LCH.CLEARNET

VIA ELECTRONIC MAIL

17 November 2015

Mr Christopher Kirkpatrick
Commodity Futures Trading Commission
1155 21st Street NW
Three Lafayette Centre
Washington DC 20581

Re: Request for Order Under Section 4d(f)(3)(B) of the CEA

Dear Mr Kirkpatrick:

LCH.Clearnet Limited ("**LCH**") is a clearing organisation located in London that has provided clearing services for over a century, since the London Produce Clearing House was first established in 1888.[1] LCH registered as a derivatives clearing organization ("**DCO**") with the Commodity Futures Trading Commission ("**CFTC**" or "**Commission**") on 29 October 2001 to clear certain OTC derivatives.[2] LCH subsequently requested, and obtained, amendments to its DCO license that permit clearing of: (1) swaps, subject to the requirements of CFTC Regulation 39.5(a); and (2) futures contracts (and options thereon) traded on, or subject to, the rules of a designated contract market ("**DCM**").[3] With effect from 12 June 2014, the Bank of England has authorised LCH as a central counterparty in accordance with Article 14(1) of the European Markets Infrastructure Regulation ("**EMIR**").[4]

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1 LCH is a member of LCH.Clearnet Group Limited ("**LCH Group**"), the financial market's leading independent clearing house group, serving major international exchanges and platforms, as well as a range of over-the-counter ("**OTC**") markets.

2 *See* In the Matter of the Application of LCH.Clearnet Limited For Registration as a Derivatives Clearing Organization, Order of Registration (October 29, 2001). Pursuant to this order, LCH was permitted to clear derivative contracts, agreements or transactions that were at the time excluded or exempt from regulation under Sections 2(c), 2(d), 2(f), 2(g), 2(h) or 4(c) of the Commodity Exchange Act, as amended ("**CEA**") or that were "OTC derivative instruments" as defined in Section 408 of the Federal Deposit Insurance Corporation Improvement Act.

3 *See* In the Matter of the Application of LCH.Clearnet Limited For Registration as a Derivatives Clearing Organization, Amended Order of Registration (May 11, 2004) (amending LCH's original order of registration to permit clearing of certain financial futures contracts (and options thereon) traded on, or subject to the rules of, a DCM, derivatives transaction execution facility and/or an exempt board of trade); and In the Matter of the Application of LCH.Clearnet Limited For Registration as a Derivatives Clearing Organization, Amended Order of Registration (December 16, 2014) (superseding and consolidating LCH's prior orders of registration to permit clearing of swaps, subject to the requirements of CFTC Regulation 39.5(a), and futures contracts (and options thereon) traded on, or subject to the rules of, a DCM).

4 Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories. LCH's CCP authorisation covers: (1) OTC and exchange-

LCH currently operates SwapClear, the market's leading clearing service for OTC interest rate swaps ("**Rates Swaps**").[5] LCH also currently provides a separate clearing service to its European clearing members ("**Listed Rates Service**") in respect of certain exchange-traded interest rate futures contracts ("**Rates Futures**") traded on, or pursuant to the rules of, certain trading venues.[6] Certain Rates Futures are economically correlated with the Rates Swaps cleared at SwapClear. LCH proposes to offer its clearing members the opportunity to participate in a Portfolio Margining Service, described in more detail below, through the commingling of Rates Futures with economically-correlated Rates Swaps in a clearing member's SwapClear account.[7] All commingled positions would generally be treated as Rates Swaps for margining purposes.[8]

LCH also proposes to: (1) expand the Listed Rates Service to its clearing members that are registered with the CFTC as futures commission merchants (each, an "**FCM Clearing Member**") and their customers (each, an "**FCM Client**") (such service, the "**FCM Listed Rates Clearing Service**"); and (2) extend its portfolio margining service to such FCM Clearing Members and their FCM Clients (the "**FCM Portfolio Margining Service**"). As discussed in greater detail below, providing the FCM Portfolio Margining Service to FCM Clients would result in the commingling of: (i) futures customer funds, as defined in CFTC Regulation 1.3(jjjj), *i.e.* collateral in respect of Rates Futures that are DCM Futures; (ii) 30.7 customer funds, as defined in CFTC Regulation 30.1(h), *i.e.* collateral in respect of Rates Futures that are foreign futures, in each case with cleared swaps customer collateral, *i.e.* collateral in respect of Rates Swaps, in an FCM Clearing Member's FCM Omnibus SwapClear Client Account with LCH, *i.e.* a cleared swaps customer account. The customer protection provisions of the CEA and CFTC Regulations ordinarily prevent such commingling. Section 4d(f)(2) of the CEA requires that cleared swaps customer positions, as well as all cleared swaps customer funds, property and other margin deposited to secure such positions, be kept in separate segregated accounts. CFTC Regulations provide that an FCM and a DCO may not commingle cleared swaps customer funds with the money and other assets covering customer obligations in respect of DCM Futures or foreign futures ("**secured amount**"), "except as expressly permitted by [CFTC] rule, regulation, or order (or by a [DCO] rule approved in accordance with" CFTC Regulation 39.15(b)(2).[9] Similarly, CFTC Regulations 1.20(e)(3) and 30.7(e)(3) respectively require that futures customer funds in respect of DCM Futures and the secured amount in respect of foreign futures must be held separately from cleared swaps customer funds and assets, except pursuant to the terms of a CFTC regulation or order authorizing such commingling.[10]

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traded equity and OTC debt securities; (2) OTC equity, debt, interest rate, inflation rate, currency, commodity, emission and freight derivatives; (3) exchange-traded equity, commodity, and freight derivatives; and (4) OTC repos.

5 SwapClear currently clears more than 50% of all OTC interest rate swaps and more than 95% of the overall cleared OTC interest rate swap market. SwapClear regularly clears in excess of $1 trillion total gross notional per day and has more than 2 million cleared OTC interest rate swap trades outstanding.

6 Initially, these Rates Futures will be traded on, or pursuant to the rules of, non-U.S. boards of trade, and will therefore be "foreign futures" within the meaning of CFTC Regulation 30.1(a) and the boards of trade on which such Rates Futures as listed for trading will be "foreign boards of trade" ("**FBOTs**") within the meaning of CFTC Regulation 48.2(a). LCH intends to expand its Listed Rates Service offering to include Rates Futures listed for trading on DCMs ("**DCM Futures**"). Therefore, references in this request letter to "Rates Futures" should be understood to refer to both foreign futures and DCM Futures, unless the context otherwise requires.

7 The relevant contracts that LCH proposes to include in its proposed Portfolio Margining Service are described in greater detail in section 3.1, *infra*.

8 The treatment of commingled positions is described in greater detail in section 3.6.2, *infra*.

9 CFTC Regulation 22.2(c)(2)(ii).

10 CFTC Regulation 1.20(e)(3) also permits commingling of futures customer funds with cleared swaps customer funds in a cleared swaps account, and vice versa, pursuant to rules adopted by a DCO pursuant to CFTC Regulation 39.15(b)(2).

Accordingly, absent the relief requested herein, LCH and its FCM Clearing Members would be required at all times to hold customer positions and collateral in respect of DCM Futures and foreign futures separate from each other, and to hold customer positions and collateral in respect of all Rates Futures (*i.e.*, in respect of both DCM Futures and foreign futures) separate from customer positions and collateral in respect of Rates Swaps, and margin such sets of positions separately, in effect prohibiting LCH from offering the FCM Portfolio Margining Service.

1. RELIEF REQUESTED

LCH requests that the CFTC issue an order pursuant to Section 4d(f)(3)(B) of the CEA that would:

- permit LCH to commingle Rates Futures and Rates Swaps as described herein in an omnibus cleared swaps customer account subject to Section 4d(f) of the CEA and Part 22 of the CFTC Regulations;
- permit LCH to margin such commingled Rates Futures and Rates Swaps on a portfolio basis pursuant to LCH's margin methodology described herein; and
- provide similar commingling and portfolio margining relief to LCH's FCM Clearing Members that participate in LCH's proposed FCM Portfolio Margining Service.

Capitalised terms not otherwise defined herein have the meanings given in LCH's FCM Rulebook and/or its FCM Procedures.[11]

2. LCH'S PROPOSED FCM PORTFOLIO MARGINING SERVICE

LCH proposes to offer its FCM Clearing Members the opportunity to participate in a portfolio margining capability across the Rates Swaps and Rates Futures cleared through LCH's existing FCM SwapClear Clearing Service and the new FCM Listed Interest Rates Clearing Service.[12] This section 2 provides a summary description of the ways in which certain key elements of the proposed FCM Portfolio Margining Service differ from LCH's current arrangements; a more detailed discussion follows in section 3 of this letter.

2.1 Portfolio Margining "Balancer"

2.1.1 Current Arrangements

LCH does not currently offer any portfolio margining arrangements in respect of Rates Swaps and Rates Futures.

2.1.2 Proposed Arrangements

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[11] Available at: http://www.lchclearnet.com/rules-regulations/rulebooks/ltd.

[12] LCH intends that the FCM Portfolio Margining Service will be made available initially in respect of Rates Futures listed for trading on NASDAQ OMX NLX Limited ("**NLX**"). NLX is an investment firm authorised by the UK Financial Conduct Authority to operate a multilateral trading facility ("**MTF**"). LCH has provided clearing services to NLX since the latter's launch in 2013. LCH intends that the FCM Portfolio Margining Service will subsequently be made available in respect of Rates Futures that are: (i) foreign futures listed for trading on other MTFs and European exchanges; and (ii) DCM Futures listed for trading on one or more DCMs.

LCH proposes to permit portfolio margining between Rates Swaps and Rates Futures. However, this proposed portfolio margining capability does not anticipate automatically commingling all Rates Swaps and Rates Futures. Instead, LCH has developed a so-called "balancer", which is a margin calculating tool that establishes, at a pre-determined time following the close of the FCM NLX Clearing Service on each business day, which Rates Futures in a participating FCM Clearing Member's client clearing accounts offer initial margin reductions when paired with economically-correlated Rates Swaps in such FCM Clearing Member's SwapClear client clearing accounts. Where the balancer identifies such margin efficiencies, it will automatically move the relevant Rates Futures into the FCM Clearing Member's SwapClear client accounts. On the next optimisation run, it is possible that the portfolio margined contracts may no longer present the same margin efficiencies, in which case such positions will be returned to their original accounts, where they will be treated as Rates Futures once again.

2.2 Participation

2.2.1 Current Arrangements

As LCH does not currently offer any portfolio margining arrangements, FCM Clearing Members do not have the ability to engage in any portfolio margining activities.

2.2.2 Proposed Arrangements

Participation in the FCM Portfolio Margining Service is voluntary. An FCM Clearing Member wishing to opt-in to the FCM Portfolio Margining Service in respect of one or more FCM Clients must submit a written request to LCH, which will assess whether the applicant meets the eligibility criteria for participation, described below, as well as confirm the relevant FCM Client's consent to participate. FCM Portfolio Margining Services may only be offered on a legal entity-by-legal entity basis.[13] In addition, LCH proposes to offer the FCM Portfolio Margining Services in respect of an FCM Clearing Member's house positions. If LCH approves an applicant's request, it will then notify the FCM Clearing Member and activate the FCM Portfolio Margining Service in respect of the relevant FCM Client(s).

To terminate the FCM Portfolio Margining Service in respect of one or more FCM Clients, an FCM Clearing Member must provide written notice to LCH clearly identifying the FCM Client(s) concerned; termination will be effective on the date that LCH confirms to the FCM Clearing Member that the FCM Portfolio Margining Service has been terminated in respect of the FCM Client(s). To minimise any potential abuse of the FCM Portfolio Margining Service, LCH has introduced a "cooling-off" period whereby an FCM Clearing Member may not submit a participation request in respect of a given FCM Client within 30 days of terminating such FCM Client's prior participation in the programme.

2.3 Default Management

The key elements of LCH's default management arrangements relate to service-specific default funds and default management plans.

2.3.1 Current Arrangements

[13] The FCM Portfolio Margining Service would not be available, for example, where a non-clearing FCM opens an omnibus customer account with an FCM Clearing Member on behalf of such non-clearing FCM's customers; such account is treated by the FCM Clearing Member as a single customer. However, the account contains multiple legal entities that are not disclosed to LCH, and therefore LCH is not able to identify margin efficiencies on a per-customer basis.

LCH currently maintains a SwapClear Default Fund for its SwapClear service and a separate Listed Interest Rate Default Fund for its exchange-traded interest rate derivatives service. Each of these default funds are held separately from the default funds for LCH's other clearing services. LCH's Default Rules generally provide that LCH must first use a defaulting clearing member's contribution to the default fund in respect of the clearing service to which a given loss relates, and only after the exhaustion of such amounts may LCH have recourse to any default fund contribution amounts in respect of another clearing service (to the extent any such amounts are not fully exhausted when meeting losses incurred in respect of such clearing service).

LCH has also adopted a specific default management plan for its SwapClear service. The plan provides for the establishment of a specific default management group to oversee and manage the default proceedings as well as arrangements for hedging the risk of a defaulter's SwapClear portfolio, to be followed by an auction process and a bespoke waterfall to allocate losses. LCH has also instituted a loss distribution mechanism that imposes variation margin haircuts as a means of sharing losses, up to a predetermined size, to permit the continuation of the SwapClear service.

2.3.2 Proposed Arrangements

The most significant changes to accommodate the introduction of the FCM Portfolio Margining Service apply to LCH's Default Rules. The fundamental design principle governing the proposed amendments to the Default Rules is the creation of a single default fund and set of default management arrangements for a combined SwapClear and Listed Interest Rates Clearing Service ("**Rates Service**"). Even though these two clearing services are combined in a single default fund, it remains optional for clearing members (including FCM Clearing Members) to participate in portfolio margining, hence the combined default fund has been subdivided into separate margin classes: the OTC margin class for all clearing members that clear SwapClear products (which includes all Listed Interest Rates products that have been portfolio margined), both those that participate in portfolio margining and those that do not participate, and a separate margin class for clearing members that only clear listed interest rate products (which includes all Listed Interest Rates products that are not eligible for portfolio margining or that are eligible but that are not portfolio margined). This latter margin class is further subdivided into a subclass consisting of clearing members participating in portfolio margining and a second subclass consisting of all other members.

LCH has implemented arrangements for sizing the combined default fund across clearing members (including FCM Clearing Members) forming part of the two margin classes. LCH has also adjusted its default management plans to account for the possibility of a default by a clearing member that is a member of a particular margin class (or subclass), including in respect of hedging and allocation of auction losses. In addition, LCH has established bespoke arrangements for the application of financial resources, which differ depending on the particular margin class (or subclass) of the defaulting clearing member.

3. **INFORMATIONAL DISCLOSURE REQUIREMENTS**

CFTC Rule 39.15(b)(2)(i) sets out certain disclosure requirements that a registered DCO must provide to the CFTC in connection with a request to commingle positions in a cleared swaps customer account subject to Section 4d(f) of the CEA, each of which is addressed below.

3.1 Identification of the futures, options, and swaps that would be commingled, including product specifications or the criteria that would be used to define eligible futures, options, and swaps

LCH proposes to include the following classes of Rates Swaps and Rates Futures in the FCM Portfolio Margining Service.[14]

Rates Swaps	**Rates Futures**[15]
Basis Swaps	Short-Term Interest Rate (STIR) Future
Forward Rate Agreement (FRA)	Swap Futures / Deliverable Swap Future (DSF)[16]
Inflation Swap	Long Term Interest Rate (LTIR) Future[17]
Interest Rates Swap (IRS)	
Overnight Index Swap (OIS)	
Variable Notional Swap (VNS)	
Cross-Currency Swap[18]	

The FCM Portfolio Margining Service will initially be made available for the foregoing classes of Rates Swaps in eighteen major swap currencies: USD, EUR, GBP, AUD, NZD, CAD, CHF, JPY, SGD, HKD, MXN,[19] NOK, SEK, CZK, DKK, PLN, HUF and ZAR. LCH has determined that four currencies – PLN, HUF, MXN and ZAR – do not demonstrate a strong and/or stable correlation and therefore the benefit of portfolio margining in respect of these currencies will be limited through the use of a margin add-on.[20]

LCH also intends to make the FCM Portfolio Margining Service available in respect of STIRs, DSFs, SFs and LTIRs traded across G-20 currencies and debt instruments. These Rates Futures will initially consist of foreign futures listed for trading on one or more FBOTs and will subsequently be expanded to include DCM Futures listed for trading on one or more DCMs. Specifically, the initial set of Rates Futures in scope are: (1) for STIRs, 24 futures contracts at 3-monthly intervals (*i.e.*, covering six years of dates) plus monthly contracts (1-month and 2-month in USD, EUR and GBP and 4-month and 5-month in EUR and USD); (2) for DSFs, 3 futures contracts (3-month, 6-month and 9-month) on 2-year, 5-year, 10-year and 30-year swap maturities in USD, EUR and GBP; and (3) for LTIRs, long gilt futures and three German

[14] Certain of the Rates Swaps and Rates Futures described below will be introduced following the completion of: (i) applicable internal risk governance and other approval processes; and/or (ii) applicable external regulatory review and/or approval processes.

[15] This column refers to Rates Futures listed for trading on one or more FBOTs, which will subsequently also include Rates Futures listed for trading on one or more DCMs.

[16] DSFs will be introduced in a subsequent phase of the FCM Portfolio Margining Service.

[17] LTIRs will be introduced in a subsequent phase of the FCM Portfolio Margining Service.

[18] Cross-currency swaps will be introduced in a subsequent phase of the FCM Portfolio Margining Service.

[19] LCH has completed the relevant approval and review processes for MXN-denominated Rates Swaps, however they are not in production as of the date of this request.

[20] *See* the discussion in section 3.9, *infra*.

government bond futures (Bobl futures, Schatz futures and Bund futures), in each case for delivery at seller's option during the three closest quarterly delivery months.[21]

Because the FCM Portfolio Margining Service anticipates commingling Rates Futures with Rates Swaps, this constitutes the *de facto* introduction of new instruments into the SwapClear clearing service. LCH's risk policies require that offsets or reductions in required margin may only be provided when introducing a new financial instrument if the following conditions are met:

- the price risk of the instrument must be significantly and reliably correlated, or based on equivalent statistical parameters of dependence, with the price of existing financial instruments in the service;
- the economic offset must be supported on risk and economic grounds (*e.g.*, shared risk factors or a traded product linking the products for which the offset is sought); and
- the economic offset must be demonstrably resilient during stressed market conditions and must be subject to a stress test regime.

To meet these requirements, LCH has undertaken an extensive review process to demonstrate the economic correlations of the relevant Rates Futures and Rates Swaps. The results of this review, and the consequent adjustments to LCH's SwapClear margin methodology, are discussed in greater detail in section 3.9, *infra*.

The principal economic features of Rates Swaps and Rates Futures proposed to be included in the FCM Portfolio Margining Service are described below.

3.1.1 Rates Swaps

<u>IRS</u>. An IRS is an agreement between two counterparties to exchange sets of cash flows calculated by applying interest rate specifications to a notional amount principal for a predetermined amount of time. A plain-vanilla, "fixed-floating" IRS requires the exchange of one set of cash flows based on a fixed rate for a separate set of cash flows based on a floating rate.

<u>Basis Swap</u>. A Basis Swap is an interest rate swap between two counterparties where both sets of cash flows are calculated based on floating rates. Therefore, a Basis Swap is a "floating-floating" IRS rather than a "fixed-floating" swap.

<u>FRA</u>. An FRA is a forward OTC contract where the counterparties establish their respective rates of interest and the notional underlying value of a payment obligation beginning at a future start date. Ordinarily, due to payment netting only the difference between the calculated payment flows is paid on maturity. Rather than comprising a series of ongoing reciprocal payment obligations, only a single payment is made between the counterparties under an FRA.

<u>Inflation Swap</u>. In an Inflation Swap, one counterparty generally pays a fixed rate on the notional principal amount while the other counterparty pays a floating rate linked to an inflation index. As one possible alternative, the counterparties may agree to exchange cash flows based on expected rates of inflation versus the actual inflation index.

[21] The USD-denominated STIRs and DSFs referred to in the accompanying text will be included once they have been introduced for trading by the relevant FBOT (initially, NLX).

OIS. In an OIS, counterparties exchange one set of fixed-rate cash flows for a set of cash flows based on a floating rate set by reference to the rate for overnight unsecured lending between banks.

VNS. Also known as an "amortising swap", a VNS is an interest rate swap where the counterparty payment obligations are calculated in relation to increasing, or decreasing, notional principal amounts. The changes to the notional principal amounts occur at predetermined times during the life of the VNS.

Cross-Currency Swap. A cross-currency swap is a swap in which the counterparties exchange interest payments and principal amounts denominated in separate currencies. The relevant interest rates may be fixed or floating.

3.1.2 Rates Futures

STIR Future. These are standardised futures contracts where the payment obligation is calculated by reference to the value of a short-term interest rate at maturity, such as the interest rate on public debt instruments with a maturity of less than one year.

Swap Futures / DSF. A swap futures is a futures contract based on the value of an interest rate swap. Where a swap futures contract is physically settled, it is referred to as a DSF, and at maturity, the futures contract is "delivered" into a cleared interest rate swap position.

LTIR Future. These are standardised futures contracts whereby the contract holder is obliged to sell or purchase a specified government bond on a predetermined date at a predetermined price.

LCH may subsequently expand the scope of the Rates Swaps and Rates Futures that participate in the FCM Portfolio Margining Service. However, exchange-traded options products are not eligible for participation in the Service.

The product specifications for each of the Rates Swaps relevant to this request are set out in Schedule 1 of LCH's FCM Product Specific Contract Terms and Eligibility Criteria Manual.[22] The product specifications for the initial set of Rates Futures relevant to this request are set out in the relevant NLX Product Terms.[23]

3.2 Analysis of the risk characteristics of the eligible products

Interest rate futures and interest rate swaps – including the Rates Futures and Rates Swaps that are, or will be, accepted for clearing by LCH – are generally characterised by the following risks.

Interest Rate Risk. The value of a rates contract will fluctuate based on the level of the reference interest rate of the contract. In addition, the value of a fixed-floating Rates Swap will depend on the relative value of the floating payments to the fixed payments. For example, a counterparty that receives fixed and pays floating will benefit where the floating rate is lower than the fixed rate, but bears the risk that the floating rate will exceed the fixed rate. The relative movements in interest rates has an impact on the value of the Rates Swaps where payments are based on such rates, which in turn has an impact on the value of a clearing member's portfolio of cleared Rates Swaps.

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[22] Available at: http://www.lchclearnet.com/documents/731485/762691/fcm+product+specific+manual+-+clean_a+-++05.09.14.pdf/a4d013ed-7e6c-4eed-be6c-5d902710bbf1.

[23] Available at: http://www.nasdaqomx.com/transactions/markets/nlx/regulation.

Tenor Basis Risk. This risk refers to the price risk arising from a mismatch between the date when a particular contract expires and the specific needs of the transacting party. For example, where a rates contract expires prior to the financial instrument being hedged, the transacting party is exposed to price risks from the expiry of the hedging contract until the expiry of the financial instrument being hedged.

Liquidity/Concentration Risk. These risks refer to the risk of losses as a result of closing out large portfolios and/or portfolios with substantial positions in one or more contracts. Liquidity risk may also arise in respect of particular economic sectors and/or particular jurisdictions. These risks are addressed through the calculation of liquidity risk margin requirements.

Commingling Rates Swaps and Rates Futures introduces additional risks at the portfolio level rather than at the level of the individual contract. These additional risks, and the consequent adjustments to LCH's SwapClear margin methodology, are discussed in greater detail in section 3.9, *infra*.

Interest rate futures and interest rate swaps are also occasionally characterised as subject to credit risk, *i.e.* the risk that the counterparty to the trade will default and fail to perform, as well as legal risk, *i.e.* the risk that the contract will not be enforceable or legally binding on the counterparty. However, LCH provides a central counterparty guarantee in respect of each contract it clears, including Rates Swaps and Rates Futures, thereby mitigating credit risk. In addition, LCH operates pursuant to a well-founded, transparent and enforceable legal framework, ensuring that all products LCH accepts for clearing, including Rates Swaps and Rates Futures, are protected from legal risk.

3.3 Identification of whether the swaps would be executed bilaterally and/or executed on a designated contract market and/or a swap execution facility

The Rates Swaps subject to this portfolio margining request originally began as an OTC market where transactions were executed bilaterally between counterparties.[24] While the Rates Swap market does retain OTC elements, it is currently among the most liquid swap markets in the world and substantial volumes are now executed on, or subject to the rules of, swap execution facilities ("**SEFs**"). Certain highly-liquid fixed-to-floating Rates Swaps are also subject to trade execution requirements under the CEA, in effect meaning that U.S. persons must transact in such swaps on, or subject to the rules of, a DCM or SEF.[25]

In light of the increasingly exchange-traded nature of Rates Swaps, LCH has established connectivity with a number of DCMs and SEFs to facilitate the submission for clearing of Rates Swaps by, or on behalf of, FCM Clearing Members, including the following SEFs and DCMs: BGC Derivatives Markets, L.P.; Bloomberg SEF LLC; DW SEF LLC; ELX Futures, L.P.; GFI Swaps Exchange LLC; ICAP SEF (US) LLC; Javelin SEF, LLC; SwapEx LLC; TeraExchange, LLC; tpSEF Inc.; Tradition SEF, Inc.; TW SEF LLC; and trueEX LLC. LCH has also established connectivity with MTS, which is an EU-based operator of a multilateral trading facility.[26]

3.4 Analysis of the liquidity of the respective markets for the futures, options, and swaps that would be commingled, the ability of clearing members and the derivatives clearing organization to

[24] LCH initially registered as a DCO in part to clear OTC interest rate swaps for U.S. persons. *See* note 2, *supra*.

[25] *See*, *e.g.*, TW SEF LLC, Self-Certification for Swaps to be Made Available to Trade (October 29, 2013, as amended on November 29, 2013 and January 26, 2014); and Bloomberg SEF LLC, Made Available to Trade ("MAT") Submission of Certain Credit Default Swaps ("CDS") and Interest Rate Swaps ("IRS") pursuant to Commodity Futures Trading Commission (the "Commission") Regulation 40.6 (submission #2013-R-9) (December 5, 2013).

[26] An up-to-date list of execution venues for which LCH provides connectivity as part of its SwapClear business is publicly available at: http://www.swapclear.com/service/trade-workflow.html.

offset or mitigate the risk of such futures, options, and swaps in a timely manner, without compromising the financial integrity of the account, and, as appropriate, proposed means for addressing insufficient liquidity

Liquidity. LCH's risk management programme includes an assessment of a contract's liquidity as a key factor in accepting such contract for clearing. Accordingly, LCH would not accept a contract for clearing where such contract is not sufficiently liquid or where LCH was not satisfied that it could manage its risk relating to such contract in stressed market conditions, including in the event of lower-than-expected liquidity in the market for such contract.

The Rates Swaps relevant to this request are, as noted above, among the most deep and liquid swaps markets in the world, and many are already subject to CEA mandatory clearing and trade execution requirements.[27] The European Commission has also recently adopted new rules requiring the mandatory clearing of standardised interest rate swaps pursuant to EMIR, which covers many, if not all, of the Rates Swaps subject to this request.[28] As shown in the chart below, LCH's SwapClear volumes for the second quarter of 2015 include an average daily trading volume of $2.2 trillion and total outstanding notional of $281.2 trillion:

Currency	Daily Volume	Weekly Volume	YTD Volume	Notional Outstanding
USD	$960,831,889,199	$4,362,749,271,215	$118,452,415,090,420	$99,320,384,261,353
EUR	388,933,447,666	2,103,549,474,838	99,947,878,319,616	82,903,211,474,939
GBP	461,550,631,547	1,699,007,778,647	29,280,420,891,239	28,226,266,758,905
JPY	¥3,394,156,000,000	¥36,360,396,996,000	¥1,037,410,083,225,548	¥1,647,828,597,513,880
CHF	CHF8,776,506,000	CHF253,851,604,000	CHF2,342,441,075,503	CHF3,564,108,132,267
AUD	$28,238,900,000	$117,470,022,216	$5,044,407,366,236	$10,321,148,676,975
CAD	$27,619,600,000	$171,477,377,000	$6,237,316,238,361	$10,713,335,563,559
CZK	CZK31,270,000,000	CZK128,355,620,000	CZK7,020,971,376,579	CZK11,575,645,810,825
DKK	DKK257,140,000	DKK16,466,200,000	DKK2,971,595,387,714	DKK4,164,105,506,222
HKD	HKD10,654,000,000	HKD54,698,840,000	HKD2,789,022,122,259	HKD6,003,678,514,994
HUF	HUF463,034,000,000	HUF9,303,641,920,000	HUF204,799,487,772,724	HUF228,231,486,827,512
NOK	NOK85,648,220,000	NOK83,117,290,000	NOK13,347,831,858,054	NOK15,656,282,728,418
NZD	NZD12,071,000,000	NZD47,571,768,120	NZD1,992,185,314,923	NZD3,851,479,532,254
PLN	PLN13,188,600,000	PLN185,168,640,000	PLN4,626,948,568,327	PLN5,979,623,142,293
SEK	SEK65,871,600,000	SEK1,229,664,060,000	SEK24,624,611,127,688	SEK29,173,567,110,440
SGD	SGD9,380,400,000	SGD47,169,747,280	SGD1,204,567,701,936	SGD2,038,612,662,177
ZAR	ZAR22,852,000,000	ZAR212,826,274,000	ZAR5,789,183,088,301	ZAR12,727,596,027,523
Total in USD	**$2,226,721,383,688**	**$10,415,747,741,968**	**$305,639,498,355,328**	**$281,253,998,512,400**

The Rates Futures relevant to this request are a sub-set of similar STIR, DSF and LTIR contracts traded at a number of venues around the world. The aggregate trading volumes for these interest rate futures is significant: between June 2014 and June 2015, the global trading volume for the STIRs relevant to this request averaged between 10 million and 20 million contracts per month, and the global trading volume for the LTIRs relevant to this request averaged between 20 million and 40 million contracts per month. More detail relating to the global trading volumes for the STIR and LTIR markets are set out in Confidential Appendix 1 to this letter.

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27 *See* footnote 25, *supra*, and associated text.

28 This rulemaking would require mandatory clearing of interest rate swaps that settle in a single currency (either Euro, Sterling or U.S. dollar), and fall within one of the following categories: (1) IRS referencing either EURIBOR or LIBOR, with a maturity of 28 days to 50 years (including IRS settling in Yen); (2) Basis Swaps referencing either EURIBOR or LIBOR, with a maturity of 28 days to 50 years (this category also includes Basis Swaps settling in JPY); (3) FRAs referencing either EURIBOR or LIBOR, with a maturity of three days to three years; or (4) OIS referencing the Euro OverNight Index Average, FedFunds or the Sterling OverNight Index Average, with a maturity of seven days to three years. *See* Commission Delegated Regulation (EU) supplementing Regulation (EU) No 648/2012 of the European Parliament and of the Council with regard to regulatory technical standards on the clearing obligation.

While the global DSF market is relatively new, LCH anticipates the following global DSF trading volumes by currency and maturity, of which the DSFs subject to this request would form a majority of the trading volume:

		Average Daily Volume (ADV)			
Currency	**Total ADV**	**2-Year**	**5-Year**	**10-Year**	**30-Year**
USD	11,693	644	4,639	5,854	556
EUR	5,532	305	2,195	2,834	198
GBP	615	14	99	502	-

LCH has satisfied itself that the Rates Swaps and Rates Futures covered by this request, including such additional Rates Swaps and Rates Futures as LCH may accept for clearing in the future, are and will be sufficiently liquid for LCH to manage the risk of such contracts in a timely fashion while ensuring the integrity of each FCM Client's account(s). In particular, LCH will be able to manage its risk in the event of an FCM Clearing Member default even where liquidity in a Rates Futures contract is lower than expected principally by using a broker that has entered into an Execution Broker Agreement with LCH to execute close-out trades. LCH's margin model anticipates that liquidity for one or more contracts may be limited in a default situation, and therefore, where relevant, LCH allocates a liquidity add-on to a clearing member's margin requirement.[29] This additional margin amount is intended to absorb any additional costs of executing close-out trades where liquidity is limited. In the alternative, LCH may, in consultation with the Rates Service Default Management Group ("**Rates DMG**"), determine to close out a defaulter's portfolio through an auction process.

Regardless of the close-out strategy chosen, the Rates DMG is responsible for preparing a hedging strategy, which is subject to the review and approval of LCH's Chief Risk Officer. The hedging strategy will be kept under review on an ongoing basis during the default management process.

Offset/Mitigate Risks. As described in greater detail in section 0 below, applicants must meet, *inter alia*, certain regulatory, financial and operational requirements in order to become FCM Clearing Members. For example, each FCM Clearing Member must comply with the minimum net capital requirements set by LCH as well as meet the capital requirements prescribed by the CFTC and any other self-regulatory organisation to which it is subject. LCH also verifies that an applicant maintains sufficient operational and managerial resources in order to perform its obligations as a FCM Clearing Member (including the ability to meet minimum margin requirements and to participate effectively in default management activities).

Insufficient Liquidity. In the event of an FCM Clearing Member default, LCH will institute its default management procedures in order to contain the risk of the defaulter's portfolio and to engage in an orderly close-out of the defaulter's positions. LCH's default management arrangements are described in greater detail in section 0 below.

3.5 Analysis of the availability of reliable prices for each of the eligible products

LCH generally only clears financial instruments for which there are readily available and reliable market data. LCH's specific arrangements for pricing the rates contracts relevant to this request are as follows:

29 *See* the discussion in "Liquidity/Concentration Risk" in section 3.9, *infra*.

- All FCM SwapClear Contracts (other than inflation swaps), are valued using the net present value ("**NPV**") as calculated by LCH.[30] LCH uses its zero coupon yield curves to make these calculations, and LCH has the sole discretion to determine appropriate instruments, points and market prices for the construction of such yield curves and for portfolio valuation. Generally, LCH sources price quotes from a series of banks and intermediaries using Reuters and Bloomberg. Provided these quotes meet certain validation checks and fall within a given range relative to the prior set of quotes received, LCH then consolidates the quotes using a modified averaging function to produce a single reference price.

- LCH has established bespoke pricing arrangements for inflation swaps. Each clearing member, including where relevant its affiliates, that exceeds a given quarterly threshold for clearing a particular type of inflation swap is required to submit inflation market data specified by LCH in respect of the index underlying the specific inflation swap.[31] The integrity of these data submissions is ensured through the application of a forced-trade mechanism, whereby a clearing member that has submitted sufficiently off-market data, or that has failed to provide submit any market data, may be required to enter into an inflation swap with off-market economic characteristics.

- For FCM Listed Interest Rate Contracts, FCM Procedure 2.5.4(q) states that the Official Quotation for an FCM Listed Interest Rates Contract is based on "Daily Settlement Prices", or "**DSPs**", and are supplied to LCH by the relevant trading venue at the close of business each day. Should the trading venue fail to determine DSPs, LCH has the authority to make such determination at its own discretion. Any LCH-established valuation must be announced as soon as possible.

The FCM Regulations also support LCH's right to establish valuations where the ordinary-course source of valuations is not available. In particular, FCM Regulation 16(b) states that, where an Official Quotation or Reference Price is not available for any reason, LCH may, in its sole discretion, determine a substitute value which is binding on FCM Clearing Members and may not be called into question under any circumstances. The substitute value will typically be the previous day's Official Quotation or Reference Price, as applicable.

Accordingly, LCH's FCM Regulations and FCM Procedures ensure the availability of reliable prices for the contracts that will be eligible for participating in the FCM Portfolio Margining Service.

3.6 A description of the financial, operational, and managerial standards or requirements for clearing members that would be permitted to commingle such futures, options, and swaps

All FCM Clearing Members of LCH are required to meet the membership criteria set out in FCM Regulation 4(c) and FCM Procedure 1.2.1. FCM Clearing Members requesting the right to participate in the FCM Portfolio Margining Service must also meet certain additional requirements set out in the FCM Procedures.

3.6.1 FCM Clearing Membership Requirements

The clearing membership requirements set out in FCM Regulation 4(c) and FCM Procedure 1.2.1 are designed to ensure that each FCM Clearing Member meets well-defined financial, operational, credit, regulatory and risk management requirements.

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30 *See* FCM Procedure 2.1.7(a), (b).

31 *See* General Regulation 60A; *see also* Section 1.28 of the SwapClear Procedures.

Legal and Regulatory Standards. An FCM Clearing Member must meet certain basic legal and regulatory criteria. For example, an FCM Clearing Member must:

- be registered with the CFTC as an FCM;
- be incorporated or otherwise organised under the laws of a State of the United States; and
- comply with the provisions of the FCM Rulebook and the FCM Default Fund Agreement.

Operational and Managerial Standards. LCH's membership criteria for Clearing Members also includes specific operational and risk management requirements. An FCM Clearing Member must:

- have an executive and managerial staff with a high standard of integrity and level of knowledge relating to the nature, risks and obligations;
- have and maintain adequate systems and personnel that, in the opinion of LCH, are adequate to satisfy the FCM Clearing Member's responsibilities under the FCM Regulations and FCM Procedures;
- maintain a back office that is: (i) remote from the trading desk; (ii) has adequate systems, including but not limited to computer and communications systems, and records; (iii) has an adequate number of staff sufficiently conversant with LCH's procedures; and (iv) has the relevant connectivity to LCH as required from time to time; and
- maintain the necessary connectivity and capability to process trades.

Financial Standards. LCH's membership criteria for FCM Clearing Members also includes certain financial requirements. An FCM Clearing Member must:

- open appropriate accounts at banks participating in LCH's Protected Payments System (*i.e.*, LCH's network of commercial settlement banks);
- maintain minimum adjusted net capital of at least $7,500,000 (for non-swaps clearing business) or $50,000,000 (for swaps clearing business), provided that LCH may scale a given FCM Clearing Member's minimum adjusted net capital to account for the level of risk introduced by such FCM Clearing Member to LCH;
- comply with all applicable regulatory financial requirements, including the applicable requirements of CFTC Regulation 1.17 and Part 22 of the CFTC Regulations; and
- make all required contributions to LCH's applicable default fund(s) as required by the FCM Rulebook.

SwapClear Standards. An FCM Clearing Member clearing FCM SwapClear Contracts must, in addition:

- participate in, or demonstrate that it has an affiliate or approved outsourcing agent that can participate in, regular default "fire drills" run by LCH;
- participate in, or demonstrate that it has an affiliate or approved outsourcing agent that can participate in, LCH's default management process;

- in the event of a default, receive and process contracts of a defaulter, including any associated hedge trades, in FPML; and

- have within its corporate group at least one bank, credit institution, securities firm, investment bank or other similar entity licensed by a regulatory authority in the United States, European Union or permitted third country jurisdiction.

In addition, under FCM Regulation 4(d) and FCM Procedure 1.1(c)(ii), an applicant to become an FCM Clearing Member must provide any additional documentation or information that is reasonably requested by LCH in order to verify or substantiate such applicant's ability to satisfy its obligations under the FCM Rulebook or to satisfy its obligations as an FCM Clearing Member.

3.6.2 FCM Portfolio Margining Service Participation Requirements

LCH has established certain additional requirements for any FCM Clearing Member that participates in the FCM Portfolio Margining Service.

Application Process

An FCM Clearing Member wishing to opt-in to the FCM Portfolio Margining Service in respect of one or more FCM Clients (each, a "**Nominated FCM Client**") must submit a written request to LCH. LCH will then assess whether the applicant meets the eligibility criteria ("**FCM Portfolio Margining Eligibility Criteria**") set out below. If LCH approves an applicant's request, it will then notify the FCM Clearing Member and activate the FCM Portfolio Margining Service in respect of the relevant Nominated FCM Client(s).

An FCM Portfolio Margining Clearing Member may request that LCH terminate the FCM Portfolio Margining Service in respect of one or more Nominated FCM Client(s). In order to prevent abuse of the FCM Portfolio Margining Service, following the termination of the service in respect of a Nominated FCM Client, an FCM Clearing Member will not be entitled to re-nominate the same FCM Client for a period of 30 days following the effective date of termination.

FCM Portfolio Margining Eligibility Criteria

For an FCM Clearing Member to be eligible to participate in the FCM Portfolio Margining Services, it must demonstrate that it and its Nominated FCM Client(s) meet the following FCM Portfolio Margining Eligibility Criteria set out in the FCM Procedure 2.1.19(c):

- the FCM Clearing Member must be approved to participate in both the FCM SwapClear Clearing Services and the FCM Listed Interest Rates Clearing Services; and

- each Nominated FCM Client must receive FCM SwapClear Clearing Services and FCM Listed Interest Rates Clearing Services from the applicant FCM Clearing Member.

The FCM Clearing Member must also confirm to LCH that the Nominated FCM Client(s) in question have given informed consent to participate in the FCM Portfolio Margining Service. For the avoidance of doubt, the FCM Portfolio Margining Service may only be offered on a legal entity-by-legal entity basis, *i.e.* only to a Nominated FCM Client that is a single legal entity. The FCM Portfolio Margining Service will not be offered in respect of groups of FCM Clients or omnibus accounts where the relevant FCM Clients are not identified to LCH.

Account Structures

The FCM Portfolio Margining Service anticipates commingling of FCM Client positions and assets from the FCM SwapClear Clearing Services and the FCM Listed Interest Rates Clearing Services.

FCM SwapClear Clearing Services

This is the service through which FCM Clients clear certain interest rate swaps ("**FCM SwapClear Contracts**"), which are "swaps" as defined in the CEA and CFTC Regulations. The FCM Rulebook requires an FCM Clearing Member to maintain an account ("**FCM Swaps Client Segregated Depository Account**") to hold the collateral received from FCM Clients in respect of the FCM SwapClear Clearing Service ("**FCM Swaps Client Funds**"). At the clearinghouse level, FCM Client positions in FCM SwapClear Contracts are recorded by LCH in an FCM Clearing Member's "**FCM Omnibus SwapClear Client Account with LCH**" and LCH deposits the collateral received in respect of such positions in the "**LCH Swaps Client Segregated Depository Account**". These accounts are treated as part of the cleared swaps customer account class for purposes of the FCM Regulations.

FCM Listed Interest Rates Clearing Services

As part of the implementation of the FCM Portfolio Margining Service, LCH proposes to introduce a new service through which FCM Clients clear certain futures contracts ("**FCM Listed Interest Rates Contracts**") listed for trading on various trading venues, starting with NLX ("**FCM NLX Contracts**"). Because FCM NLX Contracts are "foreign futures", FCM Client positions and related collateral must be held in accordance with Part 30 of the CFTC Regulations. To this end, LCH has amended the FCM Rulebook to provide FCM Clearing Members with account structures that meet the relevant requirements. In particular, an FCM Clearing Member must establish and maintain one or more "**FCM Foreign Futures Client Secured Amount Depository Accounts**" to hold the collateral received from FCM Clients in respect of the FCM NLX Clearing Service. Each FCM Foreign Futures Client Segregated Depository Account is subject to the geographical and other limitations set out in CFTC Regulation 30.7(c). LCH will record FCM NLX Contracts in an FCM Clearing Member's "**FCM Omnibus NLX Client Account with LCH**". Collateral received by LCH in respect of FCM Client positions in FCM NLX Contracts will be deposited in the "**LCH Foreign Futures Client Depository Account**", which will not contain any proprietary funds or assets of FCM Clearing Members, except as required by CFTC Regulation 30.7(g). These accounts are treated as part of the foreign futures customer account class for purposes of the CFTC Regulations.

Where an FCM Client submits DCM Futures for registration as FCM Listed Interest Rates Contracts, the FCM Client's positions and related collateral will be held in accordance with Part 1 of the CFTC Regulations. The FCM Regulations already provide for the establishment and maintenance of the relevant set of segregated futures customer accounts.

For the FCM Portfolio Margining Service to operate effectively, LCH must be able to identify the relevant Rates Futures and Rates Swaps in respect of each participating FCM Client. Accordingly, FCM Clearing Members will be required to provide LCH the same FCM Client-specific information in respect of Rates Futures that they currently provide LCH in respect of FCM Client SwapClear positions pursuant to Part 22 of the CFTC Regulations.

Treatment of FCM Portfolio Margined Contracts

The operation of the Portfolio Margin Calculation Tool may cause certain Identified Off-Setting Listed Interest Rates Contracts to be transferred from the FCM Omnibus NLX Client Account with LCH to the FCM Omnibus SwapClear Client Account with LCH (such transferred contracts, "**FCM Portfolio**

Margined Contracts").[32] For so long as an FCM Listed Interest Rates Contract is an FCM Portfolio Margined Contract, it will generally be treated as an FCM SwapClear Contract for all purposes of the FCM Rulebook.[33]

3.7 A description of the systems and procedures that would be used by the derivatives clearing organization to oversee such clearing members' risk management of any such commingled positions

LCH conducts an ongoing assessment of its FCM Clearing Members, including the ability of each such FCM Clearing Member to comply with its financial, operational and risk management membership criteria. These credit assessment procedures are supported and overseen by LCH's risk management framework, which includes LCH's Risk Committee and Risk Department, as well as LCH Group's Executive Risk Committee ("**ERCO**") and the following ERCO subcommittees: (i) the Market Risk Management Committee ("**MRMC**"); (ii) the Credit Risk Management Committee ("**CRMC**"); and (iii) the Assets and Liabilities Committee ("**ALCO**").

3.7.1 Credit Assessment Programme

As part of LCH Group's credit assessment policy, LCH's Risk Department coordinates information on each FCM Clearing Member's creditworthiness and financial condition in order to detect, as early as possible, events that may threaten the ability of an FCM Clearing Member to continue to meet its obligations to LCH. The Risk Department primarily considers each FCM Clearing Member's financial reports and regulatory returns, and LCH's own evaluation of such FCM Clearing Member's standards of management and control.

As part of this process, each FCM Clearing Member is required under the FCM Procedures to provide LCH with regular reports relating to its financial health, including the following:

- FCM Clearing Members must provide LCH with copies of their annual reports within six months of the date such reports are made up.[34]
- FCM Clearing Members must promptly submit to LCH copies of all financial returns and reports made to its regulators as well as any notifications made, or reports submitted, to the CFTC pursuant to the CFTC Regulations (including CFTC Regulations 1.10 and 1.12).
- FCM Clearing Members must notify LCH immediately upon any significant reduction of any shareholders' funds or net capital.
- FCM Clearing Members must provide LCH with information and documents regarding their risk management policies and procedures, including in respect of financial resources and settlement procedures.

LCH may also require an FCM Clearing Member to provide any additional financial or risk management information that it determines is necessary to ensure that such FCM Clearing Member meets relevant

[32] When DCM Futures form part of the FCM Listed Interest Rates Clearing Service, the Identified Off-Setting Listed Interest Rates Contracts will be transferred from the relevant FCM Omnibus Futures Client Account with LCH to the FCM Omnibus SwapClear Client Account with LCH.

[33] Note, however, that an FCM Portfolio Margined Contract is not eligible for any compression runs.

[34] Notwithstanding the deadlines for LCH's financial reporting requirements, FCM Clearing Members remain obligated pursuant to the CFTC Regulations to file their annual reports within 60 days after the close of the FCM Clearing Member's fiscal year and to file monthly Form 1-FR-FCM or FOCUS Reports.

membership criteria on an ongoing basis. LCH may also in its discretion request financial accounts for the parent (or ultimate parent) of an FCM Clearing Member.

LCH uses the financial, operational and risk management information it obtains through these reporting requirements as part of its wider internal credit scoring framework pursuant to which LCH generates an internal credit score for each FCM Clearing Member.[35] The internal credit score model generally assesses creditworthiness of FCM Clearing Members using a number of qualitative and quantitative factors, including financial analysis (including equity, leverage and return on assets ratios) and operational capability.

On the basis of the information obtained as part of the credit assessment framework and the weightings set out in LCH's internal score model, an "implied" internal credit score is determined; the score ranges from 1 to 10 whereby a credit quality of 1 represents a clearing member with a low risk of default and 10 is equivalent to a defaulting counterparty. The "implied" internal credit score is then subject to upwards or downwards adjustments based on certain criteria such as third-party credit support, country risk, and any other reasons specific to the FCM Clearing Member. An applicant for FCM Clearing Member status must meet a minimum internal credit score of 5.

All inputs into the internal credit scoring framework described herein are monitored daily where applicable or as soon as possible when updated information is available. In addition to ongoing monitoring, all clearing members are subject to a formal documented review on at least an annual basis but can be more frequent depending on the level of internal credit score or if a deterioration is seen in its credit worthiness. All scores are reviewed by the CRMC and approved by the ERCO. A deterioration of the level of an internal credit score may result in the following actions (to be determined by the CRMC):

- a reduction in exposures;
- an increase in the level of risk monitoring applied;
- for internal credit scores below 6, additional margin will be called in the form of either a margin multiplier or additional margin to cover part or all of any stress test losses over margin held;
- for internal credit scores of 9, a suspension or full termination or transfer of positions to an alternate clearing member;
- reduced credit tolerance for intraday margin calls; or
- a review of the non-clearing functions provided by the Clearing Member.

3.7.2 Risk Management Framework

The overall framework for LCH's risk management structure is set out in the following series of risk policies that have been harmonized at the LCH Group level.

- The "Risk Management Policy: Default Management" sets out the requirements that each service-specific default management policy must meet.
- The "Risk Policy: Financial Resource Adequacy" sets out standards governing the assessment of financial resources (e.g., initial margins and default funds) against clearing member portfolios as well as requirements applicable to stress testing and back testing.

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35 The internal credit scoring model is detailed in LCH Group's "Risk Policy: Counterparty Credit Risk".

- The "Risk Policy: Liquidity Risk" sets standards for the maintenance of sufficient liquidity in LCH's financial resources.

- The "Risk Policy: Collateral Risk" establishes criteria for determining which financial instruments are acceptable as collateral to cover margin and default fund requirements as well as the haircuts applied to such instruments.

- The "Risk Policy: Settlement, Payment and Custodian Risk" sets out principles for the selection and monitoring of the intermediaries that LCH uses for settlement, payment and custody activities.

- The "Risk Management Policy: Investment Risk" sets principles and monitoring practices applicable to the management of LCH's investment risk connected with investing cash funds received as margin payments, default fund contributions, settlement failures and share capital.

- The "Risk Policy: Model Governance, Validation and Review" is designed to provide a consistent framework to ensure that all of LCH's margin models meet appropriate quality criteria and are subject to a validation process that meets applicable regulatory requirements. The policy applies to all stages relating to a new, or amended, margin model, from initiation to validation, including regular model review and back testing.

- The "Risk Policy: Counterparty Credit Risk" provides the framework for determining the frequency and content of LCH's member risk assessments and for assigning internal credit scores to existing and prospective clearing members.

Each of the policies listed above contains provisions requiring that the content and application of the policy be subject to regular reviews and internal audits.

3.7.3 Risk Governance

LCH's board of directors (the "**Board**") maintains overall responsibility for risk management. However, the Board will, prior to making decision with respect to risk management obtain advice and recommendations from the Risk Committee and Risk Department as well as the ERCO, the MRCM and the CRMC, each described in more detail below. The content of LCH's risk management framework is set out the aforementioned series of risk management policies and procedures.

Risk Committee

The Risk Committee, which reports to the Board, is comprised of independent non-executive directors, representatives of end-users as well as representatives who serve in risk management or other senior capacities for clearing members. Certain LCH executives, including the chief executive officer ("**CEO**") and chief risk officer ("**CRO**"), as well as LCH Group's chief executive officer ("**Group CEO**") and its chief risk officer ("**Group CRO**"), may attend meetings of the Risk Committee in a non-voting capacity. The Risk Committee is chaired by an independent non-executive director.[36]

The Risk Committee is responsible for the following: (i) considering and commenting on LCH's risk appetite, tolerance and strategy; (ii) receiving advice, recommendations and updates (as applicable) from the ERCO; (iii) reviewing criteria for admission and credit assessment policies; (iv) consider the risk controls designed for new activities, including clearing new markets or accepting new contracts for clearing; (v) considering proposals for significant amendments to, or introduction of new, margin

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[36] The Terms of Reference for LCH's Risk Committee are available at: http://www.lchclearnet.com/documents/731485/762679/riskco+tor+14+may+2+for+boardcl_1.pdf.

methodologies, including intra-day margin policies; (vi) regularly reviewing the Default Fund policy and stress testing methodology; (vii) reviewing LCH's payment and money settlement arrangements, collateral custody arrangements, investment risk and liquidity risk policies and the policy on acceptable forms of collateral; and (viii) considering any other regulatory or risk management issue referred to it, including relating to outsourcing. All policies are reviewed by the Risk Committee on an annual basis and approved by the full Board. The Risk Committee has delegated certain of its obligations to the CEO.

Risk Department

The Risk Department is headed by the CRO. The CRO is a member of LCH's executive committee (also called the "Local Management Committee") and is responsible for LCH's risk function. The CRO has direct reporting lines to the CEO and to the Group CRO. The Risk Department includes staff and teams responsible for measuring, monitoring and controlling risks, including the following:

- the Market Risk team is responsible for the day-to-day monitoring and managing of the latent market risk of each clearing member's cleared positions;
- the Credit Risk team is responsible for monitoring LCH's counterparty credit risk towards clearing members, investment counterparties and, where applicable, other clearing organisations with interoperability arrangements with LCH;
- the Collateral and Liquidity Management Risk team is responsible for managing LCH's collateral, liquidity and investment risks;
- the Risk Project team is in charge of managing projects that impact LCH's risk information system by specifying the Risk Department's functional requirements and to test delivered systems and functionalities before they are put into production;
- the Default Management team is responsible for preparing and coordinating the various actions to be undertaken in the event of a clearing member default;
- the Operational and Enterprise Risk team is responsible for monitoring operational risks across LCH, for implementing operational risk control procedures, and for maintaining LCH's enterprise risk management framework;
- the Risk Methodology team is in charge of the development and maintenance of LCH's risk quantitative models; and
- the SwapClear Risk team is responsible for monitoring the risk associated solely with the SwapClear business stream, including the calculation of default fund contributions, initial margin calls and generally assessing the interest rate risk associated with cleared swap contracts.

ERCO

The ERCO is responsible for the effective and timely management, monitoring and oversight of all material risks undertaken in pursuit of the stated business objectives and risk appetite of LCH Group entities, including LCH. The ERCO's role also includes the management and control of risks across all LCH Group entities, including LCH, pertaining to those risk types specified in LCH Group's risk appetite statement and risk tolerance statement. The ERCO is also responsible for discharging the duties delegated to it by the Risk Committee in the Risk Committee's Terms of Reference.

MRMC

The MRMC is an ERCO sub-committee that is responsible for managing and monitoring the establishment and maintenance of a comprehensive system of market risk management. The MRMC is responsible for regularly reviewing the risk framework, including margin levels, in light of changes within the markets, LCH Group's business or its environment that might affect its risk profile. The MRMC ensures that standards for the approval of new products and businesses provide sufficient assurance that all resulting market risks can be appropriately measured and managed; and that relevant regulatory requirements can be met.

CRMC

The CRMC is an ERCO sub-committee that is responsible for managing and monitoring the effectiveness of LCH Group's credit risk management framework and compliance with applicable credit requirements. The CMRC monitors and reviews LCH Group's aggregate credit risk exposures to its various counterparties as well as concentrations of risk. The CRMC reviews credit scores, credit risks, membership applications and other counterparty risk or Clearing Member-related risk matters and makes appropriate recommendations in respect thereof to the ERCO.

ALCO

The ALCO is an ERCO sub-committee that is responsible for managing and monitoring LCH Group's assets and liabilities. The ALCO's primary role is to enforce the harmonised implementation of the LCH Group's treasury investment and liquidity policies. Other responsibilities include considering proposals for changes to investment limits, or new instruments to be traded, annual policy reviews and issues related generally to asset and liability management.

3.8 A description of the financial resources of the derivatives clearing organization, including the composition and availability of a guaranty fund with respect to the futures, options, and swaps that would be commingled

The liquid financial resources available to LCH in respect of the FCM Portfolio Margining Service will meet or exceed the requirements set out in CFTC Regulation 39.11.

3.8.1 Financial Resources Policy

The LCH Group Board has adopted a "Financial Resource Adequacy" policy for all members of the Group, including LCH. The policy outlines the resources available for each risk, the form they take and the order in which they should be used. LCH will meet the financial resource requirements for the FCM Portfolio Margining Service primarily through the application of its margin methodology to: (i) commingled portfolios of FCM SwapClear Contracts and FCM Portfolio Margined Contracts (which as noted above are margined as FCM SwapClear Contracts); and (ii) portfolios of FCM Listed Interest Rates Contracts.[37]

LCH's margin methodology, described more fully in section 0 below, has been designed to ensure that the margin posted by each FCM Clearing Member is sufficient to cover the risk of losses – whether arising under the FCM SwapClear Clearing Service, the FCM Listed Interest Rates Clearing Service, or otherwise – to a 99.7 percent confidence level in the case of an FCM Clearing Member default. The adequacy of these margining arrangements is subject to daily back tests and stress tests using historical

[37] In accordance with the requirements of the CEA and the CFTC Regulations, FCM Client positions in FCM Listed Interest Rates Contacts in respect of foreign futures will be margined separately from FCM Client positions in FCM Listed Interest Rates Contacts in respect of DCM Futures.

and hypothetical scenarios. Therefore, on any given clearing day, the margin requirements calculated by LCH inherently ensure that LCH maintains, on an ongoing basis, amounts that are sufficient for LCH to meet its financial obligations to non-defaulting clearing members in the event of an FCM Clearing Member default.

3.8.2 Rates Service Default Fund

Over and above the margin requirements that must be met by each FCM Clearing Member, LCH has revised its default fund arrangements in order to establish a dedicated default fund for its combined SwapClear and Listed Rates services ("**Rates Service Default Fund**").[38] Even though these two clearing services are combined in a single default fund, it remains optional for clearing members to participate in portfolio margining. Hence, the Rates Service Default Fund has been subdivided into separate margin classes for clearing members that participate in portfolio margining (the "**OTC Rates Class**") and those that do not (the "**Listed Rates Class**").

The Rates Service Default Fund is sized across the two margin classes as follows:

- on each business day, LCH applies a single, unified set of stress test scenarios[39] to a clearing member's aggregate risk profile across both the OTC Rates and Listed Rates Classes;
- LCH determines the "**Combined Loss Value**" for a particular business day, which is the sum of (1) the largest and second largest daily stress-testing losses incurred during the preceding 60 business days in relation to any clearing member's SwapClear Contracts and Eligible Listed Interest Rates Contracts; and (2) the largest and second largest daily stress-testing losses incurred during the preceding 60 business days in relation to any clearing member's Non-Eligible Listed Interest Rates Contracts, in each case in respect of one of the set of stress test scenarios referred to above;
- at the close of business on the first business day of each calendar month, LCH takes the largest of the Combined Loss Values from the preceding 60 business days, multiplies such amount by 110% and adds in the SwapClear Tolerance Amount and the resulting amount is the Rates Service Default Fund size, subject to a floor of £1 billion and a cap of £5 billion.[40]

Once the Rates Service Default Fund has been sized, the overall amount will be split into two parts: (i) the Tolerance Amount, which is equal to the size of SwapClear's Trade Registration Fund (currently £400 million); and (ii) the Non-Tolerance Amount, which is the residual amount of the Rates Service Default Fund. The Tolerance Amount will be allocated in its entirety to the OTC Rates Class.

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[38] LCH currently maintains a SwapClear Default Fund for its SwapClear service and a separate Listed Interest Rate Default Fund for its exchange-traded interest rate derivatives service. The Rates Service Default Fund, once introduced, will be maintained separately from the default funds for LCH's other clearing services.

[39] The scenarios have been enhanced as follows: (i) to account for additional basis risks in an aggregate portfolio of OTC and listed rates products; and (ii) to introduce a series of 10 new scenarios – including steepening/flattening, butterfly moves and currency decorrelation – to capture "short-end" rate risk arising from the increased volumes of STIR futures in the combined clearing service.

[40] The Rates Service Default Fund will also be recalculated whenever the largest of the 60 Combined Loss Values differs by more than 25% from the Combined Loss Value on which the previous sizing of the Rates Derivative Default Fund was based.

The Non-Tolerance Amount will be allocated between the OTC Rates Class and the Listed Rates Class in proportion to the class-specific Combined Loss Values as measured over the prior 60 business days.[41] Individual clearing members will be required to fund their portion of these allocated amounts using a similar methodology that currently applies to the existing SwapClear and Listed Rates clearing services. The contributions applicable to each clearing member must be paid by the fourth business day of each month.

3.8.3 Liquidity Policy

LCH is also subject to LCH Group's liquidity policy, which requires LCH to have access at all times to sufficiently liquid resources to be able to cover simultaneously its operational liquidity requirements (*i.e.*, repayment of cash collateral to clearing members, providing liquidity to facilitate delivery versus payment settlement and cash flows resulting from investment activity) as well as its default liquidity requirements (*i.e.*, fulfilling the settlement obligations of a defaulting clearing member, covering potential losses on liquidated positions and cash flows for hedging transactions) in the event of a clearing member default. In order to comply with the restrictions on investment under the CFTC Regulations and under applicable EMIR requirements, LCH is only permitted to invest FCM Client Funds in US treasury securities (outright and reverse repo).

The foregoing arrangements demonstrate that LCH maintains sufficient, liquid financial resources to perform its obligations as buyer to every seller, and seller to every buyer, of FCM SwapClear Contracts (including FCM Portfolio Margined Contracts) and FCM Listed Interest Rates Contracts in normal market circumstances as well as to withstand the simultaneous default of the two clearing members creating the greatest liquidity exposures for LCH.

3.9 A description and analysis of the margin methodology that would be applied to the commingled futures, options, and swaps, including any margin reduction applied to correlated positions, and any applicable margin rules with respect to both clearing members and customers

FCM Portfolio Margined Contracts (*i.e.*, those contracts that are identified by the balancer for portfolio margining) are transferred from an FCM Clearing Member's FCM Omnibus NLX Client Account with LCH[42] and held in such FCM Clearing Member's FCM Omnibus SwapClear Client Account with LCH, where such contracts will be commingled with FCM SwapClear Contracts. FCM Portfolio Margined Contracts will, for as long as they are held in an FCM Omnibus SwapClear Client Account with LCH, be treated as FCM SwapClear Contracts for all purposes of the FCM Rulebook (other than compression events).[43]

Accordingly, FCM Portfolio Margined Contracts will be margined in accordance with LCH's existing SwapClear margin methodology, known as the Portfolio Approach to Interest Rate Scenarios ("**PAIRS**"), adjusted as described below. PAIRS is an expected shortfall model based on filtered historical simulation and incorporates volatility scaling through an exponentially-weighted moving average ("**EWMA**") volatility estimate. The model

[41] LCH will calculate: (1) a "**SwapClear Combined Loss Value**" equal to the sum of the largest and second largest stress-testing losses incurred on that day in relation to SwapClear business for a given scenario; and (2) a "**Listed Rate Combined Loss Value**" equal to the sum of the largest and second largest stress-testing losses in excess of initial margin incurred on that day for a given scenario in relation to Listed Interest Rates business. The proportional relationship between these two values will determine the allocation of the Non-Tolerance Amount to the OTC Rates Class and to the Listed Rates Class.

[42] When DCM Futures form part of the FCM Listed Interest Rates Clearing Service, the Identified Off-Setting Listed Interest Rates Contracts will be transferred from the relevant FCM Omnibus Futures Client Account with LCH to the FCM Omnibus SwapClear Client Account with LCH.

[43] In addition, as noted in section 3.6.2, *supra*, any lifecycle events in connection with an FCM Portfolio Margined Contract, including trade transfer, position transfer and give-ups, will be suspended. However, at no time will the FCM Listed Interest Rates Contract Terms underlying an FCM Portfolio Margined Contract be affected.

simulates changes to the value of a given SwapClear portfolio (which, as noted above, will in this case include FCM Portfolio Margined Contracts commingled with FCM SwapClear Contracts) based on historical price movements from the most recent 2500 business days, or approximately 10 years. This range ensures coverage of potential future exposures with a confidence level of at least 99.7%.

The PAIRS model also considers historical foreign exchange rate movements to account for foreign exchange risk as well as an assumed holding (close-out) period of five days for proprietary positions and seven days for customer positions.[44] The base initial margin requirement is calculated as the average of the six largest simulated losses using the PAIRS model. LCH also imposes certain margin add-ons, *e.g.* in respect of credit risk and concentration/liquidity risk, where the PAIRS model does not adequately capture a particular portfolio's inherent risk exposure.

The coverage of the PAIRS model is backtested on a daily basis against actual and hypothetical portfolios. The results of these daily backtests are reviewed by LCH's Risk Department at least monthly and reported to LCH's Risk Committee at least quarterly. Further backtesting is performed monthly in order to identify the causes of any margin coverage breaches and to detect any possible weaknesses in the model relating to particular products, risk factors and/or market conditions. LCH has an independent model validation team that reviews the PAIRS margin methodology on an annual basis; this review also tests the performance of the model across various levels of confidence.

Following independent internal and external reviews of the proposed initial margin model for the FCM Portfolio Margining Service, LCH has determined to incorporate the following adjustments to its initial margin calculations for commingled portfolios of Rates Swaps and Rates Futures.

<u>Minor Currency/Futures Diversification Benefit</u>

LCH's review of the proposed initial margin model has identified strong, stable correlations between 14 of the major swap currencies and the Rates Futures contracts that will participate in the FCM Portfolio Margining Service. The diversification benefit relating to correlations between these 14 swap currencies and Rates Futures will be applied in full. However, there are four minor swap currencies – PLN, HUF, MXN[45] and ZAR – where weaker correlations were identified. As a matter of conservatism, LCH has determined to impose a margin add-on in respect of these three currencies. The add-on will increase as the concentration of Rates Futures and minor currency swaps in the commingled portfolio increases. LCH has also established a programme of ongoing testing to ensure the adequacy of this add-on model.[46]

<u>Basis Risk Add-On</u>

LCH has determined to extend its current basis risk calculation to account for a new basis risk that is introduced by commingling Rates Swaps and Rates Futures. Specifically, LCH intends to model DSFs as forward-starting swaps, however DSF prices may diverge from swap prices for various reasons, such as differences in the relative supply and demand of DSFs and swaps. This price divergence may materially impact the profit and loss calculations between these two products, and a margin add-on that accounts for this

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[44] By contrast, the margin model applicable to FCM Listed Interest Rates Contracts that have not been portfolio margined assumes a holding (close-out) period of 2 days.

[45] LCH has completed the relevant approval and review processes for MXN-denominated Rates Swaps, however they are not in production as of the date of this request.

[46] LCH also intends to incorporate additional hypothetical portfolios with different concentrations of major currency swaps, minor currency swaps and Rates Futures as part of its daily hypothetical portfolio backtesting. LCH also intends to conduct annual reviews of the add-on model and to recalibrate the model to the extent that concentrations of minor currency swaps and Rates Futures exceed the anticipated maximum threshold forming the basis of the add-on calculations.

additional basis risk will be imposed as a flat percentage of the base initial margin amount. The relevant percentage differs based on the tenor of the DSF.

Liquidity/Concentration Risk

LCH has also amended its existing liquidity/concentration risk margin model, which was originally adopted to cover the additional close-out cost of any large positions. Large outright directional positions will continue to receive a margin charge to cover these close-out costs, however the amount will be adjusted to account for the introduction of additional short-dated risk as a consequence of the presence of short-dated maturities in commingled portfolios. In addition, any position in Rates Futures that exceeds 50% of average daily volume in such contract will be assumed to take more than two days to close out, and consequently bear a margin charge based on the expected unwind cost for that position, calibrated using liquidity survey data.

Model Uncertainty Risk

The balancer introduces additional model risk, which LCH has determined to address through an additional margin add-on. The balancer is designed to reduce margin by taking an overall risk view across a portfolio of commingled Rates Futures and Rates Swaps contracts. Although initial margin is a good proxy for the level of risk in a portfolio, there is a risk that positions may be transferred only because they coincidentally provide a reduction in initial margin due to the correlations that happen to be present in the historic dataset, but do not offset the actual risk of a particular portfolio. The model risk margin add-on is intended to provide mitigation for this potential issue, and will increase in percentage terms depending on the amount of margin reduction identified by the balancer.

Finally, material changes to the PAIRS margin methodology is subject to LCH's risk governance process, including an internal review and external validation of the model as well as approval from both ERCO and the LCH Board. LCH's current PAIRS model was externally tested and validated in December 2012. In addition, the PAIRS model as adjusted above for portfolio margining was subject to an external review in 2015, which concluded that the proposed portfolio margining model contains no material risk issues for LCH in respect of its initial margin model.[47]

3.10 An analysis of the ability of the derivatives clearing organization to manage a potential default with respect to any of the futures, options, or swaps that would be commingled

LCH proposes to amend its Default Rules as follows to identify the various financial resources at LCH's disposal to meet any monetary shortfalls in the event of the default of an FCM Clearing Member participating in the FCM Portfolio Margining Service. The revised Default Rules will also determine the extent to which such resources may be applied given the nature of the default.

3.10.1 Financial Resources

LCH has the following resources at its disposal in the event of the default of an FCM Clearing Member participating in the FCM Portfolio Margining Service.

Defaulting FCM Clearing Member's Collateral

Under the revised Default Rules, when an FCM Clearing Member experiences a default in respect of a particular clearing service, LCH may avail itself of the collateral posted by the defaulting FCM Clearing

[47] The review also concluded that the proposed portfolio margining model contains no material risks relating to variation margin or default fund arrangements. An internal review conducted by LCH's SwapClear Quantitative Analytics team similarly concluded that LCH should engage in the portfolio margining of Rates Futures and Rates Swaps using its existing SwapClear initial margin model.

Member relating to that service. To the extent that such collateral is not sufficient to cover the losses resulting from the default, LCH may avail itself of the collateral, if any, posted by the defaulting FCM Clearing Member in respect of LCH's other clearing services (to the extent not required for such service(s)).

Rates Service Default Fund

The FCM SwapClear and FCM Listed Interest Rates Clearing Services will be supported by the Rates Service Default Fund, which will be sized and allocated to FCM Clearing Members, and across margin classes, as described in section 3.8.2, *supra*. In the event of a default relating to the FCM Portfolio Margining Service, LCH will have recourse to the Rates Service Default Fund contribution of the relevant defaulting FCM Clearing Member relating to the relevant margin class followed by such defaulter's contributions, if any, remaining to the Rates Service Default Fund in respect of another margin class as well as to other default funds maintained by LCH (to the extent not required for such service(s)).

LCH Contribution

LCH will apply a contribution from its own account *pro rata* across each of the clearing services affected by the default. The amount of LCH's contribution will be calculated in accordance with the implementing regulations under EMIR, which generally require LCH to apply an amount equal to 25% of its minimum regulatory capital, which is held in addition to the minimum regulatory capital amount. The amount is allocated to the LCH Default Funds in proportion to their size. The LCH contribution amount will be available to cover losses arising across both margin classes and any amounts so used will be allocated in the chronological order in which the losses are incurred.

Non-Defaulter's Contributions

Following the application of LCH's contribution, LCH will use the Rates Service Default Fund contributions of non-defaulting clearing members, subject to certain adjustments described below relating to the margin class(es) in which the defaulter participates.

Assessment

To the extent that 25% of the default fund contributions of clearing members has been applied, or LCH determines that such amount will be applied prior to the end of the default management process, LCH will have the right to call additional funds from its non-defaulting clearing members, payable within one business day of the call. The sum of any such assessments applicable to a given clearing member may not exceed such clearing member's default fund contribution amount calculated prior to the default. In the event of multiple defaults, LCH may not issue assessments for more than three defaults in any six month period.

Variation Margin Gainer Haircutting

If the size of the losses in connection with a clearing member's default exhausts all other available financial resources, such uncovered losses will be covered by non-defaulting clearing members pursuant to SwapClear's existing variation margin gainer haircutting mechanism, which is subject to a capped amount.[48]

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48 Currently, the Listed Rates Service Clearing Members are subject to a "Loss Distribution Charge" rather than variation margin haircutting, however loss distribution charges will be eliminated with the introduction of the combined Rates Clearing Service.

Voluntary Payment

Where it is clear to LCH that the available financial resources, including the loss distribution process, will be insufficient to meet the losses caused by a defaulter, LCH will by written notice invite non-defaulting clearing members to make a voluntary payment to cover the shortfall.

Service Closure

If the ballot to increase the Loss Distribution Cap Amount and the request for voluntary payments fail to cover default-related losses, LCH will then move to the "Service Closure" phase. LCH will calculate any remaining uncovered losses and distribute them across the non-defaulting clearing members. All open positions attributable to clearing business in the relevant default fund will be closed out and all gains and losses in respect of each clearing member are set off into a single net sum. All clearing members that owe a payment to LCH must pay in full.

Application of Recoveries

Where LCH recovers any amounts from the defaulter's estate or through the operation of the default management process, LCH will reimburse clearing members (whether or not clearing members at the time of recovery) on a *pro rata* basis by reference to the resources of such clearing members applied to cover the losses associated with such default.

3.10.2 Order of Application of Financial Resources

The order and extent to which these resources will be used depends on several factors, including whether an FCM Clearing Member participates in the OTC Rates Class, the Listed Rates Class, or both. More specifically, the order of application of financial resources is subject to the following principles:

- where a default occurs only in respect of one margin class, financial resources contributed by non-defaulting clearing members of the defaulting margin class (or, as noted below, the relevant sub-class thereof) will be required to absorb losses ahead of non-defaulting clearing members of the non-defaulting margin class (or subclass thereof);

- the Listed Rates Class is subdivided into a subclass consisting of clearing members participating in the portfolio margining service ("**Listed Rates Portfolio Margining Subclass**") and a second subclass consisting of all other members of the Listed Rates Class ("**Listed Rates Non-Portfolio Margining Subclass**");

- funded financial resources in a given margin class (or subclass) should be exhausted before assessments are applied to the same margin class (or subclass);

- where a default occurs in respect of both margin classes: (i) losses must be attributed by margin class in accordance with the foregoing principles above; and (ii) financial resources contributed by the non-defaulting portfolio-margining members of the Listed Rates Portfolio Margining Subclass must absorb losses ahead of non-defaulting clearing members in the Listed Rates Non-Portfolio Margining Subclass; and

- financial resources will be allocated based on the order that the various default management processes are carried out (*i.e.*, portfolio splitting, hedging, creation of basis portfolios and auction incentive pools, auctioning, and closing out contracts) and once a given process is commenced the relevant resources will be allocated in accordance with the steps and order set out in the relevant Default Rule which applies to that process.

On the basis of the foregoing principles, there will be three possible waterfall scenarios: (i) a default by a clearing member that participates in the OTC Rates Class only; (ii) a default by a clearing member that participates in the Listed Rates Class only; and (iii) a default by a clearing member that participates in both margin classes, *i.e.*, a clearing member that participates in the portfolio margining service.

Scenario #1: Default – Member of OTC Rates Class Only

Financial resources would be applied as follows by LCH in the event of a default by a clearing member that is a member of the OTC Rates Class only:

Rank	**Description**
1	Defaulting clearing member's initial margin in respect of OTC Rates Class
2	Defaulting clearing member's Rates Service Default Fund contribution (which would be funded in respect of the OTC Rates Class only as the defaulter is a member of the OTC Rates Class only)
3	LCH contribution
4	Non-defaulting clearing member funded contributions to Rates Service Default Fund in respect of OTC Rates Class
5	Non-defaulting clearing member funded contributions to Rates Service Default Fund in respect of Listed Rates Portfolio Margining Subclass of Listed Rates Class
6	Non-defaulting clearing member funded contributions to Rates Service Default Fund in respect of Listed Rates Non-Portfolio Margining Subclass of Listed Rates Class
7	Non-defaulting clearing member unfunded contributions to Rates Service Default Fund in respect of OTC Rates Class
8	Non-defaulting clearing member unfunded contributions to Rates Service Default Fund in respect of Listed Rates Portfolio Margining Subclass of Listed Rates Class
9	Non-defaulting clearing member unfunded contributions to Rates Service Default Fund in respect of Listed Rates Non-Portfolio Margining Subclass of Listed Rates Class
10	Variation margin gainer haircutting
11	Voluntary payment by non-defaulting clearing members
12	Service closure

Between the fourth and ninth items, losses will be applied *pro rata* to each non-defaulting clearing member based on their default fund contribution. Auction-related losses will be attributed to non-defaulting clearing members in the OTC Margin Class as described in greater detail below.

Scenario #2: Default – Member of Listed Rates Class Only

Financial resources would be applied as follows by LCH in the event of a default by a clearing member that is a member of the Listed Rates Class only:

Rank	**Description**
1	Defaulting clearing member's initial margin in respect of Listed Rates Class
2	Defaulting clearing member's Rates Service Default Fund contribution (which would be funded in respect of the Listed Rates Class only as the defaulter is a member of the Listed Rates Class only)
3	LCH contribution
4	Non-defaulting clearing member funded contributions to Rates Service Default Fund in respect of Listed Rates Class
5	Non-defaulting clearing member funded contributions to Rates Service Default Fund in respect of OTC Rates Class
6	Non-defaulting clearing member unfunded contributions to Rates Service Default Fund in respect of Listed Rates Class
7	Non-defaulting clearing member unfunded contributions to Rates Service Default Fund in respect of OTC Rates Class
8	Variation margin gainer haircutting
9	Service closure

Between the fourth and seventh items, losses will be applied *pro rata* to each non-defaulting clearing member based on their default fund contribution.

Scenario #3: Default in Listed Rates Class and OTC Rates Class

Financial resources would be applied as follows by LCH in the event of a default by a clearing member that is a member of both the OTC Rates Class and the Listed Rates Class:

Rank	**Losses in Listed Rates Class**	**Losses in OTC Rates Class**
1	Defaulting clearing member's initial margin in respect of Listed Rates Class*	Defaulting clearing member's initial margin in respect of OTC Rates Class*
2	Defaulting clearing member's Rates Service Default Fund contribution in respect of Listed Rates Class**	Defaulting clearing member's Rates Service Default Fund contribution in respect of OTC Rates Class**
3	LCH contribution***	
4	Non-defaulting clearing member funded contributions to Rates Service Default	Non-defaulting clearing member funded contributions to Rates Service Default

	Listed Rates Class	OTC Rates Class
	Fund in respect of Listed Rates Portfolio Margining Subclass of Listed Rates Class	Fund in respect of OTC Rates Class
5	Non-defaulting clearing member funded contributions to Rates Service Default Fund in respect of Listed Rates Non-Portfolio Margining Subclass of Listed Rates Class	Non-defaulting clearing member funded contributions to Rates Service Default Fund in respect of Listed Rates Portfolio Margining Subclass of Listed Rates Class
6	Non-defaulting clearing member funded contributions to Rates Service Default Fund in respect of OTC Rates Class	Non-defaulting clearing member funded contributions to Rates Service Default Fund in respect of Listed Rates Non-Portfolio Margining Subclass of Listed Rates Class
7	Non-defaulting clearing member unfunded contributions to Rates Service Default Fund in respect of Listed Rates Portfolio Margining Subclass of Listed Rates Class	Non-defaulting clearing member unfunded contributions to Rates Service Default Fund in respect of OTC Rates Class
8	Non-defaulting clearing member unfunded contributions to Rates Service Default Fund in respect of Listed Rates Non-Portfolio Margining Subclass of Listed Rates Class	Non-defaulting clearing member unfunded contributions to Rates Service Default Fund in respect of Listed Rates Portfolio Margining Subclass of Listed Rates Class
9	Non-defaulting clearing member unfunded contributions to Rates Service Default Fund in respect of OTC Rates Class	Non-defaulting clearing member unfunded contributions to Rates Service Default Fund in respect of Listed Rates Non-Portfolio Margining Subclass of Listed Rates Class
10	Variation margin gainer haircutting	
11	Service closure	

* Excess margin in one margin class will be used to cover losses in the other margin class prior to application of default fund contribution amounts.

** Any unused Rates Service Default Fund contribution in respect of one margin class will be used to cover losses in the other margin class prior to application of LCH Contribution amounts.

*** The LCH contribution amount will be applied across margin classes and allocated in the chronological order in which they are incurred.

Between the fourth and ninth items in the Listed Rates Class column, all losses will be attributed to non-defaulting clearing members *pro rata* based on their default fund contributions. Between the fourth and ninth items in the OTC Rates Class column, all variation margin losses will be attributed to non-defaulting clearing members *pro rata* in respect of their default fund contributions. Auction-related losses will be attributed to non-defaulting clearing members in the OTC Margin Class as described in greater detail below.

3.11 A discussion of the procedures that the derivatives clearing organization would follow if a clearing member defaulted, and the procedures that a clearing member would follow if a customer defaulted, with respect to any of the commingled futures, options, or swaps in the account

LCH proposes to amend its Default Rules, including the adoption of a Rates Service Default Management Plan (the "**Rates Service DMP**"), which will collectively set out the procedures that LCH will take upon the default of an FCM Clearing Member. These procedures would apply equally to an FCM Clearing Member participating in the FCM Portfolio Margining Service.

Key aspects of these procedures are summarised below; the summary refers to the revised Default Rules as if they have been adopted as proposed. In taking any of the following actions pursuant to the Rates Service DMP, LCH will consult with, and consider advice and guidance from, the Rates DMG, which has been formed from the legacy SwapClear and Listed Rates DMGs. The Rates DMG is chaired by the Head of Business Risk for the Rates Service and includes senior executives with appropriate skills and expertise from at least five Clearing Members participating in the OTC Rates Class.[49] The Rates DMG provides impartial advice and expertise in respect of risk neutralisation and the construction of auction portfolios, each as described in greater detail below.

Declaring an Event of Default. Default Rule 3 provides that LCH may declare a clearing member to be in default in the event that such clearing member appears to LCH to be unable, or to be likely to become unable, to meet its obligations to LCH. Default Rule 5 provides a non-exclusive list of events the occurrence of which may lead LCH to declare an event of default. Notwithstanding the breadth of LCH's right to determine that an event of default has occurred, Default Rule 3 requires that, in making any such determination, LCH have regard to the interest of the members of any market or exchange to which the clearing member may belong and, where possible, LCH should consult with such market or exchange.

Default Notice / Remedial Actions. Once LCH has determined that an event of default has occurred, it is required to send a notice (the "**Default Notice**") to the defaulting clearing member, publish a copy of the Default Notice and notify regulators as soon as is practicable. Once LCH has issued a Default Notice, Default Rule 6 permits LCH to take a number of different actions. LCH's right to take these actions is not constrained or otherwise limited as a consequence of the FCM Portfolio Margining Service.

Risk Neutralisation / Hedging. LCH's first priority upon the occurrence of an Event of Default is to reduce the risk of the Defaulter's portfolio. This process involves hedging, which will be conducted in accordance with the existing arrangements in place under the DMPs applicable to the SwapClear and Listed Rates services, which may include one or both of the following:

- executing hedges with members of the OTC Rates Class; and/or
- buying or selling exchange-traded contracts using an established set of brokers of the relevant exchange(s) designated for such purpose.

The hedging process for a Defaulter's portfolio, be it a member of the OTC Rates Class only, the Listed Rates Class only, or both, will be achieved by using the following strategies: (i) buying / selling the corresponding contract on the same market; (ii) buying / selling an OTC contract (*e.g.*, a "lookalike" OTC

[49] For a default in respect of the Listed Rates Class only, it is not expected that the Rates DMG will be convened; instead, the intention is for the default to be managed using LCH's internal personnel only.

contract) that will generate a market risk-neutral position; and (iii) buying / selling a more liquid exchange-traded or OTC contract and/or later expiry exchange-traded or OTC contract in the same or another market where such contract is highly-correlated to the Defaulter's contract.

FCM Client Porting. Where a Defaulter is an FCM Clearing Member participating in the FCM Portfolio Margining Service, the Rates Service DMP provides for the porting of such Defaulter's FCM Client positions, provided, however, that any transferee FCM Clearing Member must meet the relevant FCM Portfolio Margining Eligibility Criteria set out in the FCM Procedures. In addition, the Rates Service DMP in clarifies that LCH may only take such actions as may be permitted or required by the CEA, CFTC Regulations and applicable bankruptcy laws.

FCM Client Liquidation. Where LCH determines that one or more FCM Clients will not be ported (each, a "**Non-Porting FCM Client**"), LCH will establish a notional account referencing the FCM SwapClear Contracts and FCM NLX Contracts attributable to such Non-Porting FCM Client for purposes of allocating losses (such account, the "**Hedged Account**").[50] The Clearing House will establish a separate Hedged Account for each currency of contracts to be liquidated and will reference in each such Hedged Account the contracts in the applicable currency that are to be liquidated, regardless of the FCM Clients for which such FCM Rates Service Contracts are held. Each Non-Porting Client is assigned a risk factor ("**Account Class Risk Factor**") in respect of its set of FCM SwapClear Contracts (if any) and its set of FCM NLX Contracts (if any) referenced in one or more Hedged Accounts.[51] The value of each Account Class Risk Factor(s) is equal to the proportion of the hypothetical (where applicable) margin requirement associated with the FCM SwapClear Contracts and FCM NLX Contracts, respectively, referenced in the relevant Hedged Account for a particular currency. Gains and losses in each relevant Hedged Account will be allocated to each Non-Porting FCM Client *pro rata* based on such Non-Porting FCM Client's Account Class Risk Factor(s). LCH has established procedures to ensure the appropriateness of the Account Class Risk Factor calculations where contracts of additional Non-Porting FCM Clients are subsequently referenced in the Hedged Account(s). Following liquidation of a Hedged Account, gains and losses will be allocated to each Non-Porting FCM Client's relevant FCM Client Sub-Account (in respect of FCM SwapClear Contracts) or to the FCM Omnibus NLX Client Account with LCH (in respect of FCM NLX Contracts). FCM Clearing Members that provide FCM SwapClear Clearing Services and/or FCM Listed Interest Rates Clearing Services must provide each client with a copy of the FCM Rates Service Default Management Disclosure Notice.

Auction Process. Where the hedged portfolio(s) of the Defaulter contain only OTC positions, the current auction process set out in the SwapClear DMP will be applied to such portfolio(s). By contrast, where the hedged portfolio(s) of a Defaulter include one or more futures positions, LCH will construct one or more directionally neutral basis portfolios by pairing each futures position with an offsetting OTC risk exposure to create a risk-neutral basis portfolio and then partitioning the initial portfolio into an OTC-only subportfolio and a risk-neutral basis-only subportfolio.[52] Each member of the OTC Rates Class that has opted into portfolio margining must make reasonable efforts to bid for each basis portfolio, provided such member has all relevant exchange memberships. All members of the OTC Rates Class must also make reasonable efforts to bid for each OTC portfolio. Members of only the Listed Rates Class are not obliged

[50] Further details of these liquidation arrangements are set out in Section 2.1.15(f) of the FCM Procedures. For the avoidance of doubt, as each Hedged Account is a notional account only, the establishment and operation of the Hedged Account(s) will not implicate any commingling of the positions or collateral of any FCM Clients following the bankruptcy filing of a defaulting FCM Clearing Member.

[51] When DCM Futures form part of the FCM Listed Interest Rates Clearing Service, a separate Account Class Risk Factor will be calculated for the set of FCM Contracts in respect of such DCM Futures.

[52] The reason for this partitioning process is to minimise the number of non-defaulting clearing members that are excluded from the auction bidding process and to facilitate pricing of the portfolios presented for auctioning.

to participate in bidding. Finally, for the avoidance of doubt, any auction portfolio that includes client positions of the Defaulter will be constructed, and auctioned, separately from each portfolio that includes the Defaulter's house positions.

Allocation of Auction Losses. Where a default occurs in respect of a clearing member of the OTC Rates Class only (*i.e.*, Scenario #1 in section 3.10.2, *supra*), auction-related losses will be attributed to non-defaulting clearing members in the OTC Rates Class pursuant to the existing SwapClear methodology.

By contrast, where a default occurs in respect of a clearing member participating in both the OTC Rates Class and the Listed Rates Class (*i.e.*, Scenario #3 in section 3.10.2, *supra*), auction-related losses will be attributed to non-defaulting clearing members in accordance with the following principles:

- if the losses are to be covered solely by resources contributed by members of the Listed Rates Class, such losses will be attributed to each such non-defaulting clearing member *pro rata* to their respective default fund contributions;

- if the losses are to be borne by other resources of non-defaulting clearing members, then:

  - the losses in respect of OTC-only auction portfolios will be attributed using the existing SwapClear approach; and

  - the losses in respect of basis-only auction portfolios will be attributed as follows:

    1. first, the loss in respect of a basis-only auction portfolio is split into a portfolio-balancing element and a risk-neutralisation element equal to the ratio between: (i) that part of the total underlying futures risk originally transferred into the OTC Rates margin class as a result of portfolio-balancing; and (ii) that part subsequently assigned to the margin class during the risk neutralisation process;

    2. the portfolio-balancing amount is attributed to non-defaulting clearing members participating in the portfolio margining program in proportion to their respective shares of total futures-only risk in the OTC Rates Class; and

    3. the risk-neutralisation amount is attributed to non-defaulting clearing members (including the portfolio-margining clearing members referred to in 2. above) in proportion to their respective shares of total risk in the OTC Rates Class.

3.12 A description of the arrangements for obtaining daily position data with respect to futures, options, and swaps in the account

LCH updates clearing member positions in real-time when transactions are accepted for clearing, which ensures that LCH always has up-to-date information regarding the positions of its clearing members per clearing business and per contract.

LCH also keeps clearing members positions under constant surveillance as part of its risk management monitoring processes. This ongoing oversight is supported by LCH's member reporting function, which will be adjusted to provide each FCM Clearing Member participating in the FCM Portfolio Margining Service, once per business day, details of the transfers of Rates Futures between such FCM Clearing

Member's FCM Omnibus SwapClear Client Account with LCH and its FCM Omnibus NLX Client Account with LCH.[53]

These reports shall contain such information as determined by LCH from time to time, including:

- predicted initial margin amounts, and predicted additional margin amounts that may be applicable in respect of each of the FCM NLX Clearing Service and the FCM SwapClear Clearing Service prior to running the balancer;

- positions in FCM Portfolio Margined Contracts stating the contract, month and net position; and

- predicted initial margin amounts, and predicted additional margin amounts that may be applicable following the transfers of Rates Futures between such FCM Clearing Member's FCM Omnibus SwapClear Client Account with LCH and its FCM Omnibus NLX Client Account with LCH.

LCH also publishes additional information to permit FCM Clearing Members participating in the FCM Portfolio Margining Service to reproduce the results of the balancer.

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Members of the CFTC staff may contact me by telephone at +44 20 7392 8297 or by email at julian.oliver@lchclearnet.com or LCH's outside counsel, Kevin M. Foley, by telephone at +1 312 902 5372 or by email at kevin.foley@kattenlaw.com to ask questions or to obtain additional information.

Yours sincerely,

Julian Oliver
Chief Compliance Officer
LCH.Clearnet Limited

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53 When DCM Futures form part of the FCM Listed Interest Rates Clearing Service, transfers will be made between the relevant FCM Omnibus Futures Client Account with LCH and the FCM Omnibus SwapClear Client Account with LCH.