 41442.

Other provisions of proposed Part C of the Clearing Supplement would flesh out terms relating to restructuring, exercise and assignment of CDS Options. For example, proposed Section 4 of Part C would set forth the procedures used following certain credit, succession, or restructuring events. Section 5 of proposed Part C would establish requirements and procedures for the creation of paired transactions, triggering and partial triggering conditions for transactions following a determination of certain credit, succession or restructuring events, as well as notification requirements related thereto. Section 6 of Part C would establish procedures regarding creation of paired transactions for exercised CDS Options, the clearing of the transactions resulting from exercise, and delivery procedures for various related notices and reports. These proposed procedures would require LCH SA to notify the relevant matched buyers and sellers with the identity of the buyer or seller, as applicable, following the creation of each paired transaction by LCH SA resulting from an exercised CDS Option. The proposed changes also provide, among other things, that upon notification of exercise, the original CDS Option transaction will be deemed terminated and a new exercised transaction will be deemed to be created between the Clearing Members and LCH SA.<sup>13</sup>

The remaining provisions in proposed Part C of the Clearing Supplement address settlement and other miscellaneous provisions. For example Section 7 of proposed Part C of the Clearing Supplement would provide that following exercise of a CDS Option, a new cleared index CDS transaction will be entered into between the relevant Clearing Members and LCH SA.<sup>14</sup> Section 8 of Part C would set forth general rules related

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<sup>13</sup> Notice 006, 82 FR at 41442-43.

<sup>14</sup> Id.

notices, including provisions regarding timing and delivery methods. Section 9 of proposed Part C would set forth procedures regarding the creation of paired transactions via an algorithm, address the registration of certain transactions resulting from restructuring events, address the resetting of trade dates, set forth mechanics for certain notices, and provide for the exercise of CDS Options by CDS Option buyers and sellers that are matched by LCH SA.<sup>15</sup>

C. Changes to CDS Clearing Procedures

LCH SA also proposed changes to the CDS Clearing Procedures that would amend provisions regarding membership, margin and price alignment interest, collateral and cash payment, eligibility requirements, and CDS Option clearing operations.

Regarding the membership provisions, LCH SA proposed amendments that would clarify that Applicants would be required to identify operational personnel that have knowledge of CDS Options as part of its registration, and would also describe procedures by which LCH SA will communicate approval of an application for registration for the CDS Option clearing service to an applicant, as well as procedures and conditions for withdrawal of registration from the service.<sup>16</sup>

Regarding margin, LCH SA proposed to modify Section 2.7 of its Clearing Procedures to clarify that initial margin would cover the costs associated with a default of a Clearing Member, as well as a “double event of default,” i.e., where the Clearing Member is the seller of protection on the underlying CDS index. Further modifications to Section 2.7 would include clarification that spread margin will be calculated using spread

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<sup>15</sup> Id.

<sup>16</sup> Notice 006, 82 FR at 41444.

and volatility variations, and that short charge margin would be imposed in instances where a Clearing Member acts as a protection seller with respect to a CDS Option, a single name CDS transaction, or the CDS index underlying the CDS Option. Other proposed amendments affecting margin include clarifying that self-referencing protection margin would be imposed where a Clearing Member acts as a protection seller with respect to the index CDS underlying a CDS Option for which such member is, or becomes, a reference entity. For Clearing Members acting as protection buyers with respect to the index CDS underlying a CDS Option, LCH SA proposed to require that such Clearing Members pay accrued fixed amount liquidation risk margin where the exercise of that CDS Option falls in the margin calculation time horizon. This margin add-on is designed to cover risks associated with an event of default when certain accrued fixed amount payments are due under the terms of the CDS Option during the period that the relevant transactions are liquidated under LCH SA's Default Management Process.<sup>17</sup> LCH SA would also modify provisions relating to credit event margin to specify that where a credit event occurs regarding a reference entity that is the subject of a cleared transaction, each Clearing Member will be required to pay credit event margin to cover the risk of adverse changes in the estimated recovery rate arising in the event of non-payment of variation margin on the part of the CDS Option seller or CDS Option buyer with respect to a CDS Option transaction. LCH SA also proposed to clarify that variation margin will cover the change in market value of a CDS Option.<sup>18</sup> Finally, LCH SA proposed to amend its CDS Clearing Procedures to state that Clearing Members are

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<sup>17</sup> Id.

<sup>18</sup> Id.

required to pay premiums to satisfy payment obligations with respect to a CDS option position.

LCH SA also proposed various amendments related to member and product eligibility requirements. With respect to provisions regarding Clearing Member eligibility requirements, LCH SA proposed to amend Section 4.1 of the CDS Clearing Procedures to require that a Clearing Member be registered for the CDS Option clearing service in order to clear such products, and to set forth eligibility requirements related thereto. Regarding product eligibility requirements, LCH SA proposed to add new Section 4.4 to the CDS Clearing Procedures that would set forth criteria that LCH SA, in consultation with relevant internal committees, would consider with respect to which CDS Options will be eligible for clearing, as well as procedures for Clearing Members to submit a CDS Option for clearing in certain circumstances where the transaction is a risk reducing transaction, even if the relevant eligibility criteria are not satisfied. The proposed amendments would also require LCH SA to publish a list of clearing eligible CDS Options.<sup>19</sup>

LCH SA also proposed to amend Section 5 of the CDS Clearing Procedures, which addresses LCH SA's CDS clearing operations, to provide a description of the trade compression process with respect to CDS Options. Other proposed amendments to Section 5 include procedures to ensure that cleared transactions are stored and replicated on LCH SA's systems. Furthermore, the procedures describing the process for calculating end-of-day prices using data contributed by Clearing Members would be amended to account for CDS Options (as described more fully in the Notices), including

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<sup>19</sup> Id.

amendments providing for procedures to effect cross trades where submitted prices from market participants do not reflect quoted daily prices for a particular CDS Option, and for calculating the variation margin requirement for CDS Options in the event that necessary data is not received.<sup>20</sup>

Additional changes relating to organization and numbering of various Rule Book and/or policy and procedure provisions, as well as certain conforming edits that were proposed are not discussed here, but are described in detail in the Notices.

D. Changes to Dispute Resolution Protocol

LCH SA also proposed amendments to its Dispute Resolution Protocol that would specify that the Dispute Resolution Protocol would apply where the parties to the arbitration include a seller or buyer of a CDS Option, and where the dispute in question arises from cleared matched transactions resulting from exercise of the CDS Option or from restructuring events.<sup>21</sup>

E. Changes to CDSClear Margin Framework

As described in greater detail in the Notices, LCH SA proposed several amendments to its CDSClear Margin Framework. These changes are as follows:

1. Changes Regarding CDS Option Pricing

In addition to providing a revised organizational structure for the CDSClear Margin Framework, LCH SA proposed a new section describing the methodology to price CDS Options. The proposed pricing section would add a description of the methodology used to price CDS Options, including a proposal to adopt a modified

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<sup>20</sup> Notice 006, 82 FR at 41444-45.

<sup>21</sup> Notice 006, 82 FR at 41445.

version of a market standard model developed by Bloomberg that makes adjustments to the Black-Scholes model (“Bloomberg Model”). LCH SA represented that this model is commonly used by dealers and buy-side participants.<sup>22</sup>

In conjunction with use of the modified Bloomberg Model, LCH SA proposed to adopt provisions to account for implied volatility. In particular, LCH SA proposed to use a stochastic volatility inspired (“SVI”) model in constructing volatility surfaces, as well as to price (or reprice) CDS Options and interpolate implied volatilities derived from the modified Bloomberg Model.<sup>23</sup> Regarding data required to calculate historical implied volatilities, LCH SA would adopt a section describing the database that would cover a 10-year look-back period, as well as the data that LCH SA would use to construct historical implied volatility in the case of missing at-the-money volatility and SVI data points in the historical time series data. As part of its end-of-day process for gathering price data from Clearing Members, LCH SA proposed to implement a new price submission mechanism for CDS Options that would, similar to the end-of-day price submission process for CDS, require Clearing Members to contribute prices for CDS Options where the members have at least one open position on one strike for a particular expiry. These contributed prices, in turn, would be used for marking the options book, if certain conditions are met. If such conditions are not met, LCH SA proposed to fall back to Markit’s composite prices or use other pre-defined rules to fill in missing data.<sup>24</sup>

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<sup>22</sup> Notice 007, 82 FR at 39623.

<sup>23</sup> Id.

<sup>24</sup> Notice 007, 82 FR at 39623-24.

The purpose of these proposed changes is to provide for a methodology and model for pricing CDS Options, as well as to establish a process of obtaining pricing information from Clearing Members in order to allow LCH SA to accurately evaluate the value of the positions that Clearing Members take, and thereby allow LCH SA to measure its exposures to Clearing Members.

## 2. Changes to Total Initial Margin

As described in greater detail in the Notices, LCH SA proposed to revise its CDSClear Margin Framework to mitigate the risks associated with clearing CDS Options. LCH SA's margin model is currently composed of six components: (1) self-referencing margin, (2) spread margin, (3) short charge, (4) wrong-way risk margin, (5) interest rate risk margin, and (6) recovery rate margin. LCH SA proposes to add a new seventh margin component, vega margin, specifically to address volatility risk posed by CDS Options.

### a. Self-Referencing Margin

Under its current CDSClear Margin Framework, LCH SA uses self-referencing margin to capture the profit and loss ("P&L") impact resulting from a Clearing Member defaulting on a sold-protection position in CDS referencing its own name with zero recovery. Currently, LCH SA has established this self-referencing margin for CDS only. For CDS Options, LCH SA proposed to implement a methodology to measure spread margin that will calculate the P&L impact from a Clearing Member defaulting on a sold-protection position in CDS referencing the Clearing Member by taking the difference between the CDS Option's current value and the value after incorporating a loss amount

in the underlying CDS index.<sup>25</sup> The purpose of these proposed changes is to ensure that LCH SA can appropriately account for the impact of Clearing Members defaulting on sold-protection positions that underlie the CDS Options LCH SA proposed to clear in a fashion similar to that which LCH SA has in place for CDS.

b. Spread Margin

Under the CDSClear Margin Framework, as currently constituted, LCH SA calculates a spread margin component using a value-at-risk (“VaR”) model to construct a distribution of potential losses based on simulated scenarios using joint credit spread and volatility variations taken from past observations and then calculates the expected shortfall based on a quantile of the worst losses that could arise in those scenarios. In order to adapt the spread margin component to account for the clearing of CDS Options, LCH SA proposed to apply to CDS Options the approach it currently uses for CDS with two adjustments. First, LCH SA proposed to calculate simulated volatilities by defining a shifted volatility curve for each option expiry date, in addition to the simulated credit spreads currently used for CDS. LCH SA would then use both simulated volatilities and simulated credit spreads to calculate estimated CDS Option values which would, in turn, be used as an input in the VaR model to establish an expected shortfall amount. Second, to account for CDS Options that expire within the 5-day margin period of risk, which is necessary to ensure that underlying indices can be automatically cleared by LCH SA upon exercise, LCH SA proposed to add spread margin provisions regarding whether a CDS Option would be exercised upon expiry based on a consideration of the CDS Option’s present value on the date of expiry. Should LCH SA determine that a CDS

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<sup>25</sup> Notice 007, 82 FR at 39624.

Option would be exercised, it would take the resulting index CDS position into account as part of the expected shortfall calculation.<sup>26</sup>

c. Changes to the Short Charge

For the short charge component of its initial margin, which is designed to address jump-to-default risk, LCH SA currently uses the greater of its (i) “global short charge,” which is derived from a Clearing Member’s largest net short exposure for CDS contracts and its top net short exposure among the three riskiest reference entities (with respect to any entity type), and (ii) the “high-yield short charge,” which is derived from a Clearing Member’s top net short exposure (with respect to high yield CDS) and its top two net short exposures among the three riskiest reference entities in the high yield category. In order to adapt the short charge margin for CDS Options, LCH SA proposed to consider the P&L impact of a credit event experienced by a constituent of an index CDS underlying the CDS Option to determine the short exposure for CDS Options. LCH SA also proposed to adopt an approximation approach to define changes in the CDS Option price relative to the total loss in the underlying index instead of repricing the CDS Option each day based on the spread level of the underlying and at-the-money volatility.<sup>27</sup>

LCH SA proposed additional adjustments to the short charge margin component to accommodate the clearing of CDS Options. First, when calculating total short exposure for a reference entity, instead of using the current spread, which is LCH SA’s approach for index CDS initial margin, total short exposure would be calculated for each day within the 5-day margin period of risk using simulated credit spread and at-the-

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<sup>26</sup> Id.

<sup>27</sup> Notice 007, 82 FR at 39624-25.

money volatility data for CDS and CDS Options. Second, to address the non-linear nature of options, the total short exposure would not be the sum of P&L impacts of each individual entity's default where such entities are selected for calculating the global short charge, HY short charge, and financial short charge. Instead, LCH SA proposed to calculate each of these charges by considering the combined P&L impacts of simultaneous defaults of selected entities. Third, LCH SA proposed to compare three expected shortfall amounts to disaggregate the total short exposure in a manner that permits separate calculation of the short charge margin associated with the P&L impact of the jump-to-default risk at the portfolio level and the spread margin that reflects the P&L impact that associated with changes in spreads and at-the-money volatility. LCH SA represented that these calculations facilitate implementation of limits on portfolio margin required under the European Market Infrastructure Regulation and the financial short charge, among other things.<sup>28</sup> Finally, LCH SA also proposed to consider the impact of option expiry on the P&L as part of the short charge calculation by considering cases in which the option exercise decision occurs before the occurrence of two credit events, and cases where the two credit events occur before option exercise. LCH SA proposed to use the worst case of these scenarios as part of the short charge calculation.<sup>29</sup> LCH SA proposed these changes to ensure that it adequately addresses the jump-to-default risk associated with clearing CDS Options.

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<sup>28</sup> Notice 007, 82 FR at 39625.

<sup>29</sup> Notice 007, 82 FR at 39624-25.

d. Changes to Interest Rate Risk Margin

LCH SA also proposed modifications to interest rate risk margin. Under its current CDSClear Margin Framework, LCH SA calculates its interest rate risk margin by shifting interest rate curves and repricing the CDS portfolio. To accommodate clearing of CDS Options, LCH SA proposed to amend the methodology for calculating the interest rate risk margin component by providing for a repricing of CDS Option positions that uses the same “bump” parameters computed by taking the 99.7 percent quantile of the interest rate return using the same sample of dates in the spread historical database.<sup>30</sup> The changes proposed regarding interest rate risk margin are designed to ensure that LCH SA considers the risks to CDS Options associated with moves in interest rates.

e. Addition of Vega Margin

As described in greater detail in the Notices, LCH SA proposed to add a new vega margin component to its initial margin framework. The new vega margin would consider option premium changes when skew is shifted by an extreme move, define shifts of the skew by multiplying a standard deviation of returns of historical skews by a percentile for a given probability threshold, and consider similar shocks on the volatility of volatility.<sup>31</sup> The vega margin is intended to capture the risk of skew and volatility of volatility associated with the CDS Options.

f. Liquidity Risk Margin

LCH SA proposed changes to the liquidity risk margin to accommodate portfolios that contain CDS Options. For CDS, under the current Framework, LCH SA calculates

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<sup>30</sup> Notice 007, 82 FR at 39625.

<sup>31</sup> Notice 007, 82 FR at 39625-26.

the liquidity risk margin by estimating the cost of liquidating a CDS portfolio. To calculate the liquidity charge for portfolios that include CDS Options, LCH SA proposed to consider the CDS Options separately from CDS, with the liquidity charge of the CDS Options based on the likely cost of any vega hedging that would be required in the event that a portfolio of CDS Options needs to be liquidated. LCH SA would then compute the portfolio liquidity charge as the sum of the liquidity charge for the CDS component of a portfolio and the liquidity charge for the CDS Options component.<sup>32</sup> The proposed changes are intended to permit LCH SA to consider the cost of liquidating portfolios that contain CDS Options.

g. Changes to Accrued Coupon Liquidation Risk Margin

LCH SA proposed changes to its accrued coupon liquidation risk margin to accommodate the clearing of CDS Options. Specifically, LCH SA stated that with respect to CDS Options, it would be exposed to coupon payment risk only if the option expiry falls within the 5-day liquidation period and the option is exercised. Consequently, LCH SA proposed to set the accrued coupon for CDS Options with an expiry of more than five days at zero, and the accrued coupon for options contracts with expiry falling within the 5-day liquidation period would be the accrued coupon for five days, if the options are exercised.<sup>33</sup> The proposed changes are intended to allow LCH SA to cover the risk of additional coupon costs associated with CDS Options during the 5-day liquidation period.

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<sup>32</sup> Notice 007, 82 FR at 39626.

<sup>33</sup> Id.

#### h. Credit Event Margin

LCH SA also proposed to adjust its method for calculating credit event margin to accommodate CDS Options. Currently, LCH SA addresses risks associated with hard credit events due to uncertain recovery rates prior to an auction by imposing a margin that would cover an adverse 25 percent absolute recovery rate move from the credit event determination date up to – and including – the auction date. As discussed in greater detail in the Notices, to better capture the risk stemming from clearing CDS Options, in cases where several credit events occur, LCH SA proposed to calculate credit event margin for each affected CDS and CDS Option contract by considering adverse recovery moves that could be a combination of upward, downward, or flat for the various entities in the portfolio instead of summing the credit event margin covering 25 percent adverse recovery rate moves for each reference entity. Under this proposed approach, the aggregate P&L at the level of the CDS and CDS Options contract would be the credit event margin for the portfolio. Additionally, for restructuring events, LCH SA proposed to address each maturity separately instead of netting positions with the same reference entity due to the fact that different auctions may be held depending on the maturity of the contracts. Finally, LCH SA proposed some revisions regarding terminology for credit event margin, which is also described in greater detail in the Notices. For restructuring events, because different auctions may be held depending on the maturity of the contracts, recovery rates could differ across all contracts with differing maturity dates. Consequently, LCH SA proposed to consider each maturity separately instead of netting

all positions with the same reference entity.<sup>34</sup> The proposed changes are designed to allow LCH SA to cover the risks associated with the occurrence of several credit events, and to account for the effect of differing maturities.

i. Changes to Streamline Descriptions and Improve Readability

Finally, LCH SA proposed non-substantive changes that include moving sections discussing cash flow exchanges, contingency variation margin, and extraordinary margin to eliminate redundancy and improve readability.<sup>35</sup>

F. Changes to the Default Fund Methodology

LCH SA proposed several changes to its Default Fund Methodology to accommodate the clearing of CDS Options. Under its current approach, the primary component of LCH SA's Default Fund Methodology is the identification of stress scenarios designed to impose market moves that are considered extreme but plausible above those that are used in the margin calculation in order to determine P&L impacts on Clearing Member portfolios. The two largest stress testing losses over initial margin ("STLOIM") across all Clearing Member portfolios are then used by LCH SA, plus a 10 percent buffer, to size LCH SA's default fund.<sup>36</sup>

To accommodate the clearing of CDS Options, LCH SA proposed to amend the its Default Fund Methodology to take into account the new vega margin by adding a stressed vega margin calculation to LCH SA's stress test scenarios. In addition, LCH SA would add a new set of scenarios (referred to as "Volatility Scenarios") that would

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<sup>34</sup> Id.

<sup>35</sup> Notice 007, 82 FR at 39627.

<sup>36</sup> Id.

consider movements in the implied at-the-money volatilities of index families for historical and theoretical stress scenarios. Further amendments would result in a new method for calculating the stressed spread margin component of the STLOIM. Under the proposed modifications, the new calculation for stressed spread margin would take into account at-the-money implied volatility moves for CDS Options and calculate the stressed spread margin in two scenarios: (1) historical scenarios covering credit spread moves and at-the-money implied movements in combination; and (2) theoretical scenarios covering credit spread movements and at-the-money implied volatility moves independently. Changes to the stressed short charge component of STLOIM would be made to incorporate terms relevant to CDS Options, and the new stressed short charge calculation would largely follow the approach used for the short charge calculation as part of the initial margin framework to consider the non-linear nature of CDS Options, except that the number of entities assumed to be in default would be higher for the stressed short charge.

As noted above, LCH SA proposed to implement a new stressed vega margin component to the STLOIM calculation. This new stressed vega margin component would be calculated in the same manner as the vega margin component, except that it would use a higher quantile. Additionally, a new section entitled “Exercise Management” would be added to the Default Fund Methodology that would take into account the impact of CDS Options that expire within the 5-day liquidation period, and another new section would be added that would set forth the P&L scenarios that are considered part of the Default Fund Methodology, including providing for a stressed

spread margin calculation for specific products.<sup>37</sup> These proposed changes are designed to ensure that LCH SA properly sizes the default fund to cover the two largest STLOIMs across all Clearing Member portfolios while taking into account that such portfolios may now include CDS Options.

### III. Discussion and Commission Findings

Section 19(b)(2)(C) of the Act<sup>38</sup> directs the Commission to approve a proposed rule change of a self-regulatory organization if the Commission finds that the proposed rule change is consistent with the requirements of the Act and the rules and regulations thereunder applicable to such self-regulatory organization. Section 17A(b)(3)(F) of the Act<sup>39</sup> requires, among other things, that the rules of a registered clearing agency be designed to promote the prompt and accurate clearance and settlement of securities transactions and, to the extent applicable, derivative agreements, contracts, and transactions, as well as to assure the safeguarding of securities and funds which are in the custody or control of the clearing agency or for which it is responsible, and to protect investors and the public interest. Rule 17Ad-22(e)(1)<sup>40</sup> requires a covered clearing agency to establish, implement, maintain and enforce policies and procedures that are reasonably designed to provide for a well-founded, clear, transparent and enforceable legal basis for each aspect of its activities in all relevant jurisdictions.

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<sup>37</sup> Id.

<sup>38</sup> 15 U.S.C. 78s(b)(2).

<sup>39</sup> 15 U.S.C. 78q-1(b)(3)(F).

<sup>40</sup> 17 CFR 240.17Ad-22(e)(1).

Rule 17Ad-22(b)(2)<sup>41</sup> requires, in relevant part, a registered clearing agency that performs central counterparty services to establish, implement, maintain and enforce written policies and procedures reasonably designed to use margin requirements to limit its credit exposures to participants under normal market conditions and use risk-based models and parameters to set margin requirements. Rules 17Ad-22(e)(6)(i), (iv), and (v)<sup>42</sup> require a covered clearing agency that provides central counterparty services to establish, implement, maintain and enforce written policies and procedures reasonably designed to cover its credit exposures to its participants by establishing a risk-based margin system that, at a minimum considers, and produces margin levels commensurate with, the risks and particular attributes of each relevant product, portfolio, and market, uses reliable sources of timely price data, and uses procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable, and that uses an appropriate method for measuring credit exposures that accounts for relevant product risk factors and portfolio effects across products.

Rule 17Ad-22(b)(3)<sup>43</sup> requires, in relevant part, a registered clearing agency that performs central counterparty services to establish, implement, maintain and enforce written policies and procedures reasonably designed to maintain additional financial resources sufficient to withstand, at a minimum, a default by the two participant families to which it has the largest exposures in extreme but plausible market conditions where such registered clearing agency acts as a central counterparty for security-based swaps.

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<sup>41</sup> 17 CFR 240.17Ad-22(b)(2).

<sup>42</sup> 17 CFR 240.17Ad-22(e)(6)(i), (iv), and (v).

<sup>43</sup> 17 CFR 240.17Ad-22(b)(3).

Rules 17Ad-22(e)(4)(i) and (ii)<sup>44</sup> require a covered clearing agency to establish, implement, maintain and enforce written policies and procedures reasonably designed to effectively identify, measure, monitor, and manage its credit exposures to participants and those arising from its payment, clearing, and settlement processes, including by maintaining sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence and, for a covered clearing agency involved in activities with a more complex risk profile,<sup>45</sup> maintaining additional financial resources at a minimum to enable it to cover a wide range of foreseeable stress scenarios that include, but are not limited to, the default of the two participant families that would potentially cause the largest aggregate credit exposure for the covered clearing agency in extreme but plausible market conditions.

For the reasons discussed below, after reviewing the proposed rule changes as a whole, including the representation that LCH SA is limiting its clearing services for CDS Options to the specific underlying CDS indices, tenors and option expiries specified herein,<sup>46</sup> the Commission finds that the proposed rule changes, which seek to amend LCH SA’s Rule Book, Clearing Supplement, CDSClear Procedures, Dispute Resolution Protocol, CDSClear Margin Framework, and Default Fund Methodology to permit LCH SA to clear options on index credit default swaps (“CDS Options”), are

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<sup>44</sup> 17 CFR 240.17Ad-22(e)(4)(i) and (ii).

<sup>45</sup> Rule 17Ad-22(a)(4)(i) defines a covered clearing agency involved in activities with a more complex risk profile as a clearing agency registered with the Commission under Section 17A of the Act that provides central counterparty services for security-based swaps. See 17 CFR 240.17Ad-22(a)(4)(i).

<sup>46</sup> See supra note 7 and accompanying text.

consistent with Section 17A of the Act and the applicable provisions of Rule 17Ad-22 thereunder.

A. Changes to LCH SA's Rule Book, and Policies and Procedures

The Commission finds that the proposed changes to LCH SA's Rule Book and Policies and Procedures are consistent with the requirements of Section 17A(b)(3)(F) regarding prompt and accurate clearance and settlement, and Exchange Act Rule 17Ad-22(e)(1). LCH SA proposed to modify its Rule Book, Clearing Supplement, CDSClear Procedures, and Dispute Resolution Protocol to extend its established legal framework to govern the clearing of CDS Options, to provide for managing defaults associated with CDS Options, and to apply membership obligations to Clearing Members seeking to register for the CDS Option clearing service. Among other things, the proposed amendments provided for definitions for various terms relevant to CDS Options, and amended existing terms to accommodate clearing CDS Options. Further, the proposed amendments would establish a process for applying for membership in the CDS Option clearing service, thereby requiring members to satisfy LCH SA's financial and operational requirements, as well as contractual obligations regarding performance. These obligations include those arising under LCH SA's default management process, which would also be amended to accommodate the clearing of CDS Options. Consequently, the Commission believes that by creating registration and membership obligations for entities seeking to participate in the CDS Option Clearing Service, and by adapting its CDSClear Procedures and Clearing Supplement to address operational aspects associated with clearing CDS Options, LCH SA has rules that are designed to ensure that Clearing Members participating in the CDS Option clearing service have the

requisite ability to meet financial and operational obligations associated with clearing CDS Options, thereby ensuring the prompt and accurate clearance and settlement of such transactions. Therefore, the Commission finds that the proposed rule changes are consistent with Section 17A(b)(3)(F) of the Act.

Additionally, based on these proposed changes, the Commission believes that LCH SA will be able to provide for a well-founded and enforceable legal basis for clearing CDS Options in jurisdictions in which LCH SA operates, similar to that established for the clearing of CDS. Moreover, because the documents that are the subject of the proposed amendments are available on LCH SA's public internet site, or provided to Clearing Members, the Commission believes that the policies and procedures applicable to members of the CDS Option clearing service are sufficiently clear and transparent. As a result, the Commission finds that the proposed changes affecting LCH SA's Rule Book, and other policies and procedures are consistent with the requirements of Rule 17Ad-22(e)(1).

**B. Changes to CDSClear Margin Framework and Default Fund Methodology**

The Commission finds that the proposed rule changes regarding LCH SA's CDSClear Margin Framework and Default Fund Methodology are consistent with the requirements of Section 17A(b)(3)(F) and Rules 17Ad-22(b)(2), (b)(3), (e)(4)(i) and (ii), and (e)(6)(i), (iv) and (v).

**1. CDSClear Margin Framework**

LCH SA proposed to amend its CDSClear Margin Framework to add a pricing methodology for CDS Options, based on a modified Bloomberg Model, and to add a process for obtaining pricing inputs from Clearing Members. By implementing a

pricing methodology and process for obtaining pricing information from Clearing Members, the Commission believes that LCH SA will be able to adequately and consistently determine the value of the CDS Options it clears, and will also be able to appropriately mark the positions on a daily basis. As a result, the Commission finds that the proposed rule changes regarding LCH SA's pricing model and mechanism promote the prompt and accurate clearance and settlement of CDS Options and are consistent with the requirements of Section 17A(b)(3)(F) of the Act. Furthermore, because LCH SA proposed changes that would result in LCH SA relying on the Markit Composite or using other pre-defined rules to fill in missing data and complete the marking process, the Commission believes that the proposed rule changes provide that LCH SA has policies and procedures that are reasonably designed to ensure that LCH SA uses reliable sources of timely price data and uses procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable. Therefore, the Commission finds that the proposed rule changes are consistent with the requirements of Rule 17Ad-22(e)(6)(iv).

In addition, LCH SA proposed to amend its CDSClear Margin Framework to account for clearing CDS Options. Among other things, LCH SA proposed amending its self-referencing margin to calculate the P&L impact on a CDS Option based on losses in the underlying index CDS. In addition, LCH SA proposed to amend its spread margin to incorporate simulated volatilities that complement simulated credit spreads in the value-at-risk model LCH SA uses. Moreover, LCH SA proposed to amend its short charge to account for the P&L impact of a credit event on the reference obligations of a constituent of the underlying index CDS has on a CDS Option. Furthermore, LCH SA

also proposed other amendments, described in greater detail in section II.e.2, above and in the Notices, to incorporate at-the-money volatility data, account for the non-linearity of CDS Options by considering the combined P&L impacts of simultaneous defaults, and to consider the impact of option expiry. LCH SA also proposed to amend its interest rate margin to calculate the P&L impact on CDS Options due to changes in interest rates, and proposed to introduce a new margin component, vega margin, to capture the risks associated with skew and volatility of volatility that specifically affect CDS Options. Similarly, LCH SA proposed amendments to its liquidity risk margin to account for the costs associated with vega hedging a portfolio of CDS Options, proposed changes to the accrued coupon liquidation risk margin to account for exposures to CDS Options during the 5-day liquidation period, and proposed changes to its credit event margin to account for different maturities separately and to consider combinations of upward, downward or flat recovery rate moves.

Based on these proposed changes, the Commission believes that LCH SA will have rules that are designed to collect and maintain financial resources intended to cover the risks to which LCH SA is exposed in connection with offering clearing services for CDS Options. As a result, the Commission believes that LCH SA will be able to minimize the risk that the losses associated with the default of a participant (or participants) in the clearing service for CDS Options will extend to other participants in the service or negatively affect the U.S. financial system as a whole. Consequently, the Commission believes that the proposed rule changes will provide for rules that permit LCH SA to be able to safeguard the securities and funds which are in its custody or control or for which it is responsible, and to be able to protect investors and the public

interest. Accordingly, the Commission finds that the proposed rule changes are consistent with the requirements of Section 17A(b)(3)(F).

Moreover, considering these proposed changes as a whole, the Commission believes that the proposed rule changes will ensure that LCH SA uses margin requirements to limit its credit exposures to Clearing Members participating in the CDS Option clearing service. The Commission also believes that by changing its margin framework to add the new vega margin and revise existing individual margin components as described above, LCH SA reasonably considers the risks specific to CDS Options (including consideration of risks associated with skew and volatility of volatility, among others), and establishes an appropriate method for measuring its credit exposures to Clearing Members participating in the CDS Option clearing service. As a result, the Commission finds that the proposed rule changes are consistent the requirements of Rules 17Ad-22(b)(2) and (e)(6)(i) and (v).

## 2. Default Fund Methodology

LCH SA also proposed to amend its existing Default Fund Methodology to address the additional risks associated with clearing CDS Options. As described above, the Default Fund Methodology is designed to identify stress scenarios that impose extreme but plausible market moves in order to calculate stress losses in excess of margin. These losses are then used to size LCH SA's Default Fund. Among other things, LCH SA proposed to amend its Default Fund Methodology to take into account the new vega margin by adding a stressed vega margin, new Volatility Scenarios, and adopt a new method for calculating the stressed spread margin that would take into account at-the-money implied volatility moves for CDS Options in the stress scenarios

used to size the CDSClear default fund. Based on these amendments, the Commission believes that LCH SA appropriately extends its existing Default Fund Methodology to address the clearing of CDS Options, and as a result will be able to maintain financial resources adequate to cover the risks associated with clearing CDS Options, including sufficient resources to enable LCH SA cover its credit exposure to each participant fully with a high degree of confidence and to cover the default of the two participant families to which LCH SA has exposures in extreme but plausible market conditions.

Accordingly, the Commission finds that the proposed rule changes amending LCH SA's Default Fund Methodology are consistent with the requirements of Rule 17Ad-22(b)(3) and (e)(4)(i) and (ii).

IV. Conclusion

IT IS THEREFORE ORDERED pursuant to Section 19(b)(2) of the Act that the proposed rule changes (SR-LCH SA-2017-006 and SR-LCH SA-2017-007) be, and hereby are, approved.<sup>47</sup>

For the Commission by the Division of Trading and Markets, pursuant to delegated authority.<sup>48</sup>

Eduardo A. Aleman  
Assistant Secretary

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<sup>47</sup> In approving the proposed rule changes, the Commission considered the proposals' impact on efficiency, competition, and capital formation. 15 U.S.C. 78c(f).

<sup>48</sup> 17 CFR 200.30-3(a)(12).