Translation from the German language

Springer SBM Zero GmbH, Berlin

Consolidated Financial Statements

as at 31 December 2016

Heidelberger Platz 3
14197 Berlin
Germany

HRB 153763 B, AG Berlin

Contents

SPRINGER NATURE

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Consolidated Statement of Profit or Loss

in EUR million	Note	2016	2015
Revenues	1	1,624.7	1,470.7
Other operating income	2	82.8	58.3
Internal costs capitalised	3	43.4	28.6
Change in inventory		-4.3	-20.1
Cost of materials	4	-204.8	-197.3
Royalty and licence fees	5	-118.4	-119.4
Personnel costs	6	-514.4	-457.1
Other operating expenses	7	-393.8	-365.6
Income from associates and other investments	16	1.4	1.2
Gains/losses from the disposal of businesses/investments		2.1	0.0
Earnings before interest, taxes, depreciation and amortisation (EBITDA)		**518.7**	**399.3**
Amortisation and impairment of intangible assets	8	-253.3	-243.3
Depreciation of property, plant and equipment	8	-16.8	-16.4
Results from operations		**248.6**	**139.6**
Financial expense	9	-439.1	-388.8
Finance income	9	88.3	69.3
Financial result		**-350.8**	**-319.5**
Earnings before taxes		**-102.2**	**-179.9**
Income taxes	10	-20.6	36.0
Net result for the period		**-122.8**	**-143.9**

Net result attributable to:		
Owners of the parent	-122.5	-141.6
Non-controlling interests	-0.3	-2.3
Net result for the period	**-122.8**	**-143.9**

The accompanying notes form an integral part of the consolidated financial statements.

Consolidated Statement of Comprehensive Income

in EUR million	Note	2016	2015
Net result for the period		**-122.8**	**-143.9**
Other comprehensive income not to be reclassified to profit or loss in subsequent periods (after taxes):			
Actuarial gains and losses on pension plans (net)	23	-63.6	15.5
Deferred taxes on actuarial gains and losses (net)	10	13.2	-4.1
Items that are		**-50.4**	**11.4**
Other comprehensive income that will not be reclassified to profit or loss (after taxes):			
Currency translation differences		-163.4	27.6
Changes in the fair value of available-for-sale financial assets	30	-	0.0
Deferred taxes on changes in the fair value of available-for-sale financial assets	10	-	0.0
Items to be reclassified to profit		**-163.4**	**27.6**
Other comprehensive income for the period (after taxes)		**-213.8**	**39.0**
Total comprehensive income for the period		**-336.6**	**-104.9**

Total comprehensive income attributable to:		
Owners of the parent	-334.4	-102.7
Non-controlling interests	-2.2	-2.2
Total comprehensive income for the period	**-336.6**	**-104.9**

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Consolidated Statement of Financial Position

Assets in EUR million	Note	31.12.2016	31.12.2015
Goodwill	12	1,330.0	1,346.9
Other intangible assets	13	3,923.4	4,154.5
Property, plant and equipment	15	155.2	173.0
Investments in associates	16	20.3	7.6
Financial assets	17	4.2	5.3
Other non-current assets		8.7	12.5
Deferred tax assets	10	7.6	8.5
Non-current assets	11	**5,449.4**	**5,708.3**
Inventories	18	73.7	84.2
Trade receivables	19	464.5	477.3
Income tax receivables		16.1	10.2
Other current assets	20	65.2	91.3
Cash and cash equivalents	21	97.0	117.3
Current assets		**716.5**	**780.3**
Total assets		**6,165.9**	**6,488.6**

Equity and liabilities in EUR million	Note	31.12.2016	31.12.2015
Share capital		0.1	0.1
Capital reserves		771.2	771.2
Retained earnings/other accumulated equity		-561.4	-206.1
Net result for the period attributable to owners of the parent		-122.5	-141.6
Shareholders' equity		**87.4**	**423.6**
Non-controlling Interests		-4.2	-2.3
Equity	22	**83.2**	**421.3**
Liabilities to shareholders	24	955.2	882.3
Provisions for pensions and other long-term employee benefits	23	265.8	215.2
Interest-bearing loans and borrowings	24	3,097.0	3,058.6
Finance lease liabilities	25	6.1	7.0
Other long-term provisions and non-current liabilities	26	22.4	17.0
Deferred tax liabilities	10	825.3	898.3
Long-term provisions and non-current liabilities		**5,171.8**	**5,078.4**
Interest-bearing loans and borrowings	24	83.8	77.4
Finance lease liabilities	25	1.3	1.3
Provisions	26	28.5	34.7
Trade payables		134.4	127.1
Income tax payables		26.5	24.3
Other current liabilities	27	315.9	347.6
Deferred income	28	320.5	376.5
Short-term provisions and current liabilities		**910.9**	**988.9**
Total assets		**6,165.9**	**6,488.6**

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Consolidated Statement of Cash Flows

in EUR million	Note	2016	2015
Net result for the period		**-122.8**	**-143.9**
Financial expenses	9	439.1	388.8
Financial income	9	-88.3	-69.3
Income taxes	10	20.6	-36.0
Result from operations		**248.6**	**139.6**
Amortisation and impairment of intangible assets	8	253.3	243.3
Depreciation of property, plant and equipment	8	16.8	16.4
Earnings before interest, taxes, depreciation and amortisation (EBITDA)		**518.7**	**399.3**
Non-cash expenses and income		-5.3	16.6
Change in non-current provisions and long-term receivables	23,26	-16.7	-4.2
Change in inventory	18	6.1	37.1
Change in trade receivables	19	2.4	-127.2
Change in trade payables		8.7	7.2
Change in deferred income	28	-46.8	19.0
Change in other assets and liabilities		-12.6	27.1
Income tax payments	10	-52.3	-33.2
Net cash from operating activities		**402.2**	**341.7**
Cash paid for investments in intangible assets	13	-27.0	-23.1
Cash paid for investment in content	13	-137.4	-102.0
Cash paid for investments in property, plant and equipment	15	-17.6	-19.5
Cash paid for investments in financial assets		-0.0	-1.0
Cash paid for acquired business		-12.3	-5.8
Cash and cash equivalents acquired		-	39.4
Proceeds from divestiture of businesses		2.2	4.9
Proceeds from disposal of property, plant and equipment		6.1	2.0
Proceeds from disposal of intangible assets		0.0	2.8
Proceeds from disposal of other financial assets		-	0.2
Cash received/(paid) for available for sale financial instruments		8.9	-8.1
Net change in loans granted	24	0.0	-
Net cash from investing activities		**-177.1**	**-110.2**
Interest paid (including financing-related fees)		-216.8	-206.6
Interest received		5.0	5.2
Cash paid and received for interest	9,24	-211.8	-201.4
Cash repayment of financial liabilities to third parties	24,30	-620.9	-552.3
Cash repayments and other payments to shareholders	24	-	-257.1
Cash received from borrowing financial liabilities from third parties	24	589.8	757.0
Cash received from shareholder loans	24	-	80.0
Capital increases	22	-	0.0
Cash paid for dividends paid to non-controlling interests		-1.5	-0.1
Cash repayment of finance lease liabilities	25	-1.3	-1.4
Net cash from financing activities		**-245.7**	**-175.3**
Change in cash and cash equivalents		**-20.6**	**56.2**
Net foreign exchange difference		0.3	-5.8
Cash and cash equivalents at beginning of the period		**117.3**	**66.9**
Cash and cash equivalents at end of the period	21	**97.0**	**117.3**

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Consolidated Statement of Changes in Equity

in EUR million	Share capital	Capital reserves	Other accumulated equity	Retained earnings	Shareholders' equity	Non-controlling Interests	Total equity
Note	22	22	22				
Balance as at 31.12.2014	**0.0**	**321.2**	**-20.9**	**-224.0**	**76.3**	**-1.8**	**74.5**
Capital increase	0.1	450.0			450.1		450.1
Net result for the period				-141.6	-141.6	-2.3	-143.9
Other comprehensive income			38.7		38.7	0.1	38.8
Total comprehensive income for the period			38.7	-141.6	-102.9	-2.2	-105.1
Non-controlling interests from business combinations					0.0	1.8	1.8
Dividends					0.0	-0.1	-0.1
Other			0.1		0.1		0.1
Balance as at 31.12.2015	**0.1**	**771.2**	**17.9**	**-365.6**	**423.6**	**-2.3**	**421.3**
Repurchase of B shares	-0,0		0,0		-0,0		-0,0
Net result for the period				-122.5	-122.5	-0.3	-122.8
Other comprehensive income			-213.7		-213.7	-0.1	-213.8
Total comprehensive income for the period			-213.7	-122.5	-336.2	-0.4	-336.6
Dividends					0.0	-1.5	-1.5
Balance as at 31.12.2016	**0.1**	**771.2**	**-195.8**	**-488.1**	**87.4**	**-4.2**	**83.2**

The accompanying notes form an integral part of the consolidated financial statements.

Notes to the Consolidated Financial Statements

Corporate Information

Springer SBM Zero GmbH, a limited liability company, is the parent of the Springer Nature Group. Springer SBM Zero GmbH is referred to as the "company" in these financial statements when considering the legal entity and it is referred to as the "Group" or "Springer Nature" when considering the entire group of entities and subsidiaries directly or indirectly held by the company.

Springer Nature is a leading global research, educational and professional publisher, home to an array of respected and trusted brands providing quality content through a range of innovative products and services. Springer Nature is the world's largest academic book publisher, publisher of the world's most influential journals and a pioneer in the field of open research. The Group numbers almost 12,000 employees in almost 50 countries. Springer Nature was formed in 2015 through the merger of large parts of the Science and Education Business of the Holtzbrinck Publishing Group (MSE) and the Springer Science+Business Media Group (Springer). The former MSE business consists of two business lines, i.e. the Macmillan Science & Scholarly business (MSS), comprised of the Nature Publishing Group and Palgrave Macmillan and the Macmillan Education business (Education).

The Group is controlled through its parent company, Springer SBM Zero GmbH, in which Holtzbrinck Publishing Group holds 53.0% and 47.0% is held by a company that is controlled by funds advised by BC Partners (BC Funds).

The registered office of the Company is located at Heidelberger Platz 3, 14197 Berlin, Germany.

The consolidated financial statements were approved for issue by resolution of management on 26 July 2017.

General Principles

The consolidated financial statements of Springer SBM Zero GmbH (“Springer Nature Group financial statements” or “consolidated financial statements”) were prepared in accordance with all mandatory International Financial Reporting Standards (IFRS) and International Financial Reporting Interpretations (IFRIC) as endorsed by the European Union, and with the additional requirements of commercial law pursuant to Sec. 315a HGB (“Handelsgesetzbuch”: German Commercial Code, “Konzernabschluss nach internationalen Rechnungslegungsstandards”).

The financial year comprised the period from 1 January to 31 December 2016. The reporting date of the company and of all subsidiaries, with the exception of the entities in India and Mauritius, is 31 December.

For statutory reasons, the financial year of the subsidiaries in India and Mauritius starts as at 1 April and ends as at 31 March. These entities report to Springer Nature as at 31 December and apply the IFRS financial reporting principles and the accounting policies applicable for the group entities as if 31 December were the end of the reporting period.

MSE and Springer were merged in May 2015. MSE was contributed to Springer. This led to the inclusion of MSE’s financials in the financial statements of Springer Nature from the date of the merger. The comparability of information related to the consolidated statement of cash flows and the consolidated statement of profit or loss, as well as the analysis of the movements between 2015 and 2016, is, therefore, limited.

The consolidated financial statements are prepared in Euros. All amounts are stated in millions of Euro (EUR m) except where otherwise indicated. The numbers are rounded to one decimal place, which may cause rounding differences. If numbers are rounded to zero “0.0” or “-0.0” is presented, in case of no values “-“ is reported. The consolidated financial statements were prepared on a historical cost basis, except for financial instruments that were measured at fair value. The statement of profit or loss was prepared using the nature of expense method.

First-time applied Financial Reporting Standards and Interpretations

First-time application of new financial reporting standards and interpretations in 2016 resulted in no material changes to Springer Nature's consolidated financial statements.

New International Financial Reporting Standards and Interpretations

The IASB or IFRIC have published pronouncements that are not yet effective and have not yet been adopted by Springer Nature. The Group intends to apply all standards and interpretations when they become mandatory. The new accounting standards that may result in changes for Springer Nature are described below.

Standards adopted by the EU

- IFRS 9 Financial Instruments

In July 2014, the IASB issued the final version of IFRS 9 (Financial Instruments) that replaces IAS 39 (Financial Instruments: Recognition and Measurements) and all previous versions of IFRS 9. IFRS 9 covers all three aspects that were analysed and assessed as part of the financial instruments project: classification and measurement, impairment, and hedge accounting. IFRS 9 is mandatory for reporting periods beginning on or after 1 January 2018. Early adoption is permitted.

IFRS 9 introduces a uniform approach for classifying and measuring financial assets. The standard is based on the characteristics of the underlying cash flows and the business model by which these cash flows are managed. IFRS 9 provides a new impairment model that is based on the expected credit defaults. The standard contains new regulations on the application of hedge accounting in order to better present the risk management activities of an entity, in particular with regard to the management of non-financial risks.

Springer Nature plans to adopt the new standard as at 1 January 2018. In 2016, the Group performed a high-level impact assessment of all three aspects of IFRS 9. This preliminary analysis was based on information available at that time. The result may therefore change when further detailed analyses will be conducted and/or additional information will become available to Springer Nature in future.

After considering the classification and measurement requirements of IFRS 9, Springer Nature expects to continue to measure all financial assets at fair value that are currently held at fair value. Loans as well as trade receivables are held to collect contractual cash flows and are expected to give rise to cash flows representing solely payments of principal and interest. Thus, the Group expects that these will continue to be measured at amortised cost under IFRS 9. However, Springer Nature will analyse the contractual cash flow characteristics of those instruments in more detail before concluding whether all those instruments meet the criteria for measurement at amortised cost under IFRS 9.

IFRS 9 requires the Group to record expected credit losses on all of its loans and trade receivables, either on a 12-month or lifetime basis. Due to the new impairment model, earlier recognition of possible losses on non-current financial assets can arise, but the Group will need to perform a more detailed analysis considering all reasonable and supportable information, including forward-looking elements to determine the extent of the impact.

As IFRS 9 does not change the general principles of how an entity accounts for effective hedges, the Group does not expect a significant impact as a result of applying IFRS 9. A deeper analysis will take place in the course of 2017.

Overall, the Group currently expects no significant impact on its statement of financial position and equity from the application of IFRS 9.

- IFRS 15 Revenue from Contracts with Customers

IFRS 15 was issued in May 2014 and establishes a five-step model to account for revenues arising from contracts with customers. IFRS 15 replaces IAS 11 “Construction Contracts” and IAS 18 “Revenue” as well as the associated interpretations. The standard is effective for reporting periods beginning on or after 1 January 2018. In general the standard must be applied retrospectively, but various transition options and simplifications are allowed. Early adoption is permitted. According to this new standard, revenues should be recognised at the amount of the consideration that the entity expects to receive upon transfer of the promised goods or services to the customer. IFRS 15 also includes guidance on the presentation of contract balances, that is, assets and liabilities arising from contracts with customers, depending on the relation between the entity´s performance and the customer´s payment. In addition, the new standard encourages entities to disclose sufficient information to enable readers of financial statements to understand the nature, amount, timing and uncertainty of revenues and cash flows arising from contracts with customers.

In 2016, the Group started an initial analysis of areas potentially affected by the application of the new standard. Springer Nature will finally assess whether it opts for the full or modified retrospective application after a group-wide detailed analysis of revenue streams and contract models has been conducted in the course of 2017. Although the analysis is still in a rather early stage, Springer Nature currently does not expect material changes regarding the timing and measurement of its revenue recognition for license and service income from the initial application of IFRS 15.

For the sale of goods (especially print books) no material change is expected to result from the application of IFRS 15, as the revenue recognition is still expected to take place when the goods are delivered and risks are transferred to the customer. Also Springer Nature’s current approach to account for expected returns is considered to be in line with the provisions in IFRS 15. The Group will, however, continue to assess if the application of IFRS 15 will result in adjustments.

The new standard provides presentation and disclosure requirements, which are more detailed than under current IFRS and which will significantly increase the volume of disclosures in Springer Nature’s financial statements, for example regarding disaggregation of revenues, contract balances, performance obligations as well as significant judgements applied. Many of the disclosure requirements in IFRS 15 are completely new. These disclosure requirements will also form part of the detailed analysis and implementation roadmap in 2017.

Standards not yet adopted by the EU

- IFRS 16 Leases

IFRS 16 was issued in January 2016 and replaces IAS 17 (Leases) and associated interpretations. IFRS 16 is effective for financial years starting on or after 1 January 2019. Early application is permitted, as long as IFRS 15 has already been applied. The EU endorsement of IFRS 16 is still pending. According to the new regulation, lessees are required to account for all leases in the form of a right of use, and a corresponding leasing liability. A lease contract exists if the fulfilment of the contract depends on the use of an identifiable asset, and the customer simultaneously acquires control of this asset. The presentation in the statement of profit or loss is essentially a finance lease transaction, so that the right of use usually depreciates on a straight-line basis, and the leasing liability is updated using the effective interest method. The standard includes two recognition exemptions for lessees - short-term leases, i.e., leases with a total term of a maximum of 12 months, and leases of low value assets, i.e. acquisition costs of up to USD 5,000. In such cases, the lessee has the option of selecting an accounting method which is similar to that of the previous operating lease.

The review of the impact of the new standard on Springer Nature’s financial statements is still ongoing but has shown so far that the new rules affect in particular the accounting and measurement of rental and leasing contracts, which are currently classified as operating leases. These mainly comprise of leased office space, leased cars and other leased office equipment and IT infrastructure, which will lead to the recognition of respective rights of use and corresponding leasing liabilities resulting in an increase of the total asset/liability figure at first time adoption. As such, the first-time adoption of the standard will result in an increase in total assets and liabilities.

Currently, the costs for operating lease contracts are included within other operating expenses in the consolidated statement of profit or loss. After the adoption, amortisation of the right of use and interest expense for the leasing liability will be included in the consolidated statement of profit or loss instead.

Payments for operating lease contracts are currently included in the net cash from operating activities but will be included in net cash from financing activities under the new standard. The future minimum lease payments from operating leases are disclosed in note 29, but at the present time conclusive and complete information on the effects of the new rules on our financial reporting cannot be provided.

Consolidation Principles

The consolidated financial statements include Springer SBM Zero GmbH and all significant entities controlled directly or indirectly by Springer SBM Zero GmbH. A list of consolidated subsidiaries including their registered office and respective shareholding is set out in note 34. The company's financial statements and the financial statements of the subsidiaries included in the consolidated financial statements were prepared in accordance with standardised accounting policies.

Subsidiaries are consolidated from the date of acquisition, being the date on which the Group obtains control, and continue to be consolidated until the date when such control ceases. Control is achieved when the Group is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee.

All business combinations are accounted for using the acquisition method. According to IFRS this requires to identify the acquirer, to determine the acquisition date, to recognise and measure the identifiable assets acquired as well as the liabilities assumed and any non-controlling interest in the acquiree. The cost of an acquisition is determined as the aggregate of the consideration transferred, measured at the acquisition date's fair value, and the amount of any non-controlling interest in the acquiree. For each business combination, management individually determines whether to measure the non-controlling interest in the acquiree at fair value or at the proportionate share of the acquiree's identifiable net assets.

Any contingent consideration to be transferred by the acquirer that is classified as an asset or liability is measured at fair value with the changes in fair value recognised in the consolidated statement of profit or loss. Any contingent consideration that is classified as equity is not remeasured and the subsequent settlement is accounted for within equity. Identifiable assets acquired, as well as liabilities and assumed contingent liabilities are measured at their fair value at the acquisition date, regardless of any remaining non-controlling interests in the acquired business.

Any excess of the consideration over the fair value of the net assets acquired is recognised as goodwill. Should the fair value of the acquired net assets exceed the cost of the acquisition, the difference is recognised in the consolidated statement of profit or loss.

Acquisition-related costs incurred as part of the business combination are included in other operating expenses.

Fair value adjustments recognised in the course of the purchase price allocation (e.g., for trademarks, customer relationships, journal portfolios) result from the difference between the fair value of acquired assets and the carrying amounts of each of those assets, determined in accordance with IFRS, at the acquisition date.

All gains, losses, revenues, expenses, income, assets, liabilities, and provisions from intercompany transactions are eliminated. Intercompany profits included in inventories and non-current assets are eliminated in the consolidated statement of profit or loss.

Associates in which the Group has significant influence to participate in the financial and operating policy are included in the consolidated financial statements using the equity method, based on separate IFRS financial statements. Goodwill relating to the associate or joint venture is included in the carrying amount of the investment and is not tested for impairment separately. The financial statements of the associate or joint venture are prepared for the same reporting period as the Group. When necessary, adjustments are made to bring the accounting policies in line with those of the Group. Losses in excess of the carrying amount of the investment are not recognised unless there is an obligation to make additional capital contributions. Intercompany profits and losses are eliminated pro rata. Carrying amounts of investments are tested for impairment and are written down to their recoverable amount if needed.

Scope of Consolidation

The following table shows the number of entities consolidated by Springer SBM Zero GmbH in 2016 and 2015:

Development in Scope of Consolidation	**2016**	**2015**
Fully consolidated entities as at 01.01.	131	77
Additions	4	61
Mergers/liquidations	-5	-7
Fully consolidated entities as at 31.12.	**130**	**131**
Thereof German entities	21	21

Additions 2016

There were no significant additions in 2016.

Additions 2015

On 23 December 2014, funds advised by BC Partners reached an agreement with the Holtzbrinck Publishing Group (Holtzbrinck) to merge the Springer Science+Business Media Group with material parts of Holtzbrinck's Science and Education business. The transaction was closed on 5 May 2015 after the precedent conditions were fulfilled. According to the contractual arrangements none of the shareholders has control over the group.

The former MSE consisted of two businesses: MSS and Education. MSS comprised the publishing of journals in Science, Technical and Medical (STM), including the flagship journal Nature, as well as English language books and journals in social sciences and humanities whereas the Education business publishes books and materials for the K-12 educational markets as well as English language teaching materials.

As the business combination on the level of Springer SBM Zero GmbH had substance from the perspective of the reporting entity, the transaction was accounted for under the acquisition method in line with IFRS 3 and the acquirer and the acquisition date were identified and the purchase price was determined. Springer SBM Zero GmbH was identified as the acquirer and MSE Group as the acquiree.

The shares in MSE were contributed to Springer SBM One GmbH, the direct subsidiary of Springer SBM Zero GmbH, by virtue of a contribution in kind. In exchange, new ordinary shares and preference shares were issued to GvH Vermögensverwaltungsgesellschaft XXXIII mbH ("GvH"), a subsidiary of the Holtzbrinck Publishing Group. In a second step, GvH contributed its ordinary shares in SBM One GmbH to SBM Zero in exchange for shares in this company.

The contribution transferred for the acquisition of MSE by the company amounted to EUR 1,252.6m and consisted of EUR 857.2m for the ordinary and preferences shares given in exchange for the contribution of MSE, and EUR 395.4m of assumed liabilities due to the Holtzbrinck Publishing Group which were settled at closing.

The fair values of the identifiable assets and liabilities of the MSE business at the date of acquisition were as follows:

in EUR million	**Fair value**
Intangible assets	1,378.8
Property, plant and equipment	123.8
Other financial assets, investment in associates and other non-current assets	5.3
Deferred tax assets	39.2
Inventories, trade receivables and other current assets	294.8
Cash and cash equivalents	39.0
Total assets	1,880.9
Provisions for pensions and other long-term employee benefits, other long-term provisions and non-current liabilities	70.7
Finance lease liabilities	0.2
Deferred tax liabilities	314.1
Short-term interest-bearing loans and borrowings	2.9
Other current provisions and accruals, trade payables and other current liabilities (including liabilities for income taxes and other taxes)	163.9
Deferred income	135.2
Total provisions and liabilities	687.0
Total identifiable net assets at fair value	**1,193.9**
Share of non-controlling interests in net assets	1.8
Acquisition costs	1,252.6
Goodwill	**60.5**

The intangible assets of EUR 1,378.8m mainly consisted of EUR 281.5m for trademarks, EUR 406.5m for publishing rights of academic journals and educational book series, EUR 12.0m for co-publishing rights from exclusive contracts with academic societies, EUR 463.5m for mature customer relationships in the journal and Education business, and EUR 176.5m for the contractual right to use the “Macmillan” trademark exclusively. Assets with a carrying amount of EUR 494.1m, comprising trademarks (EUR 409.1m) and publishing rights (EUR 85.0m), had an indefinite useful life.

The gross amount of trade receivables acquired amounted to EUR 185.7m. Valuation allowances of EUR 25.4m was recognised on this amount.

Goodwill of EUR 60.5m reflected the value for expected revenues from business with new customers, increasing revenues from existing business relationships due to additional services and products sold, new sources of income through the development of new products based on the existing content databases, as well as intangible assets that cannot be separated such as the employees and their specialist knowledge. Goodwill also includes expected synergy effects resulting from the business combination. Goodwill of EUR 16.5m was expected to be deductible for income tax purposes.

The MSE business was consolidated as at the closing date of 5 May 2015 and since then has contributed EUR 483.5m to revenues and EUR 92.5m to EBITDA. If the business had been included as at 1 January 2015, it would have contributed EUR 666.9m and EUR 98.6m to 2015 revenues and EBITDA respectively.

Further business combinations that occurred in 2015 related to the acquisition of 100.0% of the shares in J.B. Metzler Verlag GmbH (formerly: J. B. Metzler'sche Verlagsbuchhandlung and Carl Ernst Poeschel Verlag GmbH) (Stuttgart, Germany) as at 1 August 2015 and DriversCoach GmbH (Hüllhorst, Germany) as at 13 August 2015. In addition, some assets in the area of healthcare publishing were acquired in the Netherlands as at 25 August 2015.

These business combinations were carried out in the context of Springer Nature's strategy, and individually had no material effects on the financial position, liquidity, and financial performance of the group.

The acquisition costs for all these three acquisitions in 2015 came to EUR 6.2m and consisted of the purchase prices paid and contingent consideration of EUR 1.1m. The acquisition-related expenses recorded in other operating expenses came to EUR 0.3m in 2015.

The contingent consideration resulted from an earn-out provision and was recorded at its fair value as at the acquisition date. The earn-out obligation becomes payable if certain predefined performance measures will be met in the years 2017 to 2019.

Based on the individual purchase price allocations, the cumulative acquisition costs of the business combinations were allocated to the purchased assets and liabilities as follows:

in EUR million	**Fair value**
Intangible assets	4.0
Investments in associates	0.5
Deferred tax assets	0.1
Inventories, trade receivables and other current assets	2.6
Cash and cash equivalents	0.4
Total assets	7.6
Provisions for pensions and similar obligations	0.1
Deferred tax liabilities	0.1
Trade payables, current provisions and other liabilities (including liabilities for taxes)	3.1
Total provisions and liabilities	3.3
Total identifiable net assets at fair value	**4.3**
Acquisition costs	6.2
Goodwill	**1.9**

Goodwill of EUR 1.9m mainly reflected the value for expected revenues from business with new customers, intangible assets that cannot be separated such as the workforce and their specialist knowledge and strategic advantages arising from the market position of the acquiree. Only the goodwill recognised for the Dutch healthcare publishing activities of EUR 0.7m is tax-deductible.

Since their respective initial consolidations, these businesses contributed a total amount of EUR 5.8m to the Group's revenues and EUR 1.3m to EBITDA in 2015. If the acquisitions had already been finalised as at 1 January 2015, these businesses would have contributed a total amount of EUR 14.6m to the consolidated revenues in 2015.

Foreign Currency Translation

In Springer Nature's consolidated financial statements, the financial statements of foreign subsidiaries are translated into Euro using the functional currency concept in accordance with IAS 21. Since all subsidiaries conduct their financial, commercial and organisational activities independently, their respective local currency is the functional currency.

Foreign currency transactions are translated into the respective functional currency using the exchange rate applicable at the time of the transaction. Gains and losses from the settlement of such transactions or from the valuation of the corresponding monetary assets and liabilities at the closing date are included in the statement of profit or loss. Monetary assets and liabilities are translated into the respective functional currency at the closing rate whereas non-monetary assets and liabilities are translated at their applicable historic rate.

For presentation in the Group's reporting currency, the assets and liabilities of subsidiaries whose functional currency is not the Euro are translated at the closing rate while the statement of profit or loss is translated at the average rate for the period. Equity components are translated at the historical exchange rate. Currency translation differences are recognised in other comprehensive income.

When subsidiaries are disposed of, any related cumulative translation difference is reclassified to the consolidated statement of profit or loss.

Goodwill and fair value adjustments of assets and liabilities from the acquisition of subsidiaries are allocated to the acquired entity and translated into the Group's presentation currency at the closing rate as at the end of the reporting period.

The following exchange rates were used to translate the currencies which are significant to the Group:

Foreign currency unit per EUR 1	**Average rate 2016**	**Closing rate 31.12.2016**	**Average rate 2015**	**Closing rate 31.12.2015**
British Pounds	0.8191	0.8553	0.7260	0.7340
Japanese Yen	120.3732	123.4096	134.2877	131.0702
Swiss Francs	1.0902	1.0738	1.0676	1.0835
US dollar	1.1069	1.0540	1.1096	1.0887

Accounting Policies

Fair Value Measurement

The fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When measuring fair value, it is assumed that the transaction in the course of which the asset is sold or the liability is transferred is taking place either (a) on the principal market for the asset or (b) on the most advantageous market for the asset or the liability (if no principal market exists). The Group must have access to the principal market or the most advantageous market.

The fair value of an asset or liability is measured based on the assumptions that market participants would make when setting the price. It is assumed that the market participants are acting in their best economic interest.

Measurement of the fair value of a non-financial asset takes into account the ability of the market participant to generate economic benefit through the highest and best use of the asset or by selling it to another market participant that will find the highest and best use for the asset.

The Group applies valuation techniques that are appropriate under the respective circumstances and for which sufficient data for fair value measurement is available. The use of relevant observable input factors should be as high as possible, while the use of input factors not based on observable data should be as low as possible.

All assets and liabilities for which fair value is measured or disclosed in the consolidated financial statements are classified on the basis of the following fair value hierarchy. The classification uses the input factors of the lowest category that is material to the fair value measurement.

- Level 1: quoted prices in active markets for identical assets or liabilities.
- Level 2: input factors other than quoted prices included within Level 1 that are observable for the assets and liabilities, either directly, i.e. as prices, or indirectly, i.e. derived from prices.
- Level 3: input factors that are not based on observable market data.

For assets or liabilities that are recorded in the financial statements on a recurring basis, the Group examines the classification at the end of each reporting period and makes corresponding reclassifications as necessary.

Revenue Recognition

Revenues from the sale of products are recognised when the significant risks and rewards of ownership of the goods are transferred to the customer, the sales price is determinable and receipt of payment can be assumed.

Print subscription revenues for journals/magazines are recognised at the time the journal/magazine is dispatched to the customer. Subscription revenues for academic journals, for which the content is made available electronically to the customer, are recognised pro-rata temporis over the period of the subscription.

Revenues from service type projects are recognised by applying the percentage-of-completion method, when the outcome of the project contract can be reliably estimated based on the percentage of costs incurred to date compared to the contractual milestones. Revenues associated with the project are recognised by reference to the stage of completion of the transaction at the end of the reporting period. An expected loss on a project is recognised as an expense immediately. Costs incurred before a milestone is completed are recognised as work-in-progress within inventories.

If discounts are granted to customers and the customer settles the invoice within the period the discount relates to, the amount deducted by the customer is recorded as a sales deduction. Revenues are also stated net of allowances and corrections for expected returns.

Interest income and expenses are allocated to the period they relate to. Dividends are recognised in the period in which the distribution is approved.

Goodwill

Goodwill is allocated to a single cash-generating unit (CGU) or a group of cash-generating units that are expected to benefit from the business combination. The Group’s CGUs reflect the lowest level of the operating segments that management monitors for goodwill.

Goodwill is not subject to amortisation but tested for impairment annually or whenever there is any indication of impairment. It is measured at cost less accumulated impairment losses. Any loss from impairment is recognised immediately in the consolidated statement of profit or loss and is not subsequently reversed. Gains and losses on the sale of an entity reflect the carrying amount of goodwill attributable to the entity disposed of.

Other Intangible Assets

Intangible assets acquired as part of a business combination are stated in the statement of financial position at their fair values as at the date of acquisition, less any accumulated amortisation and any impairments. Purchased intangible assets are recognised at their acquisition costs plus any directly attributable costs, less any accumulated amortisation and any impairments.

If the conditions as set out in IAS 38 are met, internally generated intangible assets are recognised at their developments costs less any accumulated amortisation and impairment losses. The development costs comprise all costs directly or indirectly attributable to the assets incurred during the development phase, which begins at the time of having demonstrated the technical feasibility and ends upon completion of the asset.

Intangible assets considered to have a definite life are amortised over the useful economic life and assessed for impairment whenever there is an indication that the intangible asset may be impaired (triggering event). The following group-wide economic useful lives are assumed:

Intangible assets	Useful life
Internally generated intangible assets	3 to 10 years
Acquired rights and licenses	3 to 10 years
Trademark and publishing rights	10 to 40 years

Intangible assets determined to have indefinite lives are not amortised and are subject to impairment review at least annually. The assessment of indefinite life is reviewed annually to determine whether the indefinite life continues to be supportable.

Property, Plant and Equipment

Property, plant and equipment are measured at acquisition or manufacturing cost less accumulated depreciation and impairments. Maintenance expenses are recorded as expenses in the period in which they are incurred, whereas expenses resulting in a prolongation of the asset’s useful life or in a significant improvement in its use, are recognised as subsequent costs. Where parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items of property, plant and equipment.

Items included in property, plant and equipment are depreciated on a straight-line basis over their estimated useful lives. Depreciation is based on the following group-wide economic useful lives:

Asset	Useful life
Buildings	10 to 35 years
Plant, technical equipment and machinery	3 to 10 years
Furniture, fixtures and office equipment	3 to 12 years

Leases

To the extent Springer Nature assumes all significant risks and rewards relating to a leased asset and is thus to be seen as the economic owner of the asset (finance lease), the leased asset is recognised in the statement of financial position. The leased asset is recognised at the amount of the asset’s fair value at the inception of the lease or the present value of minimum lease payments, if lower. The lease liability is recognised at the same amount as the respective asset. If it is sufficiently certain that ownership of the leased asset will pass to the Group at the end of the lease term, the asset is depreciated over its economic useful life. Otherwise, it is depreciated over the term of the lease.

In addition to finance leases, the Group has also entered into operating lease agreements. In addition to finance leases, the Group has also entered into operating lease agreements. This means that economic ownership of the leased assets lies with the lessor and lease payments under an operating lease are recognised as an expense on a straight-line basis over the lease term. Any benefits resulting from incentives granted are recognised on a straight-line basis as a reduction of the lease instalments over the lease term.

Impairment of Non-Financial Assets

At each reporting date, or if there is a triggering event, Springer Nature tests intangible assets for any indication of impairment. For property, plant and equipment the impairment testing is done only in case of a triggering event.

If there is such an indication, the asset's recoverable amount is determined. If it is not possible to determine the recoverable amount for an individual asset, the recoverable amount for the cash-generating unit (CGU) to which the asset is allocated is used. The recoverable amount of the asset or the CGU is defined as the higher of its fair value less costs to sell and its value in use. An impairment is recognised if the carrying amount exceeds the recoverable amount. The impairment first reduces the carrying amount of the intangible asset or goodwill allocated to the CGU. Any impairment in excess of that is allocated based on the carrying amounts of each asset included in the CGU on a pro rata basis. If the reason for a previously recognised impairment loss no longer exists, the impairment is reversed up to amortised costs, with the exception of goodwill.

In 2016 and 2015, an impairment test was carried out on the basis of value in use, which itself was derived using a discounted cash flow method. When assessing the value in use for each asset or each CGU, management makes certain assumptions regarding the future cash flows of assets or CGUs and risk-adjusted capital costs of assets or CGUs. These assumptions are mainly based on market data and external estimates. They are subject to change and as such can lead to future differences in values in use.

For each of the Group's business lines, cost of capital was calculated individually using current market data in 2016 and 2015 and, if needed, adjusted for CGU-specific parameters (i.e. risk premium).

Financial Assets and Liabilities

Financial Assets

Initial Recognition and Measurement

Financial assets are classified either as financial assets at fair value through profit or loss, loans and receivables or as available-for-sale financial assets, as appropriate. The Group determines the classification of its financial assets at initial recognition.

All financial assets not measured at fair value through profit or loss are recognised initially at fair value plus directly attributable transaction costs.

Subsequent Measurement

At Springer Nature, the category of financial assets at fair value through profit or loss consists of derivatives that are not designated as hedging instruments. They are reported in the statement of financial position under other assets. Financial assets at fair value through profit and loss are carried in the statement of financial position at fair value with changes in fair value recognised in other financial expense or other financial income in the statement of profit or loss.

Loans and receivables are financial assets with fixed or determinable payments that are not quoted in an active market and are neither classified as held-for-trading nor as available-for-sale. The category includes the Group's trade receivables, loans to employees, as well as long-term loans and other current assets. After initial measurement, the loans and receivables are subsequently measured at amortised cost using the effective interest method less any impairment losses, if necessary.

Available-for-sale financial assets are non-derivative financial assets which were classified under this category directly or were not classified to any other category. Springer Nature holds securities mainly in this category. They are disclosed under non-current assets unless management plans to sell them within 12 months of the reporting date and they do not fall due within this period. Available-for-sale financial assets are measured at fair value after initial recognition. Unrealised gains and losses are recorded directly in equity taking deferred taxes into account. When a financial asset classified as available for sale is derecognised or impaired, the cumulative gains and losses from fair value measurement recognised directly in equity are recognised through profit or loss.

Derecognition

A financial asset is derecognised when one of the following conditions has been fulfilled:

- the rights to receive cash flows from the asset have expired; or
- the Group has transferred its rights to receive cash flows from the asset or has assumed an obligation to pay the received cash flows in full without material delay to a third party under a 'pass-through' arrangement that fulfils the conditions under IAS 39.19; and either (a) the Group has transferred substantially all the risks and rewards of the asset, or (b) the Group has neither transferred nor retained substantially all the risks and rewards of the asset, but has transferred control of the asset.

Impairment of Financial Assets

The Group assesses at each reporting date whether there is any objective evidence that a financial asset or a group of financial assets is impaired. A financial asset or a group of financial assets is deemed to be impaired if there is objective evidence of impairment as a result of one or more events that have occurred after the initial recognition of the asset (an incurred 'loss event') and that loss event has an impact on the estimated future cash flows of the financial asset or the group of financial assets that can be reliably estimated. Evidence of impairment may include indications that the debtors or a group of debtors are experiencing significant financial difficulty, default or delinquency in interest or principal payments, the probability that they will enter bankruptcy or other financial reorganisation and where observable data indicates that there is a measurable decrease in the estimated future cash flows, such as changes in economic conditions that correlate with defaults.

For financial assets carried at amortised cost, the Group first assesses whether objective evidence of impairment exists individually for financial assets that are individually significant or collectively for financial assets that are not individually significant. If the Group determines that no objective evidence of impairment exists for an individually assessed financial asset, whether significant or not, it includes the asset in a group of financial assets with similar credit risk characteristics and collectively assesses them for impairment. Assets that are individually assessed for impairment and for which an impairment loss is or continues to be recognised are not included in a collective assessment of impairment. If there is objective evidence that an impairment loss has been incurred, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows (excluding future expected credit losses that have not yet been incurred). The present value of the estimated future cash flows is discounted at the financial asset's original effective interest rate. If a loan has a variable interest rate, the discount rate for measuring any impairment loss is the current effective interest rate.

Financial Liabilities

Initial Recognition and Measurement

Financial liabilities within the scope of IAS 39 are classified as financial liabilities at fair value through profit or loss or as liabilities measured at amortised cost. The Group determines the classification of its financial liabilities at initial recognition.

Financial liabilities at fair value through profit or loss are initially measured at fair value. Financial liabilities measured at amortised cost are initially recognised at fair value including directly attributable transaction costs.

The Group's financial liabilities include trade and other payables, bank overdrafts, loans and borrowings, and derivative financial instruments that are not designated as hedging instruments pursuant to IAS 39.

Subsequent Measurement

Financial liabilities at fair value through profit or loss include financial liabilities held for trading and financial liabilities designated upon initial recognition as at fair value through profit or loss. Subsequent measurement is at fair value through profit or loss. Separated embedded derivatives are also classified as held-for-trading. Gains or losses on liabilities held-for-trading are recognised in the consolidated statement of profit or loss.

After initial recognition, liabilities measured at amortised cost are subsequently measured at amortised cost using the effective interest method.

Derecognition

When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as a derecognition of the original liability and the recognition of a new liability.

Offsetting of Financial Instruments

Financial assets and financial liabilities are offset with the net amount reported in the consolidated statement of financial position only if there is a current enforceable legal right to offset the recognised amounts and an intention to settle them on a net basis, or to realise the assets and settle the liabilities simultaneously.

Derivative Financial Instruments

As set out in IAS 39, all derivative financial instruments are recognised at fair value in the consolidated statement of financial position. At the time a contract involving a derivative is entered into, it is determined whether it is intended to serve as a fair value hedge or as a cash flow hedge. Springer Nature’s derivative financial instruments did not formally meet the requirements of IAS 39 for applying hedge accounting, even though it is the economic purpose of the derivative. Changes in their fair values are, therefore, recognised in the consolidated statement of profit or loss rather than in equity.

Derivatives embedded in host contracts are accounted for as separate derivatives and recorded at fair value if their economic characteristics and risks are not closely related to those of the host contracts, and the host contracts are not held-for-trading or designated as at fair value through profit or loss. These embedded derivatives are measured at fair value with changes in fair value recognised in the consolidated statement of profit or loss.

Inventories

Inventories are measured at the lower of cost and net realisable value. Manufacturing costs include both directly and indirectly attributable costs. The indirect costs primarily comprise the costs of generating and preparing the content (pre-publishing costs) as well as printing and binding. If the content is produced primarily for electronic sale, for print products the pre-publishing costs are allocated pro rata to the physical inventories in the proportion of online-to-print book revenues. The indirect costs mainly include production-related overheads and are included using a mark-up rate.

Similar inventories are measured by using the first-in, first-out method (FIFO). Intercompany profits are eliminated from inventories originating from intra-group suppliers and carried at group manufacturing cost.

Cash and Cash Equivalents

Cash and cash equivalents include bank balances and cash in hand. Amounts in foreign currency are translated at closing rates.

Current Taxes and Deferred Taxes

The line item income tax comprises both current taxes and deferred taxes. Income taxes are recognised in the consolidated statement of profit or loss unless they relate to items recognised directly in equity or in other comprehensive income. In such cases, the taxes are also recognised in equity or in other comprehensive income.

The current tax expense and income is calculated according to tax laws of the countries in which Springer Nature operates and generates taxable income effective as at the reporting date. Management periodically reviews individual tax matters to determine whether there is any scope for interpretation under the applicable tax legislation. and establishes tax provisions where appropriate.

According to IAS 12, deferred taxes must be recorded for all temporary differences between the carrying amounts of assets and liabilities in the tax accounts and the consolidated statement of financial position under IFRS as well as for interest carried forward and unused tax losses. This does not apply to deferred tax assets and liabilities arising from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss. Deferred tax assets associated with investments in subsidiaries and associates are recognised only to the extent that it is probable that the temporary differences will reverse in the foreseeable future and taxable profit will be available against which the temporary differences can be utilised.

Deferred tax liabilities resulting from the initial recognition of goodwill are recognised only if the amoritsation of this goodwill is tax deductible.

Deferred tax assets are recognised for all temporary differences and unused tax losses only to the extent that it is probable that taxable profit will be available in the future against which the losses can be utilised.

Deferred taxes are calculated at the tax rates that are expected to apply to the period when a liability is settled or an asset is realised.

Deferred tax assets and deferred tax liabilities are offset if a legally enforceable right exists to set off current tax assets against current income tax liabilities and the deferred taxes relate to the same taxable entity and the same taxation authority.

Provisions

With the exception of the provisions for pensions and other long-term employee benefits calculated in accordance with IAS 19, all other provisions are recognised in line with IAS 37. They are recognised when the Group has a present obligation to a third party based on a past event, an outflow of resources is probable and a reliable estimate can be made of the obligation. The amount of each provision corresponds to the expected settlement amount. Non-current provisions with a remaining period of more than one year are discounted in order to reflect the present value of the expenditure expected to settle the obligation at the reporting date by application of appropriate market rates of interest.

Provisions for Pensions and Other Long-term Employee Benefits

The obligations from defined benefit plans for pensions and other long-term employee benefits are recognised in the consolidated statement of financial position at the present value of the defined benefit obligation at the end of the reporting period less the fair value of allocable plan assets. The defined benefit obligation is calculated by independent actuaries using the projected unit credit method. Under this method, not only obligations relating to known vested benefits at the reporting date are recognised, but also future increases in pensions and salaries. This involves taking account of various input factors. The input factors are based upon assumptions and estimates relating to the future development of salaries, relevant biometric factors, interest rates and overall mortality.

The present value of the defined benefit obligations is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that are denominated in the currency in which the benefit will be paid, and that have terms to maturity approximately the same as the related pension obligation.

Remeasurements, comprising of actuarial gains and losses, asset ceiling effects, excluding amounts included in net interest on the net defined benefit liability and the return on plan assets (excluding amounts included in net interest on the net defined benefit liability), are recognised immediately in the consolidated statement of financial position with a corresponding debit or credit to retained earnings through OCI in the period in which they occur. Remeasurements are not reclassified to profit or loss in subsequent periods.

Judgements, Assumptions and Estimates

The preparation of the Group’s consolidated financial statements in accordance with IFRS requires management to make certain assumptions and estimates that may affect the carrying amount of assets, provisions and liabilities as well as income and expenses recognised. The estimates and related assumptions are based on experience and various other factors that appear to be appropriate in the circumstances. Actual results may differ from these estimates. All estimates and underlying assumptions are reviewed on an on-going basis.

Revisions of accounting estimates are recognised in the period in which the revision is determined, if the revision affects only that period of the revision and future periods. Assumptions and estimates made by management in the application of IFRS that have a significant effect on the consolidated financial statements and estimates with a risk of possible adjustments in the next years are discussed in the corresponding notes.

The underlying assumptions and estimates applied relate to the recognition and measurement of pensions and other long-term employee benefits, to the measurement of internally generated intangible assets, to the determination of impairment losses on intangible assets including goodwill, to the valuation allowance for trade receivables, to the usability of tax loss carry forwards, to the measurement of financial instruments, to the determination of provisions and to the classification of leases. Assumptions were also used in the purchase price allocation concerning the measurement of intangible assets. Information concerning the carrying amounts determined with the use of estimates can be found in the notes to the specific line items.

The key assumptions concerning the future and other key sources of estimation uncertainty at the reporting date, that have a significant risk of causing a material adjustment to the carrying amounts of the Group’s assets and liabilities relate to defined benefit pension plans (note 23), the impairment of non-financial assets (note 14) and fair value measurement of financial instruments (note 30). A description of the relevant input parameters which include estimates/assumptions are disclosed in the respective notes section together with sensitivity analyses.

Notes to the Consolidated Statement of Profit or Loss and the Consolidated Statement of Financial Position

1 Revenues

in EUR million	2016	2015
Revenues from the sale of:		
Journals/journal content	866.6	766.2
Books/book content	561.6	527.2
Advertisements	85.9	80.1
Other revenues	124.8	106.3
Discounts and allowances	-14.2	-9.1
Total revenues	**1,624.7**	**1,470.7**

2 Other Operating Income

in EUR million	2016	2015
Currency exchange gains	42.6	28.0
Income from the release of provisions and other liabilities	7.9	4.7
Sundry operating income	32.3	25.6
Total other operating income	**82.8**	**58.3**

The line item “Currency exchange gains” included realised currency exchange gains from transactions incurred during the year and gains from the year-end valuation of subsidaries’ trade receivables and payables denominated in currencies other than the functional currency.

The line item “Sundry operating income” included mainly income related to written-off bad debts, rental income and income from services rendered. In 2016, income of EUR 5.3m (2015: EUR 10.8m) from transitional services rendered to the Holtzbrinck Publishing Group was included.

3 Internal Costs Capitalised

The line item “Internal costs capitalised” comprised the capitalised costs for the development of self-developed software and database projects as well as internal costs for content creation.

4 Cost of Materials

in EUR million	2016	2015
Purchased services	-156.4	-169.9
Raw materials and supplies	-48.4	-27.4
Total cost of materials	**-204.8**	**-197.3**

The line item “Purchased services” mainly contained costs for printing and binding as well as pre-publishing costs.

5 Royalty and Licence Fees

Royalties and license fees expenses were comprised of fixed royalties and royalties on sales paid for acquired and licensed content. This included payments to authors of books and journal articles, as well as payments for society owned journals.

6 Personnel Costs

in EUR million	2016	2015
Wages and salaries	-424.0	-375.7
State social security contributions	-53.2	-52.9
Pension and similar expenses	-18.1	-15.8
Other employee benefits	-19.1	-12.7
Total personnel costs	**-514.4**	**-457.1**

In 2016, the average number of employees (full-time equivalents - FTE) was 11,908 (2015: 10,802; taken into account the employees from the acquired businesses, since their initial consolidation date). The absolute number of employees (FTE) was 11,939 as at the end of 2016 (2015: 12,093).

The average number of employees in the Group per business is presented below. The India-based business line, which is part of the Professional business, contributed 4,255 in 2016 (2015: 4,486) to the total FTE figure.

Full-time equivalents (average)	2016	2015
Professional	5,540	5,722
Research	3,975	3,410
Education	2,393	1,670
Total	**11,908**	**10,802**

7 Other Operating Expenses

in EUR million	2016	2015
Administrative expenses/fees	-147.9	-148.4
Marketing and sales costs	-89.3	-80.6
Rent and building costs	-54.1	-41.1
Currency exchange losses	-36.5	-35.9
Sundry expenses	-66.0	-59.6
Total other operating expenses	**-393.8**	**-365.6**

The line item "Administrative expenses/fees" mainly included expenses relating to information technology, travel costs and consulting fees.

The line item "Currency exchange losses" included realised currency exchange losses from transactions incurred during the year and losses from the year-end valuation of subsidaries' trade receivables and trade payables denominated in currencies other than the functional currency.

"Sundry expenses" mainly consisted of allowance for doubtful trade receivables, costs for temporary staff and purchased services, as well as other taxes. Expenses for services rendered by the Holtzbrinck Publishing Group under transitional service agreements of EUR 8.4m (2015: EUR 11.6m) were also included.

The lease payments recognised as expenses in 2016 amounted to EUR 36.0m (2015: EUR 29.3m).

The fees for the audit of the financial statements and other services rendered by the audit firm Ernst & Young GmbH were as follows:

in EUR million	2016	2015
Audits of the financial statements	-2.0	-2.2
Tax advisory services	-0.6	-0.7
Other certification or appraisal services	-0.4	-1.0
Total professional fees	**-3.0**	**-3.9**

The professional fees for the audit of the financial statements included the audit of the subsidiaries and the audit of the consolidated financial statements. The tax advisory fees consisted of support provided with regard to specific tax questions. The other certification and appraisal services comprised, among others, fees for the audits to verify compliance with certain contractual agreements.

8 Amortisation and Impairment of Intangible Assets and Depreciation of Property, Plant and Equipment

in EUR million	2016	2015
Amortisation and impairment of other intangible assets	-253.3	-232.3
Impairment of goodwill	-	-11.0
Depreciation of property, plant and equipment	-16.8	-16.4
Total amortisation, depreciation and impairment losses	**-270.1**	**-259.7**

Amortisation and impairment of other intangible assets and depreciation of property, plant and equipment included amortisation and depreciation charges as well as impairment losses that related to fair value adjustments of other intangible assets and property, plant and equipment recognised subsequently to business combinations. Amortisation expenses of EUR 115.1m for intangible assets (2015: EUR 106.3m) and depreciation charges of EUR 0.7m for property, plant and equipment (2015: EUR 0.7m) relating to these fair value adjustments were recognised in the reporting period. An impairment loss of EUR 4.1m (2015: EUR 4.2m) was recorded on other intangible assets in 2016.

Amortisation expenses of EUR 62.7m (2015: EUR 52.3m) were recognised on internally generated intangible assets in the period under review.

9 Financial Expenses and Financial Income

The line item “Financial expenses” broke down as follows:

in EUR million	2016	2015
Interest expenses	-257.7	-276.6
Other financial expenses	-181.4	-112.2
Financial expenses	**-439.1**	**-388.8**

The line item “Interest expenses” mainly comprised interest expenses from financial liabilities, interest expenses from interest rate hedging transactions, interest expenses from applying the effective interest method as well as the net interest expense from pension obligations.

The line item “Other financial expenses” comprises expenses of EUR 75.6 m (2015: EUR 46.8 m) from measuring the fair value of financial instruments (see note 24), losses of EUR 63.6 m (2015: EUR 24.4 m) from the year-end measurement of subsidiaries’ financial liabilities carried in other currencies than the functional currency of the respective subsidiary, realised currency exchange losses of EUR 14.8 m (2015: EUR 35.0 m) from financing activities during the year, losses of EUR 1.6 m (2015: EUR 0.0 m) from marking the Group’s financial derivatives to market and other financing-related costs of EUR 25.8 m (2015: EUR 6.0 m).

The line item “Financial income” broke down as follows:

in EUR million	2016	2015
Interest income	5.4	4.7
Other financial income	82.9	64.6
Financial income	**88.3**	**69.3**

The line item “Interest income” mainly included interest income from funds, income from loans receivable and other interest income.

The position “Other financial income” included gains of EUR 42.3m (2015: EUR 43.5m) from the year-end valuation of subsidiaries’ financial debt incurred in other currencies than the functional currency of the respective subsidiary, gains from the market valuation of the Group’s financial derivatives of EUR 40.5m (2015: EUR 18.7m) and realised currency exchange gains from intra-group financing activities incurred during the year of EUR 0.1m (2015: EUR 2.4m).

10 Income Taxes

Income taxes, split into current and deferred tax position, were as follows:

in EUR million	2016	2015
Result before income taxes	-102.2	-179.9
Current income taxes	-58.4	-33.6
Deferred taxes	37.8	69.6
Total income taxes	-20.6	36.0
Net result for the period	**-122.8**	**-143.9**

The line item “Deferred taxes” comprises the following positions:

in EUR million	2016	2015
Due to tax loss carry forwards	10.3	28.6
Due to temporary differences	27.5	41.0
Deferred taxes	**37.8**	**69.6**

For the reconciliation between expected income taxes and the actual income taxes recorded, the German combined statutory tax rate of 30.2% (consisting of 15.8% corporate tax and 14.4% trade tax) was applied, as in the prior year. The reconciliation is shown in the following table:

in EUR million	2016	2015
Result before income taxes	-102.2	-179.9
Statutory German income tax rate	30.2%	30.2%
Expected income taxes	30.9	54.3
Different national tax rates	8.2	5.4
Changes in tax regulations or tax status	13.4	13.5
Tax income/expenses relating to prior periods	-8.5	-2.9
Deferred tax income/expenses relating to prior periods	5.5	1.1
Changes in tax loss carry forwards	-45.5	-14.1
Effect of permanent differences	-24.4	-20.3
Other	-0.2	-1.0
Total income taxes	**-20.6**	**36.0**

In 2016, deferred taxes of EUR 34.4m (2015: EUR 23.0m) were recorded directly in other comprehensive income. The amount related to pension provisions, currency translation effects on the tax position resulting from differences between the currency exchange rates as at 31 December 2015, 31 December 2016 and the average exchange rates for 2016 as well as on available-for-sale financial assets.

Deferred tax assets for temporary differences and tax loss carry forwards were recognised to the extent deferred tax liabilities relating to the same tax authority and the same taxable entity were available. Deferred tax assets exceeding the deferred tax liabilities were only recognised to the extent that they can be utilised against future taxable profits. The measurement was based on a medium-term plan established for each jurisdiction.

The deferred tax assets and liabilities were attributable to the following:

in EUR million	31.12.2016		31.12.2015	
	Deferred tax assets	**Deferred tax liabilities**	**Deferred tax assets**	**Deferred tax liabilities**
Goodwill and other intangible assets	3.5	1,022.3	6.0	1,100.9
Property, plant and equipment	2.0	14.1	2.6	4.3
Financial assets	-	0.0	0.1	-
Inventories	10.5	0.6	13.5	0.1
Trade receivables	2.9	3.4	2.9	1.5
Other current assets	0.1	10.0	2.6	12.5
Provisions for pensions and other long-term employee benefits	36.8	-	29.9	-
Interest-bearing loans and borrowings	11.3	19.0	7.6	15.7
Finance lease liabilities	2.3	-	2.5	-
Current provisions	6.4	1.0	4.0	0.8
Other liabilities	97.7	2.6	103.8	2.7
Deferred income	0.0	10.8	-	9.7
Unrecognised taxes on temporary differences	-1.2	-	-0.6	-
Tax loss carry forward	136.5	-	87.8	-
Unrecognised tax loss carry forward	-42.7	-	-4.3	-
Total deferred taxes	266.1	1,083.8	258.4	1,148.2
Offsetting	-258.5	-258.5	-249.9	-249.9
Total carrying amount	**7.6**	**825.3**	**8.5**	**898.3**

11 Non-Current Assets

The following table shows the movement in goodwill, other intangible assets, property, plant and equipment as well as financial assets, which constituted the major part of non-current assets.

in EUR million	Goodwill	Other intangible assets	Property, plant and equipment	Financial assets	Total
Acquisition or production cost					
Balance as at 01.01.2016	1,399.3	4,683.8	200.9	5.3	6,289.3
Acquisition/disposal of business	0.8	0.0	0.0	-	0.8
Additions	-	175.8	17.6	0.6	194.0
Disposals	-	-16.7	-7.3	-1.8	-25.8
Reclassifications	-	-	0.0	-	0.0
Currency translation differences	-17.3	-150.0	-13.8	0.1	-181.0
Balance as at 31.12.2016	1,382.8	4,692.9	197.4	4.2	6,277.3
Depreciation/amortisation					
Balance as at 01.01.2016	52.4	529.3	27.9	0.0	609.6
Additions	-	249.3	16.7	0.0	266.0
Impairments	-	4.1	-	-	4.1
Disposals	-	-16.0	-2.0	-	-18.0
Reclassifications	-	-	0.0	-	0.0
Currency translation differences	0.4	2.8	-0.4	0.0	2.8
Balance as at 31.12.2016	52.8	769.5	42.2	0.0	864.5
Carrying amount as at 31.12.2016	**1,330.0**	**3,923.4**	**155.2**	**4.2**	**5,412.8**

in EUR million	Goodwill	Other intangible assets	Property, plant and equipment	Financial assets	Total
Acquisition or production cost					
Balance as at 01.01.2015	1,279.6	3,061.4	59.5	7.2	4,407.7
Acquisition/disposal of business	62.4	1,382.8	123.8	0.6	1,569.6
Additions	-	127.5	21.1	0.2	148.8
Disposals	-	-6.3	-1.7	-3.0	-11.0
Reclassifications	-	0.0	0.0	0.0	0.0
Currency translation differences	57.3	118.4	-1.8	0.3	174.2
Balance as at 31.12.2015	1,399.3	4,683.8	200.9	5.3	6,289.3
Depreciation/amortisation					
Balance as at 01.01.2015	40.6	284.7	12.0	-	337.3
Additions	-	228.1	16.4	0.0	244.5
Impairments	11.0	4.2	-	-	15.2
Disposals	-	-4.7	-0.8	-	-5.5
Reclassifications	-	-	0.0	-	0.0
Currency translation differences	0.8	17.0	0.3	0.0	18.1
Balance as at 31.12.2015	52.4	529.3	27.9	0.0	609.6
Carrying amount as at 31.12.2015	**1,346.9**	**4,154.5**	**173.0**	**5.3**	**5,679.7**

12 Goodwill

Goodwill presented here of EUR 1,330.0m primarily resulted from the acquisition of Springer in the financial year 2013. The acquisition of MSE in 2015 resulted in goodwill of EUR 60.5m, the acquisition of J.B. Metzler, DriversCoach and the Dutch Healthcare business added goodwill of EUR 1.9m and minor acquisitions in 2016 added goodwill of EUR 0.8m.

13 Other Intangible Assets

The following table summarises the gross amounts and the carrying amounts of the other intangible assets:

in EUR million	31.12.2016		31.12.2015	
	Gross amount	**Carrying amount**	**Gross amount**	**Carrying amount**
Publishing rights	1,390.8	1,284.0	1,438.6	1,365.4
Customer relationships/subscriptions	1,410.5	1,227.4	1,439.9	1,313.7
Trademarks	1,027.2	1,006.3	1,079.0	1,063.8
Co-publishing rights	332.5	104.6	250.1	101.6
Self-developed/acquired software	142.4	73.3	116.5	55.7
eBook databases	215.6	58.7	161.6	59.7
Other publishing rights/licenses	173.9	169.1	198.1	194.6
Total other intangible assets	**4,692.9**	**3,923.4**	**4,683.8**	**4,154.5**

Other intangible assets were identified, measured and recognised mainly in connection with the purchase price allocation after the acquisition of Springer in 2013 and the establishment of Springer Nature in 2015.

The line item “Publishing rights” included rights to academic journals and specialist journals. In the line “Customer relationships/subscriptions” grown customer relationships in the journal and books business were disclosed. The line item “Co-publishing rights” contained publishing rights that arose from exclusive contracts with scientific societies to publish and/or distribute academic journals worldwide or in a specific country or region.

The position “Trademarks” included among others the carrying amounts of the “Springer” brand of EUR 599.2m (2015: EUR 599.2m), the “Nature” brand of EUR 193.8m (2015: EUR 225.8m) and the “Estrada” brand of EUR 2.7m (2015: EUR 3.2m) as well as the exclusive right to use the “Macmillan” brand of EUR 150.0m (2015: EUR 174.8m) which all have an indefinite useful life. The position “Publishing Rights” included, but was not limited to, the carrying amount of EUR 79.1m (2015: EUR 85.4m) for the rights to the title “Nature” that also has an indefinite useful life.

14 Impairment Testing of Goodwill and Intangible Assets

Effective 1 January 2016, Springer Nature changed its reporting structure to support the newly established management and business structure of its divisions following the merger of Springer and MSE in 2015. The change in the composition of the businesses affected several cash-generating units (CGUs) to which goodwill and intangible assets were allocated.

The CGU Research was formed out of the former CGUs STM Science and MSS (Macmillan Science & Scholarly). The former CGU Education was divided into two CGUs, the CGU Language Learning & Schools and the CGU International Higher Education.

The three smaller CGUs within the Professional business, i.e. Professional Business/Technology, Professional Medicine and Professional Road Safety/Education, were combined into the new Springer Fachmedien CGU.

The reallocation of goodwill and other intangible assets was based on relative fair values. An impairment test was prepared for the old CGUs which did not result in an impairment.

Allocation of goodwill and intangible assets with indefinite useful lives to current CGUs broke down as follows (prior year figures were adjusted accordingly):

in EUR million	CGU Research	CGU Language Learning & Schools	Other CGUs	Total
Goodwill				
31.12.2016	1,221.1	16.2	92.7	1,330.0
31.12.2015	1,237.8	16.8	92.3	1,346.9
Intangible assets with indefinite useful life				
31.12.2016	872.1	137.5	15.1	1,024.7
31.12.2015	910.4	160.3	17.7	1,088.4

Allocation of goodwill and intangible assets with indefinite useful lives to old CGUs broke down as follows as at 31 December 2015:

in EUR million	CGU STM Science	CGU Macmillan Science & Scholarly	CGU Education	Other CGUs	Total
Goodwill					
31.12.2015	1,197.0	40.8	18.2	90.9	1,346.9
Intangible assets with indefinite useful life					
31.12.2015	599.2	311.2	178.0	-	1,088.4

CGU Research

The carrying amount of goodwill that was allocated to Springer Nature's biggest CGU amounted to EUR 1,221.1m (2015: EUR 1,237.8m) or 91.8% (2015: 91.9%) of the Group's total goodwill of EUR 1,330.0m (2015: EUR 1,346.9m) as measured at 31 December 2016. The recoverable amount of the CGU based on its value in use was calculated to be EUR 5,149.6m as at 31 December 2016 (2015: EUR 5,858.2m). The cash flow planning was derived from the latest group budget and strategic medium-term plan and covered a period of five years. A discount rate of 6.7% after tax (9.3% before tax) was used and the cash flows after the five-year period were extrapolated with an annual growth rate of 1.0%. In prior year discount rates of 6.2% after tax (8.9% before tax) and 6.3% after tax (8.9% before tax) were used for previously separate CGUs STM Science and MSS respectively. The excess of the recoverable amount over the carrying amount of this CGU amounted to EUR 1,333.0m (2015: STM Science EUR 875.0m and MSS EUR 1,171.9m).

The medium-term plan assumed an annual average growth rate of free cash flow of 11.6% for the years 2018 to 2021. In the prior year, annual average growth rates of free cash flow of 10.7% and 14.0% were assumed for STM Science and MSS respectively. The growth is expected to mainly stem from the further increase in output i.e., number of articles and books published, moderate price increases, increase in usage of the book portfolio, maintaining the market share in the growing open access market, and offering additional services to the authors and researchers.

The impairment test is sensitive to changes in the underlying assumptions, especially the yearly free cash flow growth rates and the discount rates. An increase in the discount rate by 190 base points would have reduced the headroom between the recoverable amount and the carrying amount of the CGU to zero (2015: STM Science 160 base points, Macmillan Science & Scholarly 630 base points). A reduction in the annual medium-term growth rate of 500 base points would also have reduced the headroom to zero (2015: STM Science 570 base points, Macmillan Science & Scholarly 1,900 base points). If both measurement assumptions were to vary, an increase in the discount rate by 50 base points and at the same time a decrease in the annual free cash flow medium-term growth rate of 360 base points would have reduced the headroom to zero (2015: STM Science reduction of 50 base points in discount rate and decrease of 380 base points in the annual free cash flow medium-term growth rate, Macmillan Science & Scholarly reduction of 200 base points in discount rate and decrease of 1,200 base points in the annual free cash flow medium-term growth rate).

In 2016, an impairment loss of EUR 4.1m was recorded for journal assets that were identified, measured and recognised in connection with the purchase price allocation after the acquisition of Springer in 2013 but for which publication has been recently ceased.

CGU Language Learning & Schools

The carrying amount of goodwill allocated to the CGU Language Learning & Schools amounted to EUR 16.2m, or 1.2% of the Group's total goodwill as at 31 December 2016 (2015: Education EUR 18.2m, 1.4%). Moreover, an amount of EUR 137.5m, or 13.4% of the total intangible assets with indefinite useful lives as at 31 December 2016 (2015: Education EUR 177.9m or 16.3%), reflecting the license for the use of the Macmillan trademark, was allocated to the CGU as well.

The recoverable amount of the CGU was EUR 335.0 m as at 31 December 2016 (2015: Education EUR 496.2 m; Language Learning & Schools EUR 464.9 m) and was determined on its value in use, for which the cash flow planning was derived from the latest group budget and strategic medium-term plan, which covered a period of five years. The discount rate used was 7.4% after tax (10.3% before tax, CGU Education 2015: 7.7% after tax, 10.9% before tax). Cash flows beyond the five-year period were extrapolated assuming flat free cash flows. The excess of recoverable amount over carrying amount was EUR 72.3m (2015: Education EUR 188.6m).

Medium-term plan for Language Learning & Schools assumed an average annual growth rate of 17.5% for the free cash flow for the years 2018 to 2021. In prior year an annual average growth of free cash flow of 14.5% was assumed for Education.

The growth is expected to come from improving profitability, winning market share in certain regions, higher content development and investing in the digital transformation of parts of the business, thereby increasing the revenues from digital products.

The impairment test is sensitive to changes in the underlying assumptions, especially the yearly free cash flow growth rates and the discount rates. An increase in the discount rate by 190 base points would have reduced the headroom between the recoverable amount and the carrying amount of the CGU to zero (Education 2015: 480 base points). A reduction in the annual medium-term growth rate of 315 base points would also have reduced the headroom to zero (Education 2015: 1,260 base points). If both measurement assumptions were to vary, an increase in the discount rate by 50 base points and at the same time a decrease in the annual free cash flow medium-term growth rate of 230 base points would have reduced the headroom to zero (Education 2015: reduction of 200 base points in discount rate and decrease of 690 base points in the annual free cash flow medium-term growth rate).

15 Property, Plant and Equipment

The following table shows the development of property, plant and equipment in the reporting period and in the prior year:

in EUR million	Land and buildings	Plant, technical equipment and machinery	Other equipment, furniture and fixtures	Assets under construction	Total
Acquisition or production cost					
Balance as at 01.01.2016	155.3	7.3	38.1	0.2	200.9
Acquisition/disposal of business	-	0.0	0.0	-	0.0
Additions	3.0	1.2	12.7	0.7	17.6
Disposals	-5.5	-0.2	-1.6	-	-7.3
Reclassifications	0.0	-0.2	0.3	-0.1	0.0
Currency translation differences	-12.3	-0.6	-0.9	0.0	-13.8
Balance as at 31.12.2016	140.5	7.5	48.6	0.8	197.4
Depreciation/amortisation					
Balance as at 01.01.2016	9.3	2.3	16.2	-	27.8
Additions	5.3	2.2	9.2	-	16.7
Disposals	-0.6	-0.2	-1.2	-	-2.0
Reclassifications	-0.0	-0.6	0.6	-	-0.0
Currency translation differences	-0.3	0.0	0.0	-	-0.3
Balance as at 31.12.2016	13.7	3.7	24.8	-	42.2
Carrying amount as at 31.12.2016	**126.8**	**3.8**	**23.8**	**0.8**	**155.2**

in EUR million	Land and buildings	Plant, technical equipment and machinery	Other equipment, furniture and fixtures	Assets under construction	Total
Acquisition or production cost					
Balance as at 01.01.2015	39.8	0.4	19.3	-	59.5
Acquisition/disposal of business	105.7	7.3	10.8	-	123.8
Additions	11.6	0.1	9.3	0.2	21.2
Disposals	-0.2	-0.1	-1.4	-	-1.7
Reclassifications	0.0	-0.3	0.3	-	0.0
Currency translation differences	-1.6	-0.1	-0.2	0.0	-2.0
Balance as at 31.12.2015	155.3	7.3	38.1	0.2	200.9
Depreciation/amortisation					
Balance as at 01.01.2015	3.8	0.1	8.1	-	12.0
Additions	5.5	2.3	8.6	-	16.4
Disposals	-0.1	-	-0.8	-	-0.9
Reclassifications	0.0	-0.1	0.1	-	0.0
Currency translation differences	0.1	0.0	0.3	-	0.4
Balance as at 31.12.2015	9.3	2.3	16.3	-	27.9
Carrying amount as at 31.12.2015	**146.0**	**5.0**	**21.8**	**0.2**	**173.0**

16 Investments in Associates

The Group holds investments in several associates that are individually not material and listed in note 35. The summarised financial information is presented in the table below and not adjusted for the percentage of ownership held by Springer Nature.

in EUR million	**31.12.2016**	**31.12.2015**
Assets	24.8	10.8
Liabilities	-14.2	-7.6

The line item "Investment in associates" was as follows:

in EUR million	**31.12.2016**	**31.12.2015**
Investments in associates	20.3	7.6

Items for the profit or loss are presented for the 12-month period applied under the equity method. If shares in associates had been acquired during the financial year, income and expenses was only included for the period between the acquisition date and year end.

in EUR million	**2016**	**2015**
Income	40.9	24.3
Expenses	-37.2	-23.2

The line item "Income from associates" was as follows:

in EUR million	**2016**	**2015**
Income from associates	1.4	1.2

17 Financial Assets

in EUR million	**31.12.2016**	**31.12.2015**
Loans	3.7	4.8
Other financial assets	0.5	0.5
Financial assets	**4.2**	**5.3**

The line item "Loans" contained vendor loans given to acquirers of divested businesses. As at 31 December 2016, EUR 2.9m (2015: EUR 4.4m) of these loans related to the divested Vision Care business.

18 Inventories

The total carrying amount of inventories broke down as follows:

in EUR million	31.12.2016	31.12.2015
Finished goods and merchandise	42.4	53.0
Work in progress	21.2	21.2
Raw materials and supplies	5.7	7.8
Advance payments	4.4	2.2
Total inventories	**73.7**	**84.2**

19 Trade Receivables

The following table gives an overview of the credit risk arising from the trade receivables position:

in EUR million	31.12.2016	31.12.2015
Receivables, neither past due nor impaired	379.3	393.7
Receivables, past due but not impaired	33.2	15.9
thereof < 30 days	20.3	10.4
thereof 30 to 89 days	12.9	1.1
Receivables, past due and impaired		
Gross amount	64.6	81.4
Valuation allowance	-12.6	-13.7
Carrying amount	52.0	67.7
Total trade receivables	**464.5**	**477.3**

Valuation allowances for trade receivables were made on an individual basis and calculated taking into account all discernible risks. Receivables which were past due for 90, 180 and 360 days were usually written off by 25.0%, 50.0% and 100.0% respectively of their nominal amount.

If a customer has become insolvent or other circumstances indicate default, the corresponding receivables are written off in full.

The following table presents the changes in the valuation allowances for trade receivables:

in EUR million	2016	2015
Balance as at 01.01.	13.7	11.9
Utilisation	-5.8	-2.8
Additions	12.4	9.5
Release	-7.6	-4.8
Currency translation differences	-0.1	-0.1
Balance as at 31.12.	**12.6**	**13.7**

20 Other Current Assets

The line item “Other current assets” consisted of the following components:

in EUR million	31.12.2016	31.12.2015
Prepaid expenses	18.3	23.4
Receivables from related parties	16.0	28.9
VAT receivables	6.7	3.9
Creditors with debit balances	4.8	2.4
Advance payments for royalties and licenses	4.2	5.4
Derivative financial instruments	1.2	0.4
Short-term purchase price receivables from divested businesses	0.8	0.8
Fixed-term deposits	0.6	9.8
Other receivables	12.6	16.3
Other current assets	**65.2**	**91.3**

The other current assets were classified as financial assets with the exception of prepaid expenses, advance payments for royalties and licenses and a part of the other receivables.

21 Cash and Cash Equivalents

Cash and cash equivalents consisted of cash in hand and bank balances.

22 Equity

Share Capital

As in the prior year, the company’s share capital totalled EUR 100,000.00 as at 31 December 2016, with a nominal amount of EUR 1.00 per share.

Capital Reserves

As at 31 December 2016 the capital reserve mostly contained shareholder contributions of EUR 771.2m (31.12.2015: EUR 771.2m).

Retained Earnings/Other Accumulated Equity

Other accumulated equity comprised actuarial gains and losses from pension obligations less deferred taxes thereon, gains and losses from the measurement of available-for-sale instruments less deferred taxes thereon, as well as currency translation effects.

23 Provisions for Pensions and Other Long-Term Employee Benefits

The line item “Provisions for pensions and other long-term employee benefits” consisted of the following components:

in EUR million	**31.12.2016**	**31.12.2015**
Provision for pension obligations	251.5	203.5
Provisions for other long-term employee benefits	14.3	11.7
Provisions for pensions and other long-term employee benefits	**265.8**	**215.2**

Pensions

Springer Nature operates various forms of pension plans for current and former employees and, where applicable, their surviving dependents. The benefits of these plans are determined by the legal, tax and economic situation of each country concerned. These company pension plans include defined contribution plans and defined benefit plans. The defined benefit plans are either funded via external investment funds, a pension liability insurance (both referred to as plan assets) or they are unfunded. Provisions are set up for obligations arising from defined benefit plans and presented in the line item “Provision for pension obligations”.

Springer Nature's largest defined benefit pension plans are offered in UK, Germany and USA. The plan participants were as follows:

Pension plan participants as at 31.12.2016	**Active**	**Deferred members**	**Retirees**	**Total**
UK	58	783	610	1,451
Germany	345	349	876	1,570
USA	117	171	82	370
Other	216	-	5	221
Total	**736**	**1,303**	**1,573**	**3,612**

Pension plan participants as at 31.12. 2015	**Active**	**Deferred members**	**Retirees**	**Total**
UK	58	783	610	1,451
Germany	361	349	885	1,595
USA	132	169	79	380
Other	231	-	6	237
Total	**782**	**1,301**	**1,580**	**3,663**

In the UK, various defined benefit plans provide different benefits to its members. These pension schemes, which are closed to new entrants, are funded with plan assets. The pension plan with the largest liability is a trust-based hybrid plan with a final salary component and a career average revalued earnings component. The final salary component is closed to future entitlements, except for a small number of members that still retain the link to their final salary. The career average revalued earnings component commenced in 2010, and there are a small number of active members still accruing benefits. Over the course of 2013, an asset-backed funding structure via a property and a loan was put in place for the main UK pension plan.

There are different defined benefit plans in Germany which are closed for new entrants as well. The final salary plans where the benefits depend on the pensionable salary and the years of service, and a contribution-based plan where yearly contributions are converted into benefits via actuarial factors, are the largest schemes in Germany. The pension plans are not funded by plan assets and provide for annuity payments upon reaching retirement age or in the event of disability or death.

Both defined benefit plans in the USA are closed for new entrants. The benefit accruals for both pension plans have been frozen since 2010. The retirement benefits are calculated based on years of service and average annual salary compensation.

In the case of plans that are funded by plan assets, the Group ensures that the assets are managed in such a way that long-term investments are in line with the obligations under the pension schemes (asset liability matching (ALM) strategy). The objective of the ALM strategy is to match the return and maturity of the plan assets with the benefit payments as they fall due, and in the appropriate currency. Investments are well diversified, such that the failure of any single investment would not have a material impact on the overall level of assets.

As at 31 December 2016 and 2015, the defined benefit obligation (DBO), fair value of plan assets and net pension obligations by country were as follows:

Pension obligations as at 31.12.2016 in EUR million	**Defined benefit obligation**	**Plan assets**	**Net pension obligations**
UK	344.4	264.2	80.2
Germany	157.9	0.9	157.0
USA	30.6	21.3	9.3
Other	10.3	7.7	2.6
Total	**543.2**	**294.1**	**249.1**
Amounts recognised in the consolidated statement of financial position:			
Provision for pension obligations			251.5
Other non-current assets			2.4
Net pension obligations			**249.1**

Pension obligations as at 31.12.2015 in EUR million	**Defined benefit obligation**	**Plan assets**	**Net pension obligations**
UK	312.5	267.2	45.3
Germany	145.7	0.9	144.8
USA	28.8	20.2	8.6
Other	10.2	7.5	2.7
Total	**497.2**	**295.8**	**201.4**
Amounts recognised in the consolidated statement of financial position:			
Provision for pension obligations			203.5
Other non-current assets			2.1
Net pension obligations			**201.4**

The following table shows the development of benefit obligations in 2016 and 2015:

Reconciliation of defined benefit obligation in EUR million	**2016**	**2015**
Balance as at 01.01.	497.2	191.9
Acquisition/disposal of business	-	329.6
Service costs	2.3	2.6
Interest expenses	15.4	12.4
Expenses recognised in the consolidated statement of profit or loss	17.7	15.0
Effect of changes:		
Demographic assumptions	-0.1	7.2
Financial assumptions	96.0	-29.7
Experience adjustments	-0.8	2.4
Remeasurement included in OCI	95.1	-20.1
Benefits paid from plan assets	-13.6	-10.2
Benefits paid by the company	-7.1	-7.2
Plan participants' contributions	0.4	0.4
Insurance contributions paid	-0.1	-0.1
Currency translation differences	-46.4	-2.1
Balance as at 31.12.	**543.2**	**497.2**

The following table shows the development of plan assets in 2016 and 2015:

Reconciliation of plan assets in EUR million	**2016**	**2015**
Balance as at 01.01.	295.8	26.0
Acquisition/disposal of business	-	274.5
Administrative expenses/fees	-0.1	-0.1
Expected return on plan assets	10.2	7.2
Expenses and income recognised in the consolidated statement of profit or loss	10.1	7.1
Remeasurement of plan assets	31.6	-4.6
Remeasurement included in OCI	31.6	-4.6
Benefits paid from plan assets	-13.6	-10.2
Employer contributions	8.5	5.1
Plan participants' contributions	0.4	0.4
Insurance contributions paid	-0.1	-0.1
Currency translation differences	-38.6	-2.4
Balance as at 31.12.	**294.1**	**295.8**

The portfolio structure of the plan assets as at 31 December 2016 and 2015 was as follows:

Portfolio structure as at 31.12.2016 in EUR million	**UK**	**Germany**	**USA**	**Other**	**Total**
Debt instruments	145.3	-	6.8	0.9	153.0
Plan assets held by insurance company *	56.4	0.9	-	5.3	62.6
Investment funds	43.4	-	-	0.6	44.0
Real estate funds	7.0	-	0.7	0.2	7.9
Equity instruments	4.5	-	13.6	0.4	18.5
Cash and cash equivalents	6.3	-	0.2	0.1	6.6
Other instruments	1.3	-	-	0.2	1.5
Total plan assets	**264.2**	**0.9**	**21.3**	**7.7**	**294.1**

Portfolio structure as at 31.12.2015 in EUR million	**UK**	**Germany**	**USA**	**Other**	**Total**
Debt instruments	145.3	-	6.6	1.5	153.4
Plan assets held by insurance company *	54.0	0.9	-	4.5	59.4
Investment funds	47.5	-	-	0.6	48.1
Real estate funds	11.2	-	0.7	0.3	12.2
Equity instruments	4.2	-	12.5	0.5	17.2
Cash and cash equivalents	3.5	-	0.3	0.1	3.9
Other instruments	1.5	-	-	0.1	1.6
Total plan assets	**267.2**	**0.9**	**20.1**	**7.6**	**295.8**

* Buy-in insurance contracts

The following table summarises the estimated payments for 2017 and the payments in 2016:

in EUR million	**Estimated payments 2017**	**Payments 2016**
Employer contributions to plan assets	10.3	8.5
Benefit payments from employer	7.1	7.1
Total of payments	**17.4**	**15.6**

The weighted average duration of Springer Nature’s defined benefit obligation was 18 years (2015: 16 years) as at the reporting date.

Provisions for Other Long-term Employee Benefits

In addition to pension benefits, Springer Nature provides, either voluntarily or based on legal or contractual regulations, certain other employee benefits to its employees in several countries. These employee benefits are summarised in the line item "Other long-term employee benefits".

As at 31 December 2016 and 2015, the defined benefit obligation (DBO), fair value of plan assets and net obligations for other long-term employee benefits were as follows:

Other long-term employee benefits as at 31.12.2016 in EUR million	**Defined benefit obligation**	**Plan assets**	**Net pension obligations**
Severance payments	8.0	2.1	5.9
Loyalty benefits	7.7	-	7.7
Phased-retirement schemes	2.4	1.7	0.7
Deferred compensation plan	0.6	0.6	-
Total other long-term employee benefits	**18.7**	**4.4**	**14.3**
Amounts recognised in the consolidated statement of financial position:			
Provisions for other long-term employee benefits			14.3
Other non-current assets			-
Net obligations			**14.3**

Other long-term employee benefits as at 31.12.2015 in EUR million	**Defined benefit obligation**	**Plan assets**	**Net pension obligations**
Severance payments	7.2	1.8	5.4
Loyalty benefits	5.8	-	5.8
Phased-retirement schemes	1.4	0.9	0.5
Deferred compensation plan	0.6	0.6	-
Total other long-term employee benefits	**15.0**	**3.3**	**11.7**
Amounts recognised in the consolidated statement of financial position:			
Provisions for other long-term employee benefits			11.7
Other non-current assets			0.0
Net obligations			**11.7**

Actuarial Assumptions

In accordance with IAS 19, the provisions for pensions were calculated using actuarial models and the projected unit credit method. The amount of the provision depends on the employees' period of service with the company and their pensionable salary while the models factor in future increases in salary and pensions, biometric parameters and prevailing long-term capital market interest rates. Interest expenses recognised in the consolidated statement of profit or loss were calculated based on the net liability using the same long-term capital market interest rate.

The tables below summarise the actuarial assumptions that were used to determine the major pension obligations:

Actuarial assumptions as at 31.12.2016	**Discount rate**	**Future salary development**	**Pension increase rate**	**Employee turnover**
UK	2.60-2.70%	3.20%	3.00% – 3.60%	based on experience
Germany	1.70%	2.50%	1.50%	
USA	4.00-4.20%	n. z.	n. z.	

Actuarial assumptions as at 31.12.2015	**Discount rate**	**Future salary development**	**Pension increase rate**	**Employee turnover**
UK	3.90%	3.00%	2.10% – 3.65%	based on experience
Germany	2.40%	2.50%	1.50%	
USA	4.20-4.45%	n. z.	n. z.	

Springer Nature applied the following mortality tables:

Applied mortality tables	
UK	S1NA CMI 2013 with 1.25% long term average mortality rate
	88% and 92% of SAPS S2 (males/females) with CMI 2015 projections, long-term trend rate of 1.25% p.a.
Germany	Heubeck mortality tables 2005G
USA	MRP2007 Generational White Collar

Sensitivity Analysis for Pension Benefits

An increase or decrease in any of the significant actuarial assumptions would have resulted in the following changes in the present value of the benefit obligations as at 31 December 2016 and 2015:

Impact on the present value of the DBO) as at in EUR million	**31.12.2016**	**31.12.2015**
Increase in discount rate of 25 bps	-23.0	-19.6
Decrease in discount rate by 25 bps	24.8	20.9
Increase in pension increase rate by 25 bps	10.9	7.3
Decrease of pension increase rate by 25 bps	-9.5	-7.1
Increase of salary increase rate by 25 bps	1.5	1.4
Decrease of salary increase rate by 25 bps	-1.3	-1.4
Increase of life expectancy by one year	22.0	17.4
Decrease of life expectancy by one year	-22.2	-17.4

The above sensitivity analyses were calculated by adjusting one parameter while keeping all other parameters unchanged. In practice, this is unlikely to occur, and changes in some of the assumptions may be interdependent. When calculating the sensitivity of the defined benefit obligations to significant actuarial assumptions the same method has been applied as when calculating the pension obligations recognised within the statement of financial position.

Defined Contribution Plans and State Plans

In the case of defined contribution plans, the Group makes payments into an external fund or other welfare fund on a statutory, contractual or voluntary basis. Once the Group has paid the due contributions, it is not obliged to provide any further benefits, thus no provision is recognised in the consolidated statement of financial position.

The amount recognised as an expense for defined contribution plans amounted to EUR 13.1m (2015: EUR 10.9m) in the reporting period. The contributions paid to public/state pension insurance institutions amounted to EUR 11.2m in 2016 (2015: EUR 10.3m).

24 Interest Bearing Loans and Borrowings

The Group is financed by senior loans, a private high-yield loan (hereinafter referred to as “PHY loan”), a working-capital facility (revolving credit facility, hereinafter referred to as “revolver” or “RCF”) and other sources. The lenders are mainly institutional investors. The senior loans and the RCF are syndicated loans under the terms of which lenders and Springer Nature are bound under standard leverage loan facility and intercreditor agreements.

In August 2016, the Group refinanced EUR 420.0m of the PHY by issuing new senior debt of EUR 419.2m and using EUR 0.8m in cash. As the underlying conditions of the financial instruments did not change, the effective interest rate was remeasured with regard to the transaction costs only and the carrying amounts were adjusted accordingly.

The amendment of the facilities can be summarised as follows:

in million	Before PHY refinancing		After PHY refinancing	
	Nominal	Interest rate	Nominal	Interest rate
B8 *	EUR 1,234.9	Max (1%; EURIBOR) + 3.50%	EUR 1,234.9	Max (1%; EURIBOR) + 3.75%
B9 *	USD 1,443.5	Max (1%;USD LIBOR) + 3.50%	USD 1,443.5	Max (1%;USD LIBOR) + 3.75%
B10 *			EUR 419.2	Max (1%; EURIBOR) + 3.75%
Revolver	EUR 250.0	EURIBOR + 3.50%	EUR 250.0	EURIBOR + 3.50%
PHY loan	EUR 640.0	Max (1%; EURIBOR) + 8.00%	EUR 220.0	Max (1%; EURIBOR) + 8.00%

*Tranches of senior loans

The loan maturities remained unchanged, being February 2020 (RCF), August 2020 (senior loans) and August 2021 (PHY loan).

The margins on the senior loan tranches decrease gradually, if the ratio of net debt to EBITDA (leverage ratio) falls. The first margin reduction will occur if the leverage ratio falls below 6.0. A leverage ratio below 4.5 will result in a further decrease of the margin of tranche B8 to 3.25% and the margin of tranche B9 to 3.50%. A leverage ratio less than 4.5 also reduces gradually the revolver margin to 3.00%. In 2016, prior to the refinancing the total leverage ratio fell below 6.0 so that the margins on all senior tranches and the RCF were reduced to 3.50%. As part of the PHY refinancing the margin on the senior tranches was raised by 0.25% to 3.75% until year-end and then turned back to the initially agreed margin.

All loans, except for the revolving credit facility (RCF), are subject to a base interest rate of the maximum of EURIBOR or LIBOR and a floor of 1.00%. For the senior loans, Springer Nature has an option regarding the interest periods. These can be one month, three months, six months or – subject to the acceptance of the lending institutions – 12 months. The PHY loan has fixed interest periods of three months.

Interest payments are made regularly at the end of the interest period, but at least every three months and on every repayment date in the case of senior loans. Repayments of EUR 3.1m, USD 3.7m and EUR 1.0m are due for tranches B8, B9 and B10 respectively at the end of each quarter. Depending on the cash flow performance of the business in the preceding year, a mandatory repayment obligation exists for a certain share of such excess cash flow, which is linked to the leverage level at year-end.

A special feature of the PHY loan is the option to capitalise 50.0% of the interest due as mark-up on the nominal amount of the loan instead of paying it in cash ("PIK toggle option"). If this option is chosen, the margin increases by 0.75% p.a. in the following interest period.

Early repayment of the PHY loan without a prepayment premium is not possible until August 2017. Except for tranche B10 which requires a prepayment premium until August 2017 as well, there are no restrictions to the other senior loans regarding early repayments.

The PHY loan is subordinated to the senior loans. Collateral was provided to the syndicate banks for the senior and the PHY loans, i.e. the Group waived its claims on shares in subsidiaries and other assets (including intellectual property and trade receivables) and pledged these in favour of the lending institutions.

In addition to the senior and PHY loans, the Group is financed by a shareholder loan issued by Springer Science+Business Media GP Acquisition S.C.A. (BCP shareholder loan). In the context of the business combination dated 5 May 2015, Springer Science+Business Media GP Acquisition S.C.A was granted the right to convert the shareholder loan into equity instruments under certain circumstances. This conversion right attached to the BCP shareholder loan is an embedded derivative which, together with the loan, is measured at fair value through profit or loss as a compound instrument (shareholder loan and right to capital contribution) as of 5 May 2015.

The BCP shareholder loan accrues interest at a nominal rate of 10.23%. As at 31 December 2016, the loan comprised two tranches of EUR 322.8m (31.12.2015: EUR 326.2m) and EUR 34.9m (31.12.2015: EUR 34.5m), maturing in August 2022. In connection with the business combination in the prior year, the Group had receivables due from the shareholder held on a trust account. This trust account was settled on 29 July 2016 and existing receivables of EUR 4.2m were offset against the BCP shareholder loan, of which EUR 0.4m relates to interest accrued.

The fair value of the BCP shareholder loan was estimated using a discounted cash flow model. The valuation requires management to make certain assumptions about the model inputs, especially the discount rate to be applied. Cash flows are derived from the contractually agreed rights to repayment held by the creditor of the BCP shareholder loan, which are discounted using the respective market interest rate for this loan. The point of repayment is assumed using business considerations, thus the expected remaining term is shorter than the contractual repayment period. The discount rate applied is 9.2% (31.12.2015: 9.2%). The fair value as at 31 December 2016 comes to EUR 414.3m (31.12.2015: EUR 383.1m). Provided that the right to exchange the BCP shareholder loan for the company's equity instruments is exercised, Springer Nature has no payment obligations from the shareholder loan.

Furthermore, in the course of the business combination, preference shares (henceforth: shareholder loan instruments) of EUR 407.2m were issued by Springer SBM One GmbH to GvH Vermögensverwaltungsgesellschaft XXXIII mbH, a subsidiary of the Holtzbrinck Publishing Group, on 5 May 2015. In connection with the business combination in the prior year, the Group had receivables due from GvH Vermögensverwaltungsgesellschaft XXXIII mbH held on a trust account. This trust account was settled on 29 July 2016 and existing receivables of EUR 4.9m were used to repurchase a total of 284 shareholder loan instruments. The repurchased shareholder loan instruments with a nominal value of EUR 284 were recognised in the consolidated financial statements as own shares; the excess of the nominal value was offset against capital reserves. Utilisation of the shareholder loan instruments was limited by contractual obligations, so as to give them the structural equivalence of the BCP shareholder loan. Under certain circumstances, GvH Vermögensverwaltungsgesellschaft XXXIII mbH can swap the company's shareholder loan instruments in exchange for equity instruments of the company. The obligation related to this put option at the level of SBM Zero GmbH is recognised at fair value as debt capital in the company's consolidated financial statements. The fair value of the shareholder loan instruments was calculated using the discounted cash flow model. The measurement requires management to make certain assumptions about the model inputs, especially the interpretation of contractual agreements and the discount rate to be applied. Cash flows are derived from the contract rights of the shareholder loan instruments, which are discounted using the respective market interest rate for this instrument. The discount rate applied is 9.2% (31.12.2015: 9.2%). The fair value as at 31 December 2016 is EUR 467.2m (31.12.2015: EUR 432.0m). There is no contractual obligation to repay the shareholder loan instruments.

An increase of ten basis points in the discount rate for the shareholder loan instruments and the BCP shareholder loans led to an accumulated decrease in financial liabilities of less than EUR 1.5m as at 31 December 2016 (31.12.2015: EUR 2.0m). A decrease of ten basis points in the discount rate results in an increase in financial liabilities of less than EUR 1.5m (31.12.2015: EUR 2.0m). The sensitivity analyses were calculated by adjusting one parameter while keeping all other parameters unchanged.

A further shareholder loan of EUR 80.0m was provided by GvH Vermögensverwaltungsgesellschaft XXXIII mbH on 5 May 2015 (shareholder loan – GvH). The interest rate on this shareholder loan is 2.0% p.a. Interest is accrued and not compounded. The loan together with the accrued interest will mature in May 2030. Interest of EUR 2.7m (31.12.2015: EUR 1.1m) that did not increase the nominal amount of the loan was deferred at the reporting date and was recognised using the effective interest method.

All shareholder loans are subordinated to the senior and PHY loans. The following tables show the carrying amount of the financial debt of the Group as well as the respective maturities:

in EUR million	Effective interest rate	31.12.2016						
		Carrying amount	Remaining term in years					Total
			< 1 to 1	> 1 to 2	> 2 to 3	> 3 to 5	> 5	
Senior loans	6.6%	2,911.9	30.6	30.6	30.6	2,820.2	-	2,911.9
Shareholder loan instruments		467.2	-	-	-	-	467.2	467.2
Shareholder loan - BCP		414.3	-	-	-	-	414.3	414.3
PHY loan	9.2%	215.7	-	-	-	215.7	-	215.7
Shareholder loan - GvH	9.7%	73.7	-	-	-	-	73.7	73.7
Revolving credit facility	3.3%	52.0	52.0	-	-	-	-	52.0
Other financial liabilities	0.0%	1.1	1.1	-	-	-	-	1.1
Total		**4,135.9**	**83.7**	**30.6**	**30.6**	**3,035.9**	**955.2**	**4,135.9**

in EUR million	Effective interest rate	31.12.2015						
		Carrying amount	Remaining term in years					Total
			< 1 to 1	> 1 to 2	> 2 to 3	> 3 to 5	> 5	
Senior loans	5.7%	2,464.8	25.9	25.9	25.9	2,387.1	0.0	2,464.8
PHY loan	9.5%	619.8	-	-	-	-	619.8	619.8
Shareholder loan instruments		432.0	-	-	-	-	432.0	432.0
Shareholder loan - BCP		383.1	-	-	-	-	383.1	383.1
Shareholder loan - GvH	9.7%	67.3	-	-	-	-	67.3	67.3
Revolving credit facility	3.7%	50.0	50.0	-	-	-	-	50.0
Other financial liabilities	0.0%	1.4	1.4	-	-	-	-	1.4
Total		**4,018.4**	**77.3**	**25.9**	**25.9**	**2,387.1**	**1,502.2**	**4,018.4**

The carrying amount of the senior and PHY loans was presented net of any discounts, arrangement fees and financing-related costs, as well as net of the fair market value of the embedded derivative – i.e. the 1.00% interest floor component – using the effective interest method. The effective interest was calculated based on an expected term of the loans of five years.

The line item “Other financial liabilities” contained accrued interests and bank fees.

The senior loans were denominated in Euro and US dollars and the carrying amounts as at 31 December 2016 and 2015 were as follows:

in million	31.12.2016		31.12.2015	
	EUR	US dollar	EUR	US dollar
Senior loans	1,582.3	1,401.3	1,183.9	1,394.5

The most relevant financial covenants to be monitored and reported are the leverage ratio (ratio between net debt and EBITDA) and the interest cover ratio (ratio between EBITDA and interest expenses). The ongoing compliance with the respective limits set for these key ratios is an important component of Springer Nature's capital management, since a covenant breach can lead to an unplanned debt repayment obligation. Constant monitoring, stress testing and various interest scenario simulations are applied by Springer Nature as part of the financial risk management process as a means of ensuring future covenant compliance. However, compliance with the leverage ratio only has to be ensured if more than 30.0% of the total revolver volume is drawn at the end of a quarter. By contrast, the interest cover ratio is an incurrence covenant, meaning that this covenant must only be complied with if certain events like further borrowing occur. No such event occurred during the reporting period and also not in prior year.

As at the end of reporting period, EUR 52.0m had been drawn on the revolving credit facility. The Group was, therefore, in compliance with all debt covenants and expects to maintain sufficient headroom under the limits set in the financing agreements for future periods. Springer Nature does not see an immediate need for a fundamental short-term to medium-term refinancing of the outstanding debt facilities, as the debt instruments will mature between 2020 and 2022.

Fixed repayments due in 2017 were presented as current financial liabilities in the consolidated statement of financial position.

25 Finance Lease Liabilities

Finance lease liabilities mainly stemmed from property lease contracts at Springer-Verlag GmbH, Heidelberg, Germany.

The finance leases were generally subject to a non-cancellable minimum lease term, at the end of which the lessee, Springer Nature, has the option of acquiring the leased asset at its residual value. There were no arrangements regarding conditional lease payments within the Group and the current leases did not contain options to renew. The lease payments from finance leases were as follows:

31.12.2016 in EUR million	Nominal value	Discounted amount	Present value
Less than 1 year	1.3	0.0	1.3
1 to 5 years	6.6	0.5	6.1
More than 5 years	-	-	-
Total lease payments	**7.9**	**0.5**	**7.4**

31.12.2015 in EUR million	Nominal value	Discounted amount	Present value
Less than 1 year	1.3	0.0	1.3
1 to 5 years	7.9	0.9	7.0
More than 5 years	-	-	-
Total lease payments	**9.2**	**0.9**	**8.3**

26 Other Long-Term Provisions, Non-Current Liabilities and Current Provisions

The line item “Other long-term provisions and non-current liabilities” included non-current purchase price liabilities, other non-current liabilities and other long-term provisions, broken down as follows:

in EUR million	31.12.2016	31.12.2015
Other non-current liabilities	18.4	11.1
Other non-current provisions	2.8	4.6
Purchase price liabilities	1.2	1.3
Other long-term provisions and non-current liabilities	**22.4**	**17.0**

The positions “Other non-current liabilities” and “Purchase price liabilities” were classified as financial liabilities.

The following tables provide details for the composition and movements in the current provisions:

in EUR million	Provisions for legal and other risks	Provisions for returns	Sundry provisions	Total current provisions
Balance as at 01.01.2016	8.6	12.0	14.2	34.8
Additions	2.5	8.7	5.3	16.5
Utilisation	-5.8	-7.2	-4.9	-17.9
Release	-2.5	-1.3	-0.9	-4.7
Reclassification	-	-	0.2	0.2
Currency translation differences	-0.1	-0.2	-0.1	-0.4
Balance as at 31.12.2016	**2.7**	**12.0**	**13.8**	**28.5**

in EUR million	Provisions for legal and other risks	Provisions for returns	Sundry provisions	Total current provisions
Balance as at 01.01.2015	1.4	5.2	0.7	7.3
Acquisition/disposal of business	-	13.1	1.5	14.6
Additions	8.2	12.0	14.1	34.3
Utilisation	-0.9	-18.3	-1.6	-20.8
Release	-0.3	0.0	-0.4	-0.7
Reclassification	-	-	0.0	0.0
Currency translation differences	0.2	0.0	-0.2	0.2
Balance as at 31.12.2015	**8.6**	**12.0**	**14.1**	**34.7**

The provisions for returns related to deliveries in the current and previous period. They were measured on past experience, normal course of business, and on assumptions regarding future development in the book market.

27 Other Current Liabilities

in EUR million	31.12.2016	31.12.2015
Derivative financial instruments	123.3	139.1
Royalty liabilities	72.2	81.4
Personnel-related liabilities	57.3	67.5
Debtors with credit balances	21.4	9.4
VAT liabilities	16.8	12.5
Sundry liabilities	24.9	37.7
Other current liabilities	**315.9**	**347.6**

The position "Sundry liabilities" included liabilities to Springer Hilfsfonds from a loan of EUR 3.2m (2015: EUR 3.2m).

All "Other current liabilities" were classified as financial liabilities.

28 Deferred Income

Deferred income included invoiced sales and subscription payments received in advance, to the extent that the goods were not delivered or services not rendered. Invoiced costs that are charged for packaging and transport were also included in the item. In subsequent periods, the deferred income item is released to the income statement, usually within the next 12 months.

29 Off-Balance Sheet Commitments/Contingent Liabilities

Guarantees and securities of EUR 35.9m (2015: EUR 37.6m) had been granted as at 31 December 2016. An amount of EUR 22.8m (2015: EUR 24.0m) thereof was attributable to guarantees to secure day-to-day bank services (cash pool activities, overdraft facilities etc.), EUR 5.7m (2015: EUR 7.3m) to securities relating to the purchase of software licences, and EUR 2.9m (2015: EUR 2.9m) to securities on behalf of subsidiaries for existing rent agreements. There were other insignificant guarantees to secure company credit cards, business contracts and guarantees for income tax payments in several jurisdictions. The likelihood that the guarantees will result in any future cash outflow was very limited.

Springer Nature entered into journal content distribution deals under which Springer Nature is entitled to acquire the content, distribute and sell it in contractually agreed territories (co-publishing agreements). Springer Nature has to pay contractually agreed minimum royalties which are, however, subject to final adjustment based on quantity, quality and usage of delivered content. The remaining term of the contracts varies between two to six years and Springer Nature expects payment obligations of EUR 59.7m in 2017, slightly increasing in 2018 and decreasing in the following years. There were no other contingent liabilities.

The obligations for operating leases at year-end were EUR 210.8m (2015: EUR 170.8m). The maturity structure of the operating lease payments is summarised in the following table:

in EUR million	31.12.2016 Nominal value	31.12.2015 Nominal value
Less than 1 year	32.9	32.6
1 to 5 years	95.8	81.4
More than 5 years	82.1	56.8
Total lease payments	**210.8**	**170.8**

The majority of the multi-year lease contracts related to office space. The remainder represented leases for company cars, office equipment and IT infrastructure.

30 Financial Instruments and Risk Management

Springer Nature is exposed to various forms of financial risks through its international business operations and financing agreements. This includes amongst others risks from its financial instruments and in particular from movement in foreign exchange rates and interest rates.

The following tables show the carrying amounts and, the amortised costs or fair values of the Group's financial instruments applying the categories of IAS 39, as at 31 December 2016 and 2015. For those financial instruments that were measured at amortised cost, the fair value equals amortised cost. Reported fair values can only be seen as indications of prices that might be achieved when selling these instruments in the market. As in the prior year, there were no reclassifications between the valuation categories in 2016.

in EUR million	31.12.2016		
	Carrying amount	**Amortized cost**	**Fair value**
Financial assets	4.2	4.2	-
Other non-current assets	4.2	4.2	-
Trade receivables	464.5	464.5	-
Other assets	26.9	26.9	-
Cash and cash equivalents	97.0	97.0	-
Loans and receivables	596.8	596.8	-
Available-for-sale financial assets	0.6	-	0.6
Financial assets measured at fair value not through profit or loss	0.6	-	0.6
Financial derivatives - held for trading	1.2	-	1.2
Other non-current assets	2.7	-	2.7
Financial assets at fair value through profit or loss	3.9	-	3.9
Total financial assets	**601.3**	**596.8**	**4.5**
Other long-term provisions and non-current liabilities	18.4	18.4	-
Liabilities to shareholders	73.8	73.8	-
Interest-bearing loans and borrowings	3,180.8	3,180.8	-
Finance lease liabilities	7.4	7.4	-
Trade payables	134.4	134.4	-
Other liabilities	192.4	192.4	-
Liabilities measured at amortised cost	3,607.2	3,607.2	-
Liabilities to shareholders	881.4	-	881.4
Other financial derivatives - held for trading	33.6	-	33.6
Embedded financial derivatives (1% floor) - held for trading	89.7	-	89.7
Contingent consideration at fair value	1.4	-	1.4
Financial liabilities at fair value through profit or loss	1,006.1	-	1,006.1
Total financial liabilities	**4,613.3**	**6,607.2**	**1,006.1**

in EUR million	31.12.2015		
	Carrying amount	Amortized cost	Fair value
Financial assets	5.3	5.3	-
Other non-current assets	5.2	5.2	-
Trade receivables	477.3	477.3	-
Other assets	37.4	37.4	-
Cash and cash equivalents	117.3	117.3	-
Loans and receivables	642.5	642.5	-
Available-for-sale financial assets	9.8	-	9.8
Financial assets measured at fair value not through profit or loss	9.8	-	9.8
Financial derivatives - held for trading	0.4	-	0.4
Other non-current assets	2.5	-	2.5
Financial assets at fair value through profit or loss	2.9	-	2.9
Total financial assets	**655.2**	**642.5**	**12.7**
Other long-term provisions and non-current liabilities	11.1	11.1	-
Liabilities to shareholders	67.3	67.3	-
Interest-bearing loans and borrowings	3,136.0	3,136.0	-
Finance lease liabilities	8.3	8.3	-
Trade payables	127.1	127.1	-
Other liabilities	208.3	208.3	-
Liabilities measured at amortised cost	3,558.1	3,558.1	-
Liabilities to shareholders	815.0	-	815.0
Other financial derivatives - held for trading	41.3	-	41.3
Embedded financial derivatives (1% floor) - held for trading	97.8	-	97.8
Contingent consideration at fair value	1.4	-	1.4
Financial liabilities at fair value through profit or loss	955.5	-	955.5
Total financial liabilities	**4,513.6**	**3,558.1**	**955.5**

The following table shows the reconciliation between financial instruments and the consolidated statement of financial position:

in EUR million	31.12.2016		
	Financial Instruments	**Other**	**Total in statement of financial position**
Financial assets	4.2	-	4.2
Other non-current assets	4.2	1.8	6.0
Trade receivables	464.5	-	464.5
Other assets	26.9	36.5	63.4
Cash and cash equivalents	97.0	-	97.0
Loans and receivables	596.8	38.3	635.1
Available-for-sale financial assets*	0.6	-	0.6
Financial assets measured at fair value not through profit or loss	0.6	0.0	0.6
Financial derivatives - held for trading*	1.2	-	1.2
Other non-current assets	2.7	-	2.7
Financial assets at fair value through profit or loss	3.9	0.0	3.9
Total equity and liabilities	**601.3**	**38.3**	**639.6**
Other long-term provisions and non-current liabilities	18.4	2.8	21.2
Liabilities to shareholders	73.8	-	73.8
Interest-bearing loans and borrowings**	3,180.8	-	3,180.8
Finance lease liabilities**	7.4	-	7.4
Trade payables	134.4	-	134.4
Other liabilities	192.4	-	192.4
Liabilities measured at amortised cost	3,607.2	2.8	3,610.0
Liabilities to shareholders	881.4		881.4
Other liabilities (financial derivatives) – held for trading purposes***	123.3	-	123.3
Contingent consideration at fair value****	1.2	-	1.2
Contingent consideration at fair value***	0.2	-	0.2
Financial liabilities at fair value through profit or loss	1,006.1	-	1,006.1
Total provisions and liabilities	**4,613.3**	**2.8**	**4,616.1**

* "Other assets" item

** Short-term and long-term

*** "Other liabilities" item

**** "Other long-term provisions and non-current liabilities" item

in EUR million	31.12.2015		
	Financial Instruments	**Other**	**Total in statement of financial position**
Financial assets	5.3	-	5.3
Other non-current assets	5.2	4.8	10.0
Trade receivables	477.3	-	477.3
Other assets	37.4	43.7	81.1
Cash and cash equivalents	117.3	-	117.3
Loans and receivables	642.5	48.5	691.0
Available-for-sale financial assets*	9.8	-	9.8
Financial assets measured at fair value not through profit or loss	9.8	-	9.8
Financial derivatives - held for trading*	0.4	-	0.4
Other non-current assets	2.5	-	2.5
Financial assets at fair value through profit or loss	2.9	-	2.9
Total equity and liabilities	**655.2**	**48.5**	**703.7**
Other long-term provisions and non-current liabilities	11.1	4.6	15.7
Liabilities to shareholders	67.3	-	67.3
Interest-bearing loans and borrowings**	3,136.0	-	3,136.0
Finance lease liabilities**	8.3	-	8.3
Trade payables	127.1	-	127.1
Other liabilities	208.3	-	208.3
Liabilities measured at amortised cost	3,558.1	4.6	3.562.7
Liabilities to shareholders	815.0		815.0
Other liabilities (financial derivatives) – held for trading purposes***	139.1	-	139.1
Contingent consideration at fair value****	1.3	-	1.3
Contingent consideration at fair value***	0.1	-	0.1
Financial liabilities at fair value through profit or loss	955.5	-	955.5
Total provisions and liabilities	**4,513.6**	**4.6**	**4,518.2**

* “Other assets” item

** Short-term and long-term

*** “Other liabilities” item

**** “Other long-term provisions and non-current liabilities” item

The tables below show the financial instruments measured at fair value through profit or loss categorised by valuation levels:

in EUR million	31.12.2016			
	Carrying amount	**Level 1**	**Level 2**	**Level 3**
Available for sale	0.6	0.6	-	-
Financial assets measured at fair value not through profit or loss	**0.6**	**0.6**	**-**	**-**
Held for trading	1.2	-	1.2	-
Other non-current assets	2.7	-	2.7	-
Financial assets at fair value through profit or loss	**3.9**	**-**	**3.9**	**-**
Held for trading	123.3	-	123.3	-
Liabilities to shareholders	881.5	-	-	881.5
Contingent consideration at fair value	1.4	-	-	1.4
Financial liabilities at fair value through profit or loss	**1,006.2**	**-**	**123.3**	**882.9**

in EUR million	31.12.2015			
	Carrying amount	**Level 1**	**Level 2**	**Level 3**
Available for sale	9.8	9.8	-	-
Financial assets measured at fair value not through profit or loss	**9.8**	**9.8**	**-**	**-**
Held for trading	0.4	-	0.4	-
Other non-current assets	2.5	-	2.5	-
Financial assets at fair value through profit or loss	**2.9**	**-**	**2.9**	**-**
Held for trading	139.1	-	139.1	-
Liabilities to shareholders	815.0	-	-	815.0
Contingent consideration at fair value	1.4	-	-	1.4
Financial liabilities at fair value through profit or loss	**955.5**	**-**	**139.1**	**816.4**

The gains and losses (excluding interest) recognised in the financial result in 2016 and 2015 are summarised as follows:

in EUR million	2016	2015
Other financial liabilities	-90.2	-79.4
Held for trading	37.4	18.0
Loans and receivables	-6.3	3.0
Total gains and losses (result for the period)	**-59.1**	**-58.4**

The following table presents the interest income and expenses recognised in 2016 and 2015 associated with financial instruments:

in EUR million	2016	2015
Loans and receivables	5.5	4.7
Other financial liabilities	-208.2	-234.7
Total gains and losses (result for the period)	**-202.7**	**-230.0**

The following table presents the gains and losses recognised in other comprehensive income:

in EUR million	2016	2015
Available for sale	-	-0.0
Total gains and losses (other comprehensive income)	**-**	**-0.0**

Financial Risk Management

As part of its Group policies, Springer Nature has established a risk management process aimed at identifying and quantifying the risks that Springer Nature as a group is exposed to. As part of the annual budget process, and with a review in the first half of the following year, each business unit of Springer Nature assesses and updates its risk portfolio for the likelihood of occurrence, potential financial impact and risk mitigation measures. This process is coordinated by Springer Nature's Internal Audit department and tested for compliance with the guidelines for the risk management process. The findings are then summarised in a risk management report and presented to the management and supervisory board of Springer Nature on a regular basis. Springer Nature has categorised potential risks as

- external,
- market-related,
- process-related,
- project-related or
- relating to financing/financial instruments.

Springer Nature is exposed to a variety of financial risks, especially market risks resulting from movements in foreign exchange rates and interest rates.

Exchange Rate Risk

The Group is exposed to risks in various currencies. Foreign currency exchange rate exposure is partly balanced by having operating costs in the countries in which Springer Nature is selling its products and services.

Another central measure aimed at offsetting exchange rate risk consists of Springer Nature’s split of debt tranches into Euro and US dollar denominated sub-tranches. Springer Nature has taken up financial debt denominated in US dollars, which leads to interest and regular debt repayments in US dollars. The nominal values of the loans are structured such that the corresponding interest and amortisation payments approximately equal the amount of operating cash inflows in US dollars which reduces the structural currency risk that could arise from currency imbalances in cash flows significantly.

Any significant currency item subject to exchange rate risk that is not covered by natural structural hedges is hedged separately and individually. In these cases, hedging instruments are entered into to minimise the risks arising from exchange rate fluctuations, between the date on which the hedges were entered into and the expected date of the cash inflow relating to the underlying business transaction. The counterparty risk of these transactions is closely monitored and contracts are only entered into with banks that meet certain tight rating criteria.

The following table summarises the nominal amounts, the fair values as at 31 December 2016 and 2015, and the gains and losses recognised for the forward exchange contracts in each of the periods. The nominal amounts represent the total of all underlying selling amounts.

Forward exchange contracts in EUR million	**Nominal amount**	**Fair value**	**Gains/losses**
31.12.2016	128.9	-0.8	-1.4
31.12.2015	37.0	-0.3	1.2

Another risk arises from Group entities with functional currencies other than the Euro. The income and expenses of these group entities were translated into Euro using the annual average rate, while assets and liabilities were translated into Euro using the closing rate in order to include them in the consolidated financial statements. Changes in the exchange rates may affect, for example, the Group’s revenues and net result as well as the equity position of Springer Nature.

The Group's exposure to changes in the fair value of its monetary assets and liabilities depends mainly on the movement in the exchange rate of the US dollar against the Euro. The positive exchange rate effect from financial assets and liabilities denominated in US dollars in each of Springer Nature's subsidiaries on the Group's net result before taxes is EUR 39.3m (2015: EUR 35.3m) in the case that the US dollar depreciates by 5.0% against the Euro with all other variables held constant. The effect on cash flow is substantially less significant because of the natural hedge relationship through the financing in US dollars.

Interest Rate Risk

The Group is exposed to interest rate risk as Springer Nature's financial debt is subject to variable interest rates. More specifically, as Springer Nature has agreed to a 1.0% floor on its lending rates, any fluctuation of the base interest rates in the US dollar and Euro markets above 1.0% impact Springer Nature's interest expense. Furthermore, negative interest rates have an adverse impact on Springer Nature's result as well given the fact that interest rate swaps are not floored at 0.0%.

To mitigate the risk resulting from movements in interest rates the Group entered into payer swaps (i.e. Springer Nature pays a fixed rate and receives a variable interest rate) to hedge the floating interest rate loans. The hedges mature in September 2018. As at 31 December 2016, 41.0% of the outstanding nominal amounts of the senior loans and PHY loan (EUR 1,347.8m; 2015: EUR 1,334.9m) were hedged at an average fixed hedge rate of 1.96% (2015: 1.30%).

The derivatives used by the Group are not traded on an organised exchange (OTC instruments) and were only concluded with banks of impeccable credit standing that were approved by management. All derivatives were reported at fair value through profit and loss. No financial derivatives are used for speculative purposes.

The following table summarises the nominal amounts, the fair values at year-end (translated at closing exchange rates), as well as the gains and losses recognised in the respective financial year (translated at average exchange rates) for the interest rate swaps.

Interest rate swaps in EUR million	**Nominal amount**	**Fair value**	**Gains/losses**
31.12.2016	1,347.8	-31.6	9.2
31.12.2015	1,334.9	-40.7	-1.0

The nominal amounts are the amounts used to calculate the fixed rate and floating rate interest payments. The fair values of the different interest rate swaps were determined using a discounted cash flow calculation, based on the valuations and available market data as at the reporting date provided by the respective banks with which the contracts were concluded.

The fair value of the 1.0% floor component embedded in the senior loans and the PHY loan was calculated using the Black-76 model and is presented below:

Floor instruments in EUR million	**Nominal amount**	**Fair value**	**Gains/losses**
31.12.2016	3,229.4	-89.7	31.3
31.12.2015	3,213.7	-97.8	17.4

Springer Nature is constantly monitoring the interest rate risk. In order to assess the impact of interest rate changes on the Group's interest expense for upcoming periods as well as on future fair values of its interest rate hedging derivatives, Springer Nature simulates variations both in the Euro and US dollar interest rates scenario analyses, whereby current yield curves and implied forward rates are used to forecast future cash interest payments and fair market values respectively. For the scenario analyses, forward rates are shifted or adjusted based on the scenario to be analysed.

The following tables show scenario analyses for interest expenses based on parallel shifts in market rates. The additional interest expenses represent the net effect, i.e. including the effects of opposing interest rate derivatives.

EURIBOR scenarios in EUR million	**2016**	**2015**
Actual interest expenses (-) and income (+) in the period	-119.8	-112.0
Change in interest expenses with parallel rate curve shift by:		
+300 bp	-12.7	-11.1
+200 bp	-1.1	-2.5
+100 bp	6.3	6.0
-50 BP	-3.2	-3.1

USD LIBOR scenarios in USD million	**2016**	**2015**
Actual interest expenses (-) and income (+) in the period	-78.5	-75.6
Change in interest expenses with parallel rate curve shift by:		
+300 bp	-11.2	-0.3
+200 bp	-6.1	2.3
+100 bp	1.0	4.9
-50 BP	-3.9	-4.0

The following table summarises changes in market values and the effects of these changes in value on the income statement with a parallel shift of the interest curve as at 31 December. For example, the scenario of an interest reduction of 50 basis points (bps) would have led to an additional losses of EUR 10.7m as at 31 December 2016.

in EUR million	**31.12.2016**	**31.12.2015**
Changes to the market value of swaps from changes to the interest rate by		
-50 bps	-10.7	-17.7
+100 bps	20.1	33.8
+200 bps	40.1	66.8
+300 bps	59.6	98.6

Credit Risk

The maximum exposure resulting from credit risks is the total of carrying amounts of each class of financial assets as at the reporting date. Springer Nature's credit risk is, however, mainly the default of customers with open accounts receivable balances. The Group manages its credit risk from trade receivables based on internal guidelines, e.g., internal limits for each customer and customers with large outstanding or overdue trade receivables are monitored regularly.

An amount of EUR 420.1m (2015: EUR 455.2m) of the Group's trade receivables related mainly to the Research and Education businesses, with a customer base that comprises to a large extent public administrations, universities, companies, wholesalers and agencies with strong credit ratings.

A further component of credit risk management is the constant monitoring of countries (and customers in the respective countries) with political instability and/or under financial distress.

Management had no evidence with respect to other given loans that any impairment was necessary.

Liquidity Risk

Liquidity risk for Springer Nature is the risk of not being able to meet financial obligations in full when these become due for payment. The primary sources of liquidity are the operating businesses, external borrowings and borrowings from related parties.

Springer Nature manages its liquidity by pooling and aggregating funds from group entities. Short-term liquidity needs are financed through existing cash balances or by drawing on the revolver. As at 31 December 2016, EUR 13.0m of the revolver was earmarked for letters of credit and other purposes in context of the operational business and was not available for liquidity drawings. Furthermore, two ancillary facilities with a total amount of EUR 16.0m are in place in order to facilitate efficient cash management. Those facilities can be used as overdraft facilities but also for other operational purposes like guarantees.

The Group uses foreign currency exchange swaps to efficiently close liquidity gaps in individual currencies using the available funds.

The following table summarises the nominal amounts, the outstanding foreign exchange swaps as at 31 December 2016 and 2015, as well as the gains and losses recognised in the respective financial year (translated at average exchange rate).

Foreign exchange swaps in EUR million	**Nominal amount**	**Fair value**	**Gains/losses**
31.12.2016	1.4	0.0	-1.5
31.12.2015	20.2	0.1	0.5

The following tables summarise the contractual cash flows of the financial liabilities and derivative financial instruments including the estimated and implied interest payments:

in EUR million	31.12.2016						
	Carrying amount	**Contractual cash flows**	**Less than 6 months**	**7-12 months**	**1 to 2 years**	**2-5 years**	**More than 5 years**
Non-derivative financial liabilities	**4,490.0**	**-4,595.0**	**-475.4**	**-98.1**	**-206.3**	**-3,471.2**	**-343.9**
Other long-term provisions and non-current liabilities	18.4	-20.4	-	-	-5.9	-12.5	-2.0
Interest-bearing loans and borrowings	3,180.8	-3,896.2	-147.8	-97.4	-193.8	-3,457.1	-
Liabilities to shareholders	955.2	-341.9	-	-	-	-	-341.9
Finance lease liabilities	7.4	-7.9	-0.7	-0.7	-6.6	-0.0	-
Trade payables	134.4	-134.4	-134.4	-	-	-	-
Other liabilities	192.4	-192.4	-192.4	-	-	-	-
Contingent consideration	1.4	-1.8	-0.2	-	-	-1.6	-
Derivative financial instruments	**122.1**	**-106.3**	**-20.8**	**-19.8**	**-32.4**	**-33.3**	**-**
Forward exchange contracts (financial liabilities)	0.8						
Cash inflows		130.3	39.8	26.5	32.0	32.0	-
Cash outflows		-130.3	-39.4	-26.1	-32.4	-32.4	-
Currency swaps (financial asset)	-0.0						
Cash inflows		1.5	1.5	-	-	-	-
Cash outflows		-1.4	-1.4	-	-	-	-
1.00% floor comp. (financial liabilities)	89.7	-74.5	-10.9	-10.7	-20.0	-32.9	-
Interest rate swaps (financial liabilities)	31.6						
Cash inflows		14.4	2.8	3.8	7.8	-	-
Cash outflows		-46.3	-13.2	-13.3	-19.8	-	-

in EUR million	31.12.2015						
	Carrying amount	**Contractual cash flows**	**Less than 6 months**	**7-12 months**	**1 to 2 years**	**2-5 years**	**More than 5 years**
Non-derivative financial liabilities	**4,374.7**	**-5,186.0**	**-441.1**	**-104.7**	**-216.0**	**-3,003.4**	**-1,420.9**
Other long-term provisions and non-current liabilities	11.1	-11.7	-0.3	-0.0	-4.2	-3.5	-3.7
Interest-bearing loans and borrowings	3,136.0	-4,094.0	-104.6	-104.0	-210.3	-2,991.7	-683.4
Liabilities to shareholders	882.3	-733.8	-	-	-	-	-733.8
Finance lease liabilities	8.3	-9.3	-0.7	-0.7	-1.3	-6.7	-0.0
Trade payables	127.1	-127.1	-127.1	-	-	-	-
Other liabilities	208.3	-208.3	-208.3	-	-	-	-
Contingent consideration	1.4	-1.8	-0.1	-	-0.2	-1.5	-
Derivative financial instruments	**138.7**	**-126.0**	**-19.5**	**-18.6**	**-42.5**	**-45.3**	**-0.1**
Forward exchange contracts (financial liabilities)	0.3						
Cash inflows		33.4	27.2	6.2	-	-	-
Cash outflows		-32.5	-26.6	-5.2	-	-	-
Currency swaps (financial asset)	-0.1						
Cash inflows		20.0	20.0	-	-	-	-
Cash outflows		-20.1	-20.1	-	-	-	-
1.00% floor comp. (financial liabilities)	97.8	-76.9	-13.0	-11.6	-21.3	-30.9	-0.1
Interest rate swaps (financial liabilities)	40.7						
Cash inflows		11.1	1.6	0.4	4.4	4.7	-
Cash outflows		-61.0	-8.6	-7.7	-25.6	-19.1	-

31 Consolidated Statement of Cash Flows

Springer Nature's statement of cash flows is based on IAS 7 and is intended to enable the reader of the consolidated financial statements to assess the Group's ability to generate cash and cash equivalents. Cash flows are subdivided into net cash flows from operating, investing and financing activities. The statement of cash flows includes the effects of movements in exchange rates and changes in the scope of consolidation. The net cash flows from operating activities are presented using the indirect method, which adjusts the net result for the period for items not generating or using cash for the year.

Investing activities includes purchases of non-current assets, cash payments and proceeds related to the acquisition and divestiture of businesses, as well as proceeds from disposals of non-current assets. Financing activities include changes in shareholders' equity affecting cash, changes in financial liabilities and shareholder loans. Cash and cash equivalents comprise the total volume of liquid funds.

32 Related-Party Transactions and Management Remuneration

Springer SBM Zero GmbH, Berlin, is the parent of the Group in which GvH Vermögensverwaltungsgesellschaft XXXIII mbH, Stuttgart holds 53.0% and Springer Science+Business Media GP Acquisition S.C.A., Luxembourg, holds 47.0%. GvH Vermögensverwaltungsgesellschaft XXXIII mbH is a 100.0% subsidiary of the Holtzbrinck Publishing Group. Springer Science+Business Media GP Acquisition S.C.A. is a partnership limited by shares and its managing general partner is Springer Science+Business Media GP S.à.r.l., Luxembourg. The interests in Springer Science+Business Media GP Acquisition S.C.A. are held by funds that are advised by BC Partners Limited, EQT Partners AB and GIC (sovereign fund of the Government of Singapore) as well as by investment companies in which management holds the shares.

The members of the supervisory board are listed in the following table:

Name	Appointment date
von Holtzbrinck, Stefan (chairman)	05.05.2015
Walgenbach, Ewald (deputy chairman)	05.05.2015
Brockhaus, Michael	05.05.2015
Haderer, Hans	05.05.2015
Mogge, Christian	05.05.2015
Schwanewedel, Jens	05.05.2015

The following table shows the managing directors of Springer Nature in 2016 and 2015:

Name	Appointment	Resignation
Haank, Derk	28.02.2014	
Inchcoombe, Steven	01.06.2016	
Jacobs, Rachel	01.06.2016	
Mos, Martin	28.02.2014	
Thomas, Annette	05.05.2015	09.03.2016
Vest, Ulrich	28.02.2014	

Related parties are regarded as those persons and entities that control the Group or that are controlled or subject to significant influence by the Group.

Other related parties (entities) include the entities that Springer Nature controls but that are not consolidated because there are no material business dealings with them and they are not material for the Group on aggregate.

The following tables show the transactions with parties with significant influence over the Group:

Related party transactions 2016 in EUR million	**Sale of goods/ services to related parties in 2016**	**Purchases of goods/ services from related parties in 2016**	**Financial result 2016**	**Amounts owed by related parties 31.12.2016**	**Amounts owed to related parties 31.12.2016**
Holtzbrinck Publishing Group*	11.6	19.2	-47.0	15.1	603.9
Springer Science+Business Media GP Acquisition S.C.A.	-	-	-35.5	-	414.3

* transactions relate to different legal entities of Holtzbrinck Publishing Group

Related party transactions 2015 in EUR million	**Sale of goods/ services to related parties in 2015**	**Purchases of goods/ services from related parties in 2015**	**Financial result 2015**	**Amounts owed by related parties 31.12.2015**	**Amounts owed to related parties 31.12.2015**
Holtzbrinck Publishing Group*	12.1	13.4	-28.6	21.0	510.3
Springer Science+Business Media GP Acquisition S.C.A.	0.1	0.2	-51.5	5.0	383.1

* transactions relate to different legal entities of Holtzbrinck Publishing Group

The financial liabilities included the shareholder loans granted by Springer Science+Business Media GP Acquisition S.C.A. and GvH Vermögensverwaltungsgesellschaft XXXIII mbH; the expense in the financial result corresponds to the interest calculated using the effective interest method as well as the measurement gain or loss from financial instruments recognised at fair value through profit or loss.

An indefinite license agreement was concluded with Holtzbrinck Publishing Group to use the Macmillan trade name.

33 Subsequent Events

In March 2017, Springer Nature successfully negotiated a repricing of its senior loans denominated in EUR. As a result the floor will be reduced by 0.5% to 0.5% and the margin will decrease to 3.25%. Furthermore, new funds denominated in EUR were used to repay a portion of the approximate USD 133m in senior loans denominated in US dollars. The effective date of the repricing was 7 April 2017.

On 27 June 2017, Springer Nature made it known that Derk Haank will step down from his role as chief executive officer (CEO) by the end of 2017. His successor is Daniel Ropers, currently the CEO of bol.com. To ensure a smooth handover, Daniel Ropers will work together with Derk Haank for a transition period starting 1 October 2017.

There were no further events after the reporting date, which had a significant influence on the net assets, financial position or results of operations of the Group.

Berlin, 26 July 2017

Derk Haank Steven Inchcoombe Rachel Jacobs

Martin Mos Ulrich Vest

34 Significant Subsidiaries and Participations as at 31 December 2016/2015

Name and registered office of entity	% shareholding	
	2016	**2015**
Parent company		
Springer SBM Zero GmbH, Berlin		
Subsidiaries		
Argentina		
Editorial Estrada S.A., Buenos Aires	100.00	100.00
Editorial Puerto de Palos S.A., Buenos Aires	100.00	100.00
Macmillan Publishers S.A., Buenos Aires	100.00	100.00
Springer ADIS Argentina S.A., Buenos Aires	100.00	100.00
Australia		
Macmillan Science and Education Australia Pty Ltd., Victoria	100.00	100.00
Springer Science and Business Media Australia Pty Ltd., Sydney	100.00	100.00
Austria		
Hubert Ebner Verlags GmbH, Thalheim bei Wels	100.00	100.00
Springer Austria Holding GmbH, Vienna	100.00	100.00
Springer-Verlag GmbH, Vienna	100.00	100.00
Botswana		
Macmillan Botswana Publishing Company (Pty), Gaborone	100.00	100.00
Brazil		
Macmillan do Brasil Editora, Commercializdora, Importadora e Distribuitora Ltda., São Paulo	100.00	100.00
Springer Health Do Brasil Ltda., São Paulo	100.00	100.00
China		
Macmillan Information Consulting Services Co. Ltd., Shanghai	100.00	100.00
Shanghai Springer Information Consulting Services Co., Ltd, Shanghai	100.00	100.00
Colombia		
Macmillan Publishers S.A.S., Bogotá	100.00	100.00
Egypt		
Kawkab Distribution Ltd., Cairo	98.00	98.00
Macmillan Publishers Egypt Ltd., Cairo	100.00	100.00
France		
Codes Rousseau S.A.S., Château d'Olonne	100.00	100.00
Planète Permis S.A.S., Goxwiller	100.00	100.00
Springer Science+Business Media France S.A.R.L., Paris	100.00	100.00

Name and registered office of entity	% shareholding	
	2016	2015
France (continued)		
Springer Science+Business Media France S.A.S., Paris	100.00	100.00
Springer-Verlag France S.A.S., Paris	100.00	100.00
Germany		
FUCHSBRIEFE Dr. Hans Fuchs GmbH, Berlin *	100.00	100.00
DriversCoach GmbH, Rahden *	100.00	100.00
InfoChem Gesellschaft für chemische Information mbH, Munich*	100.00	100.00
J.B. Metzler Verlag GmbH, Stuttgart **	-	100.00
Medizinisches Bildungszentrum Deutschland GmbH, Hamburg *	100.00	-
MSE Beteiligungen GmbH, Berlin *	100.00	100.00
Spektrum der Wissenschaft Verlagsgesellschaft mbH, Heidelberg *	100.00	100.00
Springer Campus GmbH, Berlin *	100.00	-
Springer Customer Service Center GmbH, Heidelberg *	100.00	100.00
Springer Fachmedien München GmbH, Munich *	100.00	100.00
Springer Fachmedien Wiesbaden GmbH, Wiesbaden *	100.00	100.00
Springer Medizin Verlag GmbH, Berlin *	100.00	100.00
Springer SBM Two GmbH, Berlin *	100.00	100.00
Springer SBM One GmbH, Berlin	73.12	73.12
Springer Science+Business Media Deutschland GmbH, Berlin *	100.00	100.00
Springer Science+Business Media Real Estate GmbH, Berlin *	100.00	100.00
Springer Science+Business Media Real Estate Holding GmbH, Berlin *	100.00	100.00
Springer SBM International GmbH, Berlin *	100.00	100.00
Springer Science+Business Media GmbH, Berlin *	100.00	100.00
Springer Verlag GmbH, Heidelberg *	100.00	100.00
Tiega 15 GmbH, Berlin *	100.00	100.00
Wendel-Verlag GmbH, Kassel *	100.00	100.00
Hong Kong		
Macmillan Production (Asia) Limited, Hong Kong **	-	100.00
Macmillan Publishers (China) Limited, Hong Kong	100.00	100.00
Springer Asia Ltd., Hong Kong	100.00	100.00
India		
Crest Premedia Solutions Private Limited, Pune	90.00	90.00
Macmillan Publishers India Private Limited, Chennai	88.10	88.10
Scientific Publishing Services Private Ltd., Chennai	90.00	90.00
Springer Editorial Services Private Limited, New Delhi **	-	100.00
Springer (India) Private Ltd., New Delhi	100.00	100.00
Italy		
Springer-Verlag Italy S.r.l., Milan	100.00	100.00
Springer Healthcare Italy S.r.l., Milan	100.00	100.00
Japan		
Macmillan Language House Limited, Tokyo	100.00	100.00
Nature Japan KK, Tokyo	100.00	100.00
Springer Japan KK, Tokyo	100.00	100.00

Name and registered office of entity	% shareholding	
	2016	**2015**
Lesotho		
Macmillan Boleswa Publishers (Lesotho) (Pty) Limited, Maseru	100.00	100.00
Mauritius		
Springer SBM Holding Ltd., Ebene	100.00	100.00
Springer SBM Services Ltd., Ebene	100.00	100.00
Mexico		
Ediciones Castillo, S.A. de C.V., Mexico City	100.00	100.00
Heinemann Mexico S.A. de C.V., Mexico City **	-	100.00
Macmillan Administracion Corporativa, S.A. de C.V., Mexico City	100.00	100.00
Macmillan Publishers, S.A. de C.V., Mexico City	100.00	100.00
Springer Science+Business Media Mexico, S.A. de C.V., Mexico City	100.00	100.00
Mozambique		
Editora Nacional de Mocambique, Maputo	90.00	90.00
Macmillan Educacao Mozambique Limitada, Maputo	80.00	80.00
Namibia		
Edumeds (Pty) Limited, Windhoek	100.00	100.00
Edumeds (Rundu) (Pty) Limited, Windhoek	100.00	100.00
Macmillan Education Namibia Publishers (Pty) Limited, Windhoek	100.00	100.00
Namibia Educational Services (Pty) Limited, Windhoek	100.00	100.00
Namibia Publishing House (Pty) Limited, Windhoek	100.00	100.00
Netherlands		
Checklist Publishing B.V., Dordrecht	100.00	100.00
College Press Netherlands B.V., Amsterdam	100.00	100.00
Mekentosj B.V., Dordrecht	100.00	100.00
Publicount B.V., Rotterdam	100.00	100.00
Rendement Uitgeverij B.V., Rotterdam	100.00	100.00
Springer Media B.V., Houten	100.00	100.00
Springer Science+Business Media B.V., Dordrecht	100.00	100.00
Springer Science+Business Media Finance B.V., Dordrecht	100.00	100.00
New Zealand		
Adis International Limited, Auckland	100.00	100.00
Peru		
Macmillan Publishers S.A., Lima	95.00	95.00
Poland		
Macmillan Polska Sp. z o.o., Warsaw	100.00	100.00
Singapore		
Springer Nature Singapore Private Ltd., Singapore	100.00	100.00

Name and registered office of entity	% shareholding	
	2016	2015
South Africa		
Macmillan Author's Share Trust, Johannesburg ***	-	-
Macmillan Employee Share Trust, Johannesburg ***	-	-
Macmillan South Africa (Pty) Limited, Johannesburg	75.00	75.00
Springer Science and Business Media South Africa (Pty) Ltd., Midrand (Johannesburg)	100.00	100.00
South Korea		
Macmillan Korea Publishers Limited, Seoul	100.00	100.00
Springer Korea Ltd., Seoul	100.00	100.00
Spain		
Editorial Trafico Vial S.A., Móstoles (Madrid)	100.00	100.00
Macmillan Iberia S.A.U., Madrid	100.00	100.00
Nature Publishing Group Iberoamerica, S.L., Madrid **	-	100.00
Prensa Cientifica S.A., Barcelona	100.00	100.00
Springer Healthcare Iberica S.L., Madrid	100.00	100.00
Swaziland		
Macmillan Boleswa Publishers (Pty) Limited, Mbabane	100.00	100.00
Macmillan Education Swaziland (Pty) Limited, Mbabane	100.00	100.00
MSNP Pty Limited, Mbabane	70.00	70.00
Switzerland		
Springer International Publishing AG, Cham	100.00	100.00
Springer Transport Media Schweiz GmbH, Urdorf	100.00	100.00
Taiwan		
Macmillan Taiwan Limited, Taipei	100.00	100.00
Springer Taiwan Limited, Taipei	100.00	100.00
Thailand		
Macmillan Publishers (Thailand) Limited, Bangkok	100.00	100.00
Turkey		
Springer Yayincilik Ticaret Limited Sirketi, Istanbul	100.00	100.00
UK		
BioMed Central Limited, London	100.00	100.00
Current Controlled Trials Limited, London	100.00	100.00
Current Science Limited, London	100.00	100.00
Genome Biology Limited, London	100.00	100.00
HM Publishers Holdings Limited, London	100.00	100.00
Holtzbrinck Publishers Holdings Limited, London	100.00	100.00
Livfe Limited, London	100.00	100.00
Macmillan (SLP) General Partner Limited, Edinburgh	100.00	100.00
Macmillan Limited, London	100.00	100.00

Name and registered office of entity	% shareholding	
	2016	2015
UK (continued)		
Macmillan Magazines Limited, London	100.00	100.00
Macmillan Pension Plan Limited, London	100.00	100.00
Macmillan Publishers Holdings Limited, London	100.00	100.00
Macmillan Publishers Limited, London	100.00	100.00
Macmillan Scottish Limited Partnership, Edinburgh	100.00	100.00
Macmillan Subscriptions Limited, London	100.00	100.00
Springer Healthcare Limited, London	100.00	100.00
Springer Nature One Limited, London	100.00	-
Springer Nature Two Limited, London	100.00	-
Springer Science+Business Media UK Limited, London	100.00	100.00
Springer-Verlag London Limited, London	100.00	100.00
Stampdew Limited, London	100.00	100.00
USA		
Apress LLC, Sacramento	100.00	100.00
KC & COF Inc., Emeryville	100.00	100.00
Macmillan Academic Publishing Inc., New York	100.00	100.00
Nature America Inc., New York	100.00	100.00
Rednova Learning Inc., Florida	100.00	100.00
Springer Customer Service Center LLC, Wilmington	100.00	100.00
Springer Healthcare LLC, Wilmington	100.00	100.00
Springer Science+Business Media LLC, Boston	100.00	100.00
Springer Science+Business Media Finance Inc., Wilmington	100.00	100.00

The Group has an interest in the Macmillan Scottish Limited Partnership which is fully consolidated into the consolidated financial statements. The Group has made use of the exemption conferred by Regulation 7 of the Partnerships (Accounts) Regulations 2008 and has, therefore, not appended the accounts of this qualifying partnership to these financial statements. Separate accounts for the partnership are not required to be, and have not been, filed at Companies House in the UK.

* The Group has made use of the exemption clause of section 264 paragraph 3 number 4a HGB ("Handelsgesetzbuch": German Commercial Code), relieving it from the duty to publish and file the separate financial statements of these German entities.

** merged, liquidated or deregistered

*** Springer Nature controls the trusts through the trustees which are nominated by a subsidiary of the Group.

35 Associates as at 31 December 2016/2015

Name and registered office of entity	% shareholding	
	2016	**2015**
France		
Pour la Science S.A.R.L., Paris	50.00	50.00
Germany		
GbR Musik in Geschichte und Gegenwart, Kassel	50.00	50.00
med update GmbH, Wiesbaden *	50.00	50.00
Springer-VDI-Verlag GmbH, Düsseldorf	45.00	45.00
Springer-VDI-Verlag GmbH & Co. KG, Düsseldorf	45.00	45.00
Italy		
Le Scienze S.p.A., Rome	50.00	50.00
Japan		
Nikkei Science Inc., Tokyo	50.00	50.00
Spain		
Ediciones Bilingues SL, Madrid	50.00	50.00
USA		
Research Square LLC, Durham	30.00	-
Zimbabwe		
College Press Publishers (Pty) Limited, Harare	48.91	48.91

*49.00% of voting rights

36 Other Investments as at 31 December 2016/2015

Name and registered office of entity	% shareholding	
	2016	**2015**
Akademie der Deutschen Medien gGmbH, Munich, Germany	5.00	5.00
Editorial Delti Mexico S.A. DE C.V., Mexico City, Mexico	15.18	15.18
Inchi Trust Ltd. (Limited by Guarantee), London, UK	50.00	50.00
King’s Cross and ST. Pancras Business Partnership Ltd., London, UK	12.50	12.50
Princeton Architectural Press, Inc., New York, USA	1.10	1.10
Repro India Limited, Mumbai, India	15.00	15.00

The following English-language translation of the German-language independent auditor's report (Bestätigungsvermerk des unabhängigen Abschlussprüfers) refers to the consolidated financial statements, prepared in accordance with International Financial Reporting Standards as adopted by the EU, and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB ("Handelsgesetzbuch": German Commercial Code), as well as the group management report, prepared on the basis of German commercial law (HGB), of Springer Nature GmbH, Berlin, as of and for the year ended December 31, 2016 as a whole and not solely to the consolidated financial statements presented here. The group management report is not published here.

Audit opinion

We have audited the consolidated financial statements prepared by Springer SBM Zero GmbH, Berlin, comprising the income statement, the statement of comprehensive income, the statement of financial position, the statement of cash flows, the statement of changes in equity, the notes to the financial statements, together with the group management report for the financial year from 1 January to 31 December 2016. The preparation of the consolidated financial statements and the group management report in accordance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315a (1) HGB ["Handelsgesetzbuch": German Commercial Code] is the responsibility of the company's management. Our responsibility is to express an opinion on the consolidated financial statements and the group management report based on our audit.

We conducted our audit of the consolidated financial statements in accordance with Sec. 317 HGB and German generally accepted standards for the audit of financial statements promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Those standards require that we plan and perform the audit such that misstatements materially affecting the presentation of the net assets, financial position and results of operations in the consolidated financial statements in accordance with the applicable financial reporting framework and in the group management report are detected with reasonable assurance. Knowledge of the business activities and the economic and legal environment of the Group and expectations as to possible misstatements are taken into account in the determination of audit procedures. The effectiveness of the accounting-related internal control system and the evidence supporting the disclosures in the consolidated financial statements and the group management report are examined primarily on a test basis within the framework of the audit. The audit includes assessing the annual financial statements of those entities included in consolidation, the determination of entities to be included in consolidation, the accounting and consolidation principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements and the group management report. We believe that our audit provides a reasonable basis for our opinion.

Our audit has not led to any reservations.

In our opinion, based on the findings of our audit, the consolidated financial statements comply with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315a HGB and give a true and fair view of the net assets, financial position and results of operations of the Group in accordance with these requirements. The group management report is consistent with the consolidated financial statements, complies with the legal requirements and as a whole provides a suitable view of the Group's position and suitably presents the opportunities and risks of future development.

Berlin, 26 July 2017

Ernst & Young GmbH
Wirtschaftsprüfungsgesellschaft

(signed)	*(signed)*
Kausch-Blecken von Schmeling Wirtschaftsprüfer [German Public Auditor]	Weiß Wirtschaftsprüfer [German Public Auditor]