LCH SA

Basel III Pillar 3 Disclosures Report

For the year ended 31 December 2016

LCH The Markets' Partner

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1. Introduction

1.1 LCH SA

The Banque Centrale de Compensation, known under its commercial name "LCH SA" is a clearing house wholly owned by LCH.Clearnet Group Ltd, which in turn is majoritary owned (57.8%) by the London Stock Exchange Group (LSEG).

LCH SA is headquartered in Paris and is:

- Authorised as a central counterparty to offer services and activities in the Union in accordance with the European Markets Infrastructure Regulation (EMIR). As a Clearing House it is regulated by the French Authorities, L'Autorité des Marchés Financiers (AMF), L'Autorité de Contrôle Prudentiel et de Résolution (ACPR), and the Banque de France. It is also supervised by a college of 19 European regulators (Emir College).
- Registered as a Credit Institution. As such, it is directly regulated by the ACPR and indirectly supervised by the ECB.
- Designated as a Securities and Settlement System by the French Authorities to the European Commission.
- Registered as a Derivatives Clearing Organization with the Commodity Futures Trading Commission (CFTC), USA for its CDS business.
- Registered as a Clearing Agency with the Securities Exchange Commission (SEC), USA (since December 29, 2016).

LCH SA has branches in Amsterdam and Brussels and a representative office in Porto. This international presence means that LCH SA is subject to additional regulatory supervision by the banking authorities of Belgium (BNB) and The Netherlands (DNB).

Both LCH SA and LCH Group Ltd are subject to Basel III requirements on a standalone and consolidated basis respectively. This Pillar 3 disclosure document covers the disclosures of LCH SA.

1.2 Basel III overview

On 26 June 2013 the European Parliament and Council approved the Capital Requirements Regulation ("CRR") and Capital Requirements Directive ("CRD"), together known as "CRD IV", and which transposed the new global standards on bank capital (the Basel III agreement) into EU law. The new rules entered into force on 1 January 2014 with the CRR directly binding in all EU Member States while the CRD needed to be implemented into national law. CRD IV replaces the existing capital requirements for credit institutions and investment firms, and is applicable at an entity, sub-consolidated and consolidated basis.

CRD IV introduced a number of changes, including stricter definition of capital resources, increased capital requirements, increased reporting obligations (COREP), binding liquidity ratios and new requirements on remuneration.

The Basel framework consists of three pillars:

- Pillar 1 defines the minimum capital requirements to cover credit, market and operational risks, the eligible capital instruments, and the rules for calculating RWA (Risk Weighed Assets)
- Pillar 2 states that the credit institutions and investment firms must have an internal capital adequacy assessment process (ICAAP) and that national competent authorities must evaluate each credit institution's and investment firm's overall risk profile as well as its risk management and internal control processes
- Pillar 3 encourages market discipline through disclosure requirements which allow market participants to assess the risk and capital profile of credit institutions and investment firm banks. This document is designed to meet LCH SA's Pillar 3 disclosure obligations.

1.3 Scope of application

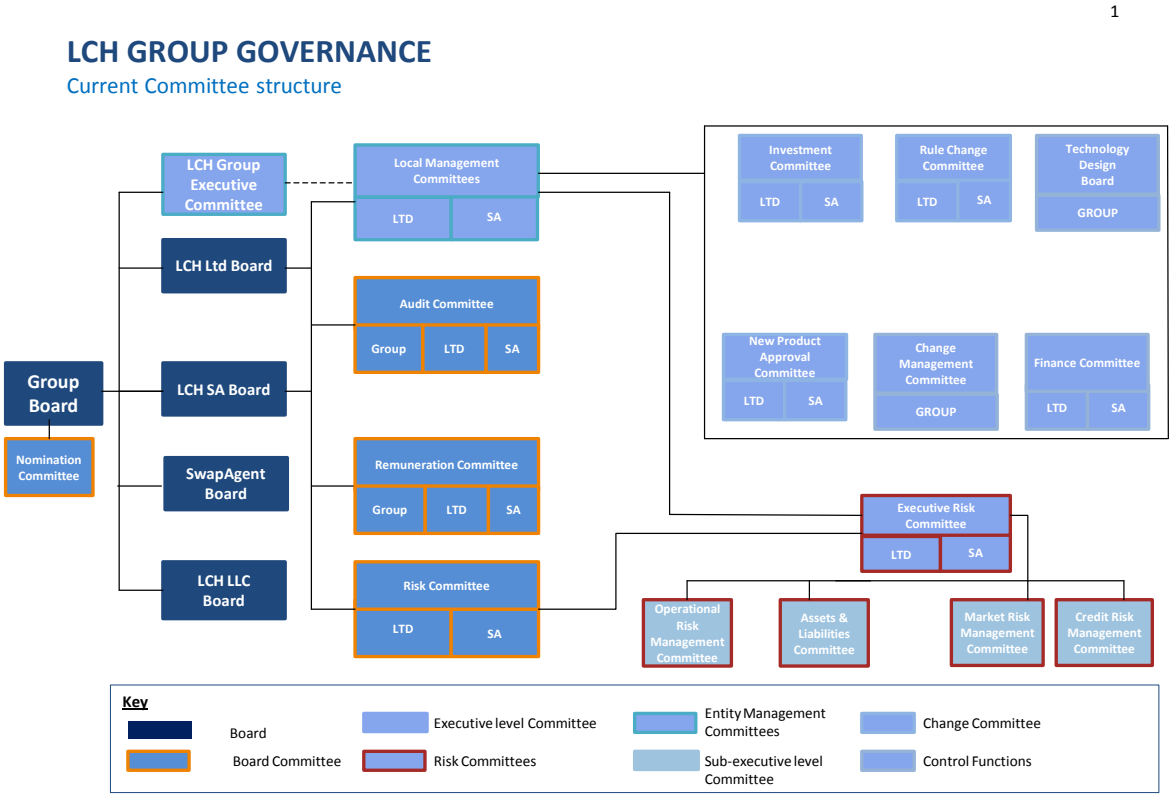
The scope of application is to LCH SA. A simplified Group structure that includes the Group's principal operating entities is as follows:

The list of LCH regulators can be found on LCH's website (http://www.lch.com/about-us/company-structure).

1.4 Risk governance

The governance of LCH reflects the Group's history and structure and consequently includes a number of Board and Executive committees, the coordination of which is ensured through common members or chairmen.

Each subsidiary is legally responsible for its decisions, therefore Group Board decisions are, when necessary, ratified by subsidiary Boards to ensure they are compliant with any specific legal or regulatory requirements



1.4.1 Risk governance

The Chief Risk Officer for LCH SA ("CRO SA") is responsible for the day-to-day management and control of all risks. The CRO has the overall responsibility for all risk decisions within the framework of agreed risk policies, including:

- General authority over all functional reports (not superseding the authority of the LCH SA CEO);
- Responsibility for developing and implementing the LCH SA's strategic risk management programme and risk framework;
- Responsibility for monitoring and measuring risk according to LCH Group standards.

The CRO heads the Risk Department that consists of the following teams:

- Financial Risks in charge of Market, Credit, Liquidity, Investment & Collateral Risks;
- Non Financial Risks in charge of Enterprise & Operational Risk management including Permanent control;

- Methodology & Model validation*

1.4.2 Executive committees dedicated to risk management

LCH SA has a Local Management Committee (LMC) whose purpose is to advise and support the CCP CEO on all key management matters of the company, in order for him to discharge his responsibilities.

With respect to the risk management, the LMC is advised by the Executive Risk Committee (ERCo). This ERCO is chaired by the Group Chief Risk Officer, and comprises the heads of each clearing business, the entity Chief Risk Officer (CRO), and Senior group risk Management and Compliance Executives. Its responsibilities are to oversee, monitor, review and challenge the management of all risks arising in pursuit of the stated business objectives and risk appetite. Any new business affecting risks, significant risk management changes or changes to risk policy must be reviewed by the ERCo and referred to the appropriate Board Risk Committee for review and applicable Board for approval. CCP CRO is responsible for regular reporting on all risk matters to their LMC.

There are four sub-committees of the ERCo which meet on regular basis to monitor specific risk areas:

- The Asset & Liability Management Committee assists the ERCo by monitoring CaLM activities in managing and monitoring collateral, investment, liquidity and funding risk, including the implementation, monitoring and review of the Group Investment Risk, Liquidity Risk and Collateral Risk policies, the related limit structures and the funding strategy of each of the subsidiary CCPs. It also oversees the implementation of the policy covering the Group's settlement, payment and custodial arrangements

- The Market Risk Management Committee is responsible for the monitoring and reviewing of the latent market risk framework, including margin levels and models, stress testing, default fund adequacy and default management arrangements. It also ensures that standards for the approval of new products, markets and services provide sufficient assurance that all potential market risks can be appropriately measured and managed, and that relevant regulatory requirements can be met.

- The Credit Risk Management Committee is responsible for managing and monitoring the effectiveness of the group's credit risk management policy and

* *This responsibility has been transferred from Internal Audit to Risk Department*

framework and performance of credit reviews and exposure monitoring, of clearing members and other counterparties.

- The Operational Risk Management Committee is responsible for the implementation of the group's operational risk policy and framework, including reviews of operational risk dashboards, loss and incident reports, core controls, key risk indicators, scenario analysis, and deep dive reviews

1.4.3 Board and committees of the Board

In broad terms, LCH SA Board is responsible for setting strategy, objectives and policies, and approving budgets and significant business and risk decisions, including risk appetite statement. The CCP Boards delegate to the CCP CEO and/or CRO certain authorities for decision making within the approved risk policy suite.

There are three sub-committees of LCH SA Board:

- LCH SA Audit Committee represents the interests of the Board in the sound financial management and risk control discipline of the Company. It ensures that management has put in place adequate internal control systems that provide reasonable assurance that corporate objectives will be achieved. This Committee reviews and discusses with LCH SA management and External Auditors about LCH SA's consolidated audited financial statements, before their approval by the Board. The Audit Committee met 4 times in 2016.

- LCH SA Risk Committees addresses matters concerning significant risks faced by LCH SA. It includes the regular review of risk exposures report and all risk policies and reviews of significant change proposals, such as new markets, changes to margin and stress testing methodologies, default fund and default management processes and membership criteria. In all such cases, Risk Committee makes recommendation for Board aproval. It is chaired by an Independent Non-Executive Director identical for all three operating entities of the Group and its membership comprises representatives of LCH SA's users and their clients, and other INEDs. The Risk Committee met 9 times in 2016.

- LCH SA Remuneration Committees oversees the remuneration policy and principles for LCH SA and Management. It recommends the remuneration packages to the Board for approval. The SA Remuneration Committee met once in 2016.

1.4.4 Risk governance framework (RGF)

LCH SA has in place a risk governance framework approved by the LCH SA Boards which:

- Lists the universe of risks to which the LCH can potentially be exposed, together with a working definition of each risk type;
- Defines a risk appetite for LCH;
- Lists the minimum standards/tolerance for each risk which the Board expects to be met, both on a current basis and on a forward looking basis;
- Designates the individuals/groups/committees who are responsible for measuring, monitoring and managing each risk type and;
- Describes the holistic Risk Management Framework to be used for Enterprise Risk Management and provides guidelines for the minimum information the Chief Risk Officer (CRO) must provide in the periodic evaluation of the Clearing House relative to the Board Statement of Risk Standards/Tolerance.

Due to considerations of systemic risk and the public nature of the LCH mission, the Risk Appetite of the group can broadly be described as low. LCH adheres to high risk management standards. Risks should be managed at business unit level but escalated if the impact and/or probability of occurrence is increasing.

The universe of risks includes 22 risks which are tailored to the specific risk types that might be faced by LCH SA in the performance of its specific function within the market place. The risks in Risk Governance Framework (RGF) are not equal to the risk types as per Basel III but a translation is made to these risk types for the purposes of this report.

For each identified risk there are:

- An individual who is designated as being responsible for identifying, measuring and monitoring such risk;
- Standards/Tolerance to be met;
- A specific risk policy approved by the Board or other relevant risk management documentation.

A holistic enterprise risk management framework is in place for the measurement and monitoring of all the risks within the risk universe of LCH SA. A quarterly Enterprise Risk report is issued and a monthly operational risk dashboard is set up and reviewed by Senior Management, the Audit Committees and LCH SA Board.

Any risks which are outside the risk appetite will immediately be reported and an action plan will be put in place as to bring back the relevant risks within appetite.

1.4.5 Basel risk types & coverage

The below Basel risks are relevant for LCH.

Credit risk

Credit risk is the risk that as counterparty's probability of default increases, the expected loss to the Clearing House becomes ever more probable.

LCH SA has the following main credit exposures:

- Investment counterparties;
- Clearing members (subject to the default waterfall);
- Interoperating CCPs;
- Occasional overnight exposure as a result of settlement and payment activities (see settlement, payment and custodian risk).

All Counterparties, including sovereigns and interoperating CCPs, are subject to a formal and documented Internal Credit Score assessment (Credit Review), before on-boarding which is reviewed at least once a year.

The credit risk on the investment portfolio is minimised by:

- Setting criteria so that only good quality counterparties are used;
- Setting limits to minimise concentration risk to these counterparties;
- Securing as much as possible the cash portfolio or undertaking "high quality" investments;
- Setting haircuts appropriate to the type of collateral received.

Market risk

It is the role of LCH SA as a central counterparty to interpose itself between counterparties to a trade. As such, it has a balanced book in which, for every long position it has with counterparty, there is an opposing short position. Consequently, the CCP is exposed to market risk only in case of a clearing member default.

However, LCH SA must invest the cash deposited by clearing members in order to pay them an interest to deposited cash. As a consequence of these investment activities LCH SA may have an exposure on interest rate changes. In line with EMIR rules the investment portfolio of LCH SA is qualified as a trading book. Consequently the resulting exposure is qualified as a market risk in Pillar 1.

Market risk exposures as a result of interest rate changes are subject to stringent limits as set out in the investment risk policy approved by the LCH Board.

Operational risk

This is the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events.

Operational risks are identified, assessed, managed and monitored in a proactive manner to minimise the impact on LCH SA.

The following processes are in place to manage operational risk:

- Project & new product analysis;
- Risk & control self-assessment;
- Key Risk Analysis;
- Scenarios analysis;
- Incident Management;
- Permanent controls reporting.

A monthly Operational Risk Report is set up and discussed during Operational Risk Committee before being approved by Local Management Committee.

Liquidity risk

Liquidity risk is the risk that LCH SA will be unable to honour its payment obligations. Liquidity risk may arise in the day to day operations (i.e. payments and settlements) and also at the stages of the default management process. On a daily basis, a close monitoring of the minimum liquidity buffer and Liquidity Coverage Ratio is performed to ensure that LCH SA has enough liquidity resources available.

Concentration risk

This risk includes (i) large (connected) individual exposures and (ii) significant exposures to groups of counterparties whose likelihood of default is driven by common underlying factors, e.g. sector, economy, geographical location, instrument type.

The management of concentration risk is included within the overall credit risk monitoring and specific indicators are in place for this purpose.

Settlement, payment and custodian risks

- Settlement risk: risk of making a payment or delivery without receiving, at the same time, the delivery or payment from the counterparty.
- Settlement bank risk: risk of loss of funds held with a settlement bank should it become insolvent.
- Custody risk: risk of loss on securities in safekeeping (custody) as a result of the custodian's insolvency, negligence, misuse of assets, fraud, poor administration or inadequate record keeping.

LCH SA has the following generic tools in place to reduce these exposures:

- Direct access to the Banque de France and CSDs;
- Strict capital and quality requirements for other intermediaries;
- Performance of Delivery Versus Payment (DVP) settlement; Risk monitoring & control of related exposures.

Business risk

This risk can be defined as the risk arising from changes in the business environment and from adverse business decisions, improper implementation of decisions or lack of responsiveness to changes in the business environment.

Business risk is managed and monitored in accordance with EMIR and a scenario analysis is performed considering reasonably foreseeable scenarios. This scenario analysis is performed at least annually and reviewed in case of significant changes in business environment.

2. Own funds: composition of regulatory capital

LCH SA's total regulatory capital is composed of Tier 1 capital which consists primarily of share capital, additional paid-in capital and retained earnings.

LCH SA regulatory capital and shareholders' funds as at 31 December 2016

€'ms	**2016**
Share capital	113.1
Share premium	0.7
Other reserves	43.9
Funds for General Banking risk	0.3
Retained earnings	117.4
Common Equity Tier 1 capital	**275.4**
CET1 capital elements or deductions (skin in the game)	-44.2
Value adjustments due to the requirements for prudent valuation	-0.9
Other Intangible assets	-54.9
Tier 1 capital/Total regulatory capital	**175.4**

The prudent valuation is calculated with the standard method (Art 105 CRR).

- As per the default waterfall process, in case of a clearing member default, LCH SA would first use the defaulting member's initial, variation and additional margins as well as the defaulter contribution to the default fund. Should the loss be greater, it will use a share of their capital. As per EMIR, this share of capital, referred to as "skin in the game" (SIG), is calculated as 25% of minimum capital requirement including retained earnings and reserves as defined in Article 35 of regulation EU N°153/2013 of 19 December 2012 (latent market risk).

3. Capital requirements

The institutions calculating the risk-weighted exposure amounts in accordance with Article 153(5) or Article 155(2) shall disclose the exposures assigned to each category in Table 1 of Article 153(5), or to each risk weight mentioned in Article 155(2).

LCH SA capital exceeds its requirements minimum capital ratios. Its Pillar I requirements at 31 December 2016 were as follows:

€'ms	Capital Requirement
Credit risk	0.7
Market risk	2.3
Operational risk	21.5
Pillar 1 capital requirement	**24.5**
Risk weighted assets	**306.25**
Common equity capital ratio (2016 minimum 5.125%)	57.27%
Tier 1 capital ratio (2016 minimum 6.0%)	57.27%
Total capital ratio (2016 minimum 8.625%*) **including capital conservation buffer phase in*	57.27%

An Internal Capital Adequacy Assessment Process (ICAAP) process has been performed using Basel III rules which are applicable from 1 January 2015. The ICAAP has been approved by the Audit Committees and Boards. As an outcome of this process, LCH has concluded that it holds sufficient capital for the relevant risks.

4. Credit risk

LCH SA has the following main credit exposures:

- Investment activities
- Occasional overnight exposure as a result of settlement and payment activities (see settlement, payment and custodian risk)

The LCH SA capital requirement for credit risk is calculated as follows:

€'ms	Risk-weighted exposures	Capital requirement
Institutions	6.7	0.4
Corporate	4.6	0.3
Total	**11.3**	**0.7**

The capital is assigned on the basis of the regulatory capital under the standard method. The External Credit Assessment Institutions (ECAIs) used are Moody's, S&P and Fitch. The overall credit risk exposures are related to the steps 1 or 2 under the standard method.

The counterparty credit risk exposures are related to the investment portfolio (cash margins invested). As per the LCH Group Investment Risk Policy, it can be mainly composed of high quality assets as required by EMIR such as Eurozone/US/UK/Supranational securities and reverse repo transactions/cash deposits with highly rated credit institutions. LCH SA is collateral taker (cash provider) and the reverse repo agreements are not subject to any downgrade clause.

All counterparties, including sovereigns and interoperating CCPs, are subject to a formal and documented Internal Credit Score (ICS) assessment, before on-boarding and then at least annually. The ICS models are models driven by a quantitative assessment based on a set of ratios (e.g. equity ratio, return on assets) and qualitative assessments.

The limits and the eligibility criteria are set in LCH Group investment risk policy. Each review is submitted to the Risk Governance for review and approval of the Internal Credit Score.

The credit risk on the investment portfolio is minimised in the following manner:

- Setting criteria so that only good quality counterparties are used
- Setting limits to minimise concentration risk to these counterparties
- Securing as much of the cash portfolio as possible or undertaking “high quality” investments
- Setting haircuts appropriate to the type of collateral received

As of 31 December 2016, the counterparty risk weighted assets (Standard Method) are set out below:

- Reverse repurchase transactions for €0 million
- Securities purchases for €0 million
- Banque de France deposit for €0 million

As of 31 December 2016 there is no reverse repo transaction.

As of 31 December 2016, the outright purchased portfolio was composed only of French securities (BTF) for € 906 million (6% of the cash portfolio).

The rest of the cash portfolio was invested in BDF deposit (15 billions euro, 96% of the cash portfolio).

On the 16 December 2016, the Company sold its 49% holding in LCH.Clearnet (Luxembourg) S.à.r.l. to its parent company, LCH Group Limited for consideration of €0.2 million. The net impact of this sale was a reduction of credit requirement by € 2,4 million.

5. Market risk

LCH SA is exposed to interest rate risk on the investment portfolio as a consequence of changes in applicable interest rates (including credit spreads) of long term sovereign investments and secured lending transactions.

The exposure to the interest rate risk is measured and monitored daily by currency and maturity, this exposure is determined with the PV01 metric (sensitivity to 1 bp parallel shift of the OIS Curve).

The LCH SA Board determines the risk appetite for Interest Rate Risk (IRR) not exceeding 10% of LCH SA capital. Stress scenarios are set with reference to the capital position, and will be updated monthly or upon material downward movement.

Market Risk – Standardised approach for Position Risk in Traded Debt instruments

€'ms	Net position	Capital requirement
[0 ; 1 month]	105	
]1 month; 3 months]	475	
] 3 months; 6 months]	325	
Total Maturity based approach – Zone 1	**905**	**2.3**

6. Operational risk

Operational risk is the risk of loss arising through failures associated with personnel, processes, systems or from external events. It is inherent in every business organisation and covers a wide spectrum of issues.

Operational risks are identified, assessed, controlled and managed in a proactive manner to minimise the impact on LCH SA.

The objectives of the Operational Risk Framework (ORF) developped by LCH Group are to identify, measure, control and/or reduce operational risk and to provide an accurate, usable picture of the risk profile of LCH. The ORF organises the qualitative and quantitative management of operational risk.

This framework covers all types of operational risks proposed under Basel II

For the operational risk capital requirements applicable since 1 January 2008, LCH uses the Basic Indicator Approach (BIA).

7. Unencumbered assets

In the below table, the securities portfolio and reverse repurchases on both trading book and clearing business are reported as unencumbered assets.

	Encumbered assets		Unencumbered assets	
€'ms	Carrying amount	Fair value	Carrying amount	Fair value
Loans on demand	0	0	14.977	14.977
Equity instruments	0	0	0	0
Debt instruments	0	0	906	906
Other assets	0	0	5.085	5.085

€'ms	Fair value of encumbered collateral received or own debt securities issued	Fair value of collateral received or own debt securities issued available for encumbrance
Carrying amount of selected financial liabilities	0	4.581

8. Remuneration policy

Decision making process for determining remuneration policy

The SA Remuneration Committee ('Committee') was established in April 2014. This Committee works with the LCH Group ('Group') Remuneration Committee ('Group Committee') to oversee LCH SA's remuneration policies.

During the financial year ended 31 December 2016, the Committee met on 1 occasion.

The Committee is appointed by the Board of LCH SA and is made up of a majority of independent Non Executive Directors.

The Committee's terms of reference, which are reviewed regularly by the Board, are available on the Governance section of LCH SA's website (http://www.lch.com/about-us/governance) and detail, inter alia, the duties and powers of the Committee.

Under its remuneration policy, LCH SA undertakes to reward all employees fairly and to comply with any and all regulatory frameworks which apply to the remuneration of any employees of the Company.

In determining its remuneration policies, LCH monitors developments in the wider market place and continues to consult and work with key stakeholders (including, but not limited to the LCH SA regulators, the Group Committee and London Stock Exchange Group Remuneration Committee) on any key decisions taken.

Link between pay and performance

It is the policy of the LCH SA to operate competitive remuneration policies so as to attract, retain and motivate an appropriate workforce for the ongoing success of LCH SA and LCH Group.

Remuneration arrangements may include a mix of base salary, annual discretionary bonus awards and share based incentives (payable in shares of the London Stock Exchange Group plc), in addition to other country specific benefits. The remuneration of the LCH's senior management typically includes a greater proportion of performance related pay than applied to other employees of the LCH SA.

Basic salaries are set at an appropriate level to allow a fully flexible policy to be operated in respect of the award of any variable remuneration. LCH is committed to ensuring that total variable remuneration does not limit its ability to strengthen its capital base.

Variable remuneration is used to reward individual performance in line with a number of factors including risk appetite, departmental and LCH performance and corporate strategy. Employees engaged in risk management, compliance and internal audit are rewarded in a manner that is independent of the business performance of LCH.

Bonus awards to Group Executive Committee members are typically subject to 50% cash deferral for a three year period. Deferrals may also be applied to other employees depending on their role and the total bonus amount at LCH SA's discretion.

A new Long Term Incentive Plan (LTIP) was introduced in 2014 for selected employees of the LCH Group. The construct, both in terms of performance conditions and delivery vehicle, of the LTIP was endorsed by the Group's regulators. Vesting for the 2016 LTIP grant occurs over a three year period subject to the achievement of a risk management gateway and one or more of the following performance measures dependent upon the role undertaken by the participant: regulatory management, cost management and EBIT performance. LTIP awards are granted in the form of a nil cost option to acquire London Stock Exchange Group plc shares.

LTIP awards as well as deferred bonus awards made to Group Executive Committee members may be subject to performance adjustment (including adherence to the risk framework) prior to vesting. Furthermore, LCH may in certain circumstances exercise clawback, pursuant to which LCH may require deferred variable remuneration to be repaid (or deducted from future payments) for up to three years following the date of payment.

Detailed reporting on 'Material Risk Takers'

Per European regulations, employees whose activities are deemed to have an impact on the risk profile of LCH SA must be identified as 'Material Risk Takers' (MRTs). For 2016, 16 employees were identified as MRTs for LCH SA.

In line with applicable regulations, LCH SA is required to disclose certain aggregate remuneration information on its MRTs. FY2016 aggregate remuneration information is detailed below:

Category	Value
Number of Material Risk Takers	16
Total Remuneration	€4,6 ms
of which:	
-Fixed	€2,3 ms
-Variable	€2,3 ms
Fixed : variable ratio	1 : 1.04
Total Variable	€2,3 ms
of which:	
-Cash	€1,3 m
-Shares	€1,0 m
Deferred remuneration	€1,2 m
Sign on payments	0
Number of recipients	0
Severance payments	Not disclosed[†]
Number of recipients	1
Number of staff remunerated > €1m	0

[†] *This information is not disclosed as it pertains to one individual employee*

End of disclosure report