

Banque Centrale de Compensation

LCH S.A.

Year ended December 31, 2016

Statutory auditors' report on the separate financial statements

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S.A.S. à capital variable

Commissaire aux Comptes
Membre de la compagnie
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Commissaire aux Comptes
Membre de la compagnie
régionale de Versailles

Banque Centrale de Compensation LCH S.A.

Year ended December 31, 2016

Statutory auditors' report on the separate financial statements

To the Board of Directors,

We have audited the accompanying balance sheets of LCH S.A. as of December 31, 2016 and 2015, and the related statements of operations, stockholders' equity, and cash flows for each of the two years in the period ended December 31, 2016. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statements presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of LCH S.A. as of December 31, 2016 and 2015, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2016, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board.

Paris and Paris-La Défense, March 28, 2017

The Statutory Auditors

BDO France - Léger & Associés

ERNST & YOUNG Audit



Fabrice Chaffois



Marc Charles

LCH SA
Separate financial statements for the year ended 31 December 2016
Income statement

€'m	Note	2016			2015		
		Before impairment & non-recurring items	Impairment & non-recurring items	Total	Before impairment & non-recurring items	Impairment & non-recurring items	Total
Clearing fees		119.8	-	119.8	124.3	-	124.3
Other fee income		12.7	-	12.7	11.9	-	11.9
Revenue sharing arrangements		(24.3)	-	(24.3)	(27.0)	-	(27.0)
Revenue		108.2	-	108.2	109.2	-	109.2
Treasury income	18	129.9	-	129.9	89.4	-	89.4
Treasury expense	18	(103.1)	-	(103.1)	(63.5)	-	(63.5)
Net treasury income		26.8	-	26.8	25.9	-	25.9
Settlement and other income		12.4	-	12.4	13.3	-	13.3
Settlement fees payable		(6.8)	-	(6.8)	(8.6)	-	(8.6)
Net settlement and other income		5.6	-	5.6	4.7	-	4.7
Total income		140.5	-	140.5	139.8	-	139.8
Cost of sales		(8.0)	-	(8.0)	(9.0)	-	(9.0)
Gross profit		132.5	-	132.5	130.8	-	130.8
Operating expenses	3	(85.4)	(3.0)	(88.4)	(85.5)	0.7	(84.8)
Operating profit		47.1	(3.0)	44.1	45.3	0.7	46.0
Finance income	5	11.7	-	11.7	3.2	-	3.2
Finance expense	5	(0.9)	-	(0.9)	-	-	-
Profit before taxation		57.9	(3.0)	54.9	48.5	0.7	49.2
Taxation expense	6	(14.9)	0.5	(14.4)	(15.1)	-	(15.1)
Profit for the year		43.0	(2.5)	40.5	33.4	0.7	34.1

The results for both years are in respect of continuing operations.

The notes on pages 9 to 48 form an integral part of these financial statements.

LCH SA**Separate financial statements for the year ended 31 December 2016****Statement of comprehensive income**

	Note	2016 €'m	2015 €'m
Profit for the year		40.5	34.1
Amount that will not subsequently be reclassified to profit for the year:			
Remeasurement gains/(losses) on defined benefit plans		(0.6)	0.8
Deferred tax relating to remeasurement gains/(losses) on defined benefit plans	6	0.2	(0.3)
Other comprehensive income for the year, net of tax		(0.4)	0.5
Total comprehensive income for the year, net of tax		40.1	34.6

The results for both years are in respect of continuing operations.

The notes on pages 9 to 48 form an integral part of these financial statements.

LCH SA**Separate financial statements for the year ended 31 December 2016****Statement of financial position**

	Note	2016 €'m	2015 (represented*) €'m
ASSETS			
Non-current assets			
Intangible assets	7	54.2	43.8
Property, plant and equipment	9	0.4	0.9
Investment in associate	10	0.3	19.8
Trade and other receivables	12	0.2	0.1
Deferred tax asset	6	4.5	4.0
Total non-current assets		59.6	68.6
Current assets			
Balances with clearing members	11	258,252.7	245,488.2
Trade and other receivables	12	31.9	6.2
Income tax receivable		-	0.2
Clearing business cash and cash equivalents	13	14,689.6	10,280.8
Cash and cash equivalents	13	288.4	267.2
Clearing business other financial assets	18	906.7	3,577.8
Total current assets		274,169.3	259,620.4
Total assets		274,228.9	259,689.0
LIABILITIES			
Current liabilities			
Balances with clearing members	11	270,765.1	257,234.5
Trade and other payables	14	53.2	48.0
Income tax payable		1.4	8.8
Provision		0.1	0.4
Default funds	16	3,078.0	2,089.9
Total current liabilities		273,897.8	259,381.6
Non-current liabilities			
Trade and other payables	14	0.4	-
Employee benefits	14	6.0	4.8
Total non-current liabilities		6.4	4.8
Total liabilities		273,904.2	259,386.4
Net assets		324.7	302.6

LCH SA
Separate financial statements for the year ended 31 December 2016
Statement of financial position (continued)

	Note	2016 €'m	2015 (represented*) €'m
Capital and reserves			
Called up share capital	20	113.1	113.1
Share premium	20	0.7	0.7
Capital reserves	20	42.7	43.1
Retained earnings	20	168.2	145.7
Total equity		324.7	302.6

*For details of the re-presentation, see page 10.

Lex Hoogduin
Chairman

The notes on pages 9 to 48 form an integral part of these financial statements.

LCH SA**Separate financial statements for the year ended 31 December 2016****Statement of cash flows**

	Note	2016 €'m	2015 (represented*) €'m
Cash flows arising from operating activities			
Profit for the year		40.5	34.1
Tax expense		14.4	15.1
Depreciation and amortisation		10.4	9.5
Share-based payments expense		1.3	0.3
(Increase)/decrease in trade and other receivables		(25.8)	0.2
Increase/(decrease) in trade and other payables		7.2	7.0
(Increase)/decrease in clearing business cash and cash equivalents invested		(4,408.8)	(4,998.2)
Increase in fair value of member assets		(12,764.5)	(18,811.5)
Increase in fair value of member liabilities		13,530.6	24,921.6
(Decrease)/increase in default funds		988.1	(632.5)
Net cash inflow/(outflow) from operations		(2,606.6)	545.6
Tax received		0.1	11.9
Tax paid		(21.9)	(5.9)
Net cash inflow/(outflow) from operating activities		(2,628.4)	551.6
Investing activities			
Investment in intangible assets		(21.5)	(14.7)
Purchase of property, plant and equipment		(0.0)	(0.3)
(Disposal)/acquisition of financial assets		19.3	-
(Disposal)/acquisition of other financial assets		2,671.1	(491.0)
Increase/(decrease) in investments		-	(0.1)
Net cash inflow/(outflow) from investing activities		2,668.9	(506.1)
Financing activities			
Share-based payments contribution		(1.3)	(0.3)
Non current trade and receivables (increase)/decrease		(0.1)	-
Dividend paid		(18.0)	(11.0)
Net cash outflow from financing activities		(19.4)	(11.3)
Increase/(decrease) in cash and cash equivalents		21.2	34.2
Cash and cash equivalents at 1 January		267.2	233.0
Cash and cash equivalents at 31 December		288.4	267.2
Cash and cash equivalents at 31 December comprise:			
Cash at bank and in hand		288.4	267.2
Investments in secured short term deposits		-	-
	13	288.4	267.2

*For details of the re-presentation, see page 10.

The notes on pages 9 to 48 form an integral part of these financial statements.

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Financial statements for the year ended 31 December 2016
Statement of changes in equity

	Called up share capital €'m	Share premium €'m	Other capital reserves €'m	Retained earnings €'m	Total €'m
Shareholder's equity at 1 January 2015	113.1	0.7	42.6	122.6	279.0
Profit for the year to 31 December 2015	-	-	-	34.1	34.1
Other comprehensive expense	-	-	0.5	-	0.5
Total comprehensive income	-	-	0.5	34.1	34.6
Dividends paid	-	-	-	(11.0)	(11.0)
Share-based payment contribution	-	-	-	0.3	0.3
Share-based payment expense	-	-	-	(0.3)	(0.3)
Shareholder's equity 31 December 2015	113.1	0.7	43.1	145.7	302.6
Profit for the year to 31 December 2016	-	-	-	40.5	40.5
Other comprehensive income	-	-	(0.4)	-	(0.4)
Total comprehensive income	-	-	(0.4)	40.5	40.1
Dividends paid	-	-	-	(18.0)	(18.0)
Share-based payment contribution	-	-	-	1.3	1.3
Share-based payment expense	-	-	-	(1.3)	(1.3)
Shareholder's equity at 31 December 2016	113.1	0.7	42.7	168.2	324.7

The notes on pages 9 to 48 form an integral part of these financial statements.

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Financial statements for the year ended 31 December 2016
Notes to the Company accounts (continued)

Authorisation of financial statements and statement of compliance with IFRS

Authorisation for publication

The financial statements of the Company for the year ended 31 December 2016 under IFRS as issued by the International Accounting Standards Board (IASB) have been prepared for the purpose of reporting to both American regulators CFTC and SEC as part of the registration of LCH SA on CDS business clearing activity.

LCH SA is a private limited company incorporated and domiciled in France.

Principal activities

The Company continues to satisfy the requirements of the Autorité de Contrôle Prudentiel et de Résolution as a Recognised Clearing House in France, and the requirements of all other regulatory bodies to whose rules the Company is subject. It provides central counterparty services in respect of a broad range of cash and derivative products traded on platforms or in OTC markets in Europe.

Statement of compliance

The financial statements of the Company have been prepared in accordance with IFRSs.

The principal accounting policies adopted in the preparation of the financial statements are set out in note 1. Unless otherwise stated these policies have been applied to the years ended 31 December 2016 and 31 December 2015.

1. Summary of significant accounting policies and basis of preparation

Basis of preparation

These financial statements have been prepared in accordance with IFRSs and the Interpretations Committee (IFRIC) interpretations issued by the IASB effective for 2016 reporting.

The Company uses a columnar format for the presentation of its income statement. This aids the understanding of its results by presenting profit for the year before non-recurring items. Profit before non-recurring items is reconciled to profit before taxation on the face of the income statement.

The separate financial statements are presented in millions of euros except where otherwise indicated.

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Separate financial statements for the year ended 31 December 2016
Notes to the Company accounts (continued)

Changes in accounting treatment

The cash flow statement presentation has been updated to more clearly reflect the Company's cash position; it is now shown as a movement of own cash rather than the Company's total cash holding, which included cash held on behalf of members.

The movement for 2015 has been re-presented. On 1 January 2015, LCH SA had total cash of €5,515.6 million, of which €233.0 million was own cash; at 31 December 2015 the Company had total cash of €10,548.0 million, of which €267.2 million was own cash. The remaining cash forms part of the Company's investment portfolio held on behalf of members, and the movement therein is recorded within movements in operating cash flows.

The statement of financial position has also been re-presented to show own cash separately from cash and cash equivalents held on behalf of members.

The statement of financial position has also been re-presented to show provisions separately in the current liabilities section. This was included within trade and other payables in 2015 for a total of €0.4 million.

Going concern

The Directors have made an assessment of the Company's ability to continue as a going concern and to meet current and future regulatory capital requirements and are satisfied that it has the resources to continue in business for the foreseeable future, being at least 12 months from the date on which these accounts were approved by the Board.

Contracts for the majority of the exchanges for which the Company clears have a notice period of at least one year. The Company has a large number of clearing members and is not unduly reliant on any single clearing member or group of clearing members. Furthermore, the Directors are not currently aware of any material uncertainties that may cast significant doubt upon the Company's ability to continue as a going concern. Therefore the financial statements continue to be prepared on the going concern basis.

Presentational currency

The Company's financial statements are presented in euros, which is the functional currency of the Company.

Judgements and key sources of estimation uncertainty

The preparation of financial statements in conformity with IFRSs requires the use of judgements, estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Although these judgements and estimates are based on management's best knowledge of the amount, event or actions, actual results ultimately may be different.

The key sources of estimation uncertainty that have a significant risk of causing material adjustments to the carrying amounts of assets and liabilities within the next financial year are:

- the measurement and impairment of goodwill and other intangible assets. The Company determines whether indefinite life goodwill is impaired on an annual basis and this requires an estimation of the value in use of cash generating units to which the goodwill is allocated. Intangible assets are assessed when an indication of impairment arises. This requires the estimation of future cash flows and choosing a suitable discount rate (see note 8).
- the measurement of defined benefit pension obligations. Measurement of defined benefit pension obligations requires estimation of future changes in salaries and inflation as well as mortality rates, the expected return on assets and the choice of a suitable discount rate (see note 17).
- the measurement of the provision for corporation taxes. The Company recognises liabilities for the estimated tax charge at the period end. Where the final tax liability is different from that estimate such differences are reflected in the period in which such determination is made. Income tax provisions are recognised on the basis that the relevant tax authorities are fully aware of any situations giving rise to uncertainty

Investments

The Company recognises its investments in its associates at cost less the value of any impairment provision that may be

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Separate financial statements for the year ended 31 December 2016
Notes to the Company accounts (continued)

necessary. Income is recognised from these investments in relation to any distributions received.

Foreign currencies

Monetary assets and liabilities denominated in currencies other than the functional currency of the Company are translated into the functional currency of the Company at the rates of exchange ruling on the statement of financial position date and the resulting exchange differences are recorded in the income statement. Transactions in foreign currencies are recorded at the prevailing foreign exchange rates at the date of the transaction in the income statement and are not revalued.

In the statement of cash flows, cash flows denominated in foreign currencies are translated into the functional currency of the Company at the average exchange rates for the year or at the rate prevailing at the time of the transaction where more appropriate.

Goodwill

Goodwill arising on an acquisition is the fair value of consideration less the fair value of the net assets acquired. Goodwill is capitalised in the statement of financial position within intangible assets. Following initial recognition goodwill is measured at initial value less any accumulated impairment losses.

Intangible assets other than goodwill

Intangible assets other than goodwill are initially recognised at cost and are capitalised on the statement of financial position. Following initial recognition the assets are amortised at rates calculated to write off their cost on a straight line basis over their estimated useful lives.

An internally generated intangible asset arising from the Company's business development is created if the asset can be identified, its cost measured reliably and it is probable that it will generate future economic benefits. Amortisation is charged from the date the developed product, service, process or system is available for use. Self-developed software is amortised over periods between three and five years.

Property, plant and equipment

Property, plant and equipment are initially recognised at cost and capitalised in the statement of financial position and are stated at cost less accumulated depreciation and accumulated impairment losses. Depreciation is provided on all property, plant and equipment at rates calculated to write off the cost, less estimated residual value based on current prices, of each asset over its expected useful life as follows:

- leasehold refurbishment over the term of the lease (up to a maximum of ten years)
- computer equipment and purchased software over three years
- office equipment and other fixed assets between three and five years

An item of property, plant and equipment is derecognised upon disposal or when no future economic benefits are expected to arise from continued use of the asset. Any gain or loss arising on derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the item) is included in the income statement in the year the item is derecognised.

Impairment of goodwill, intangible assets and property, plant and equipment

Goodwill and intangible assets in the course of development are subject to an annual impairment review or a more frequent review if there are events or changes in circumstances that indicate that the carrying amount of the asset may not be fully recoverable. Other intangible assets and property, plant and equipment are subject to an impairment review if there are events or changes in circumstances that indicate that the carrying amount of the fixed asset may not be fully recoverable.

For the purpose of impairment testing assets are allocated to cash generating units monitored by management, usually at statutory company level. The impairment review involves a comparison of the carrying amount of the goodwill or other asset allocated to the related cash generating units, with its recoverable amount, which is the higher of fair value less costs to sell and value in use. Fair value less costs to sell is calculated by reference to the amount at which the asset could be disposed of

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Separate financial statements for the year ended 31 December 2016

Notes to the Company accounts (continued)

less the costs associated with the sale.

Value in use is calculated by discounting the expected future cash flows obtainable as a result of the assets continued use, including those resulting from its ultimate disposal, at a market based discount rate on a pre-tax basis. The carrying values of intangible assets or property, plant and equipment are written down by the amount of any impairment and this loss is recognised in the income statement in the year in which it occurs.

The carrying amount of goodwill allocated to a cash generating unit is taken into account when determining the gain or loss on disposal of the unit.

Financial instruments

The Company classifies its financial instruments into the following categories: financial assets and liabilities at fair value through profit or loss, held to maturity investments, loans and receivables, cash and short term deposits, trade and other payables, interest bearing loans and borrowings and derivative financial instruments.

Financial assets and liabilities at fair value through profit or loss are financial instruments which are either acquired for trading purposes, or as designated by management. Financial instruments held in this category are initially recognised and subsequently measured at fair value with transaction costs taken directly to the income statement. Changes in fair value are recorded within net treasury income. Interest earned or incurred is accrued in interest income or expense, or finance income or cost according to the purpose of the financial instrument.

Balances with clearing members are included in this category upon initial recognition and are recorded on a settlement date basis. Financial assets and liabilities are offset and the net amount reported in the statement of financial position when there is currently a legally enforceable right to offset the recognised amounts and there is an intention to settle on a net basis or realise the asset and settle the liability simultaneously.

Held to maturity financial investments are non-derivative financial assets with fixed or determinable payments and fixed maturities which the Company has the intention and ability to hold to maturity. After initial measurement held to maturity financial investments are subsequently measured at amortised cost using the effective interest rate less impairment. The amortisation of any premium or discount is included in interest income. The Group no longer classifies any financial instruments as held to maturity.

Securities sold under agreements to repurchase at a specified future date are not derecognised from the statement of financial position as the Company retains substantially all the risks and rewards of ownership. The corresponding cash received is recognised in the statement of financial position as an asset with a corresponding obligation to return it, including accrued interest as a liability, reflecting the transaction's economic substance as a loan to the Company. The difference between the sale and repurchase prices is treated as interest expense and is accrued over the life of the agreement using the effective interest rate method.

Conversely, securities purchased under agreements to resell at a specified future date are not recognised in the statement of financial position. The consideration paid, including accrued interest, is recorded in the statement of financial position, reflecting the transaction's economic substance as a loan by the Company. The difference between the purchase and resale prices is recorded in interest income and is accrued over the life of the agreement using the effective interest rate method.

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. After initial recognition at fair value, loans and receivables are subsequently measured at amortised cost using the effective interest rate method, less allowance for impairment.

Cash and short term deposits comprise cash in hand and current balances with banks and similar institutions which are readily convertible to known amounts of cash and which are subject to insignificant risk of changes in value and have an original maturity of six months or less. For the purposes of the cash flow statement cash and cash equivalents are as defined above, but with an original maturity of three months or less, net of bank overdrafts (which are included within interest bearing loans and borrowings in current liabilities on the statement of financial position).

Other financial assets include government backed certificates of deposit issued by banks, notes and treasury bills directly

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Separate financial statements for the year ended 31 December 2016
Notes to the Company accounts (continued)

issued by state or national governments. These assets available for sale are initially recognised and subsequently measured at fair value.

Interest bearing loans and other borrowings and default funds are initially recorded at fair value. Subsequent measurement is at amortised cost using the effective interest method, and amortised cost is calculated by taking into account any discount or premium on the issue and costs that are an integral part of the effective interest rate.

Where derivative financial instruments are used, such as interest rate swaps and foreign currency forward exchange contracts, they reduce exposure to interest rate movements and foreign currency movements. The change in fair value of these hedging instruments is recognised in the income statement. The Company does not hold derivative financial instruments for trading purposes, but derivatives that do not qualify for hedge accounting are accounted for as trading instruments and are initially recognised and subsequently measured at fair value.

The Company establishes fair value using recognised valuation techniques. These include the use of externally available market prices, discounted cash flow analysis and other valuation techniques commonly used by market participants. Where discounted cash flow analysis and other valuation techniques are used assumptions are validated against market observable inputs.

Default fund and margin deposits

Default fund contributions paid by clearing members are mainly in cash. Clearing members may elect to use cash or securities to cover initial margin requirements; realised variation margin may only be covered in cash. Members may pledge securities directly using a bilateral delivery mechanism. Cash initial margin, variation margin and default fund deposits are reflected in the statement of financial condition as assets and liabilities.

The amount of margin deposits on hand will fluctuate over time as a result of, among other things, the extent of open positions held at any point in time by market participants in contracts and the margin rates then in effect for such contract.

Non-cash initial margin is not reflected in the statement of financial position. These non-cash assets are held in safekeeping, and the Company does not take legal ownership of the assets as the risks and rewards remain with the clearing members, unless and until such time as a clearing member defaults on its obligations to the Company.

Derecognition of financial assets and financial liabilities

A financial asset or liability is generally derecognised when the contract that gives rise to it is settled, sold, cancelled or expires. Where an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as a de-recognition of the original liability and the recognition of a new liability, such that the difference in the respective carrying amounts together with any costs or fees incurred are recognised in the income statement.

Taxation

Deferred and current tax assets and liabilities are only offset when they arise in the same reporting tax group and where there is both a legal right of offset and the intention to settle on a net basis or to realise the asset and settle the liability simultaneously.

Income tax relating to items recognised directly in other comprehensive income is charged or credited as appropriate to other comprehensive income and there is no effect on profit for the year.

Current tax

Current tax assets and liabilities for current and prior periods are measured at the amount expected to be recovered from or paid to relevant taxation authorities. The tax rates and tax laws used to compute the amount are those that are enacted or substantively enacted by the date on which the Board approves the separate financial statements.

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Separate financial statements for the year ended 31 December 2016
Notes to the Company accounts (continued)

Deferred tax

Deferred income tax is provided using the liability method on temporary differences at the statement of financial position date between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes using tax rates and laws enacted or substantively enacted by the date on which the Board approves the financial statements.

Deferred tax liabilities are recognised for all temporary differences. Deferred income tax assets are recognised for all deductible temporary differences to the extent that it is probable that taxable profit will be available against which the deductible temporary differences can be utilised, except where the deferred income tax asset arises through investments in subsidiaries and it is not probable that the temporary differences will reverse in the foreseeable future.

Provisions

Provisions are recognised for current obligations arising as consequences of past events where it is probable that a transfer of economic benefits will be necessary to settle the obligation and it can be reliably estimated.

In the normal course of business, the Company receives legal claims in respect of commercial, employment and other matters. Where a claim is more likely than not to result in an economic outflow of benefits from the Company (and is measureable), a provision is made representing the expected cost of settling such claims.

Share capital

Called up share capital comprises ordinary shares. Other capital reserves are described in note 20. Other instruments are classified as liabilities if there is an obligation to transfer economic benefits and if not they are included in Shareholders' funds. The finance cost recognised in the income statement in respect of capital instruments other than equity shares is allocated to periods over the term of the instrument at a constant rate on the carrying amount.

The share premium comprises the difference between the issue proceeds of shares and their nominal value.

Revenue recognition

Clearing fee income and rebates, together with other fee income and net settlement fees, are recognised on a transaction by transaction basis in accordance with the Company's fee scales. Non-cash collateral fees are charged on non-cash collateral provided by members and are included in other fee income.

Net treasury income is the total of revenue earned on the cash and other financial assets held that have been generated from clearing member activity, less interest paid to clearing members on their margin and other monies lodged with the Company. Interest expense or income is recorded using the effective interest rate method, which is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument to the net carrying amount of the financial instrument.

Finance income is revenue earned on the Company's own cash and financial assets balances and is also recognised on an effective interest rate basis.

Revenue sharing arrangements

Amounts deducted from revenue relate to surplus or revenue share arrangements whereby, as part of an operating agreement, amounts are due back to either the other party to the operating agreement or the actual clearing customers.

Cost of sales

Items of expense that are directly attributable to creating a product or provide a service that directly generates revenue or has the ability to generate revenue are classified as cost of sales.

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Separate financial statements for the year ended 31 December 2016
Notes to the Company accounts (continued)

Employee benefits

The Company has committed to assume obligations in respect of certain staff in the Euronext defined benefit pension scheme in Porto who transferred their employment to LCH SA in 2006. A full actuarial valuation of these funds was carried out at 31 December 2016 by a qualified independent actuary. Major assumptions used by the actuary are included within note 17.

The cost of providing benefits under the defined benefit plans is determined using the projected unit method, which attributes entitlement to benefits to the current period (to determine current service cost) and to the current and prior periods (to determine the present value of defined benefit obligations) and is based on actuarial advice. Past service costs are recognised in the income statement on a straight line basis over the vesting period or immediately if the benefits have vested. When a settlement or a curtailment occurs, the change in the present value of the scheme liabilities and the fair value of the plan assets reflects the gain or loss which is recognised in the income statement.

The net interest amount is calculated by applying the discount rate to the net defined benefit liability or asset at the start of each annual reporting period.

Actuarial gains and losses are recognised in the statement of other comprehensive income in the period in which they occur. The defined benefit pension liability in the statement of financial position comprises the total for each plan of the present value of the defined benefit obligation (using a discount rate based on high quality corporate bonds that have been rated at AA or equivalent status), less the fair value of plan assets out of which the obligations are to be settled directly. Fair value is based on market price information, and in the case of quoted securities is the published mid market price.

The contribution payable to a defined contribution plan is in proportion to the services rendered to LCH SA by the employees and is recorded as an expense in the income statement within employee benefits.

Share-based compensation

The Company operates share-based compensation plans for employees, settled in shares of the ultimate parent company, London Stock Exchange Group plc. The charge to the income statement is determined by the fair value of the options granted or shares awarded at the date of the grant as an indirect measure of the value of employee services received by the Company and recognised over the relevant vesting period.

The share-based compensation plans are accounted for as equity settled. The Company does record a cost for these transactions, representative of the fact that the company has received a capital contribution from LSEG which has been spent on share-based compensation, with the corresponding credit recorded in equity. A debit will then also be recorded in equity and an intercompany payable recorded reflecting the company's investment.

Dividends

Revenue is recognised when the Company's right to receive payment is established.

Leases

The Company is a lessee. Leases of property, plant and equipment where substantially all the risks and rewards of ownership have passed to the Company are capitalised in the statement of financial position as property, plant and equipment. Finance leases are capitalised at the lower of the fair value of the leased property and the present value of the minimum lease payments. The capital element of future obligations under finance leases is included as a liability in the statement of financial position. The interest element of rental obligations is charged to the income statement over the period of the lease and represents a constant proportion of the balance of capital repayments outstanding. Property, plant and equipment acquired under finance leases are depreciated over the shorter of the useful economic life of the asset or the lease term.

Leases of property, plant and equipment where a significant portion of the risks and rewards of ownership are retained by the lessor are classified as operating leases. Rentals payable under operating leases are charged in the income statement on a straight line basis over the lease term. Lease incentives are recognised over the lease term.

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Where a lease becomes onerous the full value of net future costs is immediately recognised in the income statement.

Fair value measurement

The Company measures financial instruments at fair value at each balance sheet date following the principles described page 12.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants in an arm's length transaction at the measurement date. The fair value measurement is based on the presumption that the transaction to sell the asset or transfer the liability takes place either in the principal market for the asset or liability or in the absence of a principal market, in the most advantageous market for the asset or liability.

The fair value of an asset or a liability is measured using the assumptions that market participants would use when pricing the asset or liability, assuming that market participants act in their economic best interest.

The Company uses valuation techniques that are appropriate in the circumstances and for which sufficient data are available to measure fair value, maximising the use of relevant observable inputs and minimising the use of unobservable inputs.

All assets and liabilities for which fair value is measured or disclosed in the financial statements are categorised within the fair value hierarchy, described in note 18.

For assets and liabilities that are recognised in the financial statements on a recurring basis, the Company determines whether transfers have occurred between levels in the hierarchy by re-assessing categorisation (based on the lowest level input that is significant to the fair value measurement as a whole) at the end of each reporting period.

For the purpose of fair value disclosures, the Company has determined classes of assets and liabilities on the basis of the nature, characteristics and risks of the asset or liability and the level of the fair value hierarchy as explained above.

Non-recurring items

Items of income and expense that are material by size and/or nature and are non-recurring are classified as non-recurring items on the face of the income statement within their relevant category. The separate reporting of these items together with impairment of intangible assets helps give an indication of underlying performance.

Government grants

Grants receivable are recognised in the income statement over the period in which the expenses are incurred when there is an expectation that the amounts will be received.

New accounting standards, amendments and interpretations

The following amendments and clarifications have been adopted where appropriate and have had no material effect on the results of the Group.

	Effective date for periods beginning on or after
Amendments to IFRS 11: Accounting for Acquisitions of Interests in Joint Operations	1 January 2016
Amendment to IAS 16 Property, Plant and Equipment and IAS 38 Intangible Assets: Clarification of Acceptable Methods of Depreciation and Amortisation	1 January 2016
Amendments to IAS 27: Equity Method in Separate Financial Statements	1 January 2016
Amendments to IAS 16 and IAS 41: Bearer Plants	1 January 2016
Annual Improvements 2012-2014	1 January 2016
Amendments to IFRS 10, IFRS 12 and IAS 28: Investment Entities – Applying the Consolidation Exception	1 January 2016
Amendments to IAS 1: Disclosure Initiative	1 January 2016

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Standards issued but not effective for the financial year beginning 1 January 2016 and not early adopted

The following standards, amendments and interpretations have been issued by the IASB and IFRIC with an effective date after 31 December 2016.

IFRS 15 Revenue From Contracts With Customers

IFRS 15 Revenue From Contracts With Customers introduces new accounting principles for revenue recognition for all types of sales of goods or services. It is effective from 1 January 2018 and will be adopted for the 2018 financial statements. IFRS 15 provides a single, principles-based five-step model to be applied to all sales contracts, based on the transfer of control of goods and services to customers, and replaces the separate models for goods, services and construction contracts currently included in IAS 11 Construction Contracts and IAS 18 Revenue.

Based on the Company's provisional assessment, the key areas of judgement expected on initial adoption of IFRS 15 are in relation to: (i) the timing of revenue recognition for services provided; (ii) the measurement of variable consideration which changes against factors outside of the Company's control; and (iii) how performance obligations are satisfied in contracts providing several services to customers.

The Company will continue to assess the impact during 2017, but does not expect any material changes to the timing of revenue being recognised.

IFRS 9 Financial Instruments

IFRS 9 Financial Instruments is effective for the year ended 31 December 2018 and will simplify the classification of financial assets for measurement purposes, but is not anticipated to have a significant impact on the financial statements.

IFRS 16 Leases

IFRS 16 Leases is effective for the year ended 31 December 2019 (not yet endorsed by the EU) and will require all leases to be recognised on the balance sheet. Currently, IAS 17 Leases only requires leases categorised as finance leases to be recognised on the balance sheet, with leases categorised as operating leases not recognised. In broad terms, the impact will be to recognise a lease liability and corresponding asset for the operating lease commitments set out in note 19.

	Effective date for periods beginning on or after
Amendments to IAS 12: Recognition of Deferred Tax Assets for Unrealised Losses*	1 January 2017
Amendments to IAS 7: Disclosure Initiative*	1 January 2017
IFRS 9 Financial Instruments	1 January 2018
IFRS 15 Revenue From Contracts With Customers	1 January 2018
Amendments to IFRS 2: Classification and Measurement of Share-based payment*	1 January 2018
Amendments to IFRS 4: Applying IFRS 9 Financial Instruments with IFRS 4 Insurance Contracts*	1 January 2018
IFRS 16 Leases*	1 January 2019
IFRS 14 Regulatory Deferral Accounts*	Awaiting final standard

* subject to EU endorsement

2. Risk management

Introduction

The Company's activities expose it to a number of financial risks, principally market risk (foreign exchange risk, interest rate risk, volatility in financial markets), sovereign risk, credit risk, liquidity risk and pension risk. In addition to the financial risks, the Company is also exposed to operational, compliance, legal and reputational risk. The Company manages these risks through various control mechanisms and its approach to risk management is to be prudent yet responsive to changes in the risk environment.

Overall responsibility for risk management rests with the Company's Board. Day to day responsibility is delegated to the Chief Risk Officer, who ensures effective delegation to the executives in the Company on the basis of risk policies which are calibrated to the Board's risk appetite and are discussed and agreed by the Company's Risk Committee and Board. The application of these policies is undertaken by the business functions as the first line of defence and by the risk management team forming the second line of independent assurance, who control and manage the exposures arising from the various clearing activities. The continued appropriateness of risk policies and key risk data are regularly reviewed by the Risk Committee and Board, and audits of processes within risk management are undertaken periodically. Risk policies are harmonised across the Group.

Enterprise Risk management framework

Each of the risks identified in this section are governed by the Risk Governance Framework, issued and refreshed at least annually by the Board. The framework describes the overall risk appetite of the Company, defines each risk type and specifies ownership and the tolerance levels. The framework also requires that all risks are measured, monitored and reported periodically via an Enterprise Risk Management framework coordinated by the Chief Risk Officer.

For each of the principal risk types, a description and outline of the risk management approach is provided below.

Financial market volatility (latent market risk)

Risk description

Volatility within the financial markets in which the Company operates can adversely affect its earnings and its ability to meet its business objectives. The Company runs a balanced position in all cleared contracts and runs no significant market risk unless a clearing member defaults. In such an event, the Company faces market risk which is correlated to clearing member positions and market conditions.

Risk management approach

The market and credit risk management policies of the Company are reviewed and approved by its Risk Committee and Board at least annually. A variety of measurement methodologies, including both empirical and analytical margin models, stress testing and scenario analysis, are used daily to quantify and assess the levels of credit and market risk to which the Company is exposed, and hence the amount of resources that should be held to cover such risks, under both normal and extreme, but plausible, market conditions.

Initial margins for all clearing services are calibrated and back-tested to a 99.7% confidence level. This has the effect of reducing the probability of loss from the default of a clearing member with the worst acceptable credit to the level of an AAA rated credit for the next 12 months.

Potential market risk is reduced by collecting variation margin on marked to market positions and by establishing initial margin requirements which are the Company's estimate of likely future market risk under normal market conditions, calibrated to a 99.7% confidence level for all products. Variation margin add-ons are calculated for clearing member specific concentration, liquidity, wrong way risk and credit risk. Both variation and initial margin are collected daily and replenished intraday subject to credit related thresholds.

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The Company accepts both cash in major currencies and high quality liquid non-cash collateral to cover margin requirements. The list of acceptable non-cash collateral issuers is restricted and haircuts are set for each security type taking into account market, credit, foreign exchange, country and liquidity risks and are calibrated to a 99.7% confidence level. All non-cash collateral is revalued daily.

	2016	2015
	€'bn	€'bn
Total collateral held		
Margin received in cash	15.9	14.9
Margin received in non-cash securities	11.2	8.9
Guarantees	1.1	1.0
Total margin liability	28.2	24.8

The maximum margin liability during the year was €33.8 billion (2015: €29.3 billion).

New applicants for clearing must meet strict credit, financial and operational criteria, which are regularly reviewed as part of the Company's risk policies. All clearing members are assigned an Internal Credit Score (ICS) and the ICS methodology is subject to independent validation at least annually.

The Company also require all clearing members to contribute to pre-funded default funds to be used should the margins of a defaulted clearing member not fully cover close out costs. Supplementary financial resources include a proportion of the Company's own capital and further clearing member contributions to ensure the continuity of ongoing operations. The operating subsidiary pre-funded default funds are segregated by clearing service and sized to be sufficient at all times to cover the default of the two clearing member groups giving rise to the greatest losses above margin under a wide range of plausible scenarios of extreme market conditions.

As at 31 December 2016 the total of clearing member contributions to the default funds amounted to €3.1 billion (2015: €2.1 billion) (note 16). The maximum amount during the year was €3.1 billion (2015: €3.1 billion). Clearing members are committed to contribute further amounts in the event of a clearing member default equivalent to approximately twice this amount.

The models which calculate margins and default fund contributions are independently validated at least annually and meet all applicable regulatory requirements.

Sovereign risk

Risk description

Distress amongst sovereigns through market concerns over the levels of government debt and the ability of certain governments to service their debts over time could have adverse effects on the value and liquidity of the Company's cleared products, margin collateral and investments, and on the clearing membership and the financial industry as a whole.

Risk management approach

Specific risk frameworks manage sovereign risk for both fixed income clearing and margin collateral, and all clearing members portfolios are monitored regularly against a suite of sovereign stress scenarios which model escalations in sovereign risk. In addition, investment limits and both counterparty and clearing membership monitoring frameworks are sensitive to changes in ratings and other financial market indicators, to ensure that the Company is able to measure, monitor and mitigate exposures to sovereign risk and respond quickly to anticipated changes.

The Risk Committees and Boards continually monitor such risks and to the risk framework continues to protect the Company against potentially severe market volatility in the sovereign debt markets.

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The total investment includes all other financial assets of €906.7 million (2015: €3,577.8 million) along with central bank cash deposits of €14,971.5 million (2015: €9,964.6 million).

Credit risk

Risk description

Credit risk is the risk that a counterparty of the Company will be unable or unwilling to meet a financial commitment to the Company. Credit risk exposure arises as a direct result of the reinvestment of the cash the Company holds primarily as part of its CCP activities, in collecting margin and default fund contributions from its clearing members.

Risk management approach

The investment portfolio is invested in accordance with clear risk policies which require secure investment of a significant portion of the portfolio either via reverse repurchase agreements with credit and financial institutions, receiving high quality government, government guaranteed or supranational securities as collateral, by investing directly in such securities or by the placement of cash with central banks

The Investment Risk Policy requires that securities received as collateral are subject to a haircut on their market value, that the average maturity of the portfolio will not exceed two years, and that while cash may be deposited on an unsecured basis, this can only be short term with high quality banking institutions and limited to a 12 month average of 5% and a maximum of 10% of all credit institution investment.

The investment portfolio at 31 December 2016 was €15.9 billion (2015: €14.1 billion), of which 99.96% (2015: 99.96%) was invested securely with an overall average maturity of 7 days (2015: 43 days). The maximum portfolio size during the year was €17.3 billion (2015: €14.1 billion). Note 18 contains further analysis of the investment portfolio including by type and fair value hierarchy.

All counterparties, including clearing members, interoperating CCPs, investment counterparties, custodians and settlement and payment institutions, are assessed according to an internal credit scoring framework. This framework incorporates elements of the counterparty's financial profile, including funding, liquidity, capital and profitability, and a detailed operational capability assessment. The scoring framework is independently validated at least annually and is continuously monitored for performance. A minimum credit score is set for joining any clearing service and for institutions to be eligible for investment or as interoperating CCPs and payment, settlement and custodial intermediaries. Increased margins are applied to clearing members when their credit score deteriorates below the entry level. Other actions may include reduced credit tolerances and forced reduction of exposures.

The Company currently interoperates with several other CCPs in Europe for cash cleared products. Interoperability with another CCP poses risks similar to the risks to which the Company is exposed with its clearing members. Credit risk is managed according to the same credit assessment framework applied to clearing members and other counterparties. To cover the latent market risk arising on interoperating exposures, all interoperating CCPs are subject to daily margining.

As at 31 December 2016 the total interoperating margin placed with and received under reciprocal arrangements with other CCPs amounted to €4.5 billion and €4.6 billion (2015: €3.7 billion and €3.3 billion) respectively.

Financial assets are neither past due nor impaired. The maximum credit risk exposure relating to financial assets is represented by the carrying value as at the statement of financial position date.

Analysis by credit rating

The table below shows the Company's clearing member balances and investment portfolio by reference to the credit rating (Fitch) of the counterparty. The treasury portfolio includes cash at bank and other financial assets.

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	Note	2016 €'m	2015 €'m
Fair value of balances with clearing members			
(rating assigned with reference to major agencies)			
Members rated AAA		-	-
AA+		-	-
AA		137.8	963.1
AA-		1,275.0	8,021.0
A+		45,316.7	28,985.1
A		60,304.6	80,564.2
A-		18,392.8	10,513.3
BBB+		96,001.1	90,824.4
BBB		7,557.8	2,033.8
Other, <BBB		15,159.3	14,305.0
Unrated		7,267.3	3,815.6
	11	251,412.4	240,025.5
Company investment portfolio			
(rating assigned with reference to major agencies)			
AAA/AA+/AA- Government backed		15,878.3	13,542.3
AA/AA+/AAA Secured		-	577.9
AA/AA+/AAA Unsecured		-	-
AA-/A+/A-/BBB+ Secured		-	-
A/A+/AA- Unsecured		6.4	5.6
	18	15,884.7	14,125.8

The total credit risk of the Company is represented by the total financial assets of the Company as disclosed in note 18.

Concentration risk

Risk description

Concentration risk may arise through having large connected individual exposures and significant exposures to groups of counterparties whose likelihood of default is driven by common underlying factors.

Risk management approach

Direct concentration risk arises in several areas of the Company's activities, and in order to avoid excessive concentrations of risk the Company maintains a diversified portfolio of high quality liquid investments and uses a diversified range of custodians, payment and settlement banks and agents.

Indirect concentration risks, conditional upon a clearing member default, are managed within risk policy through various means, including restrictions on certain non-cash collateral issuers and the monitoring of aggregated exposures to member groups across clearing and investment activities.

The largest concentration of treasury exposures as at 31 December 2016 was 6% of the total investment portfolio to the French Government (2015: 24% to the French Government).

Procyclicality

Risk description

Systemically important CCPs recognise that they have an important responsibility towards their clearing members and other

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market participants to ensure that their actions do not unnecessarily amplify existing market stresses. Indeed, risk mitigating actions that are excessively pro-cyclical are undesirable to the group CCPs from a narrow risk management perspective as well as from a macro-economic and regulatory perspective.

Risk management approach

The LCH CCPs acknowledge that while some level of procyclicality may be unavoidable, as they must protect themselves by ensuring adequate margins are held against risk, standards have been introduced for ensuring that procyclicality concerns are appropriately addressed in the risk framework and the margin, haircut and credit scoring models. These standards require all models which are used for setting the levels of resources called from participants, and which therefore may be sources of procyclical outputs, to be tested using an extended period of historical inputs.

Interest rate risk

Risk description

The Company is exposed to interest rate risk arising from the cash and investment balances it maintains, the margin and default fund balances it holds from clearing members and the loans and borrowings it has issued.

Risk management approach

Interest bearing assets are generally invested for a longer term than the interest bearing liabilities, whose interest rate is generally reset daily. This makes investment revenue vulnerable to volatility in overnight rates and shifts in spreads between overnight and term rates. Interest rate exposures are managed within defined risk appetite parameters against which sensitivities are monitored daily. The risk to the Company's capital is managed within interest rate risk limits expressed as a percentage of each subsidiary's capital and calculated under stressed scenarios.

Interest rate sensitivity analysis

The Company aims to minimise its exposure to interest rate fluctuations. Any exposure is predominantly due to the mismatch between the Group's interest bearing assets and interest bearing member liabilities. Since the return paid on member liabilities is generally reset to prevailing market interest rates on an overnight basis the Company is exposed for the time it takes to reset the interest rates on its investments and the shifts in spreads between overnight and term rates. The maximum fixed exposure on any asset in the treasury portfolio is one year and the portfolio is subject to an overall interest rate risk limit.

The following table shows the estimated impact on the consolidated profit after tax and the effect on retained earnings within shareholders' equity:

€'m	2016			2015		
	+25bp	+50bp	+100bp	+25bp	+50bp	+100bp
Net exposure of cash and member margin balances	(0.5)	(1.1)	(2.2)	(8.9)	(17.7)	(35.5)
Tax effect of above	0.2	0.4	0.7	3.0	5.8	11.7
Decrease in profit after tax	(0.3)	(0.7)	(1.5)	(5.9)	(11.9)	(23.8)
	-25bp	-50bp	-100bp	-25bp	-50bp	-100bp
Net exposure of cash and member margin balances	0.5	1.1	2.2	8.9	17.7	35.5
Tax effect of above	(0.2)	(0.4)	(0.7)	(3.0)	(5.8)	(11.7)
Increase in profit after tax	0.3	0.7	1.5	5.9	11.9	23.8

A simulation of interest rate evolution until maturity date is computed over each portfolio item for 25bp, 50bp and 100bp and summed in the table above.

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Liquidity risk

Risk description

Liquidity risk is the risk that the Company is unable to meet its payment obligations when they fall due.

Liquidity risk exists as a result of day to day operational flows such as repayments of cash collateral to clearing members, provision of liquidity to facilitate settlement and cash flows resulting from investment activity. In the case of a clearing member default, the Company must transfer or liquidate the defaulter's portfolio. The default management process may give rise to additional liquidity requirements to meet losses arising to meet the defaulter's settlement and margin obligations until the portfolio is closed out or transferred.

Risk management approach

Liquidity risk is managed by ensuring that the Company has sufficient cash to meet their payment obligations supported facilities to meet short term imbalances between available cash and payment obligations. The Company maintains liquidity buffers against expected daily operational liquidity needs, based on the maximum relevant liquidity outflow observed from an extensive data history, and against the default of one or more clearing members when additional liquidity will be required so that the Company can continue to meet its obligations to clearing members and other counterparties.

The Company's liquidity management is subject to strict minimum liquidity targets set by senior executives within its Risk and Collateral & Liquidity Management (CaLM) departments. These targets are reviewed regularly and reported to the Risk Committees and Boards. On a day to day basis CaLM is tasked with ensuring that the Company can meet its financing needs at all times, in particular to ensure the business continues to operate smoothly in the event of the default of one or more clearing members.

The ability to access liquidity under extreme market conditions is modelled daily. Liquid resources include available cash balances, secured financing facilities and access to central bank liquidity. LCH uses central bank money where such facilities are available to it as a CCP and are practicable as determined through internal review.

The table below analyses the Company's financial liabilities into relevant maturity groupings based on the remaining period from the balance sheet date to the contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows.

	On demand €'m	Less than three months €'m	Three months to one year €'m	One to five years €'m	More than five years €'m	Total €'m
As at 31 December 2016						
Transactions with clearing members	- (251,412.4)	-	-	-	-	(251,412.4)
Initial margin and other clearing member balances	- (19,352.7)	-	-	-	-	(19,352.7)
Default funds	-	-	(3,078.0)	-	-	(3,078.0)
Trade and other payables	-	(53.3)	-	-	-	(53.3)

	On demand €'m	Less than three months €'m	Three months to one year €'m	One to five years €'m	More than five years €'m	Total €'m
As at 31 December 2015						
Transactions with clearing members	- (240,025.5)	-	-	-	-	(240,025.5)
Initial margin and other clearing member balances	- (17,209.0)	-	-	-	-	(17,209.0)
Default funds	-	-	(2,089.9)	-	-	(2,089.9)
Trade and other payables	-	(48.0)	-	-	-	(48.0)

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For the default funds, the tenor of the liability is matched with the interest reset dates of the asset. The weighted average maturity of the treasury portfolio is 7 days (2015: 43 days), with strict risk criteria related to interest rate exposure being applied.

Interest due on the financial liabilities is based upon rates set on a daily basis.

Settlement risk

Risk description

Settlement risk is the risk that the Company makes a payment or delivery without simultaneously receiving the delivery or payment from the counterparty.

Risk management approach

The Company materially mitigates this risk through the use of guaranteed and irrevocable delivery versus payment mechanisms where available.

Settlement bank risk

Risk description

The Company is exposed to the risk that a settlement bank could fail, creating credit losses and liquidity pressures for the Company.

Risk management approach

The Company uses a combination of central bank, payment agent and commercial settlement bank models. The policy requires that only minimal unsecured balances at commercial settlement banks remain overnight, placing the majority at available central banks. Any such unsecured balances are deducted from commercial bank deposit limits. Intraday exposures to commercial banks are also monitored and closely controlled.

For monies due from clearing members, if the payment agent or commercial settlement bank is not able to transfer funds to the Company, the clearing members remain liable for the fulfilment of their payment obligations.

Risk policies specify minimum credit scores for all payment and settlement intermediaries and that these are monitored continually, with a full counterparty credit review conducted annually and a full due diligence exercise carried out at least every two years. The counterparty credit scores are derived from the framework described under Credit Risk above.

Custody risk

Risk description

Custody risk is the risk of loss on securities in safekeeping as a result of the custodian's insolvency, negligence, misuse of assets, poor administration or inadequate record keeping.

Risk management approach

Although the risk of insolvency of central securities depositories or custodian banks used by the Company is low the Company mitigates this risk through a due diligence framework ensuring appropriate legal arrangements and operational processes, in addition, policy sets minimum eligibility requirements and requires regular credit assessment and back-up contingency arrangements to be in place.

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Capital risk

Risk description

Capital risk is the risk that the Company may not maintain sufficient capital to meet its obligations. This includes the risks that regulators may increase capital requirements or that own capital levels may become eroded. Capital is specifically allocated, and therefore at risk ahead of clearing member resources, in the event of either a clearing member or investment counterparty default. In addition, capital may be at risk to operational losses in excess of insurance protection.

Risk management approach

The Company's approach to capital management and a review of the current regulatory requirements are detailed in note 21. In addition:

- the default waterfalls for each clearing service feature the Company's capital, to be utilised after the defaulted clearing member's collateral and default fund contributions and before the balance of the mutualised default funds and further, non-prefunded, resources available from the clearing members. In aggregate this capital at risk is equivalent to 25% of regulatory capital requirement
- the Company can manage its capital structure by varying returns to shareholders, issuing new shares or increasing or reducing borrowings

Operational risk

Risk description

Operational risk is the risk of loss arising through failures associated with personnel, processes or systems or from external events. It is inherent in every business organisation and covers a wide spectrum of issues. First line operational risk is managed by the business, for example through procedures, documentation of processes, independent authorisation and reconciliation of transactions.

Risk management approach

The Company has adopted a framework, supported by tailored enterprise-wide software, systematically to identify, assess, monitor and manage operational risks. This is achieved through self assessment of risks and controls, the collection and analysis of loss data and the development of key risk indicators as appropriate, enabling the embedding of operational risk awareness within the corporate culture. An independent department performs second line operational risk management, validating the self-assessments of risks and controls and reporting on operational risk to senior management and Board.

Business operations are subject to a programme of internal audit reviews, which are independent of line management, and the results are reported directly to the Company's senior management and Audit Committees. Following each review, management will put in place an action plan to address any issues identified. Internal Audit evaluates the adequacy and effectiveness of the Company's systems of internal control, as well as the level of compliance with policies, and reports, in addition to management's own combined assurance reporting, to the Audit Committees and senior management. Any significant weaknesses are reported to the Board.

The Company maintains comprehensive contingency plans to support its operations and ensure business continuity. These facilities are regularly tested.

Other risks

Pension risk

Pension risk arises from the potential deficit in the Company's defined benefit pension plans due to a number of factors such as mortality rates or changes in inflation assumptions. The schemes are exposed to inflation, interest rate risks and changes in the life expectancy for members.

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Legal, compliance and regulatory risk

These risk categories include the risk arising from the potential that unenforceable contracts, lawsuits, or adverse judgements can disrupt or otherwise negatively affect the operations or condition of the organisation, and the risk of loss of license or other penalties imposed due to non-compliance with regulations governing clearing house activities in each jurisdiction in which the Company operates. It is the responsibility of the Heads of the Legal, Regulatory and Compliance functions to provide assurance to the Board that these risks are measured and monitored, while the responsibility for any mitigation actions resides with the relevant business and functional heads.

In the normal course of business, the Company receives legal claims in respect of commercial, employment and other matters. Where a claim is more likely than not to result in an economic outflow of benefits from the Company (and is measurable), a provision is made representing the expected cost of settling such claims.

Reputational risk

The maintenance of the Company's strong reputation is key to its continued profitability and is the responsibility of the Board, management and staff. In particular the efficiency, reliability and effectiveness of the day to day operations of the Company are paramount to its reputation.

Business and strategic risks

Business risk is the risk of loss or profit decrease where declining volumes lead to lower revenues which cannot be offset by adjusting variable costs within a reasonable time period, while strategic risk is the risk of reduction in earnings or capital arising from adverse business decisions, improper implementation of decisions, or lack of responsiveness to industry changes. Business heads are responsible for managing these risks and liaising closely with the Board when issues arise.

Project risk and business continuity, information security and cyber risks

These risk categories include the risk to earnings and capital arising from project execution deficiencies, the risk of loss arising from the disruption of critical business or IT processes due to adverse circumstances or events, and the risk that valuable and sensitive Company data is compromised, lost and/or misused. The heads of dedicated business functions and of each business are responsible for managing these risks.

Model risk

This is the risk that, for example, a margin model may not capture the essence of the stress loss/events being modelled, or that there are mistakes in the underlying calculation, which may result in systemic under-margining for the products in question. Model risk management is the responsibility of the heads of business lines which place reliance on the models, and is effected through appropriate testing and maintenance of the models and in particular through the strict governance required for model change, including independent expert validation and senior executive approval.

Default management risk

The additional risk arising from not having a well defined process in place prior to a default event, so that valuable time may be lost trying to reconcile positions, contacting the relevant people, etc, leading to a material deterioration in the market value of assets held. For each service, it is the joint responsibility of the Chief Risk Officer and the relevant business head to ensure that a functioning Default Management Group is in place in accordance with Company policies and guidelines, and that drills are held regularly to ensure the default management process functions smoothly.

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3. Operating expenses

The following items are included in operating expenses (total operating expenses include impairment and non-recurring items; a full analysis is given in note 4):

	2016	2015
	€'m	(restated) €'m
Employee costs (note 17)	40.4	36.2
Depreciation and amortisation (see below)	10.4	9.5
Other operating expenses	37.5	39.2
Total operating expenses	88.4	84.8

	2016	2015
	€'m	€'m
Depreciation and amortisation		
Amortisation of intangible assets	10.2	8.1
Depreciation of property, plant and equipment	0.2	1.4
	10.4	9.5

Other operating expenditure includes

Property lease rentals	3.1	3.5
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Auditor's remuneration

Audit fees	0.8	0.7
	0.8	0.7

4. Non-recurring items

	2016	2015
	€'m	€'m
Social plan provision	-	0.7
Restructuring programme	(3.0)	-
Total non-recurring items	(3.0)	0.7
Tax effect of non-recurring items	0.5	-
Net non-recurring items	(2.5)	0.7

During 2016, the Board approved a three year restructuring programme to improve the efficiency of the Company.

5. Finance income

	2016	2015
	€'m	€'m
Dividends received	11.7	3.4
Interest received on own funds	-	(0.2)
Finance income	11.7	3.2
Bank and finance interest	(0.8)	-
Net finance expense on pension liabilities	(0.1)	-
Net finance income	10.8	3.2

Finance expense includes amounts where the Company earns negative interest on its cash deposits of €0.9 million (2015: €0.2 million were included in Finance income).

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6. Taxation

The major components of taxation expense are:

Current tax	2016 €'m	2015 €'m
France current tax charge	(12.9)	(11.4)
Adjustments in respect of current taxation in previous years	-	-
Other European locations current tax charge	(1.7)	(1.9)
Adjustments in respect of current taxation in previous years	-	-
Total current taxation	(14.7)	(13.3)
 Deferred tax		
Relating to the origination and reversal of temporary differences	0.3	(1.1)
Effect of future rate changes	-	-
Adjustment in respect of previous years	0.0	(0.7)
Total deferred taxation	0.3	(1.8)
Tax expense reported in the income statement	(14.4)	(15.1)

Statement of comprehensive income

Tax relating to remeasurement gains on French defined benefit plans	0.2	(0.2)
Tax relating to remeasurement (gains)/losses on other European defined benefit plans	-	(0.1)
Tax credit/(expense) reported in the statement of comprehensive income	0.2	(0.3)

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Reconciliation of tax expense

The income statement tax charge for the year differs from the standard rate of corporate tax in France as explained below:

Reconciliation of tax expense	2016 €'m	2015 €'m
Accounting profit before taxation	54.9	49.2
Tax at French statutory corporation tax rate of 33.33%	18.3	16.4
Effect of:		
Disallowed expenses and non-taxable income	(3.6)	-
Adjustments in respect of prior periods	(0.3)	-
Net effect of different tax rates of other European locations	(0.0)	(1.3)
Total tax charge	14.4	15.1
Effective corporate tax rate	26.2%	30.7%

Deferred tax

	Statement of financial position		Income statement	
	2016 €'m	2015 €'m	2016 €'m	2015 €'m
Deferred tax				
Post-employment benefits	1.1	0.9	0.3	(0.3)
Deferred compensation	2.4	2.4	(0.3)	0.7
Tax on provisions and other temporary differences	0.9	0.7	0.2	(2.2)
Deferred tax charge			0.3	(1.8)
Deferred tax asset	4.4	4.0		

	2016 €'m	2015 €'m
Net deferred tax asset at 1 January	4.0	6.2
Deferred tax in income statement	0.3	(1.9)
Deferred tax relating to remeasurement gains/(losses) on defined benefit pension plans	0.1	(0.3)
Net deferred tax asset at 31 December	4.4	4.0

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7. Intangible assets

	2016				2015			
	Self-developed software €'m	Other €'m	Goodwill €'m	Total	Self-developed software €'m	Other €'m	Goodwill €'m	Total
Cost at 1 January	85.8	-	52.7	138.5	71.3	-	52.7	124.0
De-recognition	-	-	-	-	-	-	-	-
Additions	20.4	-	-	20.4	14.7	-	-	14.7
Disposals	(4.7)	-	-	(4.7)	(0.2)	-	-	(0.2)
Asset transfer	0.3	-	-	0.3	-	-	-	-
At 31 December	101.8	-	52.7	154.5	85.8	-	52.7	138.5
Accumulated amortisation at 1 January	51.1	-	43.6	94.7	43.2	-	43.6	86.8
De-recognition	-	-	-	-	-	-	-	-
Amortisation charge for the year	10.2	-	-	10.2	8.1	-	-	8.1
Disposals	(4.6)	-	-	(4.6)	(0.2)	-	-	(0.2)
At 31 December	56.7	-	43.6	100.3	51.1	-	43.6	94.7
Net book value at 31 December	45.2	-	9.1	54.2	34.7	-	9.1	43.8

The portion of capitalised self-developed software costs disclosed above that relates to software not currently brought into use amounted to €10.5 million (2015: €10.0 million). No depreciation has been charged during the year against these assets (2015: €nil), but instead they are tested for impairment (see note 8).

Goodwill consists of the value resulting from the merger of the Company's branches into LCH SA as follows: €43.6 million for the Amsterdam branch, €6.5 million for the Porto branch and €2.6 million for the Brussels branch.

8. Impairment testing of intangible assets

The Group carries out annual impairment testing on goodwill and intangible assets in December of each year, or more often if circumstances show that impairment may be likely.

Goodwill is carried in relation to LCH SA, a wholly owned subsidiary, which is also the cash generating unit (CGU) to which the goodwill is allocated. The recoverable amount associated with this subsidiary is determined based on value in use calculations.

For intangible assets, impairment is assessed by reviewing the carrying value of the asset against its recoverable amount, which is determined by value in use calculations for the relevant cash generating unit using discounted cash flow projections.

Assumptions

The key assumptions used in the valuations relate to discounted cash flow projections prepared by management covering a five year period. The cash flow projections are based on the Group's budget for 2017 and the approved plan for the two financial years following the last financial year in the budget. Cash flows beyond this period are extrapolated using the estimated long term growth rates and applying the pre-tax discount rates.

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Management has based its value in use calculations for each CGU on key assumptions about short and medium term revenue and cost growth, long term economic growth rates (used to determine terminal values) and pre-tax discount rates, as follows:

- i) The values assigned to short and medium term revenue and cost growth are based on the 2017 budget and the Group approved plan. The assumptions are derived from an assessment of current trends, anticipated market and regulatory developments, discussions with customers and suppliers and management's experience. These factors are considered in conjunction with the Group's long-term strategic objectives to determine appropriate short and medium growth assumptions
- ii) Long term growth rates of 2% (2015: 2%) represent management's internal forecasts based on external estimates of GDP and inflation
- iii) The pre-tax discount rate of 11.6% (2015: 10.5%) is based on a number of factors including the risk-free rate, the Group's estimated market risk premium and a premium to reflect inherent risks

Impairment results

Having completed the tests as described above, goodwill and self developed software were not found to be impaired.

Sensitivity analysis

Reasonably possible changes in key assumptions and rates at 31 December 2016 are detailed below and the impact on the impairment recognised noted:

Goodwill

	Base case	Adjusted	Increase in impairment €'m
Reduction in clearing revenues	various	-10.0%	-
Cash flow growth beyond the five year period	2.0%	0%	-
Pre-tax discount rate	11.6%	14.6%	-

Self-developed software

	Base case	Adjusted	Increase in impairment €'m
Reduction in clearing revenues	various	-10.0%	-
Pre-tax discount rate	11.6%	14.6%	-

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9. Property, plant and equipment

As 31 December 2016	Leasehold refurbishment €'m	Computer equipment €'m	Office equipment €'m	Total €'m
Cost at 1 January	2.4	4.2	2.7	9.3
Asset transfer	-	-	(0.3)	(0.3)
Additions	-	-	-	-
Disposals	-	-	(0.6)	(0.6)
At 31 December	2.4	4.2	1.8	8.4
Accumulated amortisation at 1 January	2.0	4.2	2.2	8.5
Depreciation charge for the year	0.1	-	0.1	0.2
Disposals	-	-	(0.6)	(0.7)
At 31 December	2.1	4.2	1.7	8.0
Net book value at 31 December	0.3	-	0.1	0.4

As 31 December 2015	Leasehold refurbishment €'m	Computer equipment €'m	Office equipment €'m	Total €'m
Cost at 1 January	2.8	5.8	0.9	9.5
Asset transfer	-	(1.6)	1.6	-
Additions	-	-	0.3	0.3
Disposals	(0.4)	-	(0.1)	(0.5)
At 31 December	2.4	4.2	2.7	9.3
Accumulated amortisation at 1 January	2.3	4.4	0.8	7.5
Asset transfer	-	(1.3)	1.3	-
Depreciation charge for the year	0.1	1.1	0.2	1.4
Disposals	(0.4)	-	(0.1)	(0.5)
At 31 December	2.0	4.2	2.2	8.4
Net book value at 31 December	0.4	-	0.5	0.9

10. Investment in associate

	2016 €'m	2015 €'m
Cost at 1 January	19.8	19.8
Capital repayment	(19.5)	-
Cost at 1 January & 31 December	0.3	19.8

In November 2016, the Company's major subsidiary company, LCH.Clearnet (Luxembourg) S.à.r.l., sold its intellectual property rights to the Company and a fellow subsidiary company. Subsequently, LCH.Clearnet (Luxembourg) S.à.r.l. underwent a capital reduction and repaid the Company capital of €19.5 million.

On the 16 December 2016, the Company sold its 49% holding in LCH.Clearnet (Luxembourg) S.à.r.l. to its parent company, LCH.Clearnet Group Limited for consideration of €0.2 million.

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At 31 December 2016, LCH SA owned a €300,470 equity interest in the company SWIFT (2015: €300,470).

11. Balances with clearing members

	2016 €'m	2015 €'m
Assets		
Fair value of transactions with clearing members	251,412.4	240,025.5
Other clearing member balances	6,840.3	5,462.7
	258,252.7	245,488.2
Liabilities		
Fair value of transactions with clearing members	(251,412.4)	(240,025.5)
Initial margin and other clearing member balances	(19,352.7)	(17,209.0)
	(270,765.1)	(257,234.5)

The balances due from clearing members recorded in the statement of financial position of €251,412.4 million (2015: €240,025.5 million) are fully secured by collateral held by the Company. To date this collateral has not been utilised.

At 31 December 2016 the total of fully collateralised loans in respect of fixed income transactions was €251,412.4 million (2015: €240,025.5 million). This collateral has in turn, been passed on to fixed income counterparties to secure the Company's liabilities in respect of fixed income contracts.

The total net amount of non-cash collateral not recognised on the balance sheet, including that in respect of initial margin, was €10,534.6 million (2015: €8,899.1 million) and the total amount of guarantees held was €1,372.6 million (2015: €1,007.8 million). To date this collateral has not been utilised.

Balances with clearing members include €4,514.2 million (2015: €3,678.2 million) due from and €4,581.5 million (2015: €3,323.8 million) due to Cassa di Compensazione Garanzia S.p.A (CC&G), a fellow LSEG subsidiary company.

12. Trade and other receivables

	2016 €'m	2015 €'m
Non-current		
Deposits	0.2	0.1
Current		
Trade receivables*	11.5	-
Other receivables	17.3	4.7
Prepayments	2.2	0.8
Amount owed by parent company	0.9	0.7
Total current trade and other receivables	31.9	6.2

There are no trade and other receivables that are past due or impaired.

*Other clearing member balances (note 11) includes fee receivables of €8.9 million at 31 December 2015.

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13. Cash and cash equivalents

	2016 €'m	2015 (represented*) €'m
Cash at bank and in hand	288.4	267.2
Short-term deposits	-	-
Cash and cash equivalent	288.4	267.2
Clearing business cash at bank	14,689.6	9,703.0
Clearing business cash short-term deposits	-	577.8
Clearing business cash and cash equivalent	14,689.6	10,280.8
Total cash and cash equivalent	14,978.0	10,548.0

The short-term deposits are fully collateralised by sovereign and investment grade corporate securities in accordance with eligibility criteria approved by the Risk Committee.

€45.4 million (2015: €44.9 million) of own cash is restricted as the Company's own resources to be used in the default waterfall. This is allocated by default fund on a pro rata basis as follows at 31 December 2016: €20.0 million on CDS, €12.3 million on Cash and Derivatives, €11.3 million on Fixed Income and €1.8 million on Collateral basket.

The remaining cash represents the balance of default funds and margin monies placed on deposit for the purpose of earning investment income.

*For details of the re-presentation, see page 10.

14. Trade and other payables

	2016 €'m	2015 (represented*) €'m
Non-current		
Employee benefits	6.0	4.8
Trade payables	0.4	-
Total non current trade and other payables	6.4	4.8
Current		
Trade payables	12.3	8.9
Other taxation and social security	23.4	23.2
Payable related to default	2.0	2.0
Amount owed to parent company	3.5	1.4
Amount owed to fellow subsidiary company	6.4	5.2
Amount owed to associate	-	4.9
Other payables	5.6	2.4
Total current trade and other payables	53.2	48.0

*For details of the re-presentation, see page 10.

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15. Interest bearing loans and borrowings

There were no outstanding interest bearing loans as at 31 December 2016 (2015: none).

Bank overdrafts

In order to assist with day to day liquidity management the Company maintains a number of uncommitted money market and overdraft facilities with a number of major banks. Effective interest rates on these facilities vary depending on market conditions.

16. Default funds

The purpose of the default funds is to absorb any losses incurred by the Company in the event of clearing member default if margin collateral is insufficient to cover the management and close out of the positions of the defaulting clearing member. Default funds are segregated to cover the different business lines of the Company, The total default funds held by the Company at 31 December 2016 were €3,078.0 million (2015: €2,089.9 million).

17. Employee benefits

i) Staff costs

All employees and directors

	2016	2015
	€'m	(*represented) €'m
Salaries and other benefits	26.3	25.2
Social security costs	9.2	9.7
Share-based payment costs	1.3	1.0
Pension costs	0.7	0.4
Staff costs before non-recurring items	37.5	36.3
Staff costs included in non-recurring items	2.9	(0.1)
Total staff costs	40.4	36.2

Average monthly number of staff employed (re-presented)	189	180
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Staff costs and the average number of staff have been re-presented to include the costs of contract staff who are not on the payroll, but fulfil a similar role to employees.

Key management personnel

	2016	2015
	€'m	€'m
Remuneration	1.8	1.2
Deferred bonus and other long-term benefits	0.2	-
Share-based payment costs	0.2	0.3
Pension contributions	-	-
Compensation for loss of office	-	-
Aggregate emoluments of key management personnel	2.2	1.5

The costs above include deferred bonuses, other long-term incentive plan (LTIP) awards and share-based payment costs on

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an accrued basis. Key management personnel consists of the executive director and certain senior staff who are regarded as running the business on a day to day basis.

Independent directors' remuneration

	2016	2015
	€'m	€'m
Remuneration	0.1	0.1
Total	0.1	0.1

Independent non-executive directors received fees for their services. The Board determines fees that reflect the level of individual responsibilities, attendance of meetings and membership of Board committees. Non-executive directors representing shareholders did not receive fees.

ii) Share-based payments

Company employees were eligible to participate in one or more of the following LSEG share option based arrangements during the financial year:

- i. The LCH Clearnet Group Long Term Incentive Plan (LCH LTIP)
- ii. The LSEG International Sharesave Plan (SAYE)
- iii. The London Stock Exchange Group Long Term Incentive Plan 2014 (LSEG LTIP)
- iv. The LSEG Restricted Share Award Plan 2008 (Restricted Plan)

The **LCH LTIP** also has two elements, an award of Performance Shares and a conditional award of Matching Shares, which is linked to a co-investment being made by the executive. The Matching Shares element only applies to selected senior management. The Performance Shares are available to a wider group of executives. Awards are made in the form of nil-cost options. Under the Matching Shares arrangement, selected executives may invest up to the value of 50% of their net-of-tax base salary in LSEG shares (Invested Value). The Invested Value is then matched with a performance related Matching Share award, matched 2:1 on a pre-tax basis (up to a maximum Matching Share award of 100% of pre-tax base salary).

Vesting of the LCH LTIP award is initially dependent upon the achievement of a risk management gateway. If this is achieved, the degree of vesting of the award is assessed against three conditions, measured independently over three years:

- 1) **Regulatory metric:** a qualitative assessment of LCH Group performance on regulatory matters (comprising up to 34% of the award)
- 2) **Cost metric:** a quantitative assessment of qualifying cost savings during the performance period (comprising up to 33% of the award)
- 3) **EBIT metric:** a quantitative assessment of LCH Group earnings before interest and tax (EBIT) performance at the end of the performance period (comprising up to 33% of the award)

For Internal Audit, Risk and Compliance participants, the Cost and EBIT metrics do not apply. Assuming the risk management gateway is achieved, the vesting of the award is assessed against the Regulatory metric only.

The risk management gateway will be assessed by the LCH Group Remuneration Committee ('Committee') who will assess if the LCH Group has managed its risk effectively over the three year period. The award lapses in full if any of the LCH Group CCPs suffers an aggregate loss of more than €12 million (Higher Level Losses). Equally, if, during the performance period any of the LCH Group CCPs suffers losses below this level or circumstances arise in the reasonable opinion of the Committee that have or could have resulted in a significant adverse event which did or could have materially damaged future business operations, the Committee shall determine whether management could or should have taken action to prevent such circumstances and may lapse the award accordingly.

The Regulatory metric shall vest at 100% if it is determined that LCH Group management actions in relation to regulatory matters were wholly effective during the performance period. If it is determined that management actions in relation to regulatory matters were not wholly effective during the performance period, then the Remuneration Committee shall determine a lesser level of vesting as it deems appropriate.

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In order for the portion of the Performance Share or Matching Share Award subject to the Cost metric to vest, the Committee must determine the amount of cumulative net consolidated cost savings of London Stock Exchange Group achieved over the performance period by reference to specified cost saving projections and adjustments set out in the rules of the Plan.

The Cost and EBIT metrics shall vest as follows:

Cost metric: amount of qualifying cost savings determined to have been achieved	EBIT metric: EBIT level	Percentage of shares that vest
<i>2014 award:</i>		
€100 million or more	€120 million or more	100%
€75 million	€106 million	62.5%
€50 million	€92 million	25%
Below €50 million	Below €92 million	0%
<i>2015 award:</i>		
€50 million or more	€152 million or more	100%
€40 million	€138 million	62.5%
€30 million	€124 million	25%
Below €30 million	Below €124 million	0%
<i>2016 award:</i>		
€60 million or more	€230 million or more	100%
€50 million	€200 million	62.5%
€40 million	€170 million	25%
Below €40 million	Below €170 million	0%

Straight line vesting applies between the relevant percentages listed above in respect of the Cost and EBIT metrics.

At the end of the performance period, the Committee shall calculate LCH Group EBIT for the last financial year in the performance period, as approved by the LCH Clearnet Group Limited Audit Committee. EBIT means earnings before interest, tax and non-recurring items, as reported in the consolidated accounts for LCH Clearnet Group Limited, subject to such adjustments as the Remuneration Committee considers necessary to take account of matters that it considers to be appropriate.

If circumstances occur, which, in the reasonable opinion of the Committee, justify a reduction to awards granted the Committee may at its discretion reduce an award or not grant future awards. In the event that an award has already vested, the Committee may determine that a repayment is made. The circumstances and timeframe in which the Committee may consider it appropriate to exercise such discretions are covered in the Plan Rules.

The **SAYE scheme** provides for grants of options to employees who enter into a SAYE savings contract; options are granted at 20% below fair market value. The options vest in full after three years, providing the employee remains employed by the LCH Clearnet Group or wider LSEG group of companies.

The **LSEG LTIP** has two elements, an award of Performance Shares and a conditional award of Matching Shares, which is linked to a co-investment being made by the executive. Awards are made in the form of nil-cost options. Under the Matching Shares arrangement, selected executives may invest up to the value of 50% of their net-of-tax base salary in LSEG shares (Invested Value). The Invested Value is then matched with a performance related Matching Share award, matched 2:1 on a pre-tax basis (up to a maximum Matching Share award of 100% of pre-tax base salary).

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Vesting of the LSEG LTIP awards is dependent upon LSEG's total shareholder return (TSR) performance and adjusted basic earnings per share growth (EPS) (50% on each) over a three year period. The following targets applied to options granted in 2015 and 2016.

EPS element (50%): Average growth over 3 years	TSR element (50%): Absolute growth over 3 years	Proportion of element that vests
More than 12% p.a.	More than 16% p.a.	100%
6% p.a.	8% p.a.	25%*
Less than 6% p.a.	Less than 8% p.a.	0%

* Straight line pro-rating applies between this trigger and 100% vesting.

The Restricted Plan allows for grants to be made in the form of conditional awards over ordinary shares of LSEG, in the form of nil-cost options to certain executives. The vesting of such awards granted to date under the plans are conditional upon tenure.

Movements in the number of share options and awards outstanding and their weighted average exercise price are as follows:

	LCH LTIP	SAYE schemes	LSEG LTIP	Restricted Plan
	Number	Number	Weighted average exercise price (€)	
1 January 2015	20,299	20,965	15.40	-
Granted in year	13,040	-	-	-
Exercised in year	-	-	-	-
Lapsed/forfeited in year	-	-	-	-
31 December 2015	33,339	20,965	15.40	-
Granted in year	24,824	8,730	28.62	8,084
Exercised in year	-	(365)	16.64	-
Lapsed/forfeited in year	-	(1,911)	20.34	-
31 December 2016	58,163	27,419	19.27	8,084
				11,981

None of the options were exercisable as at 31 December 2016 (2015: none). The weighted average exercise price is nil for the LCH LTIP. The weighted average share price of LSEG plc shares during the year was £26.96 (2015: £24.89).

The range of exercise prices and weighted average remaining contractual life of awards and options outstanding are as follows:

	Number outstanding	Weighted average remaining contractual life Years
As at 31 December 2016		
LCH LTIP - nil	58,163	1.45
SAYE - over £11.00	27,419	0.90
LSEG LTIP – nil	8,084	2.21
Restricted Plan – nil	11,981	1.15
Total	105,647	

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The fair value of share options granted during the year was determined using a stochastic valuation model. The key assumptions used in the valuation were as follows:

	LSEG LTIP		LCH LTIP
	Performance shares	Matching shares	Performance shares
Grant date	17/03/2016	18/03/2016	17/03/2016
Grant date share price	£28.90	£28.92	£28.90
Options granted	4,056	4,028	24,824
Expected life (years)	3 years	3 years	3 years
Dividend yield	1.00%	1.00%	1.00%
Risk-free interest rate	0.60%	0.50%	0.60%
Volatility	25%	25%	25%
Fair value TSR	£10.22	£10.15	-
Fair value EPS	£28.04	£28.06	-
Fair value non-market conditions	-	-	£28.04

	SAYE	Restricted Plan
Grant date	05/05/2016	17/03/2016
Grant date share price	£26.14	£28.90
Options granted	8,730	11,981
Expected life (years)	3.16 years	0.8 – 3 years
Exercise price	€28.62	-
Dividend yield	0.90%	1.00%
Risk-free interest rate	0.60%	0.3% - 0.6%
Volatility	25%	25%
Fair value	£6.11	£28.04 - £28.61

The volatility is based on a statistical analysis of LSEG's weekly share price since its flotation in July 2001.

The fair value for the options are based on a Black-Scholes model. Holders of share awards and share options are not entitled to receive dividends declared during the vesting period.

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iii) Pension commitments

Defined contribution schemes

The Company pays fixed contributions to the defined contribution scheme in Portugal and there is no legal or constructive obligation to pay further contributions. The assets of the plan are held separately from those of the Company in a fund under the control of the trustees. There is no expense charged to the income statement in 2016 and 2015 representing contributions payable to the plan by the Company at rates specified in the rules of the plan.

Defined benefit schemes

The Company has obligations in respect of retirement indemnity and long-service award schemes in Paris. The provisions have been calculated by a qualified actuary as at 31 December 2016.

The obligations in respect of certain staff in an independent defined scheme in Porto were assumed in 2006. An updated valuation of these funds was carried out at 31 December 2016 by a qualified independent actuary.

The Company is not aware of any events subsequent to 31 December 2016, which would have a material impact on the results of the valuations.

Weighted-average assumptions to determine benefit obligations

	2016		2015	
	France	Porto	France	Porto
Discount rate	1.5%	1.5%	2.0%	2.0%
Rate of salary increase	2.5%	2.5%	3.0%	3.0%
Rate of price inflation	2.0%	1.5%	2.0%	2.0%
Rate of pension increases	n/a	1.5%	n/a	1.5%

Implied life expectancy at age 60

	2016		2015	
	France	Porto	France	Porto
Male currently aged 60	23.3	20.6	23.3	20.6
Male currently aged 45	23.3	20.6	23.3	20.6
Female currently aged 60	27.5	20.6	27.5	20.6
Female currently aged 45	27.5	20.6	27.5	20.6

Changes in benefit obligation

	2016		2015	
	France €'m	Porto €'m	France €'m	Porto €'m
Benefit obligation as at 1 January	4.9	0.4	5.4	0.5
Pension (income)/expense:				
Current service cost	0.4	-	0.4	-
Past service gain (curtailment gain)	-	-	-	-
Net interest	0.1	-	0.1	-
Re-measurement (losses)/gains:				
Effect of changes in demographic assumptions	0.5	-	-	-
Effect of changes in financial assumptions	0.3	0.1	(0.6)	(0.1)
Effect of experience adjustments	(0.1)	-	(0.3)	-
Reduction in obligation due to settlement	-	-	-	-
Benefits paid	-	-	(0.1)	-

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Benefit obligation as at 31 December	6.1	0.5	4.9	0.4
<i>Changes in scheme assets</i>				
	France	2016	France	2015
	€'m	Porto	€'m	Porto
		€'m		€'m
Fair value of scheme assets as at 1 January	-	0.5	-	0.5
Pension income:				
Net interest	-	-	-	-
Re-measurement gains:				
Return on plan assets (excluding interest income)	-	-	-	-
Employer contributions	-	-	0.1	-
Benefits paid	-	-	(0.1)	-
Fair value of scheme assets as at 31 December	-	0.5	-	0.5

Fair value of scheme assets with a quoted market price

	2016	2015
	Porto	Porto
	€'m	€'m
Cash and cash equivalents	0.1	0.1
Equity instruments	0.1	0.1
Debt / LDI instruments	0.3	0.3
Real estate	-	-
Total	0.5	0.5

Sensitivity analysis

The sensitivity of the value of the benefit obligation to the discount rate is shown below:

	2016	2015		
	France	Porto	France	Porto
	€'m	€'m	€'m	€'m
Discount rate - increase by 0.5%	(0.5)	(0.1)	(0.3)	(0.1)
Revaluation in deferment (CPI) and salary increases - increase by 0.5%	0.4	-	0.2	-
Pension increases in payment - increase by 0.5%	-	-	-	-
Life expectancy - increase by 1 year	-	-	-	-

The sensitivity analyses above have been determined based on a method that extrapolates the impact on the benefit obligation as a result of reasonable changes in key assumptions occurring at the end of the reporting period.

Payments from the defined benefit schemes

The following payments are expected to be made in future years out of the defined benefit plans' obligations:

	France	Porto
	€'m	€'m
Within the next 12 months	-	-
Between 2 and 5 years	0.2	-
Following 5 years	0.8	-
Total	1.0	-

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18. Financial instruments

Financial assets and liabilities

	Note	2016 €'m	2015 (represented) €'m
Financial assets at fair value through profit or loss			
Fair value of transactions with clearing members	11	251,412.4	240,025.5
Available for sale assets			
Treasury bills		906.7	3,115.1
Government issued bonds		-	462.7
Other financial assets in the statement of financial position		906.7	3,577.8
Loans and receivables			
Trade and other receivables	12	31.9	6.2
Other clearing member balances	11	6,840.3	5,462.7
Clearing business cash and cash equivalent	13	14,689.6	10,280.8
Own cash and cash equivalent	13	288.4	267.2
Financial liabilities at fair value through profit or loss			
Fair value of transactions with clearing members	11	(251,412.4)	(240,025.5)
Financial liabilities at amortised cost			
Trade and other payables	14	(53.2)	(48.0)
Initial margin and other member balances	11	(19,352.7)	(17,209.0)
Default funds	16	(3,078.0)	(2,089.9)

Prepayments, other taxes and accrued income within trade and other receivables are not classified as financial assets. Other taxes and deferred income within trade and other payables are not classified as financial liabilities.

Certificates of deposit (both bank issued and government backed) are all carried at fair value. For assets not marked to market there is no material difference between the carrying value and fair value.

All financial assets held at fair value are designated as such on initial recognition by the Company.

Fair value hierarchy

The Company uses the following hierarchy for determining and disclosing the fair value of financial instruments by valuation technique:

- Level 1: quoted (unadjusted) prices in active markets for identical assets or liabilities
- Level 2: other techniques for which all inputs, which have a significant effect on the recorded fair value are observable, either directly or indirectly
- Level 3: techniques which use inputs which have a significant effect on the recorded fair value that are not based on observable market data. The Company has no financial instruments in this category

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As at 31 December 2016 the Company held the following significant financial instruments measured at fair value:

€'m	Level 1	2016 Level 2	Total	Level 1	2015 Level 2	Total
Assets measured at fair value						
Fair value of transactions with clearing members	-	251,412.4	251,412.4	-	240,025.5	240,025.5
Treasury bills	906.7	-	906.7	3,115.1	-	3,115.1
Government backed, bank issued certificates of deposits	-	-	-	462.7	-	462.7
Liabilities measured at fair value						
Fair value of transactions with clearing members	-	(251,412.4)	(251,412.4)	-	(240,025.5)	(240,025.5)

For assets and liabilities classified as level 1, the fair value is based on market price quotations at the reporting date.

For assets and liabilities classified as level 2, the fair value is calculated using valuation techniques with market observable inputs.

Income statement

Amounts included in the income statement in relation to financial instruments are as follows:

	2016 €'m	2015 (*represented) €'m
Treasury income on assets held at fair value through the income statement	7.0	6.8
Treasury income on assets held at amortised cost	3.4	2.2
Treasury income on liabilities held at amortised cost	120.5	78.9
Net fair value (loss)/gain on revaluation of other financial assets held at fair value included in net interest income	(1.0)	1.5
Treasury income	129.9	89.4
Treasury expense on assets held at fair value	(17.1)	(18.7)
Treasury expense on assets held at amortised cost	(48.4)	(10.6)
Treasury expense on liabilities held at amortised cost	(37.6)	(34.2)
Treasury expense	(103.1)	(63.5)
Net treasury income	26.8	25.9
Finance income on assets held at amortised cost	(0.8)	(0.2)
Finance expense on liabilities held at amortised cost	(0.1)	-
Net finance income from financial instruments	(0.9)	(0.2)

Treasury income includes amounts earned from clearing members' cash collateral deposits which attract negative interest

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rates. Interest expense includes amounts where the Company incurs negative interest in its cash deposits.

Offsetting financial assets and financial liabilities

The Company reports financial assets and financial liabilities on a net basis on the balance sheet where there is currently a legally enforceable right to offset the recognised amounts and there is an intention to settle on a net basis, or to realise the asset and settle the liability simultaneously. The following table shows the impact of netting arrangements on all financial assets and liabilities that are reported net on the balance sheet.

As at 31 December 2016	Gross amounts €'m	Amount offset €'m	Net amount as reported €'m
Reverse repurchase agreements	282,483.7	(31,071.3)	251,412.4
Total assets	282,483.7	(31,071.3)	251,412.4
Reverse repurchase agreements	(282,483.7)	31,071.3	(251,412.4)
Total liabilities	(282,483.7)	31,071.3	(251,412.4)
As at 31 December 2015	Gross amounts €'m	Amount offset €'m	Net amount as reported €'m
Reverse repurchase agreements	276,186.1	(36,160.6)	240,025.5
Total assets	276,186.1	(36,160.6)	240,025.5
Reverse repurchase agreements	(276,186.1)	36,160.6	(240,025.5)
Total liabilities	(276,186.1)	36,160.6	(240,025.5)

As a CCP, the Company sits in the middle of members' transactions and holds default funds and margin amounts as a contingency against the default of a member. As such, further amounts are available to offset in the event of a default reducing the asset and liability of €251,412.4 million (2015: €240,025.5 million) to nil. Default funds for equities, and derivatives, fixed income and CDS of €1,666.7 million (2015: €1,193.5 million), repos of €1,221.3 million (2015: 819.1 million) and other transactions of €190.0 million (2015: 77.3 million) are held by the Company. In addition, the company holds margin of €4,041.2 million (2015: 3,962.0 million) for equities and derivatives, €21,237.0 million for repos (2015: 19,326.3 million) and €1,622.1 million (2015: €1,651.0 million) for other transactions.

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19. Commitments and contingencies

Operating leases

At 31 December 2016 the Company had annual commitments under non-cancellable operating leases. The total future minimum lease payments due are as follows:

	2016	2015
	Property	Property
	€'m	€'m
Within one year	2.7	2.7
More than one year, but less than five	10.9	10.9
More than five years	6.7	8.2
	20.3	21.8

A new lease for the main Paris office commenced from 1 January 2015, expiring 31 May 2024.

The Company has no finance leases.

Supplier agreements

LCH SA and the ATOS group agreed a five year IT service contract, effective on 1 January 2014. The estimated maximum value of the commitment to December 2018 is up to €25.3 million (2015: €37.2 million), assuming no early termination.

Treasury assets supporting operational facilities

At 31 December 2016, the Company had assets and collateral in support of Central bank activity which amounted to €2,570.2 million (2015: €2,239.2 million). LCH SA pledges securities as collateral for clearing activity with Banque de France for the purpose of securing overnight borrowings.

20. Issued capital and reserves

Share capital

Ordinary shares

The company has 7,416,700 fully paid-up ordinary shares of €15.24 each in issue as at 31 December 2016 (2015: 7,416,700).

No shares were issued in the year. All the Company's shares are owned by LCH.Clearnet Group Limited.

Other reserves

Share premium

No additional share premium has been recognised on the shares issued in the year.

Other capital reserves

The balance of €42.7 million (2015: € 43.1 million) includes non-distributable reserves of €11.3 million (2015: €11.3 million).

Distributable reserves

Retained earnings of €168.2 million (2015: €145.7 million) are regarded as distributable.

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21. Capital management

Compliance with capital adequacy regulations

The Company's approach to capital management is to maintain a strong capital base that will support the development of the business, meet regulatory requirements at all times and maintain good credit ratings. This is managed with reference to external capital requirements, including a consideration of future impacts of LCH. Capital plans are included within the Company's medium-term financial plan which is presented to the Board annually. The capital plans take into account current and future regulatory requirements and the development of the Company's business. The Company monitors capital resources in relation to its capital requirements.

LCH SA is considered a Qualifying Central Counterparty (QCCP) under the European Capital Requirements Regulations (CRR) as it has received authorisation under European Market Infrastructure Regulations (EMIR). The Company is registered as a Derivatives Clearing Organization (DCO) in the USA affording QCCP status for USA members.

LCH SA is regulated as a credit institution by the ACPR and as a CCP and an investment service provider by l'Autorité des marchés financiers (AMF) in Paris, France. It is subject to standard capital adequacy rules under EMIR and Basel III. It is also regulated by the CFTC as a DCO in the USA. The US Securities and Exchange Commission (SEC) has approved an application by LCH's CDS Clear unit for registration as a clearing agency. The authorisation, granted on December 29, 2016, allows LCH to begin clearing single-name credit default swap (CDS) contracts for US clients.

LCH SA is subject to capital adequacy rules under EMIR. Since December 2013, it is also regulated by the CFTC's Subpart C rules.

The Company has fully complied with its externally imposed capital requirements in the year.

In particular, it is required to ensure that its EMIR capital requirement is met by both its capital and audited reserves and adjusted liquid financial resources.

Basel III

In accordance with Basel III Pillar 1 framework, the Company is required to maintain ratio of capital to risk weighted assets that cannot fall under a threshold of 4% of common equity, 5.5% of Tier 1 capital and 8% of total capital.

22. Related party transactions

Key management personnel

Details of key management personnel and their total remuneration are disclosed in note 17.

Ultimate parent company and group companies

London Stock Exchange Group plc (LSEG) is the ultimate parent company of the Company and the largest group that prepares consolidated accounts. LCH Clearent Group Limited is the immediate parent company and the smallest group that prepares consolidated accounts.

Copies of the consolidated financial statements for LCH Clearent Group Limited for the year ended 31 December 2016 are available from the Company Secretary at the registered office. Copies of the consolidated financial statements for London Stock Exchange Group plc for the year ended 31 December 2016 are available from the Company Secretary, London Stock Exchange Group plc, 10 Paternoster Square, London, EC4M 7LS.

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Other group companies

Sales to and purchases from other group companies are at arm's length and at normal market rates. Outstanding balances at the year-end are unsecured and are settled in cash. For the year ended 31 December 2016, the Company has not raised any provision for doubtful debts relating to amounts owed by other group companies.

Details of transactions with the Company's parent and fellow subsidiaries which have passed through the income statement during the year, together with details of outstanding balances, are set out below.

	2016 €'m	2015 €'m
Transactions with parent companies		
<i>Income statement</i>		
Services recharged to parent companies	-	(0.6)
Services recharged from parent companies	2.6	3.4
Services recharged from parent company disclosed as non-recurring costs	-	-
Total	2.6	2.8
<i>Statement of financial position</i>		
Amount due to parent companies as of 31 December	(2.0)	(0.7)
Transactions with fellow companies		
<i>Income statement</i>		
Services recharged to fellow companies	(1.0)	(1.1)
Services recharged from fellow companies	8.7	-
Project recharge income with other fellow companies	(1.9)	(3.7)
Project recharge cost from other fellow companies	6.4	14.5
Total	12.2	9.7
<i>Statement of financial position</i>		
Amount due to fellow companies as of 31 December	(4.2)	(5.2)
Transactions with associate		
<i>Income statement</i>		
Project recharge income (netted with administrative expenses)	-	(0.2)
Services recharged to fellow subsidiary	(0.1)	-
Royalties and maintenance recharged from associate	8.5	9.7
Total	8.4	9.5
<i>Statement of financial position</i>		
Intangible assets acquired from subsidiary company (note 8)	3.3	-
Amount due to fellow companies as of 31 December	-	(4.9)

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Provisions

In December 2013, the Company initiated a restructuring plan and a net amount of €18.9 million was provided for on the statement of financial position. The provision was not discounted as it was expected that the provision would be substantially utilised during 2014.

	Restructuring provision €'m
As at 1 January 2015	2.0
Released in the year	(0.5)
Utilised in the year	(1.1)
As at 31 December 2015	0.4
As at 1 January 2016	0.4
Released in the year	-
Utilised in the year	(0.3)
As at 31 December 2016	0.1

23. Government grants

The Company qualifies for Government assistance in the form of crédit d'impôt recherche (CIR) (a research and development tax credit).

The grant is received as a reduction of the tax expense in the year following that in which the expenditure was incurred. A reduction to the tax charge for the year ended 31 December 2016 of €1.1 million has been recognised as the amount due under this initiative from 2015. The amount receivable of €0.3 million for 2016 is included within other receivables (2015: €0.5 million) and will be recognised in 2016.

The grant is subject to potential tax audit to ensure the eligibility of the expenses claimed. No provision has been made for any potential refund of the amounts receivable as this is deemed highly unlikely.

24. Subsequent event

Subsequent events have been evaluated by LCH SA through March 28, 2017, the date these financial statements are available to be issued.