NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31 JULY 2019

1. General information

The Chancellor, Masters, and Scholars of the University of Cambridge (the University) is a common law corporation, governed by its Statutes and Ordinances together with applicable United Kingdom and European Union legislation. The University is a public benefit entity and an exempt charity subject to regulation by the Office for Students (OfS) and formerly the Higher Education Funding Council for England (HEFCE) under the Charities Act 2011.

The contact address is: University of Cambridge, The Old Schools, Trinity Lane, Cambridge, CB2 1TN, UK.

The principal activities of the University and its subsidiary undertakings are teaching, research and related activities, which include: publishing services; examination and assessment services; the operation of museums, libraries and collections; and the commercialisation of intellectual property generated within the University.

2. Statement of compliance

The financial statements have been prepared in accordance with Financial Reporting Standard 102, The Financial Reporting Standard applicable in the United Kingdom and the Republic of Ireland (FRS 102), including the public benefit entity requirements of FRS 102, and the Statement of Recommended Practice: Accounting for Further and Higher Education 2015 (the SORP).

The statement of comprehensive income includes captions additional to those specified by the SORP in order to present an appropriate overview for the specific circumstances of the University.

3. Statement of significant accounting policies

(*a*) *Basis of preparation*

The financial statements have been prepared under the historical cost convention, as modified by the recognition of certain financial assets and liabilities measured at fair value.

The Group has taken advantage of exemptions in FRS 102:

- from preparing a statement of cash flows for the University, on the basis that it is a qualifying entity and the consolidated statement of cash flows, included in these financial statements, includes the University's cash flows; and
- from the financial instrument disclosures required under FRS 102 paragraphs 11.39 to 11.48A and paragraphs 12.26 to 12.29, in relation to the University, as the information is provided in the consolidated financial statement disclosures.

The preparation of financial statements requires judgement in the process of applying the accounting policies and the use of accounting estimates. Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable. The areas involving a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the financial statements, are discussed at the end of these policies.

(*b*) *Going concern*

The Council has a reasonable expectation that the University has adequate resources to continue to operate for the foreseeable future. In forming this view the Council notes that the University:

- undertakes a robust and detailed annual business planning and budgeting process, including preparation of a five-year financial sustainability review in line with OfS guidance and as such the going concern nature of the University has been considered for a period of greater than twelve months from the date of approval of the financial statements;
- applies prudent financial and cash management in order to ensure that its day-to-day working capital needs can be met out of cash and liquid investments; and
- has considered the potential impact of credit risk and liquidity risk detailed in Note 38.

For these reasons, the University continues to adopt the going concern basis in preparing its financial statements.

(*c*) *Basis of consolidation*

The consolidated financial statements include the University and its subsidiary undertakings, details of which are given in Note 35. Intra-group transactions and balances are eliminated on consolidation.

The results of subsidiaries acquired or disposed of in the current or prior years are consolidated for the periods from or to the date on which control passed. The acquisition method of accounting has been adopted for subsidiary undertakings. Amounts attributable to non-controlling interests represent the share of profits on ordinary activities attributable to the interest of equity shareholders in subsidiaries which are not wholly owned by the University.

The University accounts for its share of joint ventures using the equity method. A joint venture is an entity in which the University, or its subsidiaries, holds an interest on a long-term basis and is jointly controlled by the University or its subsidiaries and one or more other entities under a contractual agreement.

The University accounts for jointly controlled assets and operations based upon its share of costs incurred and recognises its share of liabilities incurred. Income and expenditure is recognised based upon the University's share.

Investments in subsidiaries and joint ventures are accounted for at the lower of cost or net realisable value.

The consolidated financial statements do not include the accounts of the 31 Colleges in the University ('the Colleges'), each of which is an independent corporation. Transactions with the Colleges are disclosed in Note 37.

The consolidated financial statements do not include the accounts of Cambridge University Students' Union or of Cambridge University Graduate Union, as these are separate bodies in which the University has no financial interest and over whose policy decisions it has no control.

Notes to the accounts for the year ended 31 July 2019 (*continued*)

3. Statement of significant accounting policies (continued)

(*d*) *Foreign currencies*

The Group's financial statements are presented in pounds sterling and in millions.

Transactions denominated in foreign currencies are recorded at the rate of exchange ruling at the date of the transactions. Where foreign branches and subsidiary undertakings accounting in foreign currencies operate as separate businesses, all their assets and liabilities are translated into sterling at year-end rates and the net effect of currency adjustments is included in other comprehensive income. Otherwise, monetary assets and liabilities denominated in foreign currencies are translated into sterling at year-end rates and translation differences are included in income or expenditure. .

(*e*) *Recognition of income*

Revenue

Income arising from the sale of goods or the provision of services is recognised in income on the exchange of the relevant goods or services and where applicable is shown net of value added taxes, returns, discounts and rebates as appropriate. In particular:

Tuition fees and education contracts

Tuition fees for degree courses are charged to students by academic term. Income is recognised for academic terms falling within the period. For short courses, income is recognised to the extent that the course duration falls within the period. Professional course fees and other educational contract revenues are recognised in line with the stage of completion/degree of provision of the service, as determined on an appropriate basis for each contract.

Examination and assessment services

Income from examination session-based assessments is recognised when services are rendered and substantially complete. Income from qualifications not based on examination sessions is recognised in proportion to the number of modules required for the qualification that has been achieved by candidates.

Publishing services

Income is recognised when: (*a*) the significant risks and rewards of ownership have been transferred to the buyer; (*b*) the Press retains no continuing involvement or control over the goods; (*c*) the amount of revenue can be measured reliably; (*d*) it is probable that future economic benefits will flow to the Press; and (*e*) when the specific criteria relating to each of the relevant sales channels have been met. In the case of books, income is recognised upon delivery of goods to the customer. For materials supplied permanently, whether by way of print or perpetual electronic access, income is recognised when the material is first made available to the customer. Subscriptions income including journals is recognised evenly over the subscription period. For service offerings, income is recognised evenly as the service is delivered.

Rights and permissions income is recognised on a cash receipt basis. Income in respect of certain co-publishing arrangements is recognised upon the printing of content by the co-publishing partner. Income in respect of project-based contract work is recognised on the basis of progress (percentage of completion), being the ratio of costs incurred at the measurement date and the total expected costs for the programme. In a multiple component arrangement, in the event certain components remain undelivered or incomplete, income is recognised on the fair value of the components delivered, subject to specific conditions being met.

Grant income

All grant funding, including OfS and HEFCE grants, research grants, and capital grants, from government and other sources, is recognised in income when the University is entitled to the funding and any performance-related conditions have been met. Performance conditions are defined as 'a condition that requires the performance of a particular level of service or units of output to be delivered, with payment of, or entitlement to, the resources conditional on that performance'. Income received in advance of performance-related conditions being met is recognised as deferred income within creditors on the balance sheet and released to income as the conditions are met. Research and development expenditure credits receivable from HM Revenue & Customs are recognised as income when the relevant expenditure has been incurred and there is reasonable assurance of receipt.

Donations and endowments

Donations and endowments are recognised in income when the University is entitled to the funds. In the majority of cases this is the point at which the cash is received, although in the case of capital and particularly building donations or endowments this is in line with expenditure incurred under the agreement or delivery of specified milestones within the donation agreement.

Donations are credited to endowment reserves, restricted reserves, or unrestricted reserves depending on the nature and extent of restrictions specified by the donor.

Donations with no substantial restrictions are included in unrestricted reserves.

Donations which are to be retained for the future benefit of the University are included in endowment reserves. Endowment funds are classified under three headings:

- Where the donor has specified that the fund is to be permanently invested to generate an income stream for the general purposes of the University, the fund is classified as an unrestricted permanent endowment.
- Where the donor has specified that the fund is to be permanently invested to generate an income stream to be applied for a restricted purpose, the fund is classified as a restricted permanent endowment.

Notes to the accounts for the year ended 31 July 2019 (*continued*)

3. Statement of significant accounting policies (continued)

- Where the donor has specified a particular objective other than the acquisition or construction of tangible fixed assets, and that the University must or may convert the donated sum into income, the fund is classified as a restricted expendable endowment.

Other donations with substantially restricted purposes are included in restricted reserves until such time as the restrictions have been met.

Investment income

Investment income is recognised in income in the period in which it is earned.

(*f*) *Employee benefits*

Short-term benefits

Short-term employment benefits including salaries and compensated absences are recognised as an expense in the period in which the service is rendered to the University. A liability is recognised at each balance sheet date for unused employee holiday allowances with the corresponding expense recognised in staff costs in the statement of comprehensive income.

Pension costs

The Group contributes to a number of defined benefit pension schemes for certain employees. The two principal pension schemes for the University's staff are the Cambridge University Assistants' Contributory Pension Scheme (CPS) and the Universities Superannuation Scheme (USS). Cambridge University Press operates two pensions schemes for its UK staff, the Press Contributory Pension Fund (PCPF) and the Press Senior Staff Pension Scheme (PSSPS). A defined benefit scheme defines the pension benefit that an employee will receive on retirement, dependent upon several factors including length of service and remuneration.

(*i*) Where the University is unable to identify its share of the underlying assets and liabilities in a multi-employer scheme on a reasonable and consistent basis, it accounts as if the scheme were a defined contribution scheme, so that the cost is equal to the total of contributions payable in the year. Where the University has entered into an agreement with such a multi-employer scheme that determines how the University will contribute to a deficit recovery plan, the University recognises a liability for the contributions payable that arise from the agreement, to the extent that they relate to the deficit, and the resulting expense is recognised in expenditure.

(*ii*) For other defined benefit schemes, the net liability recognised in the balance sheet in respect of each scheme is the present value of the defined benefit obligation at the reporting date less the fair value of the plan assets at the reporting date.

The defined benefit obligation is calculated using the projected unit credit method. Annually the Group engages independent actuaries to calculate the obligation for each scheme. The present value is determined by discounting the estimated future payments at a discount rate based on market yields on high quality corporate bonds denominated in sterling with terms approximating to the estimated period of the future payments.

The fair value of a scheme's assets is measured in accordance with the FRS 102 fair value hierarchy and in accordance with the Group's policy for similarly held assets. This includes the use of appropriate valuation techniques.

Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to other comprehensive income. These amounts together with the return on plan assets, less amounts included in net interest, are disclosed as actuarial gains and losses.

The cost of the defined benefit plan, recognised in expenditure as staff costs, except where included in the cost of an asset, comprises the increase in pension benefit liability arising from employee service during the period and the cost of plan introductions, benefit changes, curtailments and settlements. The net interest cost is calculated by applying the discount rate to the net liability. This cost is recognised in expenditure as a finance cost.

Further detail is provided on the specific pension schemes in Note 34 to the accounts.

(*g*) *Taxation*

The University has charitable status as one of the exempt charities listed in Schedule 3 to the Charities Act 2011. As such it is listed as a charity within the meaning of Paragraph 1 of Schedule 6 to the Finance Act 2010. Accordingly the University is potentially exempt from Corporation Tax on income and gains falling within section 287 of the Corporation Tax Act (CTA) 2009 and sections 471 and 478–488 CTA 2010 or section 256 of the Taxation and Chargeable Gains Tax Act 1992 to the extent that such income or gains are applied to exclusively charitable purposes.

Most of the University's principal activities are exempt from Value Added Tax (VAT), but certain activities and other ancillary supplies and services are liable to VAT at various rates. Expenditure includes VAT charged by suppliers to the University where it is not recoverable and is likewise included in the cost of fixed assets.

Commercial trading activities undertaken by the University are operated through its subsidiary companies. This income will attract applicable VAT and the profits are liable to Corporation Tax. However, the taxable profits made by these companies are covenanted to the University and paid under Gift Aid, to the extent that the companies have distributable reserves, which negates the liability. However, commercial activity undertaken outside the UK may be subject to tax in these jurisdictions.

The publishing, examination and assessment activities have current tax which is wholly composed of non-UK tax payable (or recoverable) in respect of taxable profit or loss for the year or prior year. Tax is calculated on the basis of tax rates and laws that have been enacted or substantially enacted by the year-end. Deferred tax arises from timing differences between taxable profits and total comprehensive income as stated in the financial statements. These timing differences arise from the inclusion of income and expenses in tax assessments in periods different from those in which they are recognised in the financial statements. Deferred tax is recognised on all timing differences at the balance sheet date. Unrelieved tax losses and other deferred tax assets are only recognised when it is probable that they will be recovered against the reversal of deferred tax liabilities or other future taxable profits.

Notes to the accounts for the year ended 31 July 2019 (*continued*)

3. Statement of significant accounting policies (continued)

(*h*) *Intangible assets and goodwill*

Software's development and acquisition costs are capitalised and amortised on a straight line basis over its estimated useful life of between four and ten years.

Goodwill arises on consolidation and is based on the fair value of the consideration given for the subsidiary and the fair value of its assets at the date of acquisition. Goodwill is amortised over its estimated economic life of between five and ten years on a straight line basis.

The carrying value of intangible assets including goodwill is considered in light of events or changes in circumstances which may indicate that the carrying value may not be recoverable. Where there is impairment in the carrying value of these assets, the loss is included in the results of the period.

(*i*) *Fixed assets*

Land and buildings

Operational land and buildings are included in the financial statements using the FRS 102 fair value at 1 August 2014 as deemed cost, with subsequent additions at cost.

No depreciation is provided on freehold land. Freehold buildings are written off on a straight line basis over their estimated useful lives, which are between 15 and 60 years, and leasehold properties are written off over the length of the lease.

Assets under construction

Assets under construction are stated at cost. These assets are not depreciated until they are available for use. Financing costs are not capitalised as part of additions to fixed assets.

Equipment

Equipment costing less than £30,000 per individual item is typically written off in the year of purchase. All other equipment is capitalised and depreciated so that it is written off on a straight line basis over its estimated useful life of between three and ten years.

(*j*) *Heritage assets*

The University holds and conserves a number of collections, exhibits, artefacts, and other assets of historical, artistic, or scientific importance. Heritage assets acquired before 1 August 1999 have not been capitalised, since reliable estimates of cost or value are not available on a cost-benefit basis. Acquisitions since 1 August 1999 have been capitalised at cost or, in the case of donated assets, at expert valuation on receipt. In line with the accounting policy in respect of equipment, the threshold for capitalising assets is £30,000. Heritage assets are not depreciated since their long economic life and high residual value mean that any depreciation would not be material.

(*k*) *Investments*

Non-current investments are included in the balance sheet at fair value, except for investments in subsidiary undertakings and joint ventures which are stated in the University's balance sheet at cost and eliminated on consolidation. All gains and losses on investment assets are recognised in the statement of comprehensive income as they accrue.

Other investments

Marketable securities are valued at midmarket valuation on 31 July. Investments in spin-out companies are valued in accordance with the International Private Equity and Venture Capital Guidelines, and other non-marketable securities are included at valuation by the Council. Current asset investments are included in the balance sheet at the lower of cost and net realisable value.

Investment properties

A property will be deemed an investment property by the University if the following conditions are met:

- The University's core objective remains delivering excellence in teaching and research, and not in the provision of accommodation;
- The properties are designed to generate long-term financial returns through rental and capital appreciation;
- Any associated rental model is market-linked and rentals are not substantially below market levels;
- The University retains a degree of choice over tenants; and
- The properties are not deemed to be social housing.

After initial recognition at cost, investment property shall be measured at fair value at each reporting date with changes in fair value recognised in the statement of comprehensive income.

Notes to the accounts for the year ended 31 July 2019 (*continued*)

3. Statement of significant accounting policies (continued)

The investment property portfolio has been categorised into the following components:

- Shared equity properties: these properties will be valued annually by an external valuer with full site valuations being carried out on a five-year rolling basis with an appropriate indexation being applied to those properties not visited in-year;
- Residential and non-residential rental properties: for those properties which are under £500k in value they will be valued by chartered surveyors employed by the University on the basis of estimated open market values on an existing use basis. For properties with values in excess of £500k they will also be valued on an open market value basis but by an external valuer; and
- North West Cambridge development: Phase 1 which is essentially complete is valued annually by an external valuer based on estimated open market values. Subsequent phases, which currently reflect land values only, will also be valued annually taking into account any planning permission attributed to the land as well as determining any aspect of the assets which may be assigned for the University's own use. To the extent that the University has assigned property for its own use then it will be valued at cost. Once subsequent phased construction commences it is intended to value the property at open market value for the land plus the associated costs of construction. An annual impairment review will be carried out to ensure that the updated land value plus the additional costs of construction are not in aggregate valued in excess of any projected discounted cash flows to be derived from those assets.

(*l*) *Stock and work in progress*

Stock is stated at the lower of cost and net realisable value after making provision for slow-moving and obsolete items. In respect of publishing services, (*a*) direct costs incurred prior to publication are included in current assets where the title will generate probable future economic benefits and costs can be measured reliably.

These costs are amortised upon publication of the title over the estimated useful life of the product (Academic products over 18 months and Learning products over 36 months): (*b*) the University makes full provision against the cost of stock in excess of one-and-a-half times the previous year's sales on all inventory aged 24 months since the publication date; and (*c*) provision for impairment of accumulated pre-publication costs is made based on recoverability of unamortised pre-publication costs.

(*m*) *Cash and cash equivalents*

Cash includes cash in hand, cash at bank, deposits repayable on demand, and bank overdrafts. Deposits are repayable on demand if they are in practice available on call without penalty. Bank overdrafts are shown within borrowings in current liabilities. Cash equivalents are short-term (typically with less than three months' notice required) highly liquid investments which are readily convertible into cash and include deposits and other instruments held as part of the University's treasury management activities.

(*n*) *Financial instruments*

The University has elected to adopt Sections 11 and 12 of FRS 102 in respect of the recognition, measurement, and disclosure of financial instruments.

Financial assets

Basic financial assets include trade and other receivables, cash and cash equivalents. These assets are initially recognised at transaction price unless the arrangement constitutes a financing transaction, where the transaction is measured at the present value of the future receipts discounted at a market rate of interest. Such assets are subsequently carried at amortised cost using the effective interest rate method. Financial assets are assessed for indicators of impairment at each balance sheet date. If there is objective evidence of impairment, an impairment loss is recognised in the statement of comprehensive income.

For financial assets carried at amortised cost the impairment loss is the difference between the carrying amount of the asset and the present value of the estimated future cash flows, discounted at the asset's original effective interest rate.

Other financial assets, including investments in equity instruments which are not subsidiaries, associates, or joint ventures, are initially measured at fair value, which is typically the transaction price. These assets are subsequently carried at fair value and changes in fair value at the reporting date are recognised in the statement of comprehensive income. Where the investment in equity instruments is not publicly traded and where the fair value cannot be reliably measured the assets should be measured at cost less impairment.

Financial assets are de-recognised when the contractual rights to the cash flows from the asset expire or are settled or substantially all of the risks and rewards of ownership of the asset are transferred to another party.

Notes to the accounts for the year ended 31 July 2019 (*continued*)

3. Statement of significant accounting policies (continued)

Financial liabilities

Basic financial liabilities include trade and other payables, bank loans and inter-group loans. These liabilities are initially recognised at transaction price unless the arrangement constitutes a financing transaction, where the debt instrument is measured at the present value of the future payments discounted at a market rate of interest. Debt instruments are subsequently carried at amortised cost using the effective interest rate method.

Fees paid on the establishment of loan facilities are recognised as transaction costs of the loan to the extent that it is probable that some or all of the facility will be drawn down.

The University has debt instruments through:

- long-term unsecured fixed interest Bonds issued in October 2012 and June 2018 and listed on the London Stock Exchange. The Bonds were initially measured at the proceeds of issue less all transaction costs directly attributable to the issue. After initial recognition, the Bonds are measured at amortised cost using the effective interest rate method. Under this method the discount at which the Bonds were issued and the transaction costs are accounted for as additional expense over the term of the Bonds (see Note 27); and
- long-term unsecured CPI-linked Bonds issued in June 2018 and listed on the London Stock Exchange. These Bonds are deemed to be complex financial instruments and so are initially recognised at fair value at the transaction date and subsequently re-measured to their fair value at the reporting date. For financial instruments that are subsequently re-measured at fair value through profit or loss, transaction costs (net of any fees paid or received) are not added to or deducted from the amount initially recognised, instead they are expensed immediately on initial recognition.

Trade payables are obligations to pay for goods and services that have been acquired in the ordinary course of business from suppliers. Accounts payable are classified as current liabilities if payment is due within one year or less. If not, they are presented as non-current liabilities.

Derivatives, including forward foreign exchange contracts, are not basic financial instruments. Derivatives are initially recognised at fair value on the date the derivative contract is entered into and are subsequently re-measured at their fair value at the reporting date. Changes in the fair value of derivatives are recognised in the statement of comprehensive income in finance costs or finance income as appropriate, unless they are included in a hedging arrangement.

To the extent that the University enters into forward foreign exchange contracts which remain unsettled at the balance sheet date the fair value of the contracts is reviewed at that date. The initial fair value is measured as the transaction price on the date of inception of the contracts. Subsequent valuations are considered on the basis of the forward rates for those unsettled contracts at the balance sheet date. The University does not apply hedge accounting in respect of forward foreign exchange contracts held to manage cash flow exposures of forecast transactions denominated in foreign currencies.

Financial liabilities are de-recognised when the liability is discharged, cancelled, or expires.

(*o*) *Related party transactions*

The University discloses transactions with related parties which are outlined in detail in Note 36 to the Accounts.

(*p*) *Segment information*

The Group operates in a number of different classes of business. For the purpose of segmental reporting, classes of business have been identified by reference to the nature of activity, the nature of funding, and the management organisation (see Note 17).

(*q*) *Lease commitments*

The Group assesses agreements that transfer the right to use assets. Leases are classified as finance leases if they transfer substantially all the risks and rewards incidental to ownership of an asset. The assessment considers whether the arrangement is, or contains, a lease based on the substance of the arrangement.

Leases that do not transfer all the risks and rewards of ownership are classified as operating leases. Payments under operating leases are charged to the income statement on a straight line basis over the period of the lease.

Notes to the accounts for the year ended 31 July 2019 (*continued*)

4. Critical accounting judgements, estimates and assumptions

Management is required to adopt those accounting policies most appropriate to the circumstances for the purposes of presenting fairly the Group's financial position, financial performance, and cash flows. The preparation of the Group and University's financial statements requires management to make judgements, estimates, and assumptions that affect the application of policies and reported amounts of assets and liabilities, income and expenses. These judgements, estimates, and associated assumptions are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results and may lead to adjustments to the future carrying value of assets and liabilities.

(*a*) *Critical judgements in applying the Group's accounting policies*

(*i*) *Revenue recognition*

Revenues, particularly donations and grant income, are subject to judgement over when and by how much revenues should be recognised in the financial statements. This includes determining when entitlement arises such as performance conditions being met, recognising research and other funding revenues in line with expenditure once a right to the funding is deemed to have arisen, and determining the revenues associated with partially delivered courses and training where the activities have not been fully completed at the reporting date.

(*b*) *Key accounting estimates and assumptions*

(*i*) *Depreciation and amortization*

The depreciation and amortisation expense is the recognition of the use of the asset over its estimated useful life. Management determines the estimated useful lives of the assets and associated residual values which may be impacted by changes in economic or technological circumstances.

(*ii*) *Impairment*

Annually, the Group considers whether tangible or intangible assets are impaired at the balance sheet date. Where an indication of impairment is identified the estimation of the recoverable value requires an estimation of the recoverable value of the cash generating units (CGUs). This requires estimation of the future cash flows from the CGUs and also selection of appropriate discount rates in order to calculate the net present value of those cash flows.

(*iii*) *Investment valuations* (Note 11)

The Cambridge University Endowment Fund (CUEF) is comprised of a range of asset investment categories where there is not always a clearly observable valuation basis available.

Investments which are not listed or which are not frequently traded are stated at the Valuation Committee's best estimate of fair value. With respect to investments held through pooled funds or partnerships, reliance is placed on unaudited valuations of the underlying listed and unlisted investments as supplied to the CUEF custodian by the administrators of those funds or partnerships. The principles applied by the administrators to those valuations are reviewed to ensure they are in compliance with CUEF policies. With respect to other investments, recognised valuation techniques are used, that may take account of any recent arm's length transactions in the same or similar investment instruments. Where however no reliable fair value can be estimated, investments are stated at cost.

(*iv*) *Valuation of investment properties*

Properties held for investment purposes are revalued annually by accredited valuers typically on the basis of estimated open market values on an existing use basis. Such valuations are based on assumptions and estimates including rental growth projections, discount rates, future cash flows and associated expenditure which are impacted by a variety of factors including changes in market and other economic conditions which may have a material impact on the annual valuations.

(*v*) *Defined benefit pension schemes and funding of pension deficits* (Note 28)

The University has obligations to pay pension benefits to certain employees. The cost of these benefits and the present value of the obligation depend on a number of factors including: life expectancy; salary increases; asset valuations; and the discount rate on corporate bonds. Based on actuarial advice provided, management estimates these factors to determine the net pension obligation in the balance sheet.

Additionally, the University currently recognises a provision for its obligation to fund past deficits arising within the Universities Superannuation Scheme (USS). Management is satisfied that the USS meets the definition of a multi-employer scheme and has therefore recognised the discounted fair value of the contractual contributions under the recovery plan in existence at the balance sheet date. The deficit recovery plan relates to the 2017 actuarial valuation. However, since the year end following completion of the 2018 actuarial valuation, a new deficit recovery plan has been agreed which will result in a significant change to the future carrying value of the liability. Whilst this change will not be reflected through the financial statements until 2019–20, the financial impact of the new deficit recovery plan has been disclosed in more detail in Note 34.

(*vi*) *Provisions*

General and specific provisions are made for stock obsolescence including slow-moving or defective items and bad debts based on a combination of management's best estimates, historical experience, customer and product specific knowledge, and formula-based calculations.

Notes to the accounts for the year ended 31 July 2019 (*continued*)

		Group 2019 £m	Group 2018 £m	**University 2019 £m**	University 2018 £m
5	**Tuition fees and education contracts**				
	Full-time home / EU students	**131.6**	129.2	**131.6**	129.2
	Full-time overseas (non-EU) students	**120.0**	105.8	**120.0**	105.8
	Other course fees	**37.0**	30.9	**22.9**	18.8
	Research Training Support Grants	**31.6**	29.2	**31.6**	29.2
		320.2	295.1	**306.1**	283.0
6	**Funding body grants**				
	Office for Students (OfS)				
	Recurrent grant: teaching	**18.1**	18.0	**18.1**	18.0
	Recurrent grant: research	**124.4**	121.7	**124.4**	121.7
	Recurrent grant: museum funding	**2.1**	2.1	**2.1**	2.1
	Other revenue grants	**10.7**	8.3	**10.7**	8.3
	Total revenue grants	**155.3**	150.1	**155.3**	150.1
	Capital grants recognised in the year	**26.6**	23.5	**26.6**	23.5
		181.9	173.6	**181.9**	173.6
7	**Research grants and contracts**				
	Research councils	**216.6**	174.9	**216.6**	174.9
	UK-based charities	**160.6**	152.7	**160.5**	152.5
	European Commission	**60.8**	56.0	**60.8**	56.0
	UK industry	**24.5**	21.0	**23.4**	19.6
	UK government	**45.7**	49.0	**45.4**	48.7
	Other bodies	**84.2**	71.3	**76.2**	63.8
		592.4	524.9	**582.9**	515.5

Total research grants and contracts income includes grants of £63.5m (2018: £20.1m) towards the cost of buildings and £17.1m (2018: £22.2m) for the purchase of equipment.

		Group 2019 £m	Group 2018 £m	**University 2019 £m**	University 2018 £m
8	**Examination and assessment services**				
	Examination fees	**431.3**	386.0	**348.1**	315.8
	Other examination and assessment services	**47.2**	46.5	**45.6**	44.6
		478.5	432.5	**393.7**	360.4
9	**Donations and endowments**				
	New endowments	**66.8**	21.6	**66.1**	21.6
	Donations of, and for the purchase of, fixed assets	**(0.2)**	6.6	**(0.2)**	6.6
	Donations of, and for the purchase of, heritage assets	**1.4**	3.0	**1.4**	3.0
	Other donations with restrictions	**21.7**	23.0	**20.9**	14.5
	Donations from subsidiary companies	**–**	–	**19.9**	7.6
	Unrestricted donations	**21.7**	9.6	**13.0**	9.6
		111.4	63.8	**121.1**	62.9

Included within donations from subsidiary companies is £0.7m (2018: £0.8m) relating to capital donations received for the purchase of fixed assets.

Notes to the accounts for the year ended 31 July 2019 (continued)

		Group 2019 £m	Group 2018 £m	**University 2019 £m**	University 2018 £m
10	**Other income**				
	Other services rendered	**55.7**	48.9	**44.8**	40.8
	Health and hospital authorities	**21.2**	20.4	**21.2**	20.4
	Residences, catering, and conferences	**12.8**	11.8	**12.7**	11.8
	Income from intellectual property	**5.9**	12.0	**4.4**	4.2
	Rental income	**21.2**	15.7	**19.5**	15.4
	Grants received (other than those included in Notes 6 and 7)	**4.1**	5.2	**2.2**	3.8
	Research and Development Expenditure Credit (RDEC) receivable before deduction of tax	**–**	0.6	**–**	0.6
	Surplus / (loss) on disposal of fixed assets	**(0.2)**	3.9	**(0.2)**	3.9
	Share of operating surplus in joint ventures and associates	**–**	1.9	**–**	–
	Sundry income	**12.7**	21.7	**24.0**	26.3
		133.4	142.1	**128.6**	127.2

Other services rendered includes externally generated sales across a wide variety of activities such as University staff and equipment charged out on external projects, the provision of veterinary services, farming sales (crop and milk), and restoration services.

RDEC has previously been claimed from HM Revenue & Customs at a rate of 10% or 11% on qualifying research and development expenditure, and is received net of Corporation Tax (see Note 16). The University is not eligible to claim for RDEC in relation to expenditure incurred on or after 1 August 2015. No further income has been received during the year.

For the year ended 31 July 2019 the share of operating surplus in joint ventures and associates has been re-presented and disclosed on the face of the statement of comprehensive income to align with the HEI SORP disclosure requirements. The comparative has not been restated on the basis of materiality.

11 Investment income

The majority of investment income relates to investment returns generated by the Cambridge University Endowment Fund (CUEF). The CUEF is a unitised fund constituted by Trust Deed with the University as sole trustee holding the property of the CUEF on trust for unit holders. Unit holders are the University, a number of its subsidiary undertakings and also UK charities associated with the University (such as Colleges and trusts) provided they meet the necessary eligibility requirements. The University operates the fund through its wholly-owned subsidiary, Cambridge Investment Management Limited, to deliver long-term investment in respect of individual restricted endowments and other balances. The CUEF is managed on a total return basis (i.e. income and net capital gains) and invests in asset classes some of which generate little or no income. Distributions are made to unit holders according to a formula which has regard to the total return reasonably to be expected in the long term, in proportion to the number of units held. Unit holders receive distributions as income.

However, the distributions made to unit holders are funded through both investment income generated on the underlying CUEF assets and an element by drawing on the long-term capital growth of the investments. Accordingly, for the purposes of reporting in the financial statements, it is only the investment income (dividends, interest, rental income etc.) received on the underlying CUEF assets which is treated as investment income. The distributions relating to capital growth are reflected in the statement of comprehensive income as a 'gain on investments' and in the balance sheet in non-current asset investments, 'valuation gain on investment'. For the year ended 31 July 2019 distributions by the CUEF which were funded by drawing on the long-term capital gain in the investments were £90.3m (2018: £79.1m) with the balance of the distributions funded by and reported as investment income. This split is outlined in more detail below:

	Group 2019 £m	Group 2018 £m	**University 2019 £m**	University 2018 £m
Investment income from the CUEF:				
Distributions credited to unit holders as income	**105.0**	97.0	**85.0**	73.5
Less: distributed from long-term capital gain	**(90.3)**	(79.1)	**(73.1)**	(63.5)
Investment income on underlying assets reported per the financial statements	**14.7**	17.9	**11.9**	10.0
Income from other investments including current asset investments and cash equivalents	**25.5**	1.9	**10.7**	6.3
Net investment income	**40.2**	19.8	**22.6**	16.3

Notes to the accounts for the year ended 31 July 2019 (continued)

11 Investment income (continued)

Credited to:

	Total Investment Income 2019 £m	Amounts distributed from capital 2019 £m	Net Investment income 2019 £m	Net Investment income 2018 £m
Group				
Permanent endowment reserves	**45.9**	**(37.9)**	**8.0**	2.5
Expendable endowment reserves	**18.4**	**(16.4)**	**2.0**	2.9
Restricted reserves	**1.3**	**(1.0)**	**0.3**	0.3
Unrestricted reserves	**64.9**	**(35.0)**	**29.9**	14.1
	130.5	**(90.3)**	**40.2**	19.8
University				
Permanent endowment reserves	**45.2**	**(37.7)**	**7.5**	2.4
Expendable endowment reserves	**8.4**	**(7.8)**	**0.6**	1.4
Restricted reserves	**1.3**	**(1.0)**	**0.3**	0.3
Unrestricted reserves	**40.8**	**(26.6)**	**14.2**	12.2
	95.7	**(73.1)**	**22.6**	16.3

Further details on the asset categories held by the CUEF are outlined below:

	31 July 2019 £m	31 July 2019 %	31 July 2018 £m	31 July 2018 %
Public equity	**2,078.1**	**60.1%**	1,887.6	58.1%
Private investment	**444.4**	**12.9%**	297.0	9.1%
Absolute return	**294.9**	**8.5%**	309.1	9.5%
Credit	**181.8**	**5.3%**	183.3	5.6%
Real assets	**304.6**	**8.8%**	348.9	10.7%
Fixed interest / cash	**152.1**	**4.4%**	226.9	7.0%
Total value of fund	**3,455.9**	**100.0%**	3,252.8	100.0%

Public equity includes all equity stocks traded on a liquid market, together with related non-publicly traded index funds and derivatives.

Private investment includes investments where initial capital commitments are drawn down over a period, and the proceeds of the investments once disposed of are returned over the life of each fund. The underlying investments include both unlisted equities and corporate credits (such as bonds, loans, and other claims).

Absolute return includes investments in trading strategies which are in some degree independent of overall equity market movements. Funds where different equities are simultaneously held (long) and sold (short) are included in this category.

Credit includes corporate securities (such as bonds and loans) traded on a liquid public market.

Real assets includes investments which are expected in some degree to increase in nominal value to match inflation. This category includes commercial property, and securities which reflect the level of commodity values. Inflation-linked government securities are, however, included in the fixed interest category below.

Fixed interest / cash includes cash at bank and on deposit, government securities, the net value of foreign currency contracts and any amounts receivable in general, less amounts payable, including those arising from holding derivative contracts.

The assets of the CUEF are included in the following balance sheet captions in proportion to the number of units held by the relevant funds:

	Group 2019 £m	Group 2018 £m	University 2019 £m	University 2018 £m
Non-current asset investments (see Note 21)	**3,108.0**	2,824.6	**2,530.0**	2,260.2
Current asset investments (see Note 24) - balances held on behalf of:				
Subsidiary undertakings	**–**	–	**578.0**	564.4
Colleges	**334.3**	411.6	**334.3**	411.6
Other associated bodies	**13.6**	16.6	**13.6**	16.6
Total included in current asset investments	**347.9**	428.2	**925.9**	992.6
Total value of units	**3,455.9**	3,252.8	**3,455.9**	3,252.8

Notes to the accounts for the year ended 31 July 2019 (continued)

12 Total income

Consolidated total income of £2,192.0m (2018: £1,964.8m) is credited to reserves as follows:

	Group year ended 31 July 2019			Group year ended 31 July 2018		
	Endowments £m	**Restricted £m**	**Unrestricted £m**	Endowments £m	Restricted £m	Unrestricted £m
Tuition fees and education contracts	**–**	**–**	**320.2**	–	–	295.1
Funding body grants	**–**	**26.6**	**155.3**	–	23.5	150.1
Research grants and contracts	**–**	**83.4**	**509.0**	–	38.5	486.4
Research and Development Expenditure Credit receivable	**–**	**–**	**–**	–	–	0.6
Examination and assessment services	**–**	**–**	**478.5**	–	–	432.5
Publishing services	**–**	**–**	**334.0**	–	–	313.0
Donations and endowments	**66.8**	**30.4**	**14.2**	21.6	33.2	9.0
Other income	**–**	**4.1**	**129.3**	–	5.2	136.9
Investment income	**10.0**	**0.3**	**29.9**	5.4	0.3	13.5
	76.8	**144.8**	**1,970.4**	27.0	100.7	1,837.1

Consolidated total income of £2,192.0m (2018: £1,964.8m) is attributable as follows to the three broad categories defined by FRS 102: revenue, government grants, and non-exchange transactions:

	Revenue £m	**Government grants £m**	**Non-exchange transactions £m**	Revenue £m	Government grants £m	Non-exchange transactions £m
Tuition fees and education contracts	**288.6**	**31.6**	**–**	265.9	29.2	–
Funding body grants	**–**	**181.9**	**–**	–	173.6	–
Research grants and contracts	**–**	**323.1**	**269.3**	–	279.9	245.0
Research and Development Expenditure Credit receivable	**–**	**–**	**–**	–	0.6	–
Examination and assessment services	**478.5**	**–**	**–**	432.5	–	–
Publishing services	**334.0**	**–**	**–**	313.0	–	–
Donations and endowments	**–**	**–**	**111.4**	–	–	63.8
Other income	**116.8**	**4.1**	**12.5**	108.8	5.2	27.5
Investment income	**40.2**	**–**	**–**	19.8	–	–
	1,258.1	**540.7**	**393.2**	1,140.0	488.5	336.3

Notes to the accounts for the year ended 31 July 2019 (continued)

13 Staff costs

	Group 2019 £m	Group 2018 £m	**University 2019 £m**	University 2018 £m
Wages and salaries[1]	**711.9**	640.1	**642.1**	587.3
Social security costs[1]	**60.6**	67.7	**58.7**	63.0
Pension costs:				
Current service cost	**131.6**	145.3	**128.5**	139.6
Past service cost	**5.8**	–	**5.8**	–
Net change in underlying assumptions in calculating USS deficit recovery provision (see Note 28)	**225.1**	(3.5)	**218.6**	(2.5)
Total pension costs [1] (see Note 34)	**362.5**	141.8	**352.9**	137.1
	1,135.0	849.6	**1,053.7**	787.4
The average number of staff employed in the year, expressed as full-time equivalents, was:	**17,083**	16,376		

Following the update for the 2017 triennial valuation of the Universities Superannuation Scheme (USS), the impact of the change in assumptions (net of contributions payable) on staff costs resulting from the revised deficit recovery funding plan is noted above. The non-cash charge to staff costs resulting from the change in assumptions, including the change in discount rate, is £230.7m (2018: £4.5m). Cash contributions made to reduce the deficit in the year amounted to £5.6m (2018: £8.0m) resulting in a net charge to staff costs of £225.1m (2018: £(3.5m)) for the year.

Remuneration and pay ratios of the Vice-Chancellor

With income of over £2 billion, more than 17,000 staff across the Group and a diverse range of academic and non-academic strands, the University is a complex organisation. It is one of the largest universities in the UK, with significant academic standing and global presence, regularly appearing in the top five of global university rankings.

Consequently, when considering the remuneration for the Vice-Chancellor, the Remuneration Committee undertakes detailed analysis of comparable salaries in the UK, North America and Australia. The Remuneration Committee considers the range within which a salary can be offered and proposes a package to the Council once the candidate is identified. The last recruitment exercise for Vice-Chancellor was undertaken in 2016–17. The Vice-Chancellor is appointed for a fixed term of seven years.

The Vice-Chancellor's performance is assessed annually against objectives agreed by the Council. The Vice-Chancellor's remuneration is reviewed at the end of the second, fourth and sixth years of his/her term of office. Based on that assessment, the Council determines any salary increase, having been advised by the Remuneration Committee and taking due regard of salary growth across the wider University. It should be noted that whilst a pay review was due during 2018–19, the Vice-Chancellor elected not to receive any increase in pay other than the national pay award.

The remuneration of the current Vice-Chancellor is detailed in the table below and relates to the period from 1 August 2018 to 31 July 2019. The comparative year relates to the ten-month period from 1 October 2017, when the Vice-Chancellor took up office, to 31 July 2018 and also includes salary for an additional month (September 2017) as Vice-Chancellor-Elect.

	2019 £000	2018 £000
Salary for the period	**372**	335
Deductions to reflect salary sacrifice arrangements	**(9)**	(8)
Net salary paid in the year	**363**	327
Taxable benefits in kind	**31**	29
Non-taxable benefits in kind	**19**	16
Total excluding employer pension contributions	**413**	372
Employer pension contributions	**17**	19
Payments made in lieu of pension	**45**	37
Total remuneration	**475**	428

[1] Following the approval of the University's audited Financial Statements a misclassification in the analysis of staff costs has subsequently been identified and disclosed to the regulator, the OfS. Whilst the overall total for staff costs is correct (and as reported in Note 13 to the Financial Statements for the year ended 31 July 2019), the staff costs analysis reported by Cambridge Assessment misclassified £10m of social security costs as wages and salaries and £20m of pension costs as wages and salaries. This has no impact on the Academic University's position, which is correct. However, within the Group and University consolidations which include Cambridge Assessment there is the misclassification between the staff costs categories as outlined above.

13 Staff costs (continued)

The salary for the period is the basic contractual salary before adjusting for salary sacrifice arrangements under which, in common with other employees, the Vice-Chancellor sacrificed an amount of pay relating to enhanced opt-out benefits for Death in Service and Ill Health. The employer pension contributions reflect both the employer payments for these benefits over to the Universities Superannuation Scheme and the Vice-Chancellor's contribution of £9k (2018: £8k).

Taxable benefits in kind include private healthcare of £6,730 (2018: £1,902), accommodation-related costs (heating, lighting and maintenance) of £4,401 (2018: £2,308) and the provision of accommodation of £20,000 (2018: £16,668). The provision of accommodation benefit was treated as non-taxable in the previous year in line with HMRC rules which exempted certain employees from being subject to income tax and national insurance contributions on such a benefit provided certain conditions were met. However, following the recent changes announced by HMRC and effective from 6 April 2019 the exemption can no longer be applied and as such the provision of accommodation benefit has been reclassified as a taxable benefit and the prior year restated. The accommodation benefit has been based on an independent valuation using comparable market data for market rentals of similar properties in the Cambridge area and has been pro-rated to reflect only the personal use of the property, as opposed to business and entertaining use. There were no tax consultancy services benefits received in the current year (2018: £1,486) or relocation expenses (2018: £5,922).

Non-taxable benefits include personal flight travel of £19,143 (2018: £16,210, including relocation flights).

Pay ratios:

(a) The Vice-Chancellor's basic salary is 11.1 times (2018: 11.3) the median pay of staff, where the median pay is calculated on a full-time equivalent basis for the salaries paid by the University to its staff. The comparative ratio reflects the full year basic salary equivalent for the Vice-Chancellor.

(b) The Vice-Chancellor's total remuneration is 12.0 times (2018: 12.4) the median pay of staff, where the median pay is calculated on a full-time equivalent basis for the total remuneration paid by the University to its staff. The comparative ratio reflects the full year remuneration equivalent for the Vice-Chancellor.

The median pay calculation includes over 1,175 agency staff employed on temporary contracts through the University's Temporary Employment Services (TES).

Notes to the accounts for the year ended 31 July 2019 (continued)

13 Staff costs (continued)

Basic salary bandings for higher paid staff

The number of staff (FTE's) with a basic salary in excess of £100,000 per annum, before salary sacrifice arrangements, is outlined below:

	Group 2019	Group 2018
£100,001 - £105,000	**104**	89
£105,001 - £110,000	**42**	48
£110,001 - £115,000	**39**	33
£115,001 - £120,000	**26**	30
£120,001 - £125,000	**26**	22
£125,001 - £130,000	**16**	11
£130,001 - £135,000	**17**	19
£135,001 - £140,000	**15**	7
£140,001 - £145,000	**17**	8
£145,001 - £150,000	**10**	9
£150,001 - £155,000	**7**	9
£155,001 - £160,000	**2**	1
£160,001 - £165,000	**2**	5
£165,001 - £170,000	**2**	1
£170,001 - £175,000	**1**	3
£175,001 - £180,000	**2**	2
£180,001 - £185,000	**4**	1
£185,001 - £190,000	**1**	1
£190,001 - £195,000	**3**	2
£195,001 - £200,000	**1**	1
£200,001 - £205,000	**2**	2
£205,001 - £210,000	**–**	–
£210,001 - £215,000	**–**	–
£215,001 - £220,000	**1**	1
£220,001 - £225,000	**–**	–
£225,001 - £230,000	**–**	1
£230,001 - £235,000	**–**	–
£235,001 - £240,000	**–**	1
£240,001 - £245,000	**2**	1
£245,001 - £250,000	**–**	1
£250,001 - £255,000	**–**	1
£255,001 - £260,000	**1**	–
£295,001 - £300,000	**1**	–
£325,001 - £330,000	**–**	1
£330,001 - £335,000	**1**	2
£365,001 - £370,000	**–**	1
£370,001 - £375,000	**–**	–
£375,001 - £380,000	**1**	–
£380,001 - £385,000	**1**	–
	347	314

The above statistics include staff engaged in business and commercial activities, including those of Cambridge Assessment and Cambridge University Press.

Compensation for loss of office

	Group 2019 £000	Group 2018 £000
Aggregate payments for compensation for loss of office were paid to 94 members of staff in 2018-19 (67 in 2017-18):		
Payments in respect of loss of office	**2,092**	2,119

Key management personnel

The total remuneration of the Vice-Chancellor, the Pro-Vice-Chancellors, Chief Financial Officer and Registrary for the year (or part thereof), comprising salary and benefits (taxable and non-taxable), employer pension contributions and before salary sacrifice arrangements, was:	**2,102**	2,025

Notes to the accounts for the year ended 31 July 2019 (continued)

14 Analysis of consolidated expenditure by activity

	Staff costs	Other operating expenses	Depreciation	Interest payable	Group 2019 Total	Group 2018 Total
	£m	£m	£m	£m	£m	£m
Academic departments	270.9	83.4	9.4	–	363.7	338.0
Academic services	34.8	8.4	1.0	–	44.2	47.7
Payments to Colleges (see Note 37)	–	73.8	–	–	73.8	70.1
Research grants and contracts	238.1	203.7	29.2	–	471.0	435.3
Other activities:						
Examination and assessment services	132.8	217.1	12.2	–	362.1	347.8
Publishing services	115.5	177.0	4.0	2.5	299.0	297.5
Other services rendered	16.5	35.9	–	–	52.4	41.3
Intellectual property	2.9	3.4	0.2	–	6.5	6.2
Residences, catering and conferences	3.1	11.7	–	–	14.8	14.5
Other activities total	270.8	445.1	16.4	2.5	734.8	707.3
Administration and central services:						
Administration	53.5	2.0	0.9	1.2	57.6	66.9
General educational	3.0	65.0	0.1	–	68.1	60.4
Staff and student facilities	3.7	0.7	–	–	4.4	4.2
Development office	6.9	8.4	–	–	15.3	12.9
Other	1.4	9.3	–	–	10.7	0.9
Administration and central services total	68.5	85.4	1.0	1.2	156.1	145.3
Premises	18.4	69.8	54.7	–	142.9	134.3
Interest payable on bond liabilities	–	–	–	72.7	72.7	14.8
Pension cost adjustments for USS	225.1	–	–	2.7	227.8	(1.2)
Pension cost adjustments for CPS (see Note 34)	8.4	–	–	12.1	20.5	19.5
Total per statement of comprehensive income	1,135.0	969.6	111.7	91.2	2,307.5	1,911.1

	Group 2019	Group 2018
	£000	£000
Other operating expenses include:		
Operating lease charges		
Land and buildings	11,666	7,337
Other	980	893
Auditors' remuneration		
Audit fees payable to the Group's external auditors	936	1,140
Other fees payable to the Group's external auditors	66	159
Audit fees payable to other firms (in respect of certain Trusts and subsidiary undertakings)	96	47
Payments to trustees		
Reimbursement of expenses to three (2018: two) external members of Council	8	4
There were no other payments made to trustees for their services to the University.		

These amounts include related irrecoverable VAT.

Notes to the accounts for the year ended 31 July 2019 (continued)

15 Interest and other finance costs	**Group 2019**	Group 2018	**University 2019**	University 2018
	£m	£m	**£m**	£m
Interest payable and other finance costs on bond liabilities (see Note 27)	**72.7**	14.8	**72.7**	14.8
Interest on pension liabilities (see Note 28)	**16.7**	18.2	**16.6**	18.1
Interest paid on other retirement benefit liabilities (see Note 29)	**0.6**	0.6	**0.6**	0.6
Finance charge associated with the revaluation of forward exchange contracts	**1.2**	–	**1.2**	–
	91.2	33.6	**91.1**	33.5

The University is exposed to certain foreign currency transactions as part of its normal course of activities. The University enters into forward exchange contracts in order to provide greater certainty over the settlement exchange rates. To the extent that these contracts are unsettled at the balance sheet date they are revalued at that date with the resultant charge or credit being recognised through finance costs.

Interest payable and other finance costs on bond liabilities can be analysed as follows:

Bond liabilities - unsecured 2012 (fixed interest)	**13.3**	13.2	**13.3**	13.2
Bond liabilities - unsecured 2018 (fixed interest)	**7.1**	0.7	**7.1**	0.7
Bond liabilities - unsecured 2018 (index-linked)	**52.3**	0.9	**52.3**	0.9
	72.7	14.8	**72.7**	14.8

Included within the 2018 index-linked bond liabilities interest and finance costs is the adjustment to revalue the liabilities to their fair value at the balance sheet date. The additional financing charge recognised as a result of this revaluation is £51.5m (2018: Nil).

For further details on these bond liabilities see Note 27.

16 Taxation	**Group 2019**	Group 2018	**University 2019**	University 2018
	£m	£m	**£m**	£m
UK Corporation Tax	**–**	0.1	**–**	0.1
Foreign taxes	**3.8**	3.0	**1.5**	2.1
	3.8	3.1	**1.5**	2.2

The foreign taxes for the Group and University primarily relate to overseas activities associated with publishing and examination services in the current year. Foreign taxes in respect of the prior year includes one-off foreign income tax paid on overseas trademark licence income. The Group operates across a variety of different geographical locations with activities which are subject to local tax and regulatory compliance requirements. As such the Group is exposed to a number of tax risks. The tax charge does not reflect payments to overseas tax of approximately £6.2m (2018: Nil) which the Group expects to contest successfully.

In respect of the prior year, due to its exempt charity status the tax charge for UK Corporation Tax is solely in respect of Research and Development Expenditure Credit grants received in 2017-18 (see Note 10 above).

17 Segment information

The Group's reportable segments are:

Higher Education Institution (HEI)	Teaching and research undertaken by the University
Assessment	Examination and assessment services, carried out by the University of Cambridge Examinations Syndicate and subsidiary undertakings, collectively known as Cambridge Assessment
Press	Publishing services, carried out by the Cambridge University Press Syndicate and subsidiary undertakings
Cambridge University Endowment Fund (CUEF)	The investment fund managed by the Group and holding the majority of the Group's investments together with some investments of Colleges and other associated bodies (see Note 11)
Trusts and other	The combination of smaller segments including the associated trusts and subsidiary companies not included in the Assessment and Press groups

Notes to the accounts for the year ended 31 July 2019 (continued)

17 Segment information (continued)

The Council monitors the results of operating segments separately for the purposes of assessing performance and making decisions about the allocation of resources. Segment performance is evaluated based on reported surplus. The Press segment reports for financial years ending 30 April. CUEF reports for financial years ending 30 June and focuses on total return as the measure of income and surplus. The segment information presented below uses the same measures as reported by each segment, adjusted for Press and CUEF to the financial year ended 31 July.

	HEI	**Assessment**	**Press**	**CUEF**	**Trusts and other**	**Eliminations and adjustments**	**Group**
Year ended 31 July 2019	**£m**	**£m**	**£m**	**£m**	**£m**	**£m**	**£m**
Total income							
External	**1,284.5**	**485.0**	**337.7**	**202.7**	**70.1**	**(188.0)**	**2,192.0**
Intersegment	**176.5**	**10.1**	**5.3**	**–**	**117.2**	**(309.1)**	**–**
Total	**1,461.0**	**495.1**	**343.0**	**202.7**	**187.3**	**(497.1)**	**2,192.0**
Surplus for the year	**34.2**	**104.0**	**30.5**	**202.7**	**29.2**	**(283.3)**	**117.3**
Included in surplus for the year:							
Investment income	**87.9**	**9.8**	**1.9**	**16.7**	**31.7**	**(107.8)**	**40.2**
Depreciation and amortisation	**(94.1)**	**(19.2)**	**(14.0)**	**–**	**(1.8)**	**0.4**	**(128.7)**
Interest payable	**(88.1)**	**(0.6)**	**(2.5)**	**–**	**–**	**–**	**(91.2)**
Gain on investments	**120.6**	**6.1**	**1.1**	**186.0**	**19.2**	**(97.9)**	**235.1**
Additions to intangible assets, fixed assets, heritage assets and investment property	**190.3**	**24.8**	**22.9**	**–**	**2.8**	**(24.1)**	**216.7**
Assets	**6,400.1**	**871.9**	**370.5**	**3,455.9**	**592.8**	**(3,392.7)**	**8,298.5**
Liabilities	**(2,533.2)**	**(174.3)**	**(266.6)**	**–**	**(93.2)**	**(86.4)**	**(3,153.7)**
Net assets	**3,866.9**	**697.6**	**103.9**	**3,455.9**	**499.6**	**(3,479.1)**	**5,144.8**

	HEI	Assessment	Press	CUEF	Trusts and other	Eliminations and adjustments	Group
Year ended 31 July 2018	£m	£m	£m	£m	£m	£m	£m
Total income							
External	1,150.9	438.6	318.9	289.8	42.2	(275.6)	1,964.8
Intersegment	131.3	9.9	1.6	–	149.6	(292.4)	–
Total	1,282.2	448.5	320.5	289.8	191.8	(568.0)	1,964.8
Surplus for the year	175.9	101.8	16.2	289.8	48.5	(362.6)	269.6
Included in surplus for the year:							
Investment income	73.4	8.5	1.4	18.0	15.5	(97.0)	19.8
Depreciation and amortisation	(81.7)	(31.3)	(13.6)	–	(1.3)	0.2	(127.7)
Interest payable	(30.0)	(0.6)	(3.0)	–	–	–	(33.6)
Gain on investments	92.1	14.3	2.6	271.8	29.7	(191.5)	219.0
Additions to intangible assets, fixed assets, heritage assets and investment property	285.8	48.5	10.7	–	17.7	(41.5)	321.2
Assets	6,000.0	781.2	334.5	3,252.8	572.1	(3,000.1)	7,940.5
Liabilities	(1,997.6)	(134.9)	(215.6)	–	(79.7)	(275.3)	(2,703.1)
Net assets	4,002.4	646.3	118.9	3,252.8	492.4	(3,275.4)	5,237.4

Notes to the accounts for the year ended 31 July 2019 (continued)

17 Segment information (continued)

Eliminations and adjustments

The following eliminations and adjustments reconcile the totals of segment measures to the consolidated measures reported in these financial statements.

	2019	2018
	£m	£m
Total income		
Elimination of intersegment income	**(309.1)**	(292.4)
Exclude investment gain element of CUEF total return	**(186.0)**	(271.7)
Exclude CUEF investment income attributable to external investors	**(2.0)**	(3.9)
Total eliminations and adjustments	**(497.1)**	(568.0)
Surplus for the year		
Eliminate CUEF surplus recognised in other segments or attributable to external investors	**(202.7)**	(289.8)
Eliminate transfers from other segments to HEI based on surpluses	**(55.9)**	(35.1)
Eiminate profit on transfer of Primary School	**–**	(15.9)
Elimination of intersegment funding commitments	**3.8**	(0.5)
Eliminate intersegment surplus on transfer of fixed assets	**(23.4)**	(23.6)
Eliminate other intersegment balances	**(5.1)**	2.3
Total eliminations and adjustments	**(283.3)**	(362.6)

Assets and liabilities	**Assets**	**Liabilities**	**Net assets**	Net assets
	2019	**2019**	**2019**	2018
	£m	**£m**	**£m**	£m
Eliminate CUEF assets recognised in other segments or attributable to external investors	**(3,108.0)**	**(347.9)**	**(3,455.9)**	(3,252.8)
Eliminate accrual for intersegment funding commitments	**–**	**21.3**	**21.3**	17.5
Eliminate intersegment surplus on transfers of fixed assets	**(38.0)**	**–**	**(38.0)**	(36.9)
Eliminate investments in subsidiaries	**(5.0)**	**5.0**	**–**	–
Elimate intersegment balances	**(241.7)**	**235.2**	**(6.5)**	(3.2)
Total eliminations and adjustments	**(3,392.7)**	**(86.4)**	**(3,479.1)**	(3,275.4)

Notes to the accounts for the year ended 31 July 2019 (continued)

18 Intangible assets and goodwill

Group				**2019**	2018
	Software	**Goodwill**	**Others**	**Total**	Total
	£m	**£m**	**£m**	**£m**	£m
Cost					
At 1 August	**223.0**	**16.1**	**9.7**	**248.8**	233.6
Additions	**27.9**	**6.9**	**5.5**	**40.3**	20.6
Disposals	**(9.9)**	**–**	**–**	**(9.9)**	(4.8)
Transfers (to)/from other balance sheet accounts	**0.4**	**–**	**–**	**0.4**	–
Currency adjustments	**–**	**–**	**–**	**–**	(0.6)
At 31 July	**241.4**	**23.0**	**15.2**	**279.6**	248.8
Accumulated amortisation					
At 1 August	**160.2**	**16.1**	**9.0**	**185.3**	157.0
Charge for the year	**16.5**	**0.1**	**0.4**	**17.0**	33.3
Eliminated on disposals	**(9.8)**	**–**	**–**	**(9.8)**	(4.6)
Currency adjustments	**–**	**–**	**–**	**–**	(0.4)
At 31 July	**166.9**	**16.2**	**9.4**	**192.5**	185.3
Net book value					
At 31 July	**74.5**	**6.8**	**5.8**	**87.1**	63.5
At 1 August	62.8	–	0.7	63.5	76.6

University				**2019**	2018
	Software	**Goodwill**	**Others**	**Total**	Total
	£m	**£m**	**£m**	**£m**	£m
Cost					
At 1 August	**213.7**	**1.1**	**13.7**	**228.5**	213.3
Additions	**26.7**	**6.9**	**5.5**	**39.1**	20.0
Disposals	**(8.1)**	**–**	**–**	**(8.1)**	(4.7)
Currency adjustments	**–**	**–**	**–**	**–**	(0.1)
At 31 July	**232.3**	**8.0**	**19.2**	**259.5**	228.5
Accumulated amortisation					
At 1 August	**152.0**	**1.1**	**12.8**	**165.9**	139.3
Charge for the year	**15.9**	**0.1**	**0.6**	**16.6**	31.3
Eliminated on disposals	**(7.8)**	**–**	**–**	**(7.8)**	(4.6)
Currency adjustments	**–**	**–**	**–**	**–**	(0.1)
At 31 July	**160.1**	**1.2**	**13.4**	**174.7**	165.9
Net book value					
At 31 July	**72.2**	**6.8**	**5.8**	**84.8**	62.6
At 1 August	61.7	–	0.9	62.6	74.0

Amortisation of intangibles is included within 'other operating expenses' in the statement of comprehensive income.

Notes to the accounts for the year ended 31 July 2019 (continued)

19 Fixed assets

Group	**Land £m**	**Non-leasehold buildings £m**	**Leasehold buildings £m**	**Assets in construction £m**	**Equipment £m**	**2019 Total £m**	2018 Total £m
Cost							
At 1 August	**377.5**	**1,699.7**	**238.7**	**316.5**	**416.3**	**3,048.7**	2,897.5
Additions	**–**	**0.7**	**1.2**	**119.9**	**32.2**	**154.0**	249.0
Transfers	**–**	**96.1**	**110.3**	**(206.7)**	**0.3**	**–**	–
Transfers (to)/from investment properties	**–**	**–**	**–**	**–**	**–**	**–**	(81.6)
Transfers (to)/from other balance sheet accounts	**–**	**1.9**	**–**	**–**	**(0.4)**	**1.5**	–
Disposals	**–**	**–**	**–**	**–**	**(13.3)**	**(13.3)**	(15.7)
Currency adjustments	**–**	**–**	**0.1**	**–**	**0.5**	**0.6**	(0.5)
At 31 July	**377.5**	**1,798.4**	**350.3**	**229.7**	**435.6**	**3,191.5**	3,048.7
Accumulated depreciation							
At 1 August	**–**	**163.3**	**25.8**	**–**	**300.3**	**489.4**	409.3
Charge for the year	**–**	**55.9**	**7.7**	**–**	**48.1**	**111.7**	94.4
Transfers (to)/from other balance sheet accounts	**–**	**1.9**	**–**	**–**	**–**	**1.9**	–
Transfers (to)/from investment properties	**–**	**–**	**–**	**–**	**–**	**–**	(3.1)
Elimination on disposals	**–**	**–**	**–**	**–**	**(13.2)**	**(13.2)**	(11.0)
Currency adjustments	**–**	**–**	**0.1**	**–**	**0.2**	**0.3**	(0.2)
At 31 July	**–**	**221.1**	**33.6**	**–**	**335.4**	**590.1**	489.4
Net book value							
At 31 July	**377.5**	**1,577.3**	**316.7**	**229.7**	**100.2**	**2,601.4**	2,559.3
At 1 August	377.5	1,536.4	212.9	316.5	116.0	2,559.3	2,488.2

The net book value of leasehold land included in the above table is £29.8m (2018: £29.8m).

University	**Land £m**	**Non-leasehold buildings £m**	**Leasehold buildings £m**	**Assets in construction £m**	**Equipment £m**	**2019 Total £m**	2018 Total £m
Cost							
At 1 August	**377.5**	**1,701.7**	**232.0**	**318.2**	**409.2**	**3,038.6**	2,888.2
Additions	**–**	**0.7**	**–**	**120.6**	**29.1**	**150.4**	247.4
Transfers	**–**	**96.7**	**110.2**	**(207.2)**	**0.3**	**–**	–
Transfers (to)/from investment properties	**–**	**–**	**–**	**–**	**–**	**–**	(81.6)
Transfers (to)/from other balance sheet accounts	**–**	**1.9**	**–**	**–**	**(1.4)**	**0.5**	–
Disposals	**–**	**–**	**–**	**–**	**(12.7)**	**(12.7)**	(15.2)
Currency adjustments	**–**	**–**	**–**	**–**	**–**	**–**	(0.2)
At 31 July	377.5	1,801.0	342.2	231.6	424.5	3,176.8	3,038.6
Accumulated depreciation							
At 1 August	**–**	**163.0**	**24.2**	**–**	**296.8**	**484.0**	404.0
Charge for the year	**–**	**56.0**	**7.3**	**–**	**45.9**	**109.2**	93.6
Transfers (to)/from other balance sheet accounts	**–**	**1.9**	**–**	**–**	**(1.4)**	**0.5**	–
Transfers (to)/from investment properties	**–**	**–**	**–**	**–**	**–**	**–**	(3.1)
Elimination on disposals	**–**	**–**	**–**	**–**	**(12.7)**	**(12.7)**	(10.5)
Currency adjustments	**–**	**–**	**–**	**–**	**–**	**–**	–
At 31 July	**–**	**220.9**	**31.5**	**–**	**328.6**	**581.0**	484.0
Net book value							
At 31 July	**377.5**	**1,580.1**	**310.7**	**231.6**	**95.9**	**2,595.8**	2,554.6
At 1 August	377.5	1,538.7	207.8	318.2	112.4	2,554.6	2,484.2

The net book value of leasehold land included in the above table is £29.8m (2018: £29.8m).

Notes to the accounts for the year ended 31 July 2019 (continued)

20 Heritage assets

	Group	Group	University	University
	2019	2018	**2019**	2018
	£m	£m	**£m**	£m
Opening balance	**70.6**	67.3	**70.6**	67.3
Additions in the year	**1.4**	3.3	**1.4**	3.3
Closing balance at 31 July	**72.0**	70.6	**72.0**	70.6

The University holds and conserves certain collections, artefacts and other assets of historical, artistic or scientific importance. Most of these are housed in the University's nationally accredited museums and collections and in its libraries, providing a valuable research and educational resource locally, nationally and internationally as well as an unrivalled opportunity to present the University's work to a wide audience. Other collections are held in academic departments or are on display as public art. Major collections include those held by the University Library, a legal deposit, the Botanic Garden, and the Fitzwilliam Museum.

In respect of its major collections, the University's practice, in accordance with the national accreditation standards, is: to preserve, conserve, and manage the objects in its care; to augment the collections where appropriate and within the resources available; to enable and encourage access to and use of the collections for teaching and research; and to enable wide access to and engagement with the collections by members of the public.

As stated in the statement of significant accounting policies (see Note 4), heritage assets acquired since 1 August 1999 have been capitalised. The majority of assets held in the University's collections were acquired before 1 August 1999; because reliable estimates of cost or valuation are not available for these on a cost-benefit basis they have not been capitalised. As a result the total included in the balance sheet is partial.

Additions for the current and previous four years were as follows:

	2019	2018	2017	2016	2015
	£m	£m	£m	£m	£m
Acquisitions purchased with specific donations	**–**	1.1	1.3	1.2	1.1
Value of acquisitions by donation	**1.4**	2.2	0.4	2.5	0.4
Total acquired by, or funded by, donations	**1.4**	3.3	1.7	3.7	1.5
Acquisitions purchased with University funds	**–**	–	0.5	0.5	–
Total acquisitions capitalised	**1.4**	3.3	2.2	4.2	1.5

21 Non-current asset investments

a) Other investments

	Group	Group	University	University
	2019	2018	**2019**	2018
	£m	£m	**£m**	£m
Opening balance	**2,911.9**	2,766.1	**2,346.7**	2,239.3
Additions in the year	**265.4**	77.9	**264.1**	72.3
Disposals in the year	**(141.1)**	(184.1)	**(119.7)**	(162.6)
Share of operating surplus in joint ventures and associates	**1.5**	1.9	**–**	–
Valuation gains on investments	**181.4**	250.1	**144.7**	197.7
Loan to joint ventures	**0.4**	–	**–**	–
Currency adjustments	**0.6**	–	**–**	–
Closing balance at 31 July	**3,220.1**	2,911.9	**2,635.8**	2,346.7
Represented by:				
CUEF units (see Note 11)	**3,108.0**	2,824.6	**2,530.0**	2,260.2
Securities	**15.9**	17.3	**10.9**	11.0
Spin-out and similar companies (see Note 35)	**86.2**	62.9	**59.6**	40.6
Investments in subsidiary undertakings	**–**	–	**33.8**	33.9
Investments in joint ventures	**9.4**	6.5	**0.5**	–
Investments in associates	**0.5**	0.5	**0.9**	0.9
Other	**0.1**	0.1	**0.1**	0.1
	3,220.1	2,911.9	**2,635.8**	2,346.7

Other investments primarily relate to investments in farming and related products.

Notes to the accounts for the year ended 31 July 2019 (continued)

21 Non-current asset investments (continued)

b) Investment properties	Group 2019 £m	Group 2018 £m	University 2019 £m	University 2018 £m
Opening balance	**501.4**	407.1	**501.4**	407.1
Additions in the year	**21.0**	48.3	**21.0**	48.3
Disposals in the year	**(28.0)**	(1.4)	**(28.0)**	(1.4)
Transfers (to) / from other balance sheet accounts	**–**	78.5	**–**	78.5
Net gains / (losses) from fair value adjustments	**53.1**	(31.1)	**53.1**	(31.1)
Closing balance	**547.5**	501.4	**547.5**	501.4
Represented by:				
North West Cambridge development	**362.3**	327.2	**362.3**	327.2
Other investment property	**185.2**	174.2	**185.2**	174.2
	547.5	501.4	**547.5**	501.4

Phase 1 of the North West Cambridge development is complete and includes accommodation for University staff and students, infrastructure and community facilities. The development has been valued as at 31 July 2019 by an external valuer, Gerald Eve LLP, a regulated firm of Chartered Surveyors. The valuation was prepared in accordance with the requirements of the RICS valuation - Global Standards (July 2017 edition) ("the Standards") published by the Royal Institution of Chartered Surveyors (RICS) and FRS 102. The valuation was undertaken on a fair value basis. The result is a revaluation gain in the carrying value of the investment of £44.5m. This is reflected as a valuation gain on investment and increases the carrying value of the investment from £317.8m to £362.3m. Other investment property is also revalued annually with properties valued in excess of £0.5m undertaken by an independent external valuer and the balance valued internally by the University's own Estates Management team. The annual valuation of these properties has resulted in a gain on investment of £8.6m.

The gain on investments of £235.1m (2018: £219.0) includes investment property gains of £53.1m (2018: £(31.1)m) as shown above, other non-current asset investment gains of £181.4m (2018: £250.1m) as shown in Note 21a, primarily relating to the endowment fund and £0.6m (2018: Nil) recognised through current asset investments relating to a specialist fund held with Royal London.

22 Stock and work in progress	Group 2019 £m	Group 2018 £m	University 2019 £m	University 2018 £m
Goods for resale	**24.9**	23.6	**24.4**	19.1
Pre-publication costs and other work in progress	**26.3**	22.6	**24.0**	20.5
Other stock	**1.5**	1.2	**1.5**	1.2
	52.7	47.4	**49.9**	40.8

23 Trade and other receivables

Amounts due within one year				
Research grants recoverable	**129.4**	124.0	**129.8**	120.7
Amounts due from group undertakings	**–**	–	**45.3**	46.1
Trade debtors	**224.6**	201.2	**194.2**	179.3
Other debtors	**109.2**	93.0	**100.4**	78.1
	463.2	418.2	**469.7**	424.2

The majority of non-research trade and other receivables relates to examination and assessment services, and publishing services. Debtors relating to examination and assessment services are included within the Group amounting to £123.8m and within the University amounting to £120.6m. Debtors relating to publishing services are included within the Group amounting to £140.7m and within the University amounting to £137.0m.

24 Current asset investments

CUEF units held on behalf of other entities (see Note 11)	**347.9**	428.2	**925.9**	992.6
Money market investments	**174.1**	63.1	**174.1**	63.1
Other	**–**	7.6	**–**	7.6
	522.0	498.9	**1,100.0**	1,063.3

Notes to the accounts for the year ended 31 July 2019 (continued)

25 Cash and cash equivalents	**Group 2019 £m**	Group 2018 £m	**University 2019 £m**	University 2018 £m
Money market investments with maturity less than three months	**646.1**	793.6	**646.1**	793.6
Cash at bank and in hand and with investment managers	**86.4**	75.7	**21.3**	21.9
	732.5	869.3	**667.4**	815.5

26 Creditors: amounts falling due within one year				
Bank overdraft	**–**	14.0	**–**	14.0
Finance leases	**1.2**	1.4	**1.2**	1.4
Research grants received in advance	**224.8**	216.2	**224.8**	211.1
Other creditors and deferred income	**461.0**	424.4	**385.2**	360.3
Amounts due to group undertakings	**–**	–	**20.8**	30.9
Derivative financial instruments liabilities	**1.2**	–	**1.2**	–
Investments and cash equivalents held on behalf of subsidiary undertakings	**–**	–	**611.0**	592.8
Investments and cash equivalents held on behalf of Colleges and other associated bodies	**350.5**	440.8	**350.5**	440.8
	1,038.7	1,096.8	**1,594.7**	1,651.3

Other creditors relating to examination and assessment services are included within the Group amounting to £125.1m and within the University amounting to £101.4m. Other creditors relating to publishing services are included within the Group amounting to £133.8m and within the University amounting to £123.2m. Deferred income of £180.5m is included above for the Group and £160.1m for the University as at 31 July 2019.

27 Creditors: amounts falling due after more than one year				
Bond liabilities - unsecured 2012 (fixed interest)	**342.8**	342.6	**342.8**	342.6
Bond liabilities - unsecured 2018 (fixed interest)	**297.8**	297.8	**297.8**	297.8
Bond liabilities - unsecured 2018 (index-linked)	**348.2**	296.7	**348.2**	296.7
Finance leases	**1.3**	1.2	**1.3**	1.2
Accruals and deferred income	**11.5**	11.3	**1.2**	–
	1,001.6	949.6	**991.3**	938.3

On 17 October 2012 the University issued £350m of 3.75% unsecured Bonds due October 2052. The Bonds were issued at 98.168% of their principal amount. The proceeds of issue, less directly attributable transaction costs, amounted to £342m. Interest at 3.75% p.a. is payable on 17 April and 17 October each year and commenced on 17 April 2013. In addition, on 27 June 2018 the University issued £300m of 2.35% unsecured Bonds due June 2078. The Bonds were issued at 99.552% of their principal amount. The proceeds of issue, less directly attributable transaction costs, amounted to £297.8m. Interest at 2.35% p.a. is payable on 27 June and 27 December each year and commenced on 27 December 2018.

The Bonds will be redeemed at their principal amounts of £350m and £300m on 17 October 2052 and 27 June 2078 respectively. The Bonds are initially measured at the proceeds of issue less all transaction costs directly attributable to the issue. After initial recognition, the Bonds are measured at amortised cost using the effective interest rate method. Under this method the discount at which the Bonds were issued and the transaction costs are accounted for as additional interest expense over the term of the Bonds.

Also on 27 June 2018 the University issued £300m of Index-linked Bonds (the "Indexed Bonds") due June 2068. The Indexed Bonds were issued at 98.893% of their principal amount. Interest is payable annually in arrears on 27 June each year and commenced on 27 June 2019. The interest charged is calculated as the product of 0.25% p.a. and the Limited Index Ratio. The Indexed Bonds will be redeemed in accordance with the Amortisation Schedule multiplied by the Limited Index Ratio or may be redeemed earlier at the option of the University. The Indexed Bonds are accounted for as complex financial instruments and were initially recognised at fair value at the transaction date which was deemed to be the face value of the Bonds (net of discount) of £296.7m. Transaction costs were immediately expensed on initial recognition of the Bonds. Subsequently the Bonds are re-measured to their fair value at each consecutive reporting date with any increase or decrease in liability recognised through finance costs in the statement of comprehensive income. As at 31 July 2019 the Indexed Bonds were revalued upwards to £348.2m based on an independed valuation from Morgan Stanley, increasing the liability and resulting in a fair value adjustment charge through finance costs of £51.5m.

All the Bonds referred to above are listed on the London Stock Exchange.

Notes to the accounts for the year ended 31 July 2019 (continued)

28 Pension liabilities

	CPS	Press (UK schemes)	Defined benefit total	USS deficit recovery	Other	Total 2019	Total 2018
Group	**£m**	**£m**	**£m**	**£m**	**£m**	**£m**	£m
Opening balance	**442.8**	**74.0**	**516.8**	**118.9**	**(0.6)**	**635.1**	739.1
Movement in year:							
Current service cost	**30.1**	**1.5**	**31.6**	**–**	**6.0**	**37.6**	35.1
Past service cost	**5.8**	**–**	**5.8**	**–**	**–**	**5.8**	–
Contributions	**(28.5)**	**(4.5)**	**(33.0)**	**–**	**(6.0)**	**(39.0)**	(33.0)
Administration expenses	**1.0**	**–**	**1.0**	**–**	**0.3**	**1.3**	1.0
Interest on liability	**12.1**	**1.9**	**14.0**	**2.7**	**–**	**16.7**	18.2
Currency adjustments	**–**	**–**	**–**	**–**	**–**	**–**	0.1
Net change in underlying assumptions (see Note 13):							
- change in underlying assumptions	**–**	**–**	**–**	**230.7**	**–**	**230.7**	4.5
- USS deficit contributions payable	**–**	**–**	**–**	**(5.6)**	**–**	**(5.6)**	(8.0)
	–	**–**	**–**	**225.1**	**–**	**225.1**	(3.5)
Liability on acquisition	**–**	**–**	**–**	**0.8**	**–**	**0.8**	–
Actuarial (gain) / loss	**169.7**	**35.5**	**205.2**	**–**	**0.1**	**205.3**	(121.9)
Closing balance at 31 July	**633.0**	**108.4**	**741.4**	**347.5**	**(0.2)**	**1,088.7**	635.1
University							
Opening balance	**442.8**	**74.0**	**516.8**	**114.8**	**(0.6)**	**631.0**	734.1
Movement in year:							
Current service cost	**30.1**	**1.5**	**31.6**	**–**	**5.8**	**37.4**	35.1
Past service cost	**5.8**	**–**	**5.8**	**–**	**–**	**5.8**	–
Contributions	**(28.5)**	**(4.5)**	**(33.0)**	**–**	**(5.8)**	**(38.8)**	(33.0)
Administration expenses	**1.0**	**–**	**1.0**	**–**	**0.2**	**1.2**	1.0
Interest on liability	**12.1**	**1.9**	**14.0**	**2.6**	**–**	**16.6**	18.1
Currency adjustments	**–**	**–**	**–**	**–**	**–**	**–**	0.1
Net change in underlying assumptions (see Note 13):							
- change in underlying assumptions	**–**	**–**	**–**	**224.1**	**–**	**224.1**	5.2
- USS deficit contributions payable	**–**	**–**	**–**	**(5.5)**	**–**	**(5.5)**	(7.7)
	–	**–**	**–**	**218.6**	**–**	**218.6**	(2.5)
Liability on acquisition	**–**	**–**	**–**	**0.8**	**–**	**0.8**	–
Actuarial (gain) / loss	**169.7**	**35.5**	**205.2**	**–**	**(0.2)**	**205.0**	(121.9)
Closing balance at 31 July	**633.0**	**108.4**	**741.4**	**336.8**	**(0.6)**	**1,077.6**	631.0

The net liabilities in respect of the Cambridge University Assistants' Contributory Pension Scheme (CPS) and the Press defined benefit schemes represent the present value of the schemes' obligations to provide future benefits in relation to past service, less the assets of the schemes. For additional information please refer to Note 34.

The obligation to fund the past deficit on the Universities Superannuation Scheme (USS) arises from the contractual obligation with the USS to fund deficit payments in accordance with the deficit recovery plan. In calculating this provision, management has estimated future staff levels within the USS scheme for the duration of the contractual obligation and salary inflation. Key assumptions are set out below and further information is provided in Note 34.

The Group also has a smaller number of staff in other pension schemes, including the defined benefit schemes relating to Cambridge University Press activities in the United States, the Local Government Pension Scheme (LGPS) supporting staff in the University primary school and the National Health Service Pension Scheme (NHSPS).

The 'liability on acquisition' refers to the recent acquisition by Cambridge Assessment and Cambridge University Press of the Centre for Evaluation and Monitoring whereby the liability associated with those employees contracted through the USS has been assumed by the University.

The adoption of the new USS deficit recovery plan following the 2017 actuarial valuation has given rise to a significant increase in the deficit provision which has increased from £118.9m to £347.5m. £213.8m of this increase is attributable to the change in deficit contributions contractual commitment from 2.1% to 5.0% p.a. The movements described as a "net change in underlying assumptions" also include the impact of movements in discount rates. The resulting increase in provision in 2018-19 is included in staff costs (see Note 13).

Since the year end, following the completion of the 2018 USS actuarial valuation, a new deficit recovery plan has been agreed, details of which are outlined in Note 34. As at 31 July 2019 and with all other assumptions used to calculate the provision unchanged, this would have resulted in a revised provision of £197.4m, a decrease of £150.1m from the current year end provision.

Notes to the accounts for the year ended 31 July 2019 (*continued*)

28 Pension liabilities (continued)

The major assumptions used to calculate the obligation are:

	2019	2018
Discount rate	**1.61%**	2.20%
Salary growth	**4.2%**	4.0%

Sensitivity analysis

As set out in the accounting policies, there are some critical judgements made in estimating the obligation to fund the USS deficit. The sensitivity of the principal assumptions used to measure the USS deficit provision are set out below:

Change in assumptions at 31 July 2019	**Approximate impact**
a) Impact of a 0.5% p.a. decrease in discount rate	*Liability increases by £15m*
b) Impact of a 0.5% p.a. increase in salary inflation over duration	*Liability increases by £15m*
c) Impact of a 0.5% p.a. increase in salary inflation year 1 only	*Liability increases by £2m*
d) Impact of a 0.5% increase in staff changes year 1 only	*Liability increases by £2m*
e) Impact of a 0.5% increase in staff changes over duration	*Liability increases by £15m*
f) Impact of a 1.0% increase in deficit contributions from April 2020	*Liability increases by £68m*
g) 1 year increase in term	*Liability increases by £28m*

29 Other retirement benefits liabilities

Group and University	**2019 £m**	2018 £m
Opening balance	**21.6**	22.4
Movement attributable to the year:		
Current service cost less benefits paid	**0.2**	0.2
Contributions	**(1.1)**	(1.0)
Other finance cost	**0.6**	0.6
Currency adjustments	**0.5**	–
Actuarial (gain) / loss	**2.9**	(0.6)
Closing balance at 31 July	**24.7**	21.6

These liabilities arise in relation to unfunded post-retirement medical and insurance schemes.

Notes to the accounts for the year ended 31 July 2019 (continued)

30 Endowment reserves

Group	Permanent £m	Expendable £m	2019 Total £m	2018 Total £m
Balance at 1 August	**1,299.3**	**556.4**	**1,855.7**	1,727.9
New endowments received	**58.9**	**7.9**	**66.8**	21.6
Transfers	**3.0**	**(3.0)**	**–**	–
Investment income	**8.0**	**2.0**	**10.0**	5.3
Expenditure	**(41.0)**	**(25.9)**	**(66.9)**	(54.9)
Valuation gains on investments	**75.9**	**31.7**	**107.6**	155.8
Loss on deconsolidation of Trust	**–**	**(1.9)**	**(1.9)**	–
Balance at 31 July	**1,404.1**	**567.2**	**1,971.3**	1,855.7
Capital	**1,213.5**	**535.1**	**1,748.6**	1,650.8
Unspent income	**190.6**	**32.1**	**222.7**	204.9
Balance at 31 July	**1,404.1**	**567.2**	**1,971.3**	1,855.7
Representing:				
Trust and Special Funds:				
Professorships, Readerships, and Lectureships	**703.1**	**84.6**	**787.7**	744.0
Scholarships and bursaries	**210.4**	**19.3**	**229.7**	177.9
Other	**463.6**	**166.6**	**630.2**	614.4
Gates Cambridge Trust	**–**	**290.0**	**290.0**	285.5
Examination Board restricted funds	**–**	**6.7**	**6.7**	6.5
General endowments	**27.0**	**–**	**27.0**	27.4
Group total	**1,404.1**	**567.2**	**1,971.3**	1,855.7
University				
Balance at 1 August	**1,292.9**	**269.0**	**1,561.9**	1,449.3
New endowments received	**58.2**	**7.9**	**66.1**	21.6
Transfers	**3.0**	**(3.0)**	**–**	–
Income receivable from endowment asset investments	**7.5**	**0.6**	**8.1**	3.8
Expenditure	**(40.5)**	**(13.3)**	**(53.8)**	(44.2)
Valuation gains on investments	**75.7**	**15.9**	**91.6**	131.4
Balance at 31 July	**1,396.8**	**277.1**	**1,673.9**	1,561.9
Capital	**1,206.1**	**245.1**	**1,451.2**	1,357.0
Unspent income	**190.7**	**32.0**	**222.7**	204.9
Balance at 31 July	**1,396.8**	**277.1**	**1,673.9**	1,561.9

Notes to the accounts for the year ended 31 July 2019 (*continued*)

31 Restricted reserves

	Unspent capital grants £m	**Unspent research grants £m**	**Specific donations £m**	**Other Restricted Reserves £m**	**2019 Total £m**	2018 Total £m
Group						
Balance at 1 August	**13.7**	**32.1**	**52.1**	**–**	**97.9**	85.5
Donations and grants recognised in the year	**91.5**	**18.5**	**34.5**	**–**	**144.5**	100.4
Investment income	**–**	**–**	**0.1**	**0.2**	**0.3**	0.3
Expenditure	**(1.6)**	**(13.3)**	**(29.6)**	**–**	**(44.5)**	(28.4)
Capital grants spent	**(91.1)**	**–**	**–**	**–**	**(91.1)**	(61.9)
Valuation gains on investments	**–**	**–**	**1.6**	**1.0**	**2.6**	2.0
Transfers from unrestricted reserves	**–**	**–**	**–**	**18.7**	**18.7**	–
Actuarial loss	**(0.1)**	**–**	**–**	**–**	**(0.1)**	–
Balance at 31 July	**12.4**	**37.3**	**58.7**	**19.9**	**128.3**	97.9
University						
Balance at 1 August	**13.7**	**32.1**	**51.2**	**–**	**97.0**	84.3
Donations and grants recognised in the year	**89.7**	**18.5**	**20.8**	**–**	**129.0**	90.6
Investment income	**–**	**–**	**0.1**	**0.2**	**0.3**	0.3
Expenditure	**–**	**(13.3)**	**(15.9)**	**–**	**(29.2)**	(18.4)
Capital grants spent	**(91.1)**	**–**	**–**	**–**	**(91.1)**	(61.8)
Valuation gains on investments	**–**	**–**	**1.6**	**1.0**	**2.6**	2.0
Transfers from unrestricted reserves	**–**	**–**	**–**	**18.7**	**18.7**	–
Balance at 31 July	**12.3**	**37.3**	**57.8**	**19.9**	**127.3**	97.0

Other restricted reserves relates to certain units in the Cambridge University Endowment Fund which were previously held as unrestricted but which have been re-categorised to restricted during the year following the implementation of unit match-funding associated with a specific donation.

32 Non-controlling interests

Non-controlling interests represent the interests of minority shareholders in the total comprehensive income and net assets of subsidary companies where the University holds less than 100% of the issued share capital (see Note 35). The movement in non-controlling interests in the statement of comprehensive income and unrestricted reserves of the Group were as follows:

	Group 2019 £m	Group 2018 £m
Opening balance at 1 August	**1.7**	0.5
Total comprehensive income attributable to non-controlling interests	**2.2**	1.7
Acquisition of non-controlling interest	**1.2**	–
Dividends paid to non-controlling interests	**(1.7)**	(0.5)
Closing balance at 31 July	**3.4**	1.7

For the year ended 31 July 2019, the total comprehensive income attributable to non-controlling interests was £2.2m (2018: £1.7m) and the unrestricted reserves attributable to non-controlling interests was £3.4m (2018: £1.7m).

33 Capital commitments

	Group 2019 £m	Group 2018 £m
Commitments for capital expenditure:		
Commitments contracted at 31 July	**398.2**	535.5
Authorised but not contracted at 31 July	**102.3**	174.5
Commitments for capital calls on investments	**449.9**	505.3

Notes to the accounts for the year ended 31 July 2019 (*continued*)

34 Pension schemes

The two principal pension schemes for the University's staff are the Universities Superannuation Scheme (USS) and the Cambridge University Assistants' Contributory Pension Scheme (CPS). The USS and the CPS are not closed, nor is the age profile of their active membership rising significantly.

Cambridge University Press operates two pension schemes for its UK staff, the Press Contributory Pension Fund (PCPF) and the Press Senior Staff Pension Scheme (PSSPS). The PCPF and the PSSPS have been closed to new members.

The assets of the schemes are held in separate trustee-administered funds. The schemes are defined benefit schemes, with the exception of USS which is a hybrid pension scheme, and are each valued every three years using the projected unit method by professionally qualified actuaries, the rates of contribution payable being determined by the trustees on the advice of the actuaries.

Universities Superannuation Scheme (USS)

The University participates in the Universities Superannuation Scheme. The scheme is a hybrid pension scheme, providing defined benefits (for all members), as well as defined contribution benefits. Because of the mutual nature of the scheme, the scheme's assets are not attributed to individual institutions and a scheme-wide contribution rate is set. The University is therefore exposed to actuarial risks associated with other institutions' employees and is unable to identify its share of the underlying assets and liabilities of the scheme on a consistent and reasonable basis. As required by Section 28 of FRS 102 'Employee Benefits' the University therefore accounts for the scheme as if it were a wholly defined contribution scheme. As a result, the amount charged to the statement of comprehensive income represents contributions payable to the scheme. Since the University has entered into an agreement (the Recovery Plan) that determines how each employer within the scheme will fund the overall deficit, the University recognises a liability for the contributions payable that arise from the agreement (to the extent that they relate to the deficit) and therefore an expense is recognised.

The total cost charged to the statement of comprehensive income is £316.1m (2018: £93.8m).

The latest available complete actuarial valuation of the Retirement Income Builder section of the scheme is at 31 March 2017 (the valuation date), which was carried out using the projected unit method. At the year end a valuation as at 31 March 2018 was underway but not yet complete.

Since the University cannot identify its share of USS Retirement Income Builder section of the scheme assets and liabilities, the following disclosures reflect those relevant for the section as a whole.

The 2017 valuation was the fourth valuation for the USS under the scheme-specific funding regime introduced by the Pensions Act 2004, which requires schemes to adopt a statutory funding objective, which is to have sufficient and appropriate assets to cover their technical provisions. At the valuation date, the value of the assets of the scheme was £60.0bn and the value of the scheme's technical provisions was £67.5bn indicating a shortfall of £7.5bn and a funding ratio of 89%.

The key assumptions used in the 2017 valuation are described below. More detail is set out in the Statement of Funding Principles.

Discount rate (forward rates)	Years 1-10: CPI - 0.53% reducing linearly to CPI - 1.32% Years 11-20: CPI + 2.56% reducing linearly to CPI + 1.7% by year 21 Years 21 +: CPI + 1.7%
Pension increase (CPI)	Term dependent rates in line with the difference between the Fixed Interest and Index Linked yield curves, less 1.3% p.a.

The main demographic assumption used relates to the mortality assumptions. These assumptions are based on analysis of the scheme's experience carried out as part of the 2017 actuarial valuation. The mortality assumptions used in these figures are as follows:

	2017 Valuation
Mortality base table	<u>Pre-retirement:</u> 71% of AMC00 (duration 0) for males and 112% of AFC00 (duration 0) for females. <u>Post-retirement:</u> 96.5% of SAPS S1NMA 'light' for males and 101.3% of RFV00 for females.
Future improvements to mortality	CMI_2016 with a smoothing parameter of 8.5 and a long term improvement rate of 1.8% p.a. for males and 1.6% p.a. for females.

Notes to the accounts for the year ended 31 July 2019 (*continued*)

34 Pension schemes (continued)

The current life expectancies on retirement at age 65 are:

	2019	2018
Males currently aged 65 (years)	**24.6**	24.5
Females currently aged 65 (years)	**26.1**	26.0
Males currently aged 45 (years)	**26.6**	26.5
Females currently aged 45 (years)	**27.9**	27.8

The funding position of the scheme has since been updated on an FRS 102 basis:

	2019	2018
Scheme assets	**£67.4bn**	£63.6bn
Total scheme liabilities	**£79.2bn**	£72.0bn
FRS 102 total scheme deficit	**£11.8bn**	£8.4bn
FRS 102 total funding level	**85%**	88%

Key assumptions used are:

	2019	2018
Discount rate	**2.44%**	2.64%
Pensionable salary growth	**n/a**	n/a
Pensions increases (CPI)	**2.11%**	2.02%

A new deficit recovery plan was put in place as part of the 2017 valuation and is set out in the new Schedule of Contributions dated 28 January 2019. This requires payment of 5.0% of salaries over the period 1 April 2020 to 30 June 2034. In accordance with the requirements of FRS 102 and the SORP, the University has made a provision for this contractual commitment to fund the past deficit. In the prior year, the deficit payments were 2.1% of salaries up to March 2031.

This significant increase in deficit contributions has given rise to a substantial increase in the University's deficit provision which has increased from £118.9m to £347.5m as set out in Note 28. £230.7m of this increase is attributable to the changes in the deficit contributions contractual commitment and discount rate. See also Note 13 in respect of significant one-off pension costs.

The 2018 actuarial valuation was finalised after the year end which indicated a shortfall of £3.6bn. Since the year end, following the completion of the 2018 actuarial valuation, a new deficit recovery plan has been agreed. This amends the existing deficit recovery plan as set out in the 2017 valuation Schedule of Contributions. This new plan requires deficit payments of 2.0% of salaries from 1 October 2019 to 30 September 2021 and then payments of 6.0% of salaries from 1 October 2021 to 31 March 2028. As at 31 July 2019 and assuming all other assumptions used to calculate the provision remain unchanged, this would have resulted in a revised provision of £197.4m, a decrease of £150.1m from the current year end provision and a lower charge to the statement of comprehensive income of £80.6m.

Cambridge University Assistants' Contributory Pension Scheme (CPS)

The CPS was established under the authority of the Universities of Oxford and Cambridge Act 1923. It is a registered pension scheme for the purposes of the Finance Act 2004. The active members of the scheme are employees of the University and its subsidiary undertakings.

Triennial valuation of the scheme

A full triennial valuation of the scheme was carried out by the actuary for the trustees of the scheme for funding purposes as at 31 July 2018. The results showed the actuarial value of the scheme's assets as £708m. These were insufficient to cover the scheme's past service liabilities of £743m; the scheme had a deficit of £35m and was 95% funded.

Since 1 August 2013 employer contributions have been set at 11.5% of pensionable pay for existing members at 31 December 2012 and 5.8% of pensionable pay (together with contributions at 5.0% to a separate defined contribution arrangement) for new entrants from 1 January 2013. In addition fixed employer contributions totalling £14.6m per annum are payable over the period from 1 August 2011 to 31 July 2020. These payments are subject to review at the next funding valuation due as at 31 July 2021.

CPS: Pension costs under FRS 102

The liabilities of the plan have been calculated for the purposes of FRS 102 based on the calculations undertaken for the funding actuarial valuation as at 31 July 2018, allowing for the different assumptions required under FRS 102 and taking fully into consideration changes in the plan benefit structure and membership since that date. The FRS 102 valuation allows for additional CPS pension liability arising from the impact of equalising Guaranteed Minimum Pensions (GMPs) between men and women. The Lloyds Bank High Court Ruling on 26 October 2018 confirmed that GMPs should be equalised from the date of the Barber judgement (17 May 1990).

Notes to the accounts for the year ended 31 July 2019 (continued)

34 Pension schemes (continued)

CPS: Pension costs under FRS 102 (continued)

The principal assumptions used by the actuary were:

	2019	2018
Discount rate	**2.10%**	2.70%
Rate of increase in salaries	**4.20%**	4.05%
Rate of increase in pensions in deferment	**3.40%**	3.25%
Rate of increase in pensions in payment	**3.40%**	3.25%
Mortality - equivalent life expectancy for members reaching the age of 65:		
Males currently aged 65	**85**	85
Males currently aged 45	**86**	87
Females currently aged 65	**89**	90
Females currently aged 45	**91**	91

The following results were measured in accordance with the requirements of FRS 102, based on the assumptions summarised above:

	Present value of defined benefit obligation		**Fair value of scheme assets**		**Net liability recognised in the balance sheet**	
	2019	2018	**2019**	2018	**2019**	2018
	£m	£m	**£m**	£m	**£m**	£m
Opening	**(1,151.0)**	(1,182.4)	**708.2**	660.0	**(442.8)**	(522.4)
Current service cost	**(30.1)**	(33.5)	**–**	–	**(30.1)**	(33.5)
Past service cost	**(5.8)**	–	**–**	–	**(5.8)**	–
Administrative expenses paid	**–**	–	**(1.0)**	(1.0)	**(1.0)**	(1.0)
Employer contributions	**–**	–	**28.5**	28.4	**28.5**	28.4
Contributions by members	**(0.5)**	(0.5)	**0.5**	0.5	**–**	–
Benefits paid	**23.8**	23.6	**(23.8)**	(23.6)	**–**	–
Interest income / (expense)	**(31.2)**	(30.3)	**19.1**	16.9	**(12.1)**	(13.4)
Remeasurement gains / (losses):						
Actuarial gains / (losses)	**(164.5)**	72.1	**–**	–	**(164.5)**	72.1
Expected less actual plan expenses	**–**	–	**(0.6)**	(0.1)	**(0.6)**	(0.1)
Return on assets excluding interest	**–**	–	**(4.6)**	27.1	**(4.6)**	27.1
Closing defined benefit obligation	**(1,359.3)**	(1,151.0)	**726.3**	708.2	**(633.0)**	(442.8)

The movement for the year in the net pension liability is reflected in Note 28.

The total cost recognised in expenditure was (£m):	**2019**	2018
Current service cost	**30.1**	33.5
Past service cost	**5.8**	–
Administrative expenses	**1.0**	1.0
Interest cost	**12.1**	13.4
	49.0	47.9

The fair values of the major categories of scheme assets expressed as a percentage of the total were:

Equities and hedge funds	**67.0%**	71.1%
Bonds and cash	**23.2%**	19.2%
Property	**9.8%**	9.7%
	100.0%	100.0%

The return on the scheme's assets was (£m):

Interest income	**19.1**	16.9
Return on assets excluding interest income	**(4.6)**	27.1
	14.5	44.0

Notes to the accounts for the year ended 31 July 2019 (continued)

34 Pension schemes (continued)

Cambridge University Press UK defined benefit schemes (PCPF and PSSPS)

Triennial valuation of the schemes

Full triennial valuations of the schemes were carried out by the actuary for the trustees of the schemes for funding purposes as at 1 January 2016.

Pension costs under FRS 102

For accounting purposes the schemes' assets are measured at fair value and liabilities are valued using the attained age method and discounted using the gross redemption yield for corporate AA rated bonds. The valuations use market-based assumptions and asset valuations, and represent current valuations. They do not impact on the joint contribution rates set by the trustees of the schemes. The actuary has updated the 1 January 2016 valuation to 31 July 2017 for the purposes of these financial statements. The principal assumptions used by the actuary for both schemes were:

	2019	2018
Discount rate	**2.10%**	2.70%
Rate of increase in salaries - schemes are now on frozen current salary basis	**0.00%**	0.00%
Rate of increase in pensions in deferment	**3.80%**	3.50%
Rate of increase in pensions in payment	**3.80%**	3.50%
Mortality - equivalent life expectancy for members at age 60:		
Males	**86**	87
Females	**89**	89

The following results were measured in accordance with the requirements of FRS 102, based on the assumptions summarised above. The results for the two schemes have been amalgamated.

	Present value of defined benefit obligation		**Fair value of scheme assets**		**Net liability recognised in the balance sheet**	
	2019 £m	2018 £m	**2019 £m**	2018 £m	**2019 £m**	2018 £m
Opening	**(323.9)**	(336.8)	**249.9**	241.9	**(74.0)**	(94.9)
Current service cost	**(1.5)**	(1.7)	**–**	–	**(1.5)**	(1.7)
Employer contributions	**–**	–	**4.5**	4.6	**4.5**	4.6
Contributions by members	**(0.1)**	(0.1)	**0.1**	0.1	**–**	–
Benefits paid	**12.5**	11.8	**(12.5)**	(11.8)	**–**	–
Interest income / (expense)	**(8.5)**	(8.5)	**6.6**	6.1	**(1.9)**	(2.4)
Remeasurement gains:						
Actuarial gains	**(37.8)**	11.4	**2.3**	9.0	**(35.5)**	20.4
Closing defined benefit obligation	**(359.3)**	(323.9)	**250.9**	249.9	**(108.4)**	(74.0)

The movement for the year in the net pension liability is reflected in note 28. The above table excludes the US pension schemes net surplus relating to the Press's US Defined Benefit Plans of £0.3m (2018: £0.6m). The US schemes are included in the other pensions disclosure in Note 28.

The total cost recognised in expenditure was (£m):

	2019	2018
Current service cost	**1.5**	1.7
Interest cost	**1.9**	2.4
	3.4	4.1

The fair values of the major categories of scheme assets expressed as a percentage of the total were:

	2019	2018
Equities	**39.1%**	39.0%
Gilts	**0.0%**	0.0%
Property	**6.6%**	6.9%
Cash and annuities	**0.6%**	1.1%
Diversified growth fund	**34.9%**	34.2%
Diversified credit fund	**18.8%**	18.8%
	100.0%	100.0%

The return on the scheme's assets was:

	2019	2018
Interest income (£m)	**6.6**	6.1

The University also has a smaller number of staff in other pension schemes, including the National Health Service Pension Scheme (NHSPS) and the Local Government Pension Scheme (LGPS). These pension schemes are amalgamated in the other pensions disclosure in Note 28. No further disclosures are provided as the balances are not material.

Notes to the accounts for the year ended 31 July 2019 (continued)

34 Pension schemes (continued)

The total Group pension cost for the year (see Note 13) was:

	Employer contributions 2019 £m	**Provisions (Note 28) 2019 £m**	**Total 2019 £m**	Employer contributions 2018 £m	Provisions (Note 28) 2018 £m	Total 2018 £m
USS	**91.0**	**225.1**	**316.1**	97.3	(3.5)	93.8
CPS	**25.3**	**8.4**	**33.7**	29.2	6.1	35.3
PCPF	**2.5**	**(0.8)**	**1.7**	2.2	(0.8)	1.4
PSSPS	**2.3**	**(2.2)**	**0.1**	2.4	(2.2)	0.2
NHSPS	**2.3**	**–**	**2.3**	2.3	–	2.3
Other pension schemes	**8.3**	**0.3**	**8.6**	8.7	0.1	8.8
	131.7	**230.8**	**362.5**[2]	142.1	(0.3)	141.8

35 Principal subsidiary and associated undertakings and other significant investments

The following undertakings were subsidiary and associated undertakings during the year ended 31 July 2019. Except where stated, the accounting reference date is 31 July and the undertaking is a wholly-owned company registered in England and Wales.

Name	**Notes**	**Principal activity**
Cambridge Centre for Advanced Research and Education in Singapore Limited	a	Research and development
Cambridge Enterprise Limited		Consultancy and commercial exploitation of intellectual property
IFM Education and Consultancy Services Limited		Consultancy and commercial exploitation of intellectual property
Cambridge Investment Limited		Land development
Cambridge Investment Management Limited		Investment management
Cambridge Sustainability Ltd		Sustainability leadership programmes
Cambridge Institute for Sustainability Leadership (Australia)	b	Sustainability leadership programmes
Cambridge Institute for Sustainability Leadership (South Africa) NPC	c	Sustainability leadership programmes
Cambridge Institute for Sustainability Leadership (Belgium)	d	Sustainability leadership programmes
Cambridge University Technical Services Limited		Consultancy and commercial exploitation of intellectual property
The Dennis S Avery and Sally Tsui Wong-Avery Endowment Trust	e	Advancement of education and research in cosmology at the University
Fitzwilliam Museum (Enterprises) Limited		Publication of fine art books and sale of museum merchandise
JBS Executive Education Limited		Corporate education services
Lynxvale Limited		Construction and development services
UTS Cambridge		Primary school education
Cambridge ClassServer LLP	f	Development and commercialisation of digital educational material for China
English Language iTutoring Limited	g	Commercialisation of provision of automated tutoring and assessment in learning of English as a foreign language
Portal Estate Management		Management and maintenance of the North West Cambridge estate
Core Sustainable Heat Management Limited		North West Cambridge estate hot water and heating services
Lodge Property Services Ltd		North West Cambridge estate letting and accommodation services
Storey's Field Community Trust	h	Operational management services for the North West Cambridge estate community centre
Foundation for Genomics and Population Health	e, ag	Provision of biological research
Cambridge University International Holdings Limited		Holding company for overseas projects
Cambridge India Research Foundation	o	Research and development
Cambridge University Research and Innovation (Nanjing) Ltd	p	Research and development
Cambridge University Nanjing Centre of Technology and Innovation Ltd	p	Research and development

[2] See the footnote to Note 13 (p. 246).

Notes to the accounts for the year ended 31 July 2019 (continued)

35 Principal subsidiary and associated undertakings and other significant investments (continued)

Associated Trusts	e	Provision of scholarships, grants and other support for the education of UK and overseas students in the University
Cambridge Commonwealth, European and International Trust		
Gates Cambridge Trust		
Malaysian Commonwealth Studies Centre in Cambridge	ah	
Cambridge Assessment subsidiary undertakings		
Cambridge Assessment Overseas Limited		Overseas office services
Cambridge Assessment Singapore	i	Overseas office services
Cambridge Avaliacao Representacao e Promocao Ltda	j	Overseas office services
Cambridge Consulting (Beijing) Co. Ltd	k	Overseas office services
Cambridge Assessment Inc	l	Overseas office services
Cambridge English (Aus)	m	Overseas office services
Cambridge Boxhill Language Pty Limited	m	Examination services
Cambridge Michigan Language Assessment LLC (USA)	n	Examination services
Cambridge Assessment India Private Limited	o	Overseas office services
Cambridge Assessment Pakistan Private Limited	q	Overseas office services
Fundacion UCLES	r	Overseas office services
Oxford and Cambridge International Assessment Services Limited		Overseas office services
The West Midlands Examinations Board		Examination services
Oxford Cambridge and RSA Examinations	e	Examination services
Cambridge Assessment Japan Foundation	s	Examination services
IELTS Inc USA	t	Examination services
IELTS UK Services Ltd	u	Examination services
Cambridge University Press subsidiary undertakings	v	
Academic Journal Publishing Pty Limited	m	Intermediate holding company
Australian Academic Press Pty Limited	m	Non-trading
Cambridge Daigaku Shuppan KK	w	Sales support office for the Japanese market
Cambridge Knowledge (China) Limited	x	Sales support office for the Chinese market
Cambridge University Press (Greece) MEPE	y	Sales support office for the Greek, Cypriot and Mediterranean market
Cambridge University Press (Holdings) Limited		Multi-activity holding company
Cambridge University Press India Private Limited	o	Academic and educational book publisher & distributor for India
Cambridge University Press Nigeria Limited	z	Educational book publisher & distributor for Nigeria
Cambridge University Press Operations Limited		Publishing services company
Cambridge University Press Satış ve Dağıtım Ticaret Limited Şirketi	aa	Non-trading
Cambridge University Press Turkey Satış Destek Limited Sirketi	aa	Sales support office for the Turkish market
Cambridge University Press South Africa Proprietary Limited	ab	Academic and educational book publisher & distributor for South Africa
Cambridge Learning Limited		Non-trading
Editorial Edicambridge Cia Ltda	ac	Sales support office for the Ecuadorian market
Digital Services Cambridge Limited		Software development, infrastructure and business services
ELT Trading SA de CV	ad	Distribution company (Mexico and Latin America)
HOTmaths Pty Limited	ae	
United Publishers Services Limited	x	Non-trading
Oncoweb Limited		Non-trading intermediate holding company
Cambridge-Obeikan Company Limited	af	Academic and educational book distributor

Notes to the accounts for the year ended 31 July 2019 (*continued*)

35 Principal subsidiary and associated undertakings and other significant investments (continued)

a Cambridge Centre for Advanced Research and Education in Singapore Limited is incorporated in Singapore and has an accounting reference date of 31 March for commercial reasons. The effect of this is not material to the consolidated accounts.

b Cambridge Institute for Sustainability Leadership (Australia) is incorporated in Australia and has an accounting reference date of 30 June for commercial reasons. The effect of this is not material to the consolidated accounts.

c Cambridge Institute for Sustainability Leadership (South Africa) is incorporated in South Africa.

d Cambridge Institute for Sustainability Leadership (Belgium) is incorporated in Belgium.

e These entities are exempt charities established by trust deeds.

f Cambridge ClassServer LLP is a limited liability partnership registered in England and Wales, in which the University has a two-thirds interest acting through Cambridge Assessment and Cambridge University Press.

g English Language iTutoring Limited is a limited company registered in England and Wales, in which the University has a 50% interest acting through Cambridge Assessment and Cambridge University Press.

h Joint venture arrangement between the University and Cambridge City Council, with the University holding a 50% interest in the company which is limited by guarantee and registered in England and Wales.

i Cambridge Assessment Singapore is incorporated in Singapore.

j Cambridge Avaliacao Representacao e Promocao Ltda is incorporated in Brazil.

k Cambridge Consulting (Beijing) Co. Ltd is incorporated in China.

l Cambridge Assessment Inc is a United States non-stock non-profit corporation.

m Cambridge English (Aus), Cambridge Boxhill Language Pty Limited, Academic Journal Publishing Pty Limited and Australian Academic Press Pty Limited are incorporated in Australia.

n Cambridge Michigan Language Assessmment LLC (USA) is 65% owned by Cambridge Assessment Inc and is incorporated in the United States.

o Cambridge India Research Foundation, Cambridge Assessment India Private Limited and Cambridge University Press India Private Limited are incorporated in India.

p Cambridge University Research and Innovation (Nanjing) Ltd and Cambridge University Nanjing Centre of Technology and Innovation Ltd are incorporated in China and have an accounting reference date of 31 December. Cambridge University Nanjing Centre of Technology and Innovation Ltd is 50% owned by Cambridge University Research and Innovation (Nanjing) Ltd.

q Cambridge Assessment Pakistan Private Limited is incorporated in Pakistan.

r Fundacion UCLES is incorporated in Spain.

s Cambridge Assessment Japan Foundation is 60% owned and incorporated in Japan.

t IELTS Inc USA is incorporated in the United States and is 33% owned by Cambridge Assessment.

u IELTS UK Services Ltd is 33% owned by Cambridge Assessment.

v Cambridge University Press subsidiary undertakings have an accounting reference date of 30 April for commercial reasons, with the exceptions of the companies incorporated in India (31 March) and Mexico (31 December).

w Cambridge Daigaku Shuppan KK is incoporated in Japan.

x Cambridge Knowledge (China) Limited and United Publishers Services Limited are incorporated in Hong Kong.

y Cambridge University Press (Greece) MEPE is incorporated in Greece.

z Cambridge University Press Nigeria Limited is incorporated in Nigeria.

aa Cambridge University Press Satış ve Dağıtım Ticaret Limited Şirketi and Cambridge University Press Turkey Satis Destek Limited Sirket are incorporated in Turkey.

ab Cambridge University Press South Africa Proprietary Limited is a 75% subsidiary incorporated in South Africa.

ac Editorial Edicambridge Cia Ltda is incorporated in Ecuador.

ad ELT Trading SA de CV is incorporated in Mexico.

ae HOTmaths Pty Limited is a 55% subsidiary incorporated in Australia.

af Cambridge-Obeikan Company Limited is incorporated in Saudi Arabia.

ag Foundation for Genomics and Population Health has an accounting reference date of 31 March. The Foundation was acquired on 1 April 2018 for nil consideration resulting in a profit on acquisition recognised in 2017-18 of £1.6m.

ah Malaysian Commonwealth Studies Centre in Cambridge was deconsolidated from the consolidated accounts of the University from 1 August 2018. Following ceasing to be a Trustee, the net assets of the Trust were deconsolidated for nil consideration resulting in a loss of £1.9m.

Notes to the accounts for the year ended 31 July 2019 (*continued*)

35 Principal subsidiary and associated undertakings and other significant investments (continued)

Other investments

The University has interests in a number of spin-out companies formed to exploit intellectual property rights or inventions. These are included at valuation in non-current asset investments (see Note 21). In some cases the University's interest amounted to 20% or more of the share capital at the year end, and these companies are listed below. As the University does not exercise a significant influence over these investments and they are not intended to be held for the long term, they are not accounted for as associated undertakings. Other undertakings where the University's investment amounts to 20% or more are also listed below. These are not accounted for as associated undertakings as the effect on the financial statements would not be material.

Name	% interest	Principal Activity
ROADMap Systems Limted	21	Commercial exploitation of intellectual property
8Power	28	Commercial exploitation of intellectual property

In addition, at the year end the University held an interest of 30.69% in Cambridge Innovation Capital plc as part of its investment portfolio. Movements in the carrying value of this investment are included in the consolidated surplus for the year.

36 Related party transactions

Due to the nature of the University's operations and the composition of its Council, it is inevitable that the University will enter into transactions in the normal course of business with Colleges, NHS Trusts, Research Councils, other grant-awarding bodies, and other private and public sector organisations in which members of the Council may have an interest. All transactions involving organisations in which members of Council may have such an interest, including those summarised below, are conducted in accordance with the University's financial regulations and usual procurement procedures. A register of the interests of the members of the Council is maintained.

The financial statements of the University include transactions with:

(a) entities over which a member of Council or key management personnel (see Note 13) has control or joint control;

(b) entities over which a member of Council has significant influence; and

(c) entities of which a member of Council is a member of the key management personnel.

Such transactions are summarised below where they are considered material to the University's financial statements and / or to the other party. The University has taken advantage of the exemption within FRS 102 and has not disclosed transactions with other group entities where it holds 100% of the voting rights.

Transactions with Colleges are summarised in Note 37 below. Included within the financial statements are other transactions with the following related parties:

Gatsby Charitable Foundation

Lord Sainsbury of Turville, who was elected as Chancellor of the University in October 2011, is settlor of the Gatsby Charitable Foundation (Gatsby) and, together with the Gatsby Trustees, is actively involved in setting the Foundation's strategic direction and approving its activities. In 2006 the University approved a proposal to establish a Sainsbury Laboratory for plant science in Cambridge, with Gatsby providing capital funding and research funds over a ten-year period. The Sainsbury Laboratory was completed in the year ended 31 July 2011, with Gatsby capital contributions totalling £74m. Research grants and contracts income for the year ended 31 July 2019 includes £8.9m in respect of continuing grants funded by Gatsby of which £2.0m was included in creditors at the year end. Additionally the University has recognised sales to Gatsby of £99,000 and made payments to Gatsby of £87,000 in the year.

Cambridge University Students' Union

The President of the Students' Union was also a member of the University's Council for the 2018-19 financial year. Under *Statutes and Ordinances*, Chapter II, the University has discretion to provide financial assistance to the Union and, in the year ended 31 July 2019, provided a grant of £350,000 and made other payments totalling £34,000 for services provided, of which £25,000 was included in creditors at the year end. The Union made payments to the University totalling £5,000 for temporary staff, network and other services provided.

University of Cambridge Graduate Union

The President of the Graduate Union was also a member of the University's Council for the 2018-19 financial year. The Union made payments to the University totalling £11,000 for services provided in the year ended 31 July 2019 of whch £1,000 was included in debtors at the year end. The University also paid for services provided by the Graduate Union amounting to £5,000 during the financial year.

Office of Intercollegiate Services

The Office of Intercollegiate Services (OIS) is responsible primarily for providing support to the 31 Colleges of the collegiate University (Cambridge). A Director of the OIS was also a member of the University's Council for the year ended 31 July 2019. In 2018-19 the University made payments to the OIS amounting to £3,377,000 relating to contributions to the Vice-Chancellor's Fund and the Cambridge Admissions Office. In addition, services were provided by the University to the OIS during the 2018-19 financial year amounting to £37,000.

Notes to the accounts for the year ended 31 July 2019 (*continued*)

36 Related party transactions (continued)

Corpus Conferences Ltd

A member of the University's Council was also a Director of Corpus Conferences Ltd during 2018-19 which provides event catering services on behalf of Corpus Christi College. The University made payments to the company for conference-related services amounting to £41,000 during the 2018-19 financial year, of which £8,700 was included in creditors at the year end.

King's College Cambridge Developments Ltd

King's College Cambridge Development Ltd manages property development activities for King's College, Cambridge. A member of the University's Council was also a Director of King's College Cambridge Developments Ltd during 2018-19. The University provided services to the company amounting to £17,000 during the 2018-19 financial year.

Cambridge University Health Partners Ltd (CUHP)

CUHP is a partnership organisation managing an academic health science centre which brings together the University, Cambridge University Hospitals NHS Foundation Trust and Papworth Hospital NHS Foundation Trust. A member of the University's Council and a member of the Registrary team supporting the University's Council were Directors of CUHP during 2018-19. The University received research funding of £6,500 during the financial year, of which £3,000 was included in debtors at the year end. In addition, the University also provided services to the organisation amounting to £4,000 during the year.

37 Colleges

There are 31 Colleges, each of which is an independent corporation with its own property and income. Each College publishes its own financial statements in a form specified by the University.

During the year the University paid the Colleges sums totalling £73.8m (2018: £70.1m) under the terms of agreements between the University and the Colleges to share fee income with the Colleges in a way that recognises the relative contributions of the University and the Colleges. These payments are included as "Payments to Colleges" in Note 14 above.

The University distributed third party donations to the Colleges totalling £27.9m (2018: £10.0m); these payments are not included in the consolidated statement of comprehensive income. During the year the University provided printing, network and other services to the Colleges for which the Colleges paid a total of £5.5m (2018: £6.7m), and the Colleges provided accommodation, catering and other services to the University for which the University paid a total of £14.4m (2018: £14.7m). During the year the Colleges made donations to the University totalling £4.0m (2018: £5.0m).

Current asset investments include £334.3m (2018: £411.6m) held on behalf of 16 (2018: 16) Colleges in the form of CUEF units (see Note 24), £9.8m (2018: £13.8m) held on behalf of the Isaac Newton Trust and £3.8m (2018: £2.8m) held on behalf of other associated bodies.

Colleges Fund	**2019 £m**	2018 £m
Balance at 1 August	**–**	–
Contributions received from Colleges	**4.7**	4.5
Interest earned	**–**	–
Payments to Colleges	**(4.7)**	(4.5)
Balance at 31 July (included in creditors)	**–**	–

The Colleges Fund is administered by the University on behalf of the Colleges, which make all contributions to and receive all allocations from the Fund. The transactions on the Colleges Fund are not included in the statement of comprehensive income.

Notes to the accounts for the year ended 31 July 2019 (continued)

38 Financial risk management

In the ordinary course of its activities, the University manages a variety of financial risks including credit risk, liquidity risk, currency risk and market risk. The principal risks and the University's approach to managing them are set out below. In view of the significance of the Cambridge University Endowment Fund (CUEF, see Note 11), some aspects of financial risk management are considered for CUEF and non-CUEF separately.

Through the CUEF, the University invests in various categories of assets for the long term in order to achieve the CUEF's investment objective. The University has recently adjusted its long-term investment objective to generate an average 5.0% p.a. return over the Consumer Price Index (CPI). The CUEF is managed by the University's Investment Office on behalf of Cambridge Investment Management Limited, with the oversight of the University's Investment Board. In order to pursue its investment objective the CUEF seeks exposure to a variety of risks. This exposure could result in a reduction in the University's net assets.

a Credit risk

Credit risk is the risk that the University would incur a financial loss if a counterparty were to fail to discharge its obligations to the University.

Credit risk exposure

The University is exposed to credit risk in respect of its financial assets held with various counterparties. The following table details the maximum exposure to credit risk at 31 July:

	2019	2018
	£m	£m
Investment cash balances	**27.7**	116.4
Trade debtors: invoices receivable	**224.6**	201.2
Research grants recoverable	**129.4**	124.0
Other debtors	**109.2**	93.0
Money market investments	**820.2**	856.7
Cash at bank	**86.4**	75.7
Total financial assets exposed to credit risk	**1,397.5**	1,467.0

Of the above financial assets only certain trade debtors and research grants recoverable, as detailed below, were past their due date or were impaired during the year.

Trade and research debtors: outstanding invoices and uninvoiced research grants	**367.9**	331.5
Less: Provision for impairment of receivables	**(13.9)**	(6.3)
	354.0	325.2

Trade debtors that are less than three months past their due date are not considered impaired unless they are included in the specific provision. At 31 July 2019, trade and research grant debtors with a carrying value of £62.1m (2018: £59.0m) were past their due date but not impaired.

	2019	2018
	£m	£m
Balances against which a provision has been made	**13.9**	11.0
Uninvoiced research grants recoverable	**76.6**	67.2
Balances not past their due date	**215.3**	194.3
Up to 3 months past due	**38.5**	45.6
3 to 6 months past due	**13.8**	6.3
Over 6 months past due	**9.8**	7.1
	367.9	331.5

Movement on provision for impairment of receivables

	Trade Debtors		**Research Debtors**		**Total**	
	2019	2018	**2019**	2018	**2019**	2018
	£m	£m	**£m**	£m	**£m**	£m
Opening balance	**2.9**	4.8	**3.4**	2.4	**6.3**	7.2
Provided in year	**3.2**	1.6	**10.1**	1.0	**13.3**	2.6
Balances written off	**(3.0)**	(3.5)	**(2.7)**	–	**(5.7)**	(3.5)
Closing balance at 31 July	**3.1**	2.9	**10.8**	3.4	**13.9**	6.3

Notes to the accounts for the year ended 31 July 2019 (*continued*)

38 Financial risk management

a Credit risk (continued)

Risk management policies and procedures

The University aims to minimise its counterparty credit risk exposure by monitoring the size of its credit exposure to, and the creditworthiness of, counterparties, including setting appropriate exposure limits and maturities. The creditworthiness and financial strength of trading customers and research sponsors is assessed at inception and on an ongoing basis. Counterparties for investment assets and bank accounts are selected based on their financial ratings, regulatory environments and specific circumstances.

In respect of the CUEF, fund managers appointed by the CUEF have responsibility for choosing reliable counterparties. Where CUEF investments are managed directly by the University, investment transactions are carried out with well established, approved brokers. Investment transactions are done on a cash against receipt or cash against delivery basis.

Term deposits and cash balances outside the CUEF are subject to authorised limits and rating criteria which are subject to annual review.

The ratings of term deposits and cash balances at 31 July were as follows:

Fitch credit quality rating (short / long term)		**2019 £m**	2018 £m
AAF/S2		**300.6**	–
F1+ / AA	Highest / Very High	**–**	7.4
F1+ / AA -	Highest / Very High	**199.8**	249.5
F1 / A+	Highest / High	**192.9**	288.6
F1 / A	Highest / High	**135.1**	276.9
F1 / A -	Highest / High	**35.5**	63.9
F2 / A -	Good / High	**30.0**	0.1
F2 / BBB+	Good / Good	**1.4**	30.1
F3 / BBB	Fair / Good	**1.2**	0.9
Lower ratings		**10.1**	15.0
		906.6	932.4

b Liquidity risk

Liquidity risk is the risk that the University will encounter difficulties raising cash to meet its obligations when they fall due. Obligations are associated with financial liabilities and capital commitments.

Risk management policies and procedures

The majority of the assets held by the CUEF are investments in quoted securities and in funds that are readily realisable. For those CUEF assets which are not readily realisable (typically requiring more than six months to realise) and where the CUEF has commitments to provide additional capital to private investments held within the portfolio on short notice there is risk mitigation in place. Limits are set for the extent of outstanding capital commitments in the CUEF and there is regular monitoring of the amounts of distributions and redemptions required and the extent of unpaid capital commitments to private investments, compared to actual and potential liquidity of the CUEF. While CUEF assets are not available to fund obligations beyond those of the CUEF, there is no significant liquidity risk in relation to the CUEF itself.

Outside the CUEF, the Group monitors its exposure to liquidity risk by regularly monitoring its liabilities and commitments and holding appropriate levels of liquid assets. The Finance Committee approves the Liquidity Policy periodically. Liquidity and cash forecasts are reviewed by the Director of Finance on a quarterly basis. Cash and short-term deposits are maintained at levels sufficient to fund three months' operational and capital expenditure. Short-term deposits are placed with various terms between call and six months.

Notes to the accounts for the year ended 31 July 2019 (continued)

38 Financial risk management

b Liquidity risk (continued)

The following tables summarise the maturity of the Group's undiscounted contractual payments.

	Three months or less £m	Between three months and one year £m	Between one and five years £m	More than five years £m	Total £m
As at 31 July 2019:					
Bond liabilities	**10.1**	**10.9**	**83.8**	**2,357.2**	**2,462.0**
Derivative financial instruments liability positions	**0.4**	**0.8**	**–**	**–**	**1.2**
Investments held on behalf of others	**2.6**	**347.9**	**–**	**–**	**350.5**
Finance leases	**–**	**1.3**	**0.3**	**0.9**	**2.5**
Other creditors excluding deferred income	**195.7**	**84.9**	**1.8**	**9.6**	**292.0**
Totals at 31 July 2019	**208.8**	**445.8**	**85.9**	**2,367.7**	**3,108.2**
As at 31 July 2018:					
Bond liabilities	10.1	10.8	83.7	2,266.2	2,370.8
Investments held on behalf of others	440.8	–	–	–	440.8
Bank overdraft	14.0	–	–	–	14.0
Finance leases	–	1.4	1.2	–	2.6
Other creditors excluding deferred income	213.0	10.5	4.2	3.7	231.4
Totals at 31 July 2018	677.9	22.7	89.1	2,269.9	3,059.6

Capital commitments, excluded from the above analysis, are disclosed at note 33.

c Market risk

Market risk is the risk of changes to the fair value of the Group's financial instruments. Market risk embodies the potential for both losses and gains and includes currency risk, interest rate risk and other price risk.

CUEF

The Investment Board advises the Council and is made up of investment professionals. The Investment Board monitors the performance of the Investment Office as well as providing advice to it. Investments in the CUEF are selected and combined with the aim of optimising the future long-term total return bearing in mind the expected future volatility of the return. The risk taken in order to meet the total return objective is managed by utilising diversification of investment strategies, of investment asset classes and of external investment managers. The CUEF operates an evolving asset allocation, in the context of a long-term direction. The proposed changes over the following twelve months are revised quarterly in discussion with the Investment Board. Within each asset class, fund managers are appointed and carry out the day-to-day investment transactions.

c (i) Currency risk

Currency risk is the risk that the value of an asset or liability will fluctuate due to changes to foreign currency exchange rates. The functional currency of the University and the presentational currency of the Group is Sterling. However, the Group has investment assets denominated in currencies other than Sterling and is impacted by fluctuations in foreign currency exchange rates.

At 31 July the CUEF had the following principal net exposures:

	2019	2018
Pounds Sterling	**43.4%**	48.3%
US Dollar	**47.5%**	41.5%
Euro	**1.8%**	1.7%
Japanese Yen	**3.1%**	3.8%
Other currency	**4.2%**	4.7%
	100.0%	100.0%

Notes to the accounts for the year ended 31 July 2019 (continued)

38 Financial risk management

c (i) Currency risk (continued)

The currency exposure for overseas investments is based on the quotation or reporting currency of each holding, while the currency exposure for net monetary assets is based on the currency in which each asset or liability is denominated.

The following table summarises the significant assets and liabilities exposed to currency risk as at 31 July 2019:

	US Dollar $m	Euro €m	US Dollar £m	Euro £m	Other £m	Total £m
CUEF investment assets excluding currency contracts	**2,539.6**	**185.3**	**2,083.2**	**169.4**	**319.8**	**2,572.4**
CUEF forward currency contracts	**(540.3)**	**(115.2)**	**(443.2)**	**(105.3)**	**(68.3)**	**(616.8)**
Net exposure of CUEF	**1,999.3**	**70.1**	**1,640.0**	**64.1**	**251.5**	**1,955.6**
Exposures outside CUEF:						
Debtors	**55.1**	**39.6**	**45.2**	**36.2**	**38.5**	**119.9**
Cash balances	**20.0**	**12.0**	**16.4**	**11.0**	**28.3**	**55.7**
Creditors including bank and other loans	**(30.0)**	**(10.1)**	**(24.6)**	**(9.2)**	**(21.4)**	**(55.2)**
Forward currency contracts	**(0.9)**	**(0.5)**	**(0.7)**	**(0.5)**	**–**	**(1.2)**
Net exposure	**2,043.5**	**111.1**	**1,676.3**	**101.6**	**296.9**	**2,074.8**

The impact on total recognised gains for the year 2018-19 of additional 10% variations in the principal exchange rates would have been:

10% US Dollar appreciation	**167.6**
10% Euro appreciation	**10.2**

The following table summarises the significant assets and liabilities exposed to currency risk as at 31 July 2018:

	US Dollar $m	Euro €m	US Dollar £m	Euro £m	Other £m	Total £m
CUEF investment assets excluding currency contracts	2,418.4	184.2	1,843.7	164.3	346.9	2,354.9
CUEF forward currency contracts	(646.5)	(123.6)	(492.9)	(110.2)	(68.6)	(671.7)
Net exposure of CUEF	1,771.9	60.6	1,350.8	54.1	278.3	1,683.2
Exposures outside CUEF:						
Debtors	51.9	24.1	39.6	21.5	25.8	86.9
Cash balances	13.1	11.9	10.0	10.6	21.9	42.5
Creditors including bank and other loans	(38.7)	(8.8)	(29.5)	(7.8)	(19.3)	(56.6)
Forward currency contracts	(20.0)	(57.8)	(15.2)	(51.6)	–	(66.8)
Net exposure	1,778.2	30.0	1,355.7	26.8	306.7	1,689.2

The impact on total recognised gains for the year 2017-18 of additional 10% variations in the principal exchange rates would have been:

10% US Dollar appreciation	135.6
10% Euro appreciation	2.7

Risk management policies and procedures

Currency positions in the assets and liabilities of the CUEF are reviewed regularly by the Chief Investment Officer and the currency exposure is managed within the asset allocation strategy.

Notes to the accounts for the year ended 31 July 2019 (*continued*)

38 Financial risk management

c Market risk (continued)

c (ii) Interest rate risk

Interest rate risk arises from the risk that the value of an asset or liability will fluctuate due to changes in market interest rates (ie for fixed interest rate assets or liabilities) or that future cash flows will fluctuate due to changes in interest rates (ie for floating rate assets or liabilities).

Interest rate exposure and sensitivity

As stated in the accounting policies, the University's fixed interest Bond liabilities are measured at amortised cost using the effective interest rate method, rather than at fair value. The University has not invested in variable rate deposits or interest-bearing securities.

Interest rate risk is focused on the potential impact of interest rate changes on the fair value of investments in fixed interest securities.

At 31 July 2019 the University held £0.0m (2018: £0.0m) corporate and overseas government bonds with fixed interest.

Risk management policies and procedures

The University takes into account the possible effects of a change in interest rates on the fair value and cash flows of the interest-bearing financial assets and liabilities when making investment decisions. The CUEF has limited risk exposure to interest rates as there is regular monitoring of the allocations made to fixed interest investments not intended to be held to maturity and confirming there is no fixed interest borrowing.

c (iii) Other price risk

Price risk is the risk that the value of an asset or liability will fluctuate due to changes in market price (other than those arising from currency risk or interest rate risk), caused by factors specific to the individual financial instrument or its issuer, or factors affecting all similar financial instruments traded in the market.

This is a key risk for the University because of the significance of the endowments and other funds invested in the CUEF and the dependence of future plans on maintaining the value of CUEF units in real terms. Additionally the Indexed Bonds issued in June 2018 are subject to changes in the Consumer Price Index with the fair value of these liabilities fluctuating at each reporting date dependent on the movement in this index.

Concentration of exposure to other price risk

As the majority of the CUEF's investments are carried at fair value, all changes in market conditions will directly affect the University's net assets. The fund's asset allocation at the reporting date is shown in Note 11.

Risk management policies and procedures

The CUEF measures the value of most of its investments on a monthly basis, and the remainder quarterly using market value if available (otherwise fair value). There is regular monitoring of the asset allocation to identify if the current allocation is in line with the actual and intended future allocations agreed with the Investment Board. Variations are then considered as part of the ongoing investment decisions.

39 Fair value

Debtors and current liabilities are stated in the Group balance sheet at book values which are not materially different from their fair values. The fixed interest Bond liabilities are measured at amortised cost of £640.6m (2018: £640.4m, see Note 27) whereas the fair value of the fixed interest Bond liabilities at 31 July 2019 was £848.6m (2018: £785.5m) based on an independent valuation provided by Morgan Stanley.

The Indexed Bond liabilities are measured at fair value at the balance sheet date based on an independent valuation provided by Morgan Stanley.

The book values of the Group's other financial assets and long term liabilities, including pension obligations shown on the balance sheet are the same as the fair values.

Fair value measurements

The following tables categorise the fair values of the Group's investment assets and liabilities based on the inputs to the valuation. Categorisation within the hierarchy has been determined on the basis of the lowest level input that is significant to the fair value measurement of the relevant asset as follows:

Level 1: Valued using quoted prices in active markets for identical assets.

Level 2: Valued by reference to valuation techniques using observable inputs other than quoted prices included within Level 1.

Level 3: Valued by reference to valuation techniques using inputs that are not based on observable market data.

The valuation techniques used are described in more detail in Note 4 (iii) to the Accounts.

Notes to the accounts for the year ended 31 July 2019 (continued)

39 Fair value (continued)

		Level 1	Level 2	Level 3	Total
Investment assets at fair value at 31 July 2019:		**£m**	**£m**	**£m**	**£m**
CUEF:	Quoted investments	**906.5**	**6.5**	**–**	**913.0**
	Unquoted investments	**–**	**2,515.2**	**–**	**2,515.2**
	Derivative financial instruments asset positions	**–**	**–**	**–**	**–**
	Cash in hand and at investment managers	**27.6**	**0.1**	**–**	**27.7**
Total CUEF assets		**934.1**	**2,521.8**	**–**	**3,455.9**
Other quoted investments		**9.7**	**–**	**–**	**9.7**
Other unquoted investments		**0.9**	**30.3**	**71.2**	**102.4**
Investment properties		**–**	**547.5**	**–**	**547.5**
Money market investments		**174.1**	**–**	**–**	**174.1**
Cash in hand and at investment managers		**–**	**–**	**–**	**–**
Total investment assets at fair value		**1,118.8**	**3,099.6**	**71.2**	**4,289.6**
Derivative financial instruments liability positions (CUEF)		**–**	**–**	**–**	**–**
Total investments at fair value at 31 July 2019		**1,118.8**	**3,099.6**	**71.2**	**4,289.6**

		Level 1	Level 2	Level 3	Total
Investment assets at fair value at 31 July 2018:		£m	£m	£m	£m
CUEF:	Quoted investments	977.5	6.3	–	983.8
	Unquoted investments	–	2,152.5	0.1	2,152.6
	Derivative financial instruments asset positions	–	–	–	–
	Cash in hand and at investment managers	116.4	–	–	116.4
Total CUEF assets		1,093.9	2,158.8	0.1	3,252.8
Other quoted investments		11.1	–	–	11.1
Other unquoted investments		–	21.7	54.9	76.6
Investment properties		–	497.8	–	497.8
Money market investments		63.1	–	–	63.1
Cash in hand and at investment managers		7.2	–	–	7.2
Total investment assets at fair value		1,175.3	2,678.3	55.0	3,908.6
Derivative financial instruments liability positions (CUEF)		–	–	–	–
Total investments at fair value at 31 July 2018		1,175.3	2,678.3	55.0	3,908.6

A reconciliation of the opening and closing balances for Level 3 assets measured at fair value is detailed in the table below:

	2019	2018
	£m	£m
Fair value at 1 August	**55.0**	47.7
Purchases less sales proceeds	**(2.2)**	(3.6)
Total gains	**18.4**	10.9
Transfers in / (out) of Level 3	**–**	–
Fair value at 31 July	**71.2**	55.0

Unquoted investments include investments in hedge funds, private equity funds and property funds. The fair values of unquoted investments and derivative financial instruments held through pooled funds and partnerships are based on the custodian's standard policy for all clients whereby the default classification for these assets is Level 2. However, in practice pooled funds' underlying investments span across a range of asset classes, from public-listed equity to difficult-to-value investments whose valuation is subjective and requires a lot of judgement. During the financial year 2019-20, the fund will undertake a review of the fair value hierarchy classifications of individual investments to ensure more precise categorisation. The Council considers that no reasonably foreseeable change to key assumptions in the Level 3 valuations would result in a significant change to fair value.

40 Post balance sheet events

As set out in Note 34 in respect of the USS pension scheme, a new Schedule of Contributions based on the 2018 actuarial valuation has been agreed. This results in a decrease in £150.1m in the provision for the obligation to fund the deficit on the USS pension scheme which would instead be £197.4m. This adjustment will be reflected in the University's financial statements for the year ended 31 July 2020.

Appendix 1

Summary Consolidated Financial Information

Financial summary (unaudited)

The financial summary set out below has been derived from the audited consolidated financial statements of the University for the five years ended 31 July 2019. It should be read in conjunction with the consolidated financial statements and related notes.

(*a*) *Summary consolidated statement of comprehensive income* (*£m*)	**2019**	2018	2017	2016	2015
Total income	**2,192.0**	1,964.8	1,869.9	1,799.6	1,721.6
Total expenditure	**2,307.5**	1,911.1	1,806.5	1,733.8	1,682.7
Surplus / (deficit) before other gains and losses	**(115.5)**	53.7	63.4	65.8	38.9
Share of operating surplus in joint ventures	**1.5**	–	–	–	–
Gain on investments	**235.1**	219.0	407.1	221.8	329.2
Surplus before tax	**121.1**	272.7	470.5	287.6	368.1
Surplus for the year	**117.3**	269.6	466.4	284.6	355.9
Actuarial gain / (loss)	**(208.2)**	122.5	26.3	(182.2)	(13.2)
Other comprehensive income / (expense) for the year	**–**	(1.3)	(0.4)	9.8	(3.6)
Total comprehensive income / (expense) for the year	**(90.9)**	390.8	492.3	112.2	339.1
Represented by:					
Endowment comprehensive income for the year	**115.6**	127.8	208.7	105.2	151.7
Restricted comprehensive income for the year	**121.5**	74.3	49.5	65.8	86.4
Unrestricted comprehensive income / (expense) for the year	**(328.0)**	188.7	234.1	(58.8)	101.0
	(90.9)	390.8	492.3	112.2	339.1
Adjusted consolidated statement of comprehensive income					
Surplus for the year	**117.3**	269.6	466.4	284.6	355.9
Less: Gain on investments	**(235.1)**	(219.0)	(407.1)	(221.8)	(329.2)
Less: CPI-Linked Bond fair value adjustment	**51.5**	–	–	–	–
Less: USS pension deficit recovery reflected in staff costs	**230.7**	4.5	(1.5)	17.6	62.3
Less: Harding endowment	**(41.3)**	–	–	–	–
Less: Capital grants and donations	**(107.0)**	(75.6)	(80.5)	(105.4)	(92.6)
Adjusted operating surplus / (deficit) for the year	**16.1**	(20.5)	(22.7)	(25.0)	(3.6)

(*b*) *Summary consolidated balance sheets* (*£m*)	**2019**	2018	2017	2016	2015
Non-current assets	**6,528.1**	6,106.7	5,805.3	5,293.9	4,902.0
Current assets	**1,770.4**	1,833.8	1,055.6	990.8	982.7
Total assets	**8,298.5**	7,940.5	6,860.9	6,284.7	5,884.7
Current liabilities	**(1,038.7)**	(1,096.8)	(896.0)	(792.3)	(712.7)
Non-current liabilities	**(2,115.0)**	(1,606.3)	(1,117.8)	(1,137.6)	(929.4)
Net assets	**5,144.8**	5,237.4	4,847.1	4,354.8	4,242.6
Income and expenditure reserve – endowment	**1,971.3**	1,855.7	1,727.9	1,519.2	1,414.0
Income and expenditure reserve – restricted	**128.3**	97.9	85.5	79.2	81.9
Income and expenditure reserve – unrestricted	**3,045.2**	3,283.8	3,033.7	2,756.4	2,746.7
Total reserves	**5,144.8**	5,237.4	4,847.1	4,354.8	4,242.6

(*c*) *Summary consolidated statement of cash flows* (*£m*)	**2019**	2018	2017	2016	2015
Net cash inflow from operating activities	**124.4**	78.7	77.6	51.4	20.3
Net cash outflow from investing activities	**(294.3)**	(103.3)	(105.2)	(101.5)	(13.2)
Net cash inflow / (outflow) from financing activities	**47.1**	598.6	14.6	14.8	(4.8)
Increase / (reduction) in cash and cash equivalents in the year	**(122.8)**	574.0	(13.0)	(35.3)	2.3
Cash and cash equivalents at end of the year	**732.5**	855.3	281.3	294.3	329.6

Note: Year ended 31 July 2015 has been restated to Financial Reporting Standard 102.