

Financials includes the report of the Board of Directors and the financial statements, as well as Stora Enso in capital markets and our tax footprint.



Financials

Part of Stora Enso's Annual Report 2019

THE RENEWABLE MATERIALS COMPANY

Dividend proposal per share
EUR 0.50

Operational ROCE
9.8%

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In this report: This publication consists of both audited and unaudited contents. The audited parts include the consolidated financial statements, the parent company financial statements, and the notes to the financial statements. The unaudited parts – such as Stora Enso in 2019, the Report of the Board of Directors, Stora Enso in capital markets, and Stora Enso as a taxpayer – are marked with a symbol on the top of the page. The contents of Stora Enso as a taxpayer have been assured by an independent third-party assurance provider with a level of Limited Assurance. The official audited financial statements in Finnish and an unofficial Swedish translation can be found on the company website > storaenso.com/download-centre

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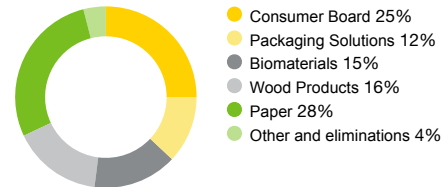
Stora Enso in 2019

Why to invest in Stora Enso

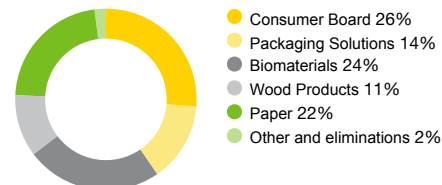
Part of the bioeconomy, Stora Enso is a leading global provider of renewable solutions in packaging, biomaterials, wooden construction and paper. Our fiber-based materials are renewable, recyclable and fossil free. Our solutions offer low-carbon alternatives to products based on finite resources. We believe that everything that is made from fossil-based materials today can be made from a tree tomorrow. Stora Enso is well-positioned for profitable growth: In a long-term, we estimate our annual sales to increase 6-8%, excluding Paper, and have a target of above 13% for operational return on capital employed (ROCE) for the Group. We have a strong cash flow generation and we aim to maintain the capex at the targeted level, at or below depreciation and depletion over the business cycle. Stora Enso is well within the targeted level of debt to equity (less than 60%) and close to the targeted level of net debt to operational EBITDA (below 2.0x). Stora Enso has a dividend policy to distribute 50% of earnings per share (EPS) over the cycle.

Stora Enso shares are listed on Nasdaq Helsinki Oy (STEAV, STERV) and Nasdaq Stockholm AB (STE A, STE R). In addition, the shares are traded in the USA as ADRs (SEOAY).

Sales 2019



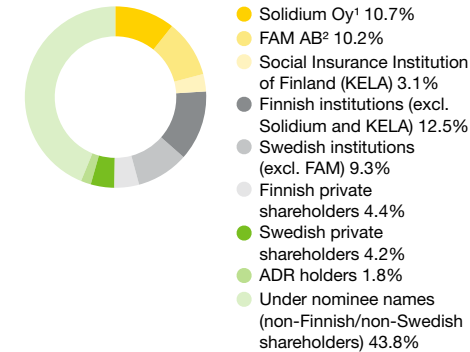
Operational EBIT 2019



Key figures

| | 2019 | 2018 | Change | Target |
|---|--------|--------|--------|--------|
| Sales, EUR million | 10 055 | 10 486 | -4.1% | |
| Operational EBITDA, EUR million | 1 542 | 1 878 | -17.9% | |
| Operational EBIT, EUR million | 953 | 1 325 | -28.1% | |
| Operational EBIT margin | 9.5% | 12.6% | | |
| Operating profit (IFRS), EUR million | 1 305 | 1 390 | -6.1% | |
| Net profit for the period, EUR million | 856 | 988 | -13.4% | |
| Net interest-bearing liabilities, EUR million | 3 209 | 2 092 | 53.4% | |
| Operational ROCE, % | 9.8% | 15.5% | | >13% |
| EPS (basic), EUR | 1.12 | 1.28 | -13.1% | |
| Net debt/last 12 months' operational EBITDA ratio | 2.1 | 1.1 | | <2.0 |
| Net debt/equity ratio | 0.43 | 0.31 | | <0.60 |
| Fixed costs to sales, % | 24.3% | 23.6% | | <20% |

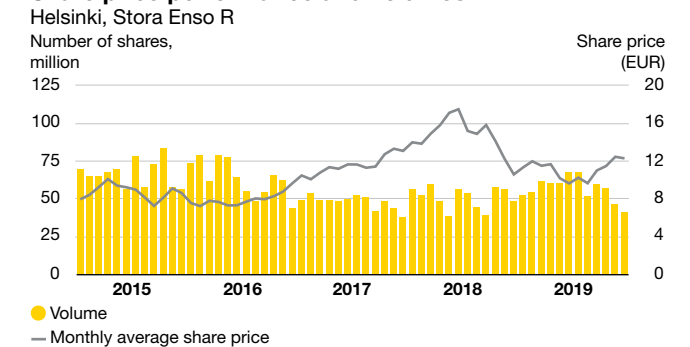
Ownership distribution, % of shares held



¹ Entirely owned by Finnish state.

² As confirmed to Stora Enso.

Share price performance and volumes



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Report of the Board of Directors

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Stora Enso introduction

Part of the bioeconomy, Stora Enso (the Group or the Company) is a leading global provider of renewable solutions in packaging, biomaterials, wooden construction and paper. Our customers include packaging manufacturers, brand owners, paper and board producers, publishers, retailers, printing houses, converters, and joinery and construction companies.

Our fibre-based materials are renewable and recyclable. Our solutions offer low-carbon alternatives to products based on finite resources. We believe that everything that is made from fossil-based materials today can be made from a tree tomorrow.

Stora Enso had 26 096 employees on average during 2019. Our sales in 2019 were EUR 10.1 billion, with an operational EBIT of EUR 1.0 billion. Stora Enso shares are listed on Nasdaq Helsinki Oy (STEAV, STERV) and Nasdaq Stockholm AB (STE A, STE R).

Markets and deliveries

Demand for cartonboard decreased by 2% in Western Europe and continued to grow in Eastern Europe, but with modest speed, reaching just 1% growth. Demand for cartonboard in North America was flat and demand in Asia Pacific declined further 2% after similar drop a year earlier driven by 5% demand decline in China.

Global containerboard demand declined slightly compared to previous year mainly driven by decreased activities in manufacturing sector affected by the trade dispute. However, the containerboard demand in Europe continued to increase slightly. Demand growth of corrugated board in our European focus countries remained strong; the annual average growth rate was close to 3%.

World chemical market pulp demand was flat (+0.1%) through the first 9 months of 2019. Deliveries, however, saw a seasonal peak in Q4, which increased the overall demand by 1% in 2019. Softwood pulp deliveries increased by 4.5% thanks to grade switching, and hardwood pulp deliveries were flat compared to 2018. Global demand increased in Asia, especially in China, and Eastern Europe in 2019 and contracted in Europe, North America and Latin America. The global chemical market pulp capacity increased by 1% in 2019, the softwood segment increased by 2.2% while hardwood capacity remained flat (+0.2%). The overall demand-capacity balance stood at 89%, 1 percent point up from 2018.

High pulp inventories, slow demand, declining prices and overall economic uncertainty characterised the year 2019. Underlying

demand conditions in paper and board sector remain difficult in 2019. By the end of the year, inventories were approaching the normal levels thanks to production curtailments. There were numerous closures in Western Europe during 2019, especially in woodfree paper sector. Global tissue output also grew below trend as developing markets mature.

Global softwood sawn demand 2019 remained on 2018 level. Suppliers have been reducing high inventories from 2018 and this has had a negative impact on prices on the market. In 2019 Chinese market was growing well, but as European market growth was small and the US market was slightly declining, market in total remained on 2018 level. All global markets, US, most of Europe, Japan, China and most of Asia were oversupplied during 2019. Also, Australian stocks have been worked down during the year affecting prices on the market.

Demand erosion of paper intensified during 2019. European paper demand was 8% weaker than in 2018. As a result of demand decline European paper market's supply and demand balance has turned unfavourable for paper producers. In North America demand declined by 11% compared to 2018. In Asia demand declined 5%. Global paper consumption was 7% lower in 2019 than 2018. However, variation between paper grades is wide. Uncoated fine paper global demand decline was 2% whereas newsprint declined by 12%.

Production and external deliveries

| | 2019 | 2018 | Change % 2019-2018 |
|---|-------|-------|-----------------------|
| Consumer board deliveries, 1 000 tonnes | 2 811 | 2 914 | -3.5% |
| Consumer board production, 1 000 tonnes | 2 775 | 2 922 | -5.0% |
| Containerboard deliveries, 1 000 tonnes | 943 | 985 | -4.3% |
| Containerboard production, 1 000 tonnes | 1 303 | 1 320 | -1.3% |
| Corrugated packaging deliveries, million m ² | 943 | 940 | 0.4% |
| Corrugated packaging production, million m ² | 1 055 | 1 048 | 0.7% |
| Market pulp deliveries, 1 000 tonnes | 2 362 | 2 017 | 17.1% |
| Wood product deliveries, 1 000 m ³ | 4 918 | 5 095 | -3.5% |
| Paper deliveries, 1 000 tonnes | 4 130 | 4 591 | -10.0% |
| Paper production, 1 000 tonnes | 4 065 | 4 633 | -12.3% |

Estimated consumption of board, pulp, sawn softwood, and paper in 2019

| Tonnes, million | Europe | North America | Asia and Oceania |
|---|--------|---------------|------------------|
| Consumer board | 11.0 | 9.4 | 26.3 |
| Containerboard | 33.6 | 31.5 | 79.1 |
| Corrugated board (billion m ²) ¹ | 10.8 | n/a | 73.1 |
| Chemical market pulp | 17.3 | 7.5 | 34.0 |
| Sawn softwood (million m ³) | 99.2 | 99.9 | n/a |
| Newsprint | 5.1 | 2.3 | 8.4 |
| Uncoated magazine paper | 2.8 | 1.2 | 0.2 |
| Coated magazine paper | 4.1 | 1.9 | 2.8 |
| Coated fine paper | 4.3 | 3.1 | 10.4 |
| Uncoated fine paper | 7.1 | 7.0 | 20.1 |

¹ European focus markets (Baltics, FI, PL, RU, SE) and China. Source: Pöyry, ICCA, RISI, Numera, Euro-Graph, PPPC, Stora Enso, UNECE

The Group's external consumer board deliveries totalled 2 811 000 tonnes, which was 103 000 tonnes or -3.5% lower compared to a year ago. This was mainly due to decreased volumes in Europe. External containerboard deliveries decreased by 42 000 tonnes, or -4.3%, from 985 000 tonnes to 943 000 tonnes, mainly due to lower recycled containerboard deliveries. External corrugated board deliveries increased slightly to 943 million m². Market pulp deliveries increased by 345 000 tonnes or 17.1% to record high 2 362 000 tonnes, mainly due to higher bleached eucalyptus kraft pulp (BEKP) deliveries from Latin American pulp mills and challenges in Nordic wood sourcing in the beginning of 2018. External wood product deliveries decreased 177 000 m³ or -3.5% to 4 918 000 m³, negatively impacted by curtailments in Nordic saw mills to manage inventories. External paper deliveries totalled 4 130 000 tonnes, down 461 000 tonnes or -3.5% from 2018, due to lower deliveries in most paper grades and disposal of Dawang Mill in China.

Operational key figures, items affecting comparability and other non-IFRS measures

The list of Stora Enso's non-IFRS measures and the calculation of our key figures are presented at the end of the Report of the Board of Directors. See also the chapter Non-IFRS measures at the end of this report.

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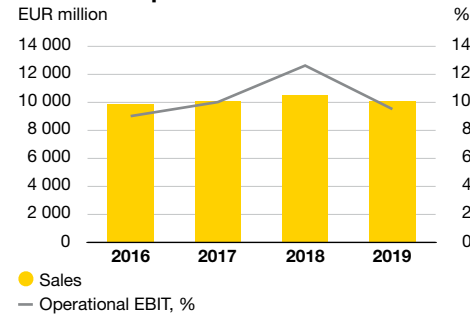
Financial results – Group

Sales at EUR 10 055 (10 486) million were 4.1% lower than a year earlier, mainly due to lower paper volumes and significantly lower sales prices in all pulp grades and containerboard, wood product prices were also lower. Consumer Board and Paper prices had a positive impact to sales. The impact of the foreign exchange rate movements on sales was EUR 39 million positive. Sales excluding the paper business decreased by 3.0%.

In October, Stora Enso completed the divestment of its 60% equity stake in the Dawang Mill in China to its joint venture partner, Shandong Huatai Paper.

Operational EBIT at EUR 953 (1 325) million decreased 28.1% or EUR 372 million and represents a margin of 9.5% (12.6%).

Sales and operational EBIT



Operational EBIT decreased mainly due to significantly lower sales prices in all pulp grades, containerboard and wood products. Lower paper volumes had also a negative impact to EBIT. Consumer Board and paper prices had a positive EBIT impact.

Variable costs were EUR 26 million higher, mainly wood and transportation costs. Fixed costs and depreciation combined decreased EUR 36 million due to profit protection programme actions. The net foreign exchange impact increased operational EBIT by EUR 73 million. The operational result from equity accounted investments was EUR 33 million lower, mainly due to the Bergvik Skog transaction during Q2.

The IFRS operating profit includes a positive net effect of EUR 493 (negative 2) million from IAS 41 forest valuation from subsidiaries and joint operations. The positive impact comes mainly from the increase in fair valuation in Stora Enso owned forests in Sweden. There is also a positive net effect of EUR 52 (positive 53) million from Stora Enso's share of net financial items, taxes and IAS 41 forest valuations of equity accounted investments. The positive impact came mainly from an increase in fair valuation of forests of the Nordic equity accounted investment Tornator.

Tangible and intangible asset impairments amounted to EUR 78 (1) million and impairment reversals amounted to EUR 21 (0) million.

The Group recorded items affecting comparability (IAC) with a negative impact of EUR 192 (positive 20) million on its IFRS operating

profit and a positive impact of EUR 13 (negative 27) million on income taxes. The IACs relate mainly to Bergvik Skog restructuring (negative EUR 41 million), Oulu Mill conversion (negative EUR 22 million), environmental provisions (negative EUR 13 million), the profit protection programme (negative EUR 47 million) and net fixed asset impairments (negative EUR 62 million) coming mainly from asset write downs in Biomaterials division.

The IFRS operating profit was EUR 1 305 (1 390) million.

Segment share of operational EBIT, IAC, fair valuations and non-operational items and operating profit/loss

| EUR million | Year Ended 31 December | | | | | |
|--------------------------|------------------------|--------------|--|-----------|-----------------------|--------------|
| | Operational EBIT | | IAC, Fair Valuations and Non-Operational items | | Operating Profit/Loss | |
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Consumer Board | 250 | 231 | -3 | -1 | 247 | 230 |
| Packaging Solutions | 135 | 245 | 6 | -1 | 141 | 244 |
| Biomaterials | 233 | 427 | -53 | -3 | 180 | 425 |
| Wood Products | 105 | 165 | -13 | -1 | 92 | 164 |
| Paper | 213 | 234 | -59 | 0 | 154 | 234 |
| Other | 17 | 23 | 474 | 71 | 491 | 93 |
| Total | 953 | 1 325 | 352 | 65 | 1 305 | 1 390 |
| Net financial items | | | | | -168 | -180 |
| Profit before Tax | | | | | 1 137 | 1 210 |
| Income tax expense | | | | | -281 | -221 |
| Net Profit | | | | | 856 | 988 |

Operational EBIT comprises the operating profit excluding items affecting comparability (IAC) and fair valuations from the segments and Stora Enso's share of the operating profit of equity accounted investments (EAI), also excluding items affecting comparability and fair valuations.

IAC = Items affecting comparability are exceptional transactions that are not related to recurring business operations. The most common IAC are capital gains and losses, impairments or impairment reversals, disposal gains and losses relating to Group companies, provisions for planned restructurings, environmental provisions, changes in depreciation due to restructuring and penalties. Items affecting comparability are normally disclosed individually if they exceed one cent per share.

Fair valuations and non-operational items include CO₂ emission rights, valuations of biological assets and the Group's share of income tax and net financial items of EAI.

Items affecting comparability, fair valuations and non-operational items

| EUR million | Year Ended 31 December | |
|---|------------------------|-----------|
| | 2019 | 2018 |
| Impairments and impairment reversals | -62 | 0 |
| Restructuring costs excluding impairments | -52 | 0 |
| Acquisitions and disposals | -59 | 20 |
| Other | -19 | 0 |
| Items affecting comparability | -192 | 20 |
| Fair valuations and non-operational items | 544 | 45 |
| Total | 353 | 65 |

Segment share of operative assets, operative liabilities and operating capital

| EUR million | Year Ended 31 December | | | | | |
|------------------------|------------------------|---------------|-----------------------|--------------|-------------------|--------------|
| | Operative Assets | | Operative Liabilities | | Operating Capital | |
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Consumer Board | 2 644 | 2 486 | 544 | 535 | 2 100 | 1 951 |
| Packaging Solutions | 1 232 | 1 138 | 270 | 215 | 962 | 923 |
| Biomaterials | 2 748 | 2 722 | 252 | 260 | 2 496 | 2 462 |
| Wood Products | 868 | 866 | 221 | 245 | 647 | 621 |
| Paper | 1 484 | 1 588 | 827 | 792 | 657 | 796 |
| Other and eliminations | 5 002 | 2 668 | 402 | 466 | 4 600 | 2 202 |
| Total | 13 978 | 11 468 | 2 516 | 2 513 | 11 462 | 8 955 |

Key figures

| | 2019 | 2018 | 2017 |
|--|-------------|-------------|-------------|
| Sales, EUR million | 10 055 | 10 486 | 10 045 |
| Operational EBIT, EUR million | 953 | 1 325 | 1 004 |
| Operational EBIT margin | 9.5% | 12.6% | 10.0% |
| Operating profit (IFRS), EUR million | 1 305 | 1 390 | 904 |
| Operating margin (IFRS) | 13.0% | 13.3% | 9.0% |
| Return on equity (ROE) | 12.1% | 15.5% | 10.3% |
| Operational ROCE | 9.8% | 15.5% | 11.9% |
| Debt/equity ratio | 0.43 | 0.31 | 0.38 |
| EPS (basic), EUR | 1.12 | 1.28 | 0.79 |
| EPS excluding IAC, EUR | 1.34 | 1.29 | 0.89 |
| Dividend and distribution per share ¹ , EUR | 0.50 | 0.50 | 0.41 |
| Payout ratio, excluding IAC | 37.3% | 38.8% | 46.1% |
| Payout ratio (IFRS) | 44.6% | 39.1% | 51.9% |
| Dividend and distribution yield, (R share) | 3.9% | 5.0% | 3.1% |
| Price/earnings (R share), excluding IAC | 9.68 | 7.82 | 14.90 |
| Equity per share, EUR | 9.42 | 8.51 | 7.62 |
| Market capitalisation 31 Dec, EUR million | 10 328 | 8 123 | 10 422 |
| Closing price 31 Dec, A/R share, EUR | 13.55/12.97 | 11.05/10.09 | 13.20/13.22 |
| Average price, A/R share, EUR | 12.88/11.05 | 16.36/14.61 | 11.93/11.54 |
| Number of shares 31 Dec (thousands) | 788 620 | 788 620 | 788 620 |
| Trading volume A shares (thousands) | 1 299 | 3 068 | 6 768 |
| % of total number of A shares | 0.7% | 1.7% | 3.8% |
| Trading volume R shares (thousands) | 679 475 | 610 300 | 571 717 |
| % of total number of R shares | 111.0% | 99.7% | 93.4% |
| Average number of shares, basic (thousands) | 788 620 | 788 620 | 788 620 |
| Average number of shares, diluted (thousands) | 789 533 | 789 883 | 790 024 |

¹ See the Board of Directors' proposal for dividend distribution.

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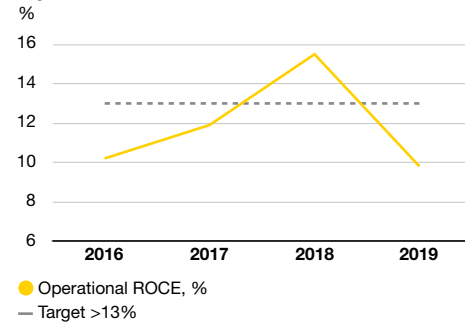
Net financial expenses at EUR 168 (180) million were EUR 12 million lower than a year ago. Net interest expenses at EUR 147 million increased by EUR 19 million mainly as a result of higher gross debt levels and the implementation of IFRS 16 Leases, partly offset by lower average interest expense rate on borrowings. Other net financial expenses at EUR 15 million were EUR 3 million lower than a year ago. Net foreign exchange impact in respect of cash equivalents, interest-bearing assets and liabilities and related foreign-currency hedges amounted to a loss of EUR 6 (loss of EUR 33) million, mainly due to revaluation of foreign currency net debt in subsidiaries and joint operations.

The net tax charge totalled EUR 281 (221) million, equivalent to an effective tax rate of 24.7% (18.3%), as described in more detail in [Note 9 Income taxes](#), of the Consolidated Financial Statements.

The loss attributable to non-controlling interests was EUR 24 (24) million, leaving a profit of EUR 880 (1 013) million attributable to Company shareholders.

Earnings per share excluding items affecting comparability were EUR 1.34 (1.29) and including items affecting comparability EUR 1.12 (1.28). Operational return on capital employed was 9.8% (15.5%).

Operational ROCE



The Group capital employed was EUR 10 632 million on 31 December 2019, an increase of EUR 1 808 million mainly due to the adoption of IFRS 16 Leases and the Bergvik Skog transaction.

Breakdown of Capital Employed change

| EUR million | Capital Employed |
|--|------------------|
| 31 December 2018 | 8 824 |
| Capital expenditure less depreciation | 96 |
| Right-to-use assets - adoption of IFRS 16 leases | 530 |
| Impairments and reversal of impairments | -56 |
| Fair valuation of biological assets | 493 |
| Operational decrease in biological asset values | -50 |
| Unlisted securities (mainly PVO) | 103 |
| Equity accounted investments | -1 202 |
| Net liabilities in defined benefit plans | -58 |
| Operative working capital and other interest-free items, net | -307 |
| Net tax liabilities | -97 |
| Acquisition of subsidiary companies | 2 362 |
| Translation difference | 34 |
| Other changes | -38 |
| 31 December 2019 | 10 632 |

Financing

Cash flow from operations was strong EUR 1 980 (1 365) million and cash flow after investing activities was EUR 1 386 (811) million. Working capital decreased by EUR 240 (increased 428) million, inventories decreased by EUR 179 million and short-term receivables by EUR 178 million having a positive impact into working capital. Payments related to the previously announced provisions were EUR 24 million.

Operative cash flow

| EUR million | 2019 | 2018 |
|--|--------------|--------------|
| Operational EBITDA | 1 542 | 1 878 |
| IAC on operational EBITDA | -128 | 20 |
| Other adjustments | 325 | -104 |
| Change in working capital | 240 | -428 |
| Cash Flow from Operations | 1 980 | 1 365 |
| Cash spent on fixed and biological assets | -587 | -525 |
| Acquisitions of equity accounted investments | -7 | -29 |
| Cash Flow after Investing Activities | 1 386 | 811 |

At the end of the period, net interest-bearing liabilities of the Group were EUR 3 209 (2 092) million. The increase in net interest-bearing liabilities was mainly driven by restructuring of Bergvik forest assets in Sweden and IFRS 16 implementation. As a result of the restructuring, Stora Enso's Swedish forest assets were placed in a fully owned subsidiary and consolidated line by line in Stora Enso's results with the Group's forest holdings in Sweden increasing to 1.4 million hectares. Cash and cash equivalents net of bank overdrafts amounted to EUR 863 (1 128) million. The debt/equity ratio at 31 December 2019 was 0.43 (0.31). The ratio of net debt to the last 12 months' operational EBITDA

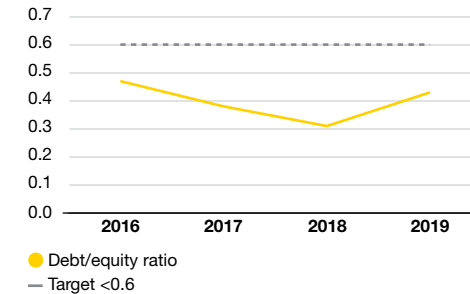
was 2.1, compared to the ratio of 1.1 at the end of the previous year. The increase was mainly due to the restructuring of the Bergvik Skog (impact 0.6) and due to the adoption of IFRS 16 Leases (impact 0.2). The average interest rate on borrowings for year 2019 decreased to 3.5% (4.3%).

In the first quarter of 2019 Stora Enso successfully issued its first Green Bonds with a total nominal value of SEK 6 000 million. The bonds consist of three tranches with SEK 3 000 million maturing in August 2021 and paying a floating coupon of STIBOR +0.85%, SEK 1 250 million maturing in February 2024 and paying a floating coupon of STIBOR + 1.45%, and SEK 1 750 million maturing in February 2024 and paying a fixed coupon of 1.875%.

In the second quarter of 2019 Stora Enso issued SEK 1 000 million loan in Green Bond format under EMTN and Green Bond frameworks. The loan matures in 2026. In addition, Stora Enso also entered into a new amortising credit-institution loan with the nominal of SEK 1 500 million. The loan matures in 2021.

Stora Enso has EUR 600 million committed revolving credit facility that was fully undrawn at the year-end. Additionally, Stora Enso has access to various long-term sources of funding up to EUR 950 (1 000) million. These mainly relate to the available funding sources from Finnish pension funds.

Debt/equity ratio



The fair valuation of cash flow hedges and equity investments fair valued through other comprehensive income in accordance with IFRS 9 increased equity by EUR 95 (increase of EUR 75) million mainly due to higher fair valuation of Group's shareholding in Pohjolan Voima Oy (PVO) partly offset by net fair valuation loss from outstanding cash flow hedge derivatives recorded in other comprehensive income.

At the end of the year, the ratings for Stora Enso's rated bonds were as follows:

| Rating agency | Long/short-term rating | Valid from |
|---------------|------------------------|-----------------|
| Fitch Ratings | BBB- (stable) | 8 August 2018 |
| Moody's | Baa3 (stable) / P-3 | 1 November 2018 |

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Financial results – Segments

Consumer Board division

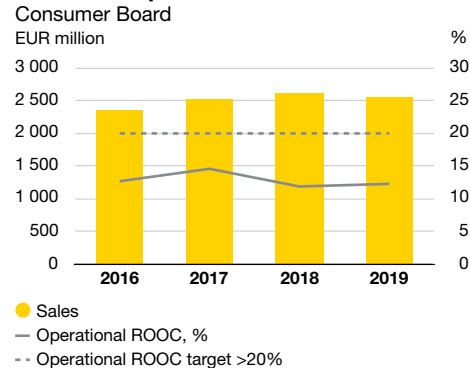
The ambition of the Consumer Board division is to be the global leader in high-quality virgin fiber cartonboard. We aim to be the preferred partner of customers and brand owners in premium end-use packaging and graphical segments. Our wide board and barrier coating selection is suitable for consumer packaging for liquid, food, pharmaceutical and luxury goods.

| EUR million | 2019 | 2018 |
|--------------------------------------|-------|-------|
| Sales | 2 563 | 2 622 |
| Operational EBITDA | 433 | 423 |
| Operational EBITDA margin | 16.9% | 16.1% |
| Operational EBIT | 250 | 231 |
| Operational EBIT margin | 9.7% | 8.8% |
| Operational ROOC | 12.3% | 11.9% |
| Cash flow from operations | 476 | 339 |
| Cash flow after investing activities | 328 | 177 |
| Board deliveries, 1 000 tonnes | 2 812 | 2 916 |
| Board production, 1 000 tonnes | 2 775 | 2 922 |

Consumer Board division sales at EUR 2 563 (2 622) million decreased by 2.3% due to lower volumes resulted from value over volume approach. Average price per tonne improved due to price increases.

Operational EBIT at EUR 250 (231) million increased by 8.0%, due to higher prices and both lower variable and fixed costs. Lower pulp prices had the biggest positive impact on variable costs.

Sales and operational ROOC



Packaging Solutions division

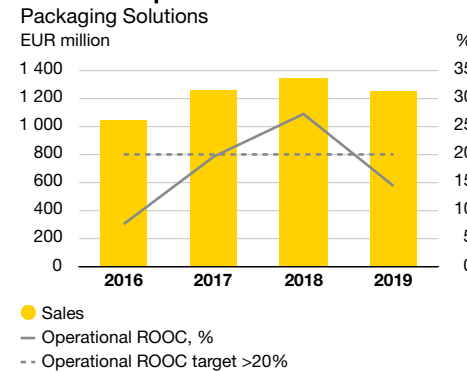
The Packaging Solutions division provides fiber-based board materials and corrugated packaging products and services that are designed for a wide array of applications. Our renewable high-end packaging solutions serve leading converters, brand owners and retailers – including those in e-commerce that are looking to optimise performance, drive innovation and improve their sustainability.

| EUR million | 2019 | 2018 |
|---|-------|-------|
| Sales | 1 247 | 1 344 |
| Operational EBITDA | 212 | 313 |
| Operational EBITDA margin | 17.0% | 23.3% |
| Operational EBIT | 135 | 245 |
| Operational EBIT margin | 10.8% | 18.2% |
| Operational ROOC | 14.4% | 27.2% |
| Cash flow from operations | 248 | 272 |
| Cash flow after investing activities | 135 | 172 |
| Board deliveries, 1 000 tonnes | 1 299 | 1 308 |
| Board production, 1 000 tonnes | 1 303 | 1 320 |
| Corrugated packaging deliveries, million m ² | 1 055 | 1 059 |
| Corrugated packaging production, million m ² | 1 055 | 1 048 |

Packaging Solutions division sales were EUR 1 247 (1 344) million, down 7% mainly due to significantly lower containerboard prices. Corrugated board volumes increased and containerboard volumes decreased slightly.

Operational EBIT at EUR 135 (245) million decreased 45% from an all time high level a year ago. The reason for the reduction was mainly the significantly lower containerboard prices. Wood and energy costs were higher, however the Corrugated business benefited from significantly lower variable costs due to low containerboard prices. Fixed costs were lower due to profit protection programme actions.

Sales and operational ROOC



Biomaterials division

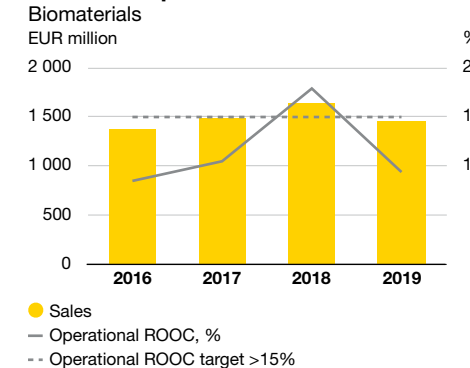
The Biomaterials division offers a variety of pulp grades to meet the demands of paper, board, tissue, textile and hygiene product producers. We maximise the business potential of the side streams of our processes, such as tall oil and turpentine from biomass. Based on our strong innovation approach, all fractions of biomass, like lignin and sugars, hold potential for use in various applications.

| EUR million | 2019 | 2018 |
|--------------------------------------|-------|-------|
| Sales | 1 464 | 1 635 |
| Operational EBITDA | 356 | 550 |
| Operational EBITDA margin | 24.3% | 33.6% |
| Operational EBIT | 233 | 427 |
| Operational EBIT margin | 15.9% | 26.1% |
| Operational ROOC | 9.4% | 17.9% |
| Cash flow from operations | 423 | 438 |
| Cash flow after investing activities | 266 | 327 |
| Pulp deliveries, 1 000 tonnes | 2 520 | 2 432 |

Biomaterials division sales were EUR 1 464 (1 635) million, down 10.5% due to significantly lower pulp sales prices in all grades. Delivery volumes were higher, and currencies had a positive EUR 38 million impact on sales.

Operational EBIT at EUR 233 (427) million was 45.6% down from previous year, due to significantly lower sales prices in all grades. Operational EBIT was also negatively impacted by higher wood costs. Fixed costs were lower due to profit protection programme actions. Foreign exchange rates had a positive impact on operational EBIT.

Sales and operational ROOC



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Wood Products division

The Wood Products division is a leading provider of innovative wood-based solutions. The product range covers applications for construction, the window and door industry, as well as for the packaging and decoration industries. Biocomposites offer plastic replacement opportunities in e.g. consumer goods, industrial components, cosmetics and packaging. Pellets provide a sustainable solution for heating. The offering includes service concepts such as Building Solutions and e-business. Our solutions meet strict requirements regarding safety, quality, design and sustainability.

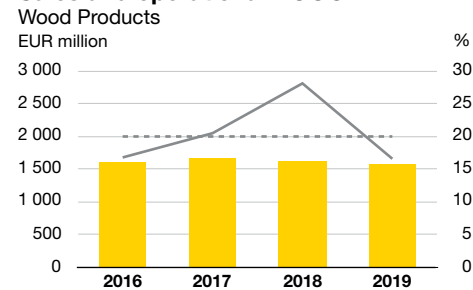
| EUR million | 2019 | 2018 |
|--------------------------------------|-------|-------|
| Sales | 1 569 | 1 622 |
| Operational EBITDA | 153 | 199 |
| Operational EBITDA margin | 9.8% | 12.3% |
| Operational EBIT | 105 | 165 |
| Operational EBIT margin | 6.7% | 10.2% |
| Operational ROOC | 16.6% | 28.1% |
| Cash flow from operations | 183 | 147 |
| Cash flow after investing activities | 135 | 80 |
| Deliveries, 1 000 m ³ | 4 753 | 4 932 |

Wood Products division sales were EUR 1 569 (1 622) million, down 3.3% due to lower volumes and sales prices.

Operational EBIT at EUR 105 (165) million decreased by 36% from an exceptionally high level a year ago. Market demand and sales prices were lower. The impact was partially compensated by lower wood costs in Central Europe and lower fixed costs due to profit protection programme actions.

Record high cash flow due to good working capital management.

Sales and operational ROOC



● Sales
— Operational ROOC, %
-- Operational ROOC target >20%

Paper division

Stora Enso is the second largest paper producer in Europe with an established customer base and a wide product portfolio for print and office use. Customers benefit from Stora Enso's broad selection of papers made from recycled and virgin fiber as well as our valuable industry experience, know-how and customer support.

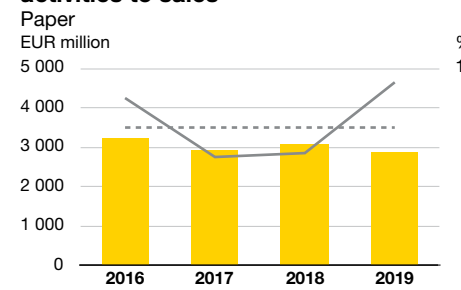
| EUR million | 2019 | 2018 |
|---|-------|-------|
| Sales | 2 856 | 3 066 |
| Operational EBITDA | 318 | 345 |
| Operational EBITDA margin | 11.1% | 11.3% |
| Operational EBIT | 213 | 234 |
| Operational EBIT margin | 7.4% | 7.6% |
| Operational ROOC | 29.3% | 30.2% |
| Cash flow from operations | 344 | 222 |
| Cash flow after investing activities | 264 | 175 |
| Cash flow after investing activities to sales | 9.3% | 5.7% |
| Paper deliveries, 1 000 tonnes | 4 130 | 4 591 |
| Paper production, 1 000 tonnes | 4 065 | 4 633 |

Paper division sales were EUR 2 856 (3 066) million, down 6.8% due to lower volumes resulted from market demand decrease. Despite the overcapacity on the market the local prices were higher in all segments.

Operational EBIT at EUR 213 (234) million declined by 9.1% due to lower volumes and higher wood and chemical costs. Fixed costs were lower due to profit protection programme.

Very strong cash flow due to good working capital management.

Sales and cash flow after investing activities to sales¹



● Sales
— Cash flow after investing activities to sales, %
-- Cash flow after investing activities to sales target >7%

¹ The Paper division's financial target is cash flow after investing activities to sales (non-IFRS), because the division's goal is to generate cash flow for the Group so that it can transform into a renewable materials growth company.

Other

The segment Other includes the Group's Swedish forest holdings, the Finnish forest equity-accounted investment Tornator, Stora Enso's shareholding in the energy company Pohjolan Voima (PVO), operations supplying wood to the Nordic and Baltic mills, plantations not connected to any mill site, and the Group's shared services and administration.

| EUR million | 2019 | 2018 |
|--------------------------------------|-------|-------|
| Sales | 3 396 | 3 425 |
| Operational EBITDA | 70 | 48 |
| Operational EBITDA margin | 2.1% | 1.4% |
| Operational EBIT | 17 | 23 |
| Operational EBIT margin | 0.5% | 0.7% |
| Cash flow from operations | 305 | -52 |
| Cash flow after investing activities | 258 | -119 |

Sales of the segment Other at EUR 3 396 (3 425) million reduced from previous year mainly due to lower sales in Wood Supply unit.

Operational EBIT at EUR 17 (23) million was down from previous year mainly due to lower results from the equity accounted investments following the Bergvik Skog transaction and higher costs related to innovations and strategic initiatives.

During the fourth quarter of 2019 EUR 232 million was received as dividends and capital repayment from the equity accounted investment Bergvik Skog.

Investments and capital expenditure

Additions to fixed and biological assets including internal costs capitalised in 2019 totalled EUR 656 (574) million. The total amount includes additions in biological assets of EUR 77 (83) million.

During the first quarter of 2019, the EUR 42 million investment in flash-drying capacity of chemi-thermomechanical pulp (CTMP) at Imatra Mills was completed. The EUR 45 million investment in a new cross laminated timber (CLT) unit at the Gruvön sawmill was completed, and the first commercial volumes were produced during the first quarter of 2019.

The EUR 52 million investment to increase the dissolving pulp production capacity at Enocell Mill was completed during the third quarter. The gradual ramp-up started during the fourth quarter. Production started as planned during the third quarter of 2019 at Launkalne sawmill in Latvia, following EUR 13 million investment to increase the sawmilling and planing capacity.

During the fourth quarter of 2019, the EUR 9 million to upgrade and expand the corrugated packaging plant in Riga, Latvia was completed.

In March 2019, Stora Enso announced investment of EUR 5 million to build a new production line and related infrastructure to manufacture formed fiber products at Hylte Mill in Sweden. The formed fiber technology enables manufacturing of products that are designed for circularity, meaning that they are renewable, recyclable and biodegradable and do not contain any plastic.

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In May, Stora Enso announced investment of approximately EUR 350 million to convert the Oulu paper mill in Finland into packaging production. The investment will include a new world-class line for virgin-fiber based kraftliner (both brown and white-top) with an annual capacity of 450 000 tonnes, the modification of the pulp mill and drying machine for unbleached brown pulp, as well as investments to enhance the mill's environmental performance. Production on the converted machine is estimated to start by the end of 2020.

In May, the shareholders of Bergvik Skog AB, a Swedish forest holding company, finalised the previously announced restructuring of its ownership. Stora Enso's forest holdings in Sweden increased to 1.4 million hectares, of which 1.15 million hectares is productive forest land. Prior to the transaction, Stora Enso's indirect share of Bergvik Skog's productive forest land was 936 thousand hectares.

In July, Stora Enso announced investment of EUR 10 million to build a pilot facility for producing bio-based carbon materials based on lignin. Wood-based carbon can be utilised as a crucial component in batteries typically used in consumer electronics, the automotive industry and large-scale energy storage systems. The pilot plant will be located at Stora Enso's Sunila Mill in Finland.

In July, Stora Enso initiated feasibility studies for a possible cross laminated timber (CLT) unit in connection with its Ždirec mill in the Czech Republic and a new construction beam unit to be located at the Ybbs mill in Austria.

The main projects ongoing at the end 2019 were, EUR 22 million investment at Skoghall Mill in Sweden in an expansion of the existing water treatment plant; EUR 25 million investments to boost green energy generation at Maxau Mill and EUR 350 million conversion of Oulu Mill into kraftliner production.

Innovation, research and development

Stora Enso's expenditure on innovation, research and development in 2019 was EUR 141 (149) million, which was equivalent to 1.4% (1.4%) of sales.

Stora Enso is recognised as the renewable materials company. We believe that everything made with fossil-based materials today can be made from a tree tomorrow. Work for replacing fossil-based products with new bio-based applications continues.

Scale-up of the Hylte biocomposite DuraSense™ of Wood Products, Sunila lignin for phenol replacement, Lineo™ of Biomaterials and ECO TAG™ of Intelligent Packaging continued in 2019. Commercialisation has been slower than planned. However, the speed of scaling up is accelerating.

Consumer Board division continued to develop the generation 1 MFC film at Imatra Mill. Some adjustments will still be needed to the paper machine 7 in Imatra to enable Proof of Concept #2. First trial

orders have been shipped. The generation 2 dewatering development continues with collaboration partners.

Formed fiber project, implementation of which started in February 2019, has developed very quickly and smoothly. The installation of the first two presses, related pulp handling and infrastructure was ready for commissioning during the second half of December 2019 and first-run products, salad bowls, came out of the lines towards the end of the year. Commercial production of PureFiber™ started in January. Customers show high interest in these products, which will replace currently used plastics.

The company continues to focus on five renewable material R&D themes: Forestry & Biomass, Bio-based chemistry, Material Science and Design, process solutions, and wood as a construction material. Additionally, focus on Digitalisation has increased with focus areas Robotic Process Automation (RPA), machine learning, smart operations, transparent supply chain, digital customer experience and Intelligent Packaging.

Strong consumer demand to replace fossil-based plastics has positively impacted the attractiveness of new fiber-based solutions to our customers. These applications include materials for new packaging board grades especially targeting to replace single use plastics and plastic packaging. For long-term success, Stora Enso collaborates with academia and research institutes; for fast results, we work together with startups. Good examples are Sulapac, where the cooperation originates in Stora Enso Accelerator programme and 20tree.ai, where cooperation with the startup shows results of joint efforts with the Combient Foundry Venture Client Program. Sulapac holds patents in biodegradable materials, and 20tree.ai technology is used for forest valuation based on satellite images.

To trigger innovation processes, we will need ideas, which we will receive from customers, suppliers, various stakeholders and our own employees. WeNovate, our group-wide tool for collecting and evaluating ideas from the Stora Enso divisions and functions, has gained traction. It has changed our ideation and innovation culture by engaging an increasing number of employees into the activity. In 2019, we ran 25 campaigns and have 15 open idea channels operating. In total almost 1200 ideas were collected, growing from 875 in 2018. The most suitable ideas enter state-gate based innovation processes of the divisions and functions.

Stora Enso has established funds to be used in an agile manner for capital expenditure in novel projects, which have potential business cases. The Innovation Fund is an allocation for new pilot scale opportunities and new business models. The Digitalisation Fund is an allocation for piloting new digital tools and models. Applications for these resources will be approved in the company's Investment Working Group. We have allocated an agility reserve to cover operational expenses related to cross-divisional projects in 2020, as was the case in 2019.

Stora Enso defines innovation as the process of translating ideas into new value. Research and development work is a basic element in the process. The company employs close to 400 people in the following R&D centres:

- Research Centre and Pulp Competence Centre in Imatra (Finland)
- Research Centre and Pulp Competence Centre in Karlstad (Sweden)
- The Innovation Centre for biomaterials in Sickla, Stockholm (Sweden)
- The Innovation Centre for packaging in Helsinki (Finland)
- Biocomposite Competence Centre in Hylte (Sweden)
- Intelligent Packaging Centre in Tampere (Finland)
- Virdia demonstration plant in Louisiana and Research Centre in Virginia (United States)

Supporting Stora Enso's innovation strategy, we have several co-operation projects with research organisations and academic institutions. The aim is to build clearer understanding of how our needs and the universities' capabilities can meet, first and foremost in the research sphere surrounding Stora Enso research themes and the long-term research needs in the divisions. The second target is to widen the contact network. Thirdly, we aim to identify topics where we have special interest regarding the universities' bachelor, master and PhD programmes, also for recruiting talents to mills and research/innovation centres.

Our collaboration partners include Aalto University in Finland, and Chalmers University of Technology and the Royal Institute of Technology in Sweden, VTT Technical Research Centre of Finland, SweTree Technologies Ltd, Swedish University of Agricultural Science and Wallenberg Wood Science Center R&D. Stora Enso is a member of national, European and trade associations focused on the bioeconomy and forest agendas including Confederation of European Paper Industries (CEPI), Forest Technology Platform (FTP), and the Swedish and Finnish Forest Industry Federations. Stora Enso is also a member in the EU's Biobased Industries Consortium (BIC) and the Bio-Based Industries Initiative Joint Undertaking, a partnership within the EU Horizon 2020 research programme.

Intellectual property (IP) is an increasingly important tool to support Stora Enso's transformation. In this context, IP rights relate to areas such as patents, utility models, designs, trademarks, domain names, know-how and trade secrets. IP landscape as well as FTO (Freedom to Operate) investigations are of equally high importance. During 2019, Stora Enso continued to strengthen its patent portfolio, with 65 priority founding patent applications filed and over 430 patents granted worldwide. The Group IP has within the Group the responsibility for handling IP matters. The Group IP strategy has been approved by the CEO supported by the Group IP Steering Team.

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Non-financial information

Requirements of non-financial information reporting according to the Finnish Accounting Act are reported below. The scope of the reporting includes those non-financial topics that relate to the Group's key risks.

Risks and policy principles related to these topics are additionally described on pages 10–16. In addition, respect for human rights is explicitly covered below from the risk perspective.

Business model

Replacing the use of fossil-based resources with renewable raw materials is the foundation for a sustainable bioeconomy. Stora Enso's products contribute to a low-carbon circular economy, in which materials are reused and recycled, while waste is minimised, to maximise environmental, social, and financial added value. As a leading renewable materials company with access to carbon-neutral biomass, Stora Enso is in a unique position to combat global warming. Stora Enso's business model description is in the beginning of the Report of Board of Directors and value creation model is presented in **Strategy 2019** on page 10.

Stora Enso acknowledges the importance of the United Nations Sustainable Development Goals as part of a commonly agreed global ambition to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere. Read more on pages 10–11 in **Sustainability 2019**.

Sustainability

Sustainability is a key element of Stora Enso's corporate governance, promoted by the Board of Directors, the CEO, and the Group Leadership Team (GLT). The CEO carries the ultimate responsibility for the successful implementation of the sustainability strategy. Work on sustainability is led by the Executive Vice President, Sustainability, who reports directly to the CEO. The Board of Directors' Sustainability and Ethics Committee oversees the implementation of Stora Enso's Sustainability Strategy and Ethics and Compliance Strategy. The Committee met four times in 2019.

Stora Enso's Sustainability Policy describes our overall approach and governance model. At the same time, our Code of Conduct and other policies, guidelines, and statements on specific sustainability topics all further elaborate our approach, while also guiding our employees in their everyday work. These documents are available at storaenso.com/sustainability.

More information on Stora Enso's approach to sustainability is published in **Sustainability 2019**.

Environmental matters

Forests, plantations, and land use

Key policy: Wood and fiber sourcing, and land management policy
Progress on responsible forestry is followed with a key performance indicator (KPI) measuring the proportion of land in wood production and harvesting owned and managed by Stora Enso that is covered by forest certification schemes. Our target is to maintain the high level of 96%. In 2019, coverage amounted to 98% (96% in 2018). At year-end Stora Enso owned or managed lands with a total area of 2.35 million hectares.

In 2019, the total amount of wood (including roundwood and wood chips) delivered to our mills was 36.3 million m³ (solid under bark) (38.7 million m³ in 2018). The proportion of third-party certified wood in the Group's total wood supply was 75% (76%).

Carbon dioxide

Key policy: Energy and carbon policy

Stora Enso's science-based target (KPI) is to reduce greenhouse gas emissions from our operations by 31% per tonne of pulp, paper and board produced by 2030 compared with the 2010 base-year. In 2019, our CO₂e emissions per saleable tonne of board, pulp, and paper were 25% lower than the 2010 benchmark level (18% lower in 2018). The performance improved mainly due to a significant new contract to purchase certified renewable electricity in Poland from the national pool and less fossil-intensive purchased electricity at Finnish mills and Beihai Mill in China.

Water use

Key policy: Stora Enso's Environmental Guidelines

The objective of Group's KPIs on total water withdrawal and process water discharges is to drive a downward trend from our 2016 baselines of 57 m³ and 27 m³ per saleable tonne of product, respectively. In 2019, our total water withdrawal was 61 m³ per saleable tonne (56 in 2018) and our process water discharges amounted to 29 m³ per saleable tonne (26 in 2018). Despite increasing focus on water efficiency lower production of board, pulp and paper partly affected our specific water performance per tonne.

Social and employee matters

Employees and wider workforce

Key policies: Minimum HR requirements, Health and Safety policy
On 31 December 2019, there were 25 100 (26 100) employees in the Group. The average number of employees in 2019 was 26 096, which was approximately the same than the average number in 2018. The numbers include 50% of the employees at Veracel in Brazil and Montes del Plata in Uruguay.

Personnel expenses totalled EUR 1 331 (1 330) million or 13.2% of sales. Wages and salaries were EUR 1 004 (1 000) million, pension costs EUR 166 (170) million and other employer costs amounted to EUR 157 (153) million.

At the end of 2019, the Group's top three countries in respect to the number of employees were Finland, China and Sweden. 26% (26%) of employees were women.

Personnel turnover in 2019 was 15.0% (15.0%). Illness-related absenteeism amounted to 3.2% (3.0%) of total theoretical working hours.

In 2019, our Total Recordable Incident (TRI) rate increased to 7.0 (6.1). The milestone for 2019 was 5.3. There was a fatal accident at a Stora Enso unit when a contractor was killed during an equipment maintenance activity in Poland in March. An occupational fatality occurred at Zdírec sawmill in Czech Republic in November involving one of our own employees. The investigation is ongoing. In addition,

a fatality occurred at Skutskär Mill in Sweden in November involving a customer's contractor employee. An investigation by the authorities concluded that the fatality was due to a fall from the top of the tanker. The learnings from these tragic events will be acted upon in Stora Enso.

Stora Enso's KPI for leadership, the Leadership Index, measures employee perceptions of their managers. The index is calculated based on our annual employee survey. Our target was to achieve an index of 85/100 by 2022. In 2019, the Leadership Index remained stable at 83 (83).

Remuneration to the Board of Directors and key management is described in **Note 7** of the Consolidated financial statements.

Suppliers

Key policy: Supplier Code of Conduct (SCoC)

Stora Enso's key performance indicator (KPI) for responsible sourcing measures the proportion of our total supplier spend covered by our SCoC, including all categories and regions. By the end of 2019, 96% of Stora Enso's total spend on materials, goods, and services was duly covered (95% at the end of 2018), which meets our target to maintain the high level of 95%.

Community

Key policies: Guidelines for Social Responsibility, Human Rights Policy

Guangxi, China

Stora Enso leases 81 000 hectares of land in Guangxi province China, of which 27 000 hectares (29 000 hectares in 2018), corresponding to 34% (36%) of the total area, is social land leased from village collectives, individual households, and local forest farms.

Bahia, Brazil

In Bahia, Brazil, work continued on a Sustainable Settlement Initiative launched in 2012 to provide farming land and educational support for local families in the landless people's social movements. In 2018, Veracel signed a new agreement with the social landless movements to complement the earlier agreed Sustainable Settlement Initiative.

Since 2012, Veracel has voluntarily approved the transfer of approximately 20 000 hectares of land to benefit landless people. By the end of 2019, 469 hectares of productive land owned by Veracel remained occupied by movements not involved in the Sustainable Settlement Initiative or in the new agreement. Veracel will continue to seek repossessions of the remaining occupied areas through legal processes.

At the end of 2019, the total land area owned by Veracel was 213 000 hectares, of which 79 000 hectares are planted with eucalyptus for pulp production.

Respect for human rights

Key policy: Human Rights policy

Stora Enso's commitment to respect human rights covers all our operations, including our employees, contractors, suppliers, and neighbouring communities. In addition to our commitment to the

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UN Guiding Principles on Business and Human Rights, Stora Enso respects and follows the legal reporting requirements of the UK, and as of 2019, also the Australian Modern Slavery Act and we continue to monitor the development of similar legislation in other countries. Human rights are integrated into our Sustainability Agenda, which is aligned with the ten principles of the UN Global Compact.

Human rights risks and impacts shall be taken into account throughout our operations, including investment decisions related to mergers, acquisitions, and divestments. Our investment guidelines stipulate that environmental and social risks and impacts, including those related to human rights, must be duly identified, assessed, and addressed prior to any investments in projects with business-critical risks.

While we respect and consider all human rights important, our highest priority human rights remain the primary focus of our work:

- Health and safety
- Fair employment conditions
- Forced labour
- Freedom of association
- Non-discrimination and non-harassment
- Land and natural resource rights acquisition and management
- Grievance mechanisms
- Children's rights (relevant to the forestry sector).

We continued to develop our human rights due diligence programme in 2019. As a first step, to strengthen our strategic focus, we mapped our Group function processes to identify development areas related to our highest priority human rights. Actions to address the findings are expected to be completed by the end of 2020. In addition, we began updating our internal guidelines to better align them with our eight priority human rights.

Anti-corruption and bribery matters

Key policies: Business practice policy, the Stora Enso Code (Code of Conduct)

As to Business Ethics, in 2019, a total of 57 reports received through Stora Enso's various grievance channels were identified as potential non-compliance cases (68 in 2018). Based on the investigations finalised by end of the year 2019, proven cases leading to disciplinary action, legal action and/or process improvements were identified in 26 (20) of the completed investigations.

Based on our assessments, nine of the proven cases can be considered relating to corruption and/or fraud (2 in 2018). Seven of the cases resulted in employee dismissal or disciplinary process (2).

The company's code of conduct index monitors and evaluates employees' perceptions of Stora Enso's work on topics covered by the Stora Enso Code and it is based on the annual employee survey results. After five years of continued improvement, the index decreased one unit to 84 in 2019 (85 in 2018). Our target is to continue the previous positive trend and further efforts will therefore be put in communications and training in 2020.

Environmental investments and liabilities

In 2019 Stora Enso's environmental investments amounted to EUR 54 (46) million. These investments were mainly to improve the quality of air and water, to enhance resource efficiency and energy self-sufficiency, and to minimise the risk of accidental spills.

Stora Enso's environmental costs in 2019 excluding interest and including depreciation totalled EUR 172 (184) million. These costs include taxes, fees, refunds, permit-related costs, and repair and maintenance costs, as well as waste water treatment chemicals and certain other materials.

Provisions for environmental remediation amounted to EUR 97 (99) million at 31 December 2019, details of which are in [Note 22](#), Other Provisions, of the Consolidated financial statements. There are currently no active or pending legal claims concerning environmental issues that could have a material adverse effect on Stora Enso's financial position. Payments related to environmental remediation measures amounted to EUR 12 (7) million.

Risks and risk management

Our approach to risk management

Risk is an integral element of business and corporate governance, and it is characterised by both threats and opportunities, which may have an impact on future performance and the financial results of Stora Enso, as well as on its ability to meet certain social and environmental objectives. Stora Enso is committed to ensuring that systematic, holistic and proactive management of risks and opportunities is among its organisational core capabilities, and that a culture is fostered where both are carefully considered in all business decisions. Through consistent application of dynamic risk analysis, we enhance opportunities and manage risk in order to reduce threats to thus achieve our competitive advantage.

Risk governance

Stora Enso defines risk as the effect of uncertainty on our ability to meet organisational values, objectives and goals. The Group Risk and Internal Control Policy, which is approved by the Board of Directors, sets out the overall approach to governance and the management of risks in accordance with the COSO (Committee of Sponsoring Organizations) framework and in line with the ISO 31000 standard. The Board retains the ultimate responsibility for the overall risk management process and for determining what an appropriate and acceptable level of risk is.

The Board has established a Financial and Audit Committee to provide support to the Board in monitoring the adequacy of the risk management process within Stora Enso, and specifically regarding the management and reporting of financial risks. This oversight scope includes also climate related risks which are reviewed annually and constitute a specific theme of focus. The Sustainability and Ethics Committee is responsible for overseeing the company's sustainability and ethical business conduct, its

strive to be a responsible corporate citizen, and its contribution to sustainable development.

The head of Enterprise Risk Management, reporting to the CFO, is responsible for the design, development and monitoring of the top-down implementation of the Group risk management framework. Each division head, together with their respective management teams, are responsible for process execution and cascading the framework and guidelines further down in the organisation. The Internal Audit unit evaluates the effectiveness and efficiency of the Stora Enso risk management process. In 2019, Stora Enso established a cross-functional co-ordination team to facilitate the implementation of TCFD (Task Force on Climate-related Financial Disclosures) recommendations.

Risk management process

Risk management is embedded in all decision-making processes, with holistic risk assessments conducted as part of all significant investment decisions. In connection with the annual strategy process, business divisions and group service and support functions conduct a holistic baseline risk assessment, linked to their key objectives. Specific guidance regarding the risk management process is outlined in the enterprise risk management instructions.

Business entities and functions identify the sources of risk events including changes in circumstances and their causes and potential consequences. Stora Enso's risk model outlines the overall risk universe which is used to support holistic risk identification and risk consolidation, while also providing taxonomy as well as consistency in risk terminology. Risk appetite is determined across main risk categories on the business division level.

Risk analysis involves developing an understanding of the risk to provide an input for risk evaluation. The purpose of risk evaluation is to determine the risk priorities and to support decision making to determine which risks require treatment/actions. Risks are assessed in terms of their impact and likelihood of occurrence, often based on specific risk scenarios. The effectiveness of existing risk reduction is factored in to define the residual risk level. Pre-defined impact scales consider financial, safety and reputational impacts, on both a quantitative and qualitative basis.

Risk treatment involves selecting one or more risk management option, such as avoidance, reduction, sharing or retention. Additional risk mitigation actions are determined for risks which exceed the perceived risk tolerance incorporating the assignment of responsibility, schedule and timetable of the risk response actions.

Following the annual baseline assessment, prioritised and emerging risks, as well as the corresponding risk mitigation and business continuity plans related to those risks, are reviewed in divisional business review meetings on a quarterly basis.

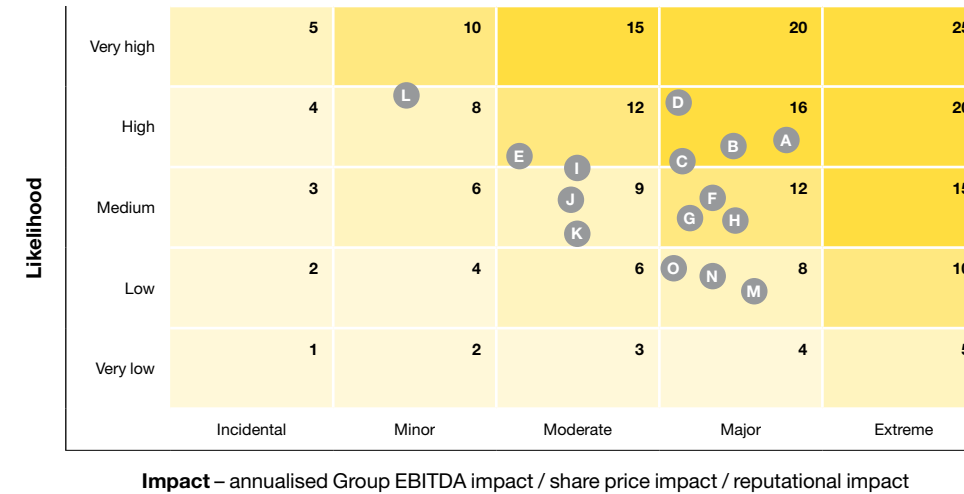
Despite the measures taken to manage risks and mitigate the impact of risks, and while some of the risks remain beyond the direct control of the management, there can be no absolute assurance that risks, if they occur, will not have a materially adverse effect on Stora Enso's business, financial condition, operating profit or ability to meet financial obligations.

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Main risk factors

Risk map



Key risks in 2019

| Risk | Risk classification | Time span* | Change vs 2018 | Level of possible management influence |
|---|---------------------|------------|----------------|--|
| Major impact – high likelihood | | | | |
| A Macroeconomy, geopolitics, and currency rates | E/S/F | ST | → | <div><div></div></div> |
| B Global warming – physical impacts | E/S | LT | ↑ | <div><div></div></div> |
| C Sourcing | I/S/O | MT | → | <div><div></div></div> |
| D Regulatory changes | E/S/C | MT | ↑ | <div><div></div></div> |
| Moderate impact – high likelihood | | | | |
| E Information technology and security | I/O | MT | ↓ | <div><div></div></div> |
| Major impact – medium likelihood | | | | |
| F Ethics and compliance | M/C | MT | → | <div><div></div></div> |
| G People and capabilities | I/O | MT | → | <div><div></div></div> |
| H Strategic investments | M/C | MT | ↑ | <div><div></div></div> |
| Moderate impact – medium likelihood | | | | |
| I Competition and market demand | E/S | MT | → | <div><div></div></div> |
| J Product safety | M/O/C | MT | → | <div><div></div></div> |
| K Community relations and social responsibility | I/O/C | MT | → | <div><div></div></div> |
| Minor impact – high likelihood | | | | |
| L Health and safety | I/O | ST | → | <div><div></div></div> |
| Minor impact – low likelihood | | | | |
| M Digitalisation | I/S | MT | → | <div><div></div></div> |
| N Forest and land use | I/O/C | MT | → | <div><div></div></div> |
| O Mergers, acquisitions, and divestures | M/I/O/C | MT | → | <div><div></div></div> |

* The most relevant timeframe when underlying risk factors are expected to manifest themselves

Symbols

- M = Mandatory obligations
- E = External factors
- I = Internal capabilities
- S = Strategic
- O = Operational
- C = Compliance
- F = Financial market and reporting
- ST = Short-term (next 12 months)
- MT = Medium term (1–5 years)
- LT = Long-term (upto 25–30 years)

Change vs 2018

- Increased ↑
- Decreased ↓
- Stable →

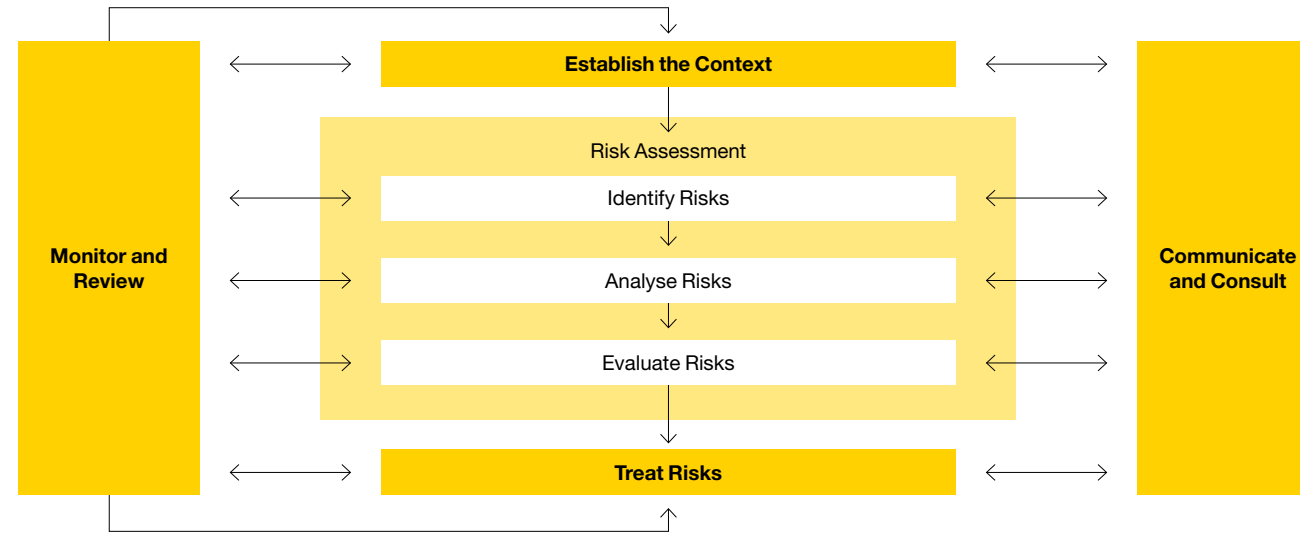
Level of possible management influence



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Risk management process



Strategic risks

Macroeconomy, geopolitics, and currency rates

Stora Enso operates in more than 30 countries and is affected by the global economy. Changes in broad economic conditions, sharp market corrections, increasing volatility in foreign exchange rates and chronic fiscal imbalances could have negative and material impact on the Group's profit, cash flows and financial position. A prolonged global recession may materially and adversely affect Stora Enso's performance and financial condition. A recession may also materially affect the Group's customers, suppliers and other parties with whom it does business. Exchange rate fluctuations may have a material impact on the reported results through transaction and translation risk impact.

A significant and sustained economic downturn, or any similar event, could have a material adverse effect on the Group's operational performance and financial condition.

Stora Enso is exposed to several financial market risks that the Group is responsible for managing under policies approved by the Board of Directors. The objective is to achieve cost-effective funding in Group companies and manage financial risks using financial instruments to reduce earnings volatility. The main exposures for the Group besides currency risk are interest rate risk, funding risk, commodity price risk and credit risk.

Financial risks are discussed in detail in Note 24, Financial risk management, of the Consolidated financial statements.

Policy principles and mitigation measures

The Group has a diversified portfolio of businesses which mitigates exposure to any one country or product segment. We monitor the external environment continuously and our planning assumptions take account of important near- to medium-term and long-term drivers related to key macro-economic factors. We closely monitor the Board-approved risk appetite compliance for specific financial metrics and actively manage cash flow and liquidity. We hedge 50% of the highly probable 12-month net foreign exchange flows in main currency pairs. Currency translation risk is reduced by funding assets, whenever economically possible, in the same currency as the asset. The divisions regularly monitor their order flows and other leading indicators, where available, so that they may respond quickly to deterioration in trading conditions. In the event of a significant deterioration in general economic condition and in main leading economic indicators, the Group identifies and implements cost reduction measures to offset the impact on margins from deterioration in sales.

Related opportunities

- A diverse business portfolio and geographical presence, competitive strength and resilient balance sheet reduce the Group's risk exposures
- Strategic opportunities in changing currency and macroeconomic environment.

Global warming - physical impacts

Physical risks related to climate change are assessed based on stress scenario on long-term (25-30 years) basis. Changes in precipitation patterns, periods of drought, typhoons and severe frost periods in the subtropics could cause damage to operations and tree plantations. Increases in average temperatures could lead to changes in the tree species composition of forests. Drought periods together with high temperatures increase the risk of forest fires and insect outbreaks, potentially affecting forests and regional wood prices. Milder winters will impact harvesting and transport of wood in northern regions and the related costs. The increase in risk level vs 2018 is driven by higher ownership of forest assets in Sweden, as well as by increased understanding of risks due to the availability of recent scientific analysis. See also [Competition and market demand](#) and [Sourcing](#).

Policy principles and mitigation measures

Physical risks are to great extent subject to risk transfer and thereby within the cover of our property and business interruption insurance programs. With regards to forest and plantation assets, making roughly 25% of the Group's balance sheet, Stora Enso benefits from strong strategic resilience through geographical diversification within the asset portfolio. Moreover, risks related to insect damages such as bark beetle infestation in Nordic forest assets is limited by better inherent endurance of Nordic forest compared e.g to Central-European forests. Diligent plantation planning is ensured to avoid frost sensitive areas and non-controversial tree breeding and R&D programmes are applied to increase tolerance of extreme temperatures. Stora Enso maintains a diversity of forest types and structures and enforces diversification in wood sourcing. Wood harvesting in soft soils involves the implementation of best practices guidelines.

Related opportunities

- Nordic forests in Finland and Sweden benefit from increased heat summation and longer growing seasons, leading to acceleration in forest growth with direct positive impact on the value of own forest asset and indirect impact related to market wood availability and cost.

Strategic investments

Stora Enso's business strategy is to transform itself from a traditional paper and board producer to a customer-focused renewable materials growth company. The success of this transformation depends on the Group's ability to understand the needs of the customer and find the best way to serve them with the right offering and with the right production asset portfolio. Failure to complete strategic projects in accordance with the agreed schedule, budget or specifications can have serious impacts on our financial performance. Significant, unforeseen changes in costs or an inability to sell the envisaged volumes or achieve planned price levels may prevent us from achieving our business goals. The increase of risk level relevant to strategic investments increased from last year due to the implementation risks associated with the Oulu conversion project.

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Policy principles and mitigation measures

Risks are mitigated through profound and detailed pre-feasibility and feasibility studies which are prepared for each large investment. Group investment guidelines stipulate the process, governance, risk assessment, management and monitoring procedures for strategic projects, including climate related risk factors. The guidelines also require the calculation of potential cost and income for CO₂ emissions as part of the investment proposal.

Environmental and Social Impact Assessments (ESIAs) are conducted for all new projects that could cause significant adverse effects in local communities. Post completion audits are carried out for all significant investments.

Related opportunities

- Replacing fossil-based materials by innovating and developing new products and services based on wood and other renewable materials.

Competition and market demand

Continued competition and supply and demand imbalances in the raw material, energy and products market, driven by megatrends such as eco-awareness and combatting global warming, may have an impact on profitability. The paper, pulp, packaging and wood products industries are mature, capital intensive and highly competitive. Stora Enso's principal competitors include a number of large international forest products companies and numerous regional and more specialised competitors. Customer demand for products is influenced by the general economic conditions and inventory levels and affects product price levels. Product prices, which tend to be cyclical in this industry, are affected by capacity utilisation, which decreases in times of economic slowdowns. Changes in prices differ between products and geographic regions.

The following table shows the operating profit sensitivity to a +/- 10% change in either price or volume for different segments based on figures for 2019.

Operating profit: Impact of changes +/- 10%, EUR million

| Segments | Price | Volume |
|---------------------|-------|--------|
| Consumer Board | 244 | 89 |
| Packaging Solutions | 120 | 51 |
| Biomaterials | 142 | 61 |
| Wood Products | 153 | 46 |
| Paper | 265 | 79 |

Furthermore, as a global warming-related risk, extreme weather events may disrupt the operations of our customers, and consequently result in increased volatility on product demand.

Policy principles and mitigation measures

The ability to respond to changes in product demand and consumer preferences and to develop new products on a competitive and economic basis calls for innovation, continuous capacity management

and structural development. The risks related to factors such as demand, price, competition and customers are regularly monitored by each division and unit as a routine part of business management. These risks are also continuously monitored and evaluated on a Group level to gain a perspective of the Group's total asset portfolio and overall long-term profitability potential.

Related opportunities

- Products based on renewable materials with a low carbon footprint help customers and society at large to reduce CO₂ emissions by providing an alternative to solutions based on fossil fuels or other non-renewable materials. Our expertise in wood and other biomass is focused on responding to customer and consumer demand. Stora Enso, as one of the biggest private forest owners in the world, has control over a strategic renewable resource base.

Digitalisation

The digital transformation of businesses continues to alter the ways in which organisations operate. Digital capabilities penetrate all aspects of business and operating models, reshaping how companies and functions generate value. Therefore, digitalisation also involves potentially disruptive forces. Moreover, customers, regulators and other stakeholders expect companies to understand what data they have or could have, what risks it poses, and to have plans to manage it well.

Business process erosion, failure to take advantage of the upside that technology offers or inability to harvest related synergies could significantly impair Stora Enso's competitiveness in the market place.

Policy principles and mitigation measures

Stora Enso has an extensive digitalisation programme with the aim to develop a competitive advantage by making full use of the opportunities to drive revenue growth and internal efficiency. Stora Enso has established a programme with external partners to search for technological development initiatives with a clear business purpose. With experimental and fast prototyping, these projects will help to identify and further develop initiatives that will speed up Stora Enso's digital maturity by exploring new technologies and capabilities.

Related opportunities

- Opportunities related to digitalisation clearly exceed related risks
- New technologies offer significant potential for higher level of process optimisation and automatISATION, new business models and enhanced value propositions for customers and consumers.

Mergers, acquisitions, and divestments

Failure to achieve the expected benefits from any acquisition or value from assets or businesses sold can have serious financial impacts. The Group could find itself liable for past acts or omissions of the acquired business, without any adequate right of redress. Failure to achieve expected values from the sales of assets or deliveries beyond the expected receipt of funds may also impact the Group's financial position. In connection with an acquisition, past practices with targets related to e.g. pollution, competition law compliance or corruption

could result in additional costs for Stora Enso and cause reputational damage. Divestments may involve additional costs due to historical and unaccounted liabilities. Business restructuring may also involve reputational impacts.

Policy principles and mitigation measures

Rigorous M&A guidelines, including due diligence procedures are applied to the evaluation and execution of all acquisitions that require the approval of the Board of Directors. Structured governance and policies such as the policy for responsible rightsizing, are followed when making restructuring decisions.

Related opportunities

- A strong balance sheet and cash flow enable value enhancing M&A, when the timing and opportunity are right.

Operational risks

Sourcing

Violation of Supplier Code of Conduct could result in contractual, financial and reputational damages and loss of sales, if Stora Enso were to be blacklisted by customers. Similarly, poor occupational safety performance of subcontractors can be a risk to our reputation. Increasing input costs or availability of materials, goods and services may adversely affect Stora Enso's profitability. Securing access to reliable low-cost supplies and proactively managing costs and productivity are of key importance. Reliance on outside suppliers for natural gas, oil and coal, and for peat and nearly half of the electricity consumed, leaves the Group susceptible to changes in energy market prices and disturbances in the supply chain. As a global warming-related physical risk, potential acute availability shocks or chronic shortage of water may in the long term impact the Group's operations through our supply chains.

The following table shows Stora Enso's major cost items.

Composition of costs in 2019

| Operative costs | % of costs | % of sales |
|---|--------------|---------------|
| Logistics and commissions | 11% | 10% |
| Manufacturing costs | | |
| Fibre | 34% | 31% |
| Chemicals and fillers | 10% | 9% |
| Energy | 6% | 6% |
| Material | 6% | 5% |
| Personnel | 14% | 13% |
| Other | 13% | 12% |
| Depreciation | 6% | 5% |
| Total costs and sales | 100% | 91% |
| Total operative costs and sales in EUR million | 9 150 | 10 055 |
| Equity accounted investments (EAI), operational | | 48 |
| Operational EBIT | | 953 |

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In many areas Stora Enso is dependent on suppliers and their ability to deliver a product or a service at the right time and of the right quality. The most important products are fibre, chemicals and energy, and machinery and equipment in capital investment projects. Increased demand for carbon neutral primary and secondary biomass fuels may increase energy costs. Drought periods and changing precipitation patterns may affect hydropower generation and electricity prices for units in Europe. Sea level rise will in long term impact the accessibility to ports and salt water intrusion may cause disruption in inbound and outbound supply chain operations. The most important services are transport and various outsourced business support services. For some of these inputs, the limited number of suppliers is a risk.

Policy principles and mitigation measures

Input cost volatility is closely monitored on the business unit, divisional and Group level. The Group applies consistent long-term energy risk management. The price and supply risks are mitigated through increased own generation, shareholding in competitive power assets such as PVO/TVÖ, physical long-term contracts and financial derivatives. The Group hedges price risks in raw material and end-product markets and supports the development of financial hedging markets. The Group uses a wide range of suppliers and monitors them to avoid situations that might jeopardise continued production, business transactions or development projects.

Suppliers and subcontractors must also comply with Stora Enso's sustainability requirements as they are part of Stora Enso's value chain, and their weak sustainability performance could harm Stora Enso and its reputation. Stora Enso's sustainability requirements for suppliers and audit schemes cover its raw materials, and other goods and services procured. Suppliers are assessed for risks related to their environmental, social and business practices through self-assessment questionnaires and supplier audits. Findings from such assessments are continuously followed up and progressive blacklisting procedures are applied as necessary.

Related opportunities

- Add value and bring innovation to our business globally by building strong and measurable relationships with the best suppliers.
- Enforce harmonised sourcing processes to increase capabilities, increase tender quality to reduce cost, and develop sustainable suppliers to reduce risk.

Information technology and security

The Group is dependent on IT systems for both internal and external communications and for the day-to-day management of its operations. The Group's information systems, personnel and facilities are subject to cyber security risk. Other IT related risks relate to the potential unavailability of IT services due to human error in operations, damaged hardware in data rooms and data centres, network connection issues and the failure of suppliers to follow service level agreements.

Accidental disclosure of confidential information due to a failure to follow information handling guidelines or due to an accident or criminal act may result in financial damage, penalties, disrupted or

delayed launch of new lines of business or ventures, loss of customer and market confidence, loss of research secrets and other business critical information. Further risks involve the loss of backup media and violation of data privacy regulations.

Policy principles and mitigation measures

The management of risks is actively pursued in the Information Risk Management System and best practice change management and project methodologies are applied. A number of security controls have been implemented to strengthen the protection of confidential information and to facilitate compliance with international regulations. Specific measures include a thorough RfP process in supplier selection for business-critical services, supplier audits, annual controls and audit, data centres located in low-risk areas, backup connections for critical services, disaster recovery plans, targeted scanning and investigation activities, encryption of communication, information and devices, remote management of security on devices and information security awareness training. In 2019, the overall information and cyber security was reduced through several risk improvement efforts.

Related opportunities

Efficient operations, performance optimisation, innovative product offerings, and new customer services through digitisation and sophisticated IT systems.

People and capabilities

Recruiting, retaining and developing a competent workforce and managing key talent throughout Stora Enso's global organisation are crucial to success. Competition for personnel is intense and the Group may not be successful in attracting or retaining qualified personnel. A significant portion of Stora Enso employees are members of labour unions and there is a risk that the Group may face labour market disruptions especially in times of restructuring and redundancies due to divestments and mill closures or during labour market negotiations.

The loss of key employees, the Group's inability to attract new or adequately trained employees, or a delay in hiring key personnel could seriously harm the Group's business and impede the Group and its business divisions from reaching their strategic objectives. Labour market disruptions and strikes could have adverse material effects on the business, financial conditions and profitability.

Policy principles and mitigation measures

Stora Enso manages the risks and loss of key talents through a combination of different actions. Some of the activities aim at providing a better overview of the workforce of the whole Group, making the Stora Enso employer brand better known both internally and externally, globalising some of the remuneration practices and intensifying the efforts to identify and develop talents. Finally, the Group actively focuses on talent and management assessments, including succession planning for key positions. The majority of employees are represented by labour unions under several collective agreements in different countries where Stora Enso operates, thus relations with unions are of high importance to manage labour disruption risks.

Related opportunities

- Skilled and dedicated employees are essential for success.
- Engaged high performing people enable the implementation of transformation strategy and commercial success.

Product safety

Some of our products are used to package liquids and food consumer products, so any defects could affect health or packaging functions and result in costly product recalls. Wood products are incorporated into buildings, and this may involve product liability resulting from failures in structural design, product selection or installation. Failure to ensure product safety could result in product recalls involving significant costs including compensation for indirect costs of customers, and reputational damage.

Policy principles and mitigation measures

The mills producing food and drink contact products have established certified hygiene management systems based on risk and hazard analysis. To ensure the safety of its products, Stora Enso actively participates in CEPI (Confederation of European Paper Industry) working groups on chemical and product safety. In addition, all Stora Enso mills have certified ISO quality management systems. Furthermore, contractual liability limitation and insurance protection are used to limit the risk exposure to Stora Enso.

Related opportunities

- Differentiation and value creation through superior product quality and the highest level of product conformity.

Community relations and social responsibility

Social risks may harm existing operations and the execution of investments, especially in growth markets. Failure to successfully manage relationships with local communities and non-governmental organisations (NGOs) could disrupt our operations and adversely affect the Group's reputation. The Group operates in certain countries, where land and resource ownership rights remain unclear and where related disputes may arise.

Potential impacts include reputational impacts and negative media coverage, harm to communities and rights holders, disruption of operations, and loss of the licence to operate.

Policy principles and mitigation measures

Stora Enso strives to identify and minimise risks related to social issues in good time, in order to guide decision-making in its investment processes as well as in its ongoing operations. Tools such as sustainability risk assessment, human rights due diligence and Environmental and Social Impact Assessments (ESIA) help ensure that no unsustainable projects are initiated, and all related risks and opportunities are fully understood in all operations. These tools also enable project plans and operating practices to be adapted to suit local circumstances. Furthermore, dialogue with NGOs is a part of the Group's stakeholder engagement. More information on community engagement is presented in Stora Enso's **Sustainability Report**.

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Related opportunities

- Ensuring that the communities around our operations thrive economically, socially, and environmentally is crucial for the success and sustainability of Stora Enso.
- Clear business benefits to Stora Enso through a strong focus on social responsibility, as customers, business partners, investors and potential employees become more and more attracted to socially responsible companies.

Health and safety

Failure to maintain high levels of safety management can result in harm to the Group's employees and contractors, and also to communities near our operations and the environment. Impacts in addition to physical injury, health effects and environmental damage could include liability to employees or third parties, impairment of the Group's reputation, or inability to attract and retain skilled employees. Government authorities could additionally enforce the closure of our operations on a temporary basis.

Personnel security can never be compromised and thus Stora Enso must be aware of potential safety risks and provide adequate guidelines to people for managing risks related to, for example, travel, work and living in countries with security or crime concerns. Focusing on the security of key personnel is also important from a business continuity perspective.

Policy principles and mitigation measures

Stora Enso's goal is to provide an accident-free workplace. Encouraging a company-wide safety culture means that everyone is responsible for making every workday healthy and safe - from our top management and throughout the company. Safety management at Stora Enso is based on international standards such as OHSAS 18001 and ISO 45001, but our processes go beyond these requirements.

Stora Enso's approach to safety extends to contractors, suppliers, and on-site visitors. We encourage everyone to give feedback and provide ideas on how to further improve safety. Additionally, we promote safety among our contractors and suppliers through a dedicated e-learning - Safety Trail. We also emphasise the importance of safety by asking suppliers for information on their safety performance in our tendering process.

Stora Enso's Health and Safety Policy defines the objectives for our safety management as well as our governance model on how we manage health and safety topics in practice and how we integrate them into annual planning and reporting.

Other key documents applied in our people and safety management include our:

- Stora Enso Code - our code of conduct
- Supplier Code of Conduct
- Minimum Human Resources Requirements - Labour Conditions
- Global Framework Agreement
- Diversity Policy

For more information please see **Sustainability 2019**: Employees and wider workforce.

Related opportunities

- Leading health and safety performance strengthens the brand as an employer.
- Improved engagement, efficiency and productivity.

Compliance risks

Regulatory changes

The Group's businesses may be affected by political or regulatory developments in any of the countries and jurisdictions in which the Group operates, including changes to fiscal, tax, environmental or other regulatory regimes. Potential impacts include higher costs and capital expenditure to meet new environmental requirements, expropriation of assets, imposition of royalties or other taxes targeted at our industry, and requirements for local ownership or beneficiation. In particular, the EU energy and carbon policies may impact the availability and price of wood fibre. Concerning the EU Emissions Trading Scheme (ETS) 4th trading period, carbon leakage will remain, but the allocation of free allowances is expected to decline. A stress scenario over the next ten years and with a carbon allowance price at 50 EUR/t, assuming the current proposal for the 4th ETS trading period, implies an annual financial impact below Group materiality threshold, even when factoring in increased costs from purchased electricity.

Increased demand for carbon neutral primary and secondary biomass fuels may increase energy costs. General opinion and political consensus to limit wood harvesting, arising from the view to further increase forests' function as carbon sinks while ignoring the net-positive climate impact of forest products, could limit the availability of wood, increase costs and reduce investment opportunities. Additionally, political instability may result in civil unrest, nullification of existing agreements, harvesting permits or land leases. Unpredicted changes in forest certification schemes could limit the availability of certified raw materials.

Regulation as part of the EU's Action Plan on sustainable finance brings new climate related obligations on both investors and corporates, in particular through the EU Taxonomy on sustainable activities and integration of ESG risks in investment processes. There is uncertainty as to how Stora Enso's share will be classified as an investment object in light of this emerging regulation, but good management of financial climate and other sustainability related risks and opportunities, as well as disclosure thereof, will improve the likelihood of a favourable perception by the capital markets and thus the cost of capital.

Policy principles and mitigation measures

- Active monitoring of regulatory and political developments in the countries where the Group operates
- Participation in policy development mainly through industry associations and other partnership programmes

Related opportunities

- Regulatory changes involve market growth potential for sustainable products. Resource efficiency, the low-carbon circular economy and renewability are increasingly important sources of competitive advantage.

Ethics and compliance

Stora Enso operates in a highly regulated business area and is thereby exposed to risks related to breach of applicable laws and regulations (e.g. capital markets regulation, company and tax laws, customs regulation and safety regulation) and breaches of group policies such as the Stora Enso Code, Supplier Code of Conduct and Business Practice Policy regarding fraud, anti-trust, corruption, conflict of interests and other misconduct. Stora Enso may face high compliance and remediation costs under environmental laws and regulations. See also Information systems and information security. Potential impacts include prosecution, fines, penalties, and contractual, financial and reputational damage.

Policy principles and mitigation measures

Stora Enso's Ethics and Compliance Programme, including policy setting, value promotion, training and knowledge sharing and grievance mechanisms are kept continuously up to date and developed. Other compliance mechanisms include Stora Enso Group's internal control system and Internal Audit assurance, the Supplier Code of Conduct in supplier contracts, supplier risk assessments, supplier trainings, supplier audits and black-listing procedures. In response to capital markets regulations, Stora Enso's Disclosure Policy emphasises the importance of transparency, credibility, responsibility, proactivity and interaction.

Environmental risks are minimised through environmental management systems and environmental due diligence for acquisitions and divestments, and indemnification agreements where effective and appropriate remediation projects are required. Special remediation projects related to discontinued activities and mill closures are executed based on risk assessments.

Related opportunities

- Focusing on wider ethical topics rather than mere compliance with regulations will lead to successful business, foster accountability and enhance corporate reputation.

Forest and land use

Wood is our most important raw material. Failure to meet stakeholder expectations or to ensure the chain of custody and economically, socially and environmentally sustainable forest and land management practices throughout our wood procurement and plantation operations could also result in significant reputational and financial loss to Stora Enso. Furthermore, global challenges such as population growth, global warming, increasing demand for agricultural land and bioenergy, and the widening gap between the supply and demand for wood, all require us to use natural resources even more efficiently. See also Global warming - physical impacts, Regulatory changes and Community relations and social responsibility.

Policy principles and mitigation measures

Our Policy for Wood and Fiber Sourcing, and Land Management, robust traceability systems and our active promotion of forest certification all help to ensure that no wood or fibre from unacceptable

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sources enters our supply chain. In addition, when sourcing logging residues and other forest biomass for energy use, we follow the specific guidelines developed for the harvesting of forest energy, which include strict environmental considerations.

Related opportunities

As trees absorb carbon dioxide (CO₂) from the atmosphere and – together with wood-based products – act as carbon sinks, wood from sustainably managed forests represents a carbon neutral, renewable alternative to many non-renewable materials. If forests and plantations are managed sustainably, new generations of trees will replace those that are logged, sequestering more CO₂ from the atmosphere. Well-managed forests can make entire ecosystems more resilient to negative impacts, and benefit from positive ones.

Climate-related financial disclosures (TCFD)

The Financial Stability Board's (FSB) Task Force on Climate-related Financial Disclosures (TCFD) recommends a framework for disclosing climate-related risks and opportunities that goes beyond current practices. The TCFD recommendations respond to a growing demand for improved financial disclosures from companies in relation to climate risks.

In the index table below, we list our disclosures with reference to TCFD recommendations, and refer to the locations where these issues are addressed in our annual reporting. The location references are complemented in the index with additional information, as necessary.

Table key:

SR - Sustainability 2019
FR - Financials 2019
ST - Strategy 2019
CG - Governance 2019

| Disclosure focus area | Recommended disclosure | Key locations and comments |
|---------------------------------|--|---|
| I - Governance | | |
| | a) Describe the board's oversight of climate-related risks and opportunities | CG: Board of Directors, The Board of Directors' and management's annual working cycle FR: Risks and risk management – Risk governance SR: Strategy, governance and stakeholders – Sustainability governance and organisational structure |
| | b) Describe management's role in assessing and managing climate-related risks and opportunities | CG: Management of the Company, The Board of Directors' and management's annual working cycle SR: Strategy, governance and stakeholders – Sustainability governance and organisational structure SR: Materials, water and energy – How we work SR: Carbon dioxide – How we work SR: Forest, plantations, and land use – How we work |
| II - Strategy | | |
| | a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term | The physical and transition risks as relevant are considered as part of the overall risk descriptions in Stora Enso's risk taxonomy. The impact of physical risks and opportunities is expected to increase over time depending on different global warming scenarios. The impact of transition risks and opportunities is more short- and mid-term depending on policy and market measures to combat global warming. FR: Report of the Board of Directors – Risk management: Key risks in 2019 <ul style="list-style-type: none"> • Global warming – physical risks • Strategic investments and related opportunities • Competition and market demand • Sourcing • Physical assets • Regulatory changes • Forest and land use Mitigation of global warming provides opportunities for Stora Enso's operations, and for the renewable, recyclable and fossil-free products and solutions. ST: Transformation |
| | b) Describe the Impacts of Climate related risks and opportunities on the organisation's business, strategy and financial planning | FR: Risk management ST: Transformation SR: Environmental agenda, Economic agenda |
| | c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2C or lower scenario | Stora Enso is proceeding for scenario work in 2020 against selected global warming scenarios. The use of scenarios further aids our decision-making and strategic planning. ST: Transformation FR: Risks and risk management SR: Environmental agenda, Stora Enso's GHG performance and scenarios |
| III - Risk management | | |
| | a) Describe the organisation's processes for identifying and assessing climate-related risks | FR: Risks and risk management SR: Strategy, governance and stakeholders |
| | b) Describe the organisation's processes for managing climate-related risks | FR: Risks and risk management |
| | c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management | FR: Risks and risk management |
| IV - Metrics and targets | | |
| | a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process | SR: Our sustainability targets and key performance indicators, See also Progress sections under SR: Environmental agenda ST: Transformation – Substituting materials from finite resources is our key competitive advantage |
| | b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks | SR: Carbon dioxide – Progress, Stora Enso's GHG performance and scenarios, Stora Enso's carbon footprint 2015–2019 |
| | c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets | SR: Our sustainability targets and key performance indicators |

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Corporate governance in Stora Enso

Stora Enso complies with the Finnish Corporate Governance Code issued by the Securities Market Association (the "Code"). The Code is available at cgfinland.fi. Stora Enso also complies with the Swedish Corporate Governance Code ("Swedish Code"), with the exception of the deviations listed in Appendix 1 of the Corporate Governance Report. The deviations are due to differences between the Swedish and Finnish legislation, governance code rules and practices, and in these cases Stora Enso follows the practice in its domicile. The Swedish Code is issued by the Swedish Corporate Governance Board and is available at corporategovernanceboard.se.

Legal proceedings

Contingent liabilities

Stora Enso has undertaken significant restructuring actions in recent years which have included the divestment of companies, sale of assets and mill closures. These transactions include a risk of possible environmental or other obligations the existence of which would be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group. Stora Enso is party to legal proceedings that arise in the ordinary course of business and which primarily involve claims arising out of commercial law. The management does not consider that liabilities related to such proceedings before insurance recoveries, if any, are likely to be material to the Group's financial condition or results of operations.

Legal proceedings in Latin America

Veracel

On 11 July 2008, Stora Enso announced that a federal judge in Brazil had issued a decision claiming that the permits issued by the State of Bahia for the operations of Stora Enso's joint operations company Veracel were not valid. The judge also ordered Veracel to take certain actions, including reforestation with native trees on part of Veracel's plantations and a possible fine of BRL 20 (EUR 5) million. Veracel disputes the decision and has filed an appeal against it. Veracel operates in full compliance with all Brazilian laws and has obtained all the necessary environmental and operating licences for its industrial and forestry activities from the relevant authorities. In November 2008, a Federal Court suspended the effects of the decision. No provisions have been recorded in Veracel's or Stora Enso's accounts for the reforestation or the possible fine.

Legal proceedings in Sweden

Insurance claim

In July and August 2016, six Swedish insurance companies filed lawsuits in the Environmental Court and the District Court of Falun against Stora Enso, due to damage caused by the forest fire in Västmanland, Sweden, in 2014. The claimed amount is approximately SEK 300 (EUR 30) million, excluding interest. The environmental

law case is closed based on that the environmental code was not applicable on damages caused by fire. The other case in the District Court of Falun has now been settled and the settlement amount in full has been covered by insurance and without financial impact for Stora Enso. Hence, there are no longer any open cases for compensation due to the forest fire. There will be no further reporting of these claims.

Company fine

In January 2018, a Swedish prosecutor filed a lawsuit against Stora Enso and its supplier, due to the forest fire in Västmanland, Sweden in 2014, claiming a company fine of SEK 5 million each. In December 2019, the court acquitted Stora Enso of responsibility for causing the fire. The verdict has been appealed to the Court of Appeal by the prosecutor and the supplier. The prosecutor has reduced the claim for company fine to SEK 2.5 million. There will be no further reporting of this case.

Changes in organisational structure and Group management

Stora Enso established a new Forest division and started reporting it separately at the beginning of 2020. The new division includes the Group's Swedish forest assets and its 41% share of the equity accounted investment Tornator with the majority of its forest assets located in Finland. The Forest division also includes wood supply operations in Finland, Sweden, Russia and the Baltic countries.

Stora Enso merged its containerboard business in the Packaging Solutions division with the Consumer Board division, creating a new Packaging Materials division. The remaining business in Packaging Solutions together with Stora Enso's recently created formed fiber unit, constitutes a more focused Packaging Solutions division. The change is effective as of 1 January 2020.

On 25 September 2019 Stora Enso's Board of Directors appointed Annica Bresky as President and CEO of Stora Enso as of 1 December 2019. She was previously EVP and Head of Stora Enso's Consumer Board division. She replaced Karl-Henrik Sundström, who announced in August 2019 that he would leave his position of CEO.

Hannu Kasurinen was appointed EVP, Head of Consumer Board and member of the Group Leadership Team on 4 December 2019 and as of 1 January 2020, EVP, Head of Packaging Materials.

Gilles van Nieuwenhuyzen left his position as EVP Packaging Solutions on 6 December 2019 to pursue new career opportunities outside the company. David Ekberg, SVP and head of Business Unit Corrugated Nordics in the division, took on the role as acting Head of Packaging Solutions as of 6 December 2019.

Jari Suominen was appointed EVP, Head of Forest division as of 1 January 2020. He will continue as a member of the Group Leadership Team. Previously he led the Wood Products division. Seppo Toikka, Head of Strategy and Business Controlling in Wood Products, took on the role as acting Head of the division as of 1 January 2020.

Share capital

Stora Enso Oyj's shares are divided into A and R shares. The A and R shares entitle holders to the same dividend but different voting rights. Each A share and each ten R shares carry one vote at a shareholders' meeting. However, each shareholder has at least one vote.

During 2019, a total of 55 838 A shares converted into R shares were recorded in the Finnish Trade Register. On 31 December 2019, Stora Enso had 176 256 834 A shares and 612 363 153 R shares in issue. The company did not hold its own shares. The total number of Stora Enso shares in issue was 788 619 987 and the total number votes at least 237 493 149.

Board of Directors is authorised to decide on the repurchase and on the issuance of Stora Enso R shares. The amount of shares to be issued or repurchased shall not exceed a total of 2 000 000 R shares, corresponding to approximately 0.25% of all shares and 0.33% of all R shares.

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Major shareholders as of 31 December 2019

| By voting power | A shares | R shares | % of shares | % of votes |
|--|--------------------|--------------------|--------------|--------------|
| 1 Solidium Oy ¹ | 62 655 036 | 21 792 540 | 10.7% | 27.3% |
| 2 FAM AB ² | 63 123 386 | 17 000 000 | 10.2% | 27.3% |
| 3 Social Insurance Institution of Finland (KELA) | 23 825 086 | 973 982 | 3.1% | 10.1% |
| 4 Varma Mutual Pension Insurance Company | 8 513 018 | 1 140 874 | 1.2% | 3.6% |
| 5 MP-Bolagen i Vetlanda AB | 4 826 020 | 1 110 000 | 0.8% | 2.1% |
| 6 Ilmarinen Mutual Pension Insurance Company | 3 055 000 | 16 570 000 | 2.1% | 2.0% |
| 7 Erik Johan Ljungberg's Education Foundation | 1 780 540 | 2 336 224 | 0.5% | 0.8% |
| 8 Swedbank Robur Funds | 0 | 16 729 037 | 2.1% | 0.7% |
| 9 Elo Mutual Pension Insurance Company | 0 | 7 909 000 | 1.0% | 0.3% |
| 10 Bergslaget's Healthcare Foundation | 626 269 | 1 609 483 | 0.3% | 0.3% |
| 11 AFA Insurance | 0 | 7 072 505 | 0.9% | 0.3% |
| 12 Nordea Investment Funds | 0 | 5 841 360 | 0.7% | 0.2% |
| 13 The State Pension Fund (Finland) | 0 | 5 813 755 | 0.7% | 0.2% |
| 14 SEB Investment Management | 0 | 5 769 313 | 0.7% | 0.2% |
| 15 Keva (Local Government Pension Institution) | 0 | 4 793 208 | 0.6% | 0.2% |
| Total | 168 404 355 | 116 461 281 | 35.6% | 75.6% |

| | | | | |
|--|------------|-------------|-------|-------|
| Nominee-registered shares ³ | 74 608 072 | 467 705 419 | 68.8% | 51.3% |
|--|------------|-------------|-------|-------|

¹ Entirely owned by the Finnish State.

² As confirmed to Stora Enso.

³ According to Euroclear Finland.

The list has been compiled by the Company on the basis of shareholder information obtained from Euroclear Finland, Euroclear Sweden and a database managed by Citibank, N.A (Citi). This information includes only directly registered holdings, thus certain holdings (which may be substantial) of shares held in nominee or brokerage accounts cannot be included. The list is therefore incomplete.

Share distribution as at 31 December 2019

| By size of holding, A share | Shareholders | % of shareholders | Shares | % of shares |
|-----------------------------|---------------|-------------------|--------------------|----------------|
| 1–100 | 5 394 | 52.70% | 240 338 | 0.10% |
| 101–1 000 | 4 216 | 41.20% | 1 513 068 | 0.90% |
| 1 001–10 000 | 587 | 5.70% | 1 352 742 | 0.80% |
| 10 001–100 000 | 29 | 0.30% | 563 513 | 0.30% |
| 100 001–1 000 000 | 0 | 0.00% | 0 | 0.00% |
| 1 000 001– | 6 | 0.10% | 172 587 173 | 97.90% |
| Total | 10 232 | 100.00% | 176 256 834 | 100.00% |

| By size of holding, R share | Shareholders | % of shareholders | Shares | % of shares |
|-----------------------------|---------------|-------------------|--------------------|----------------|
| 1–100 | 12 702 | 29.30% | 705 256 | 0.10% |
| 101–1 000 | 23 206 | 53.60% | 9 631 026 | 1.60% |
| 1 001–10 000 | 6 753 | 15.60% | 18 010 289 | 2.90% |
| 10 001–100 000 | 539 | 1.20% | 14 293 560 | 2.30% |
| 100 001–1 000 000 | 82 | 0.20% | 24 033 992 | 3.90% |
| 1 000 001– | 24 | 0.10% | 545 689 030 | 89.10% |
| Total | 43 306 | 100.00% | 612 363 153 | 100.00% |

According to Euroclear Finland.

Ownership distribution as at 31 December 2019

| | % of shares | % of votes |
|--|-------------|------------|
| Solidium Oy ¹ | 10.7% | 27.3% |
| FAM AB ² | 10.2% | 27.3% |
| Social Insurance Institution of Finland (KELA) | 3.1% | 10.1% |
| Finnish institutions (excl. Solidium and KELA) | 12.5% | 8.8% |
| Swedish institutions (excl. FAM) | 9.3% | 6.1% |
| Finnish private shareholders | 4.4% | 2.6% |
| Swedish private shareholders | 4.2% | 2.7% |
| ADR holders | 1.8% | 0.6% |
| Under nominee names (non-Finnish/non-Swedish shareholders) | 43.8% | 14.7% |

¹ Entirely owned by the Finnish State.

² As confirmed to Stora Enso.

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Outlook and short-term risks

Subdued and mixed trading conditions caused by geopolitical uncertainties are expected to continue to impact Stora Enso in 2020. The decline in demand for European paper will persist, and demand for other Group products is expected to remain mixed. Exceptionally mild winter conditions in the Nordics with reduced period of frozen soil could impact harvesting and transport of wood and may therefore affect the stability of raw material supply and potentially increase wood costs to our Nordic mills.

Stora Enso will continue active cost management in 2020–2021 through the profit protection programme implementation. The fixed and variable cost savings target is EUR 275 million to the end of 2021.

Various labour unions in Finland are currently on strike which is expected to impact result negatively (as of 29 January 2020).

Stora Enso publishes the quarterly guidances in its interim reports.

Increasing competition, and supply and demand imbalances in the paper, pulp, packaging, wood products and roundwood markets may affect Stora Enso's market share and profitability. Changes in the global economic and political environment, sharp market corrections, increasing volatility in foreign exchange rates and deteriorating economic conditions in the main markets could all affect Stora Enso's profits, cash flows and financial position.

With reference to current geopolitical circumstances, the immediate probability of a further escalation in the tariff wars between the US and China has diminished, but the chance of a lasting de-escalation in the trade conflict remains slim.

To mitigate the impact of deteriorating geopolitical and macro-economic conditions, and increased uncertainty in the global economy, Stora Enso has a profit protection programme, targeting EUR 275 million reductions in fixed and variable costs by the end of 2021.

Exceptionally mild winter conditions could impact harvesting and the transport of wood and may therefore affect the stability of raw material supply and potentially increase wood costs to our Nordic mills.

Stora Enso has been granted various investment subsidies and has given certain investment commitments in different countries e.g. Finland, China and Sweden. If committed planning conditions are not met, the local officials may pursue administrative measures to reclaim some of formerly granted investment subsidies or to impose penalties on Stora Enso, and the outcome of such process could result in negative financial impact on Stora Enso.

Other risks and uncertainties include, but are not limited to: general industry conditions, such as changes in the cost or availability of raw materials, energy and transportation costs; unanticipated expenditures related to the cost of compliance with existing and new environmental and other governmental regulations and to actual or potential litigation; material disruption at one of our manufacturing facilities; risks inherent in conducting business through joint ventures, and other factors that can be found in Stora Enso's press releases and disclosures.

Energy sensitivity analysis: the direct effect of a 10% increase in electricity and fossil fuel market prices would have a negative impact of approximately EUR 12 million on operational EBIT for the next 12 months.

Wood sensitivity analysis: the direct effect of a 10% increase in wood prices would have a negative impact of approximately EUR 170 million on operational EBIT for the next 12 months.

Pulp sensitivity analysis: the direct effect of a 10% increase in pulp market prices would have a positive impact of approximately EUR 115 million on operational EBIT for the next 12 months.

Chemical and filler sensitivity analysis: the direct effect of a 10% increase in chemical and filler prices would have a negative impact of approximately EUR 33 million on operational EBIT for the next 12 months.

A decrease of energy, wood, pulp or chemical and filler prices would have the opposite impact.

Foreign exchange rates sensitivity analysis for the next twelve months: the direct effect on operational EBIT of a 10% strengthening in the value of the US dollar, Swedish krona and British pound against the euro would be approximately positive EUR 114 million, negative EUR 89 million and positive EUR 30 million annual impact, respectively. Weakening of the currencies would have the opposite impact. These numbers are before the effect of hedges and assuming no changes occur other than a single currency exchange rate movement.

The Group incurs annual unhedged net costs worth approximately EUR 158 million in Brazilian real (BRL) in its operations in Brazil and approximately EUR 42 million in Chinese Renminbi (CNY) in its operations in China. For these flows, a 10% strengthening in the value of a foreign currency would have a EUR 16 million and EUR 4 million negative impact on operational EBIT, respectively.

Events after the balance sheet date

Malin Bendz, Executive Vice President, Human Resources, left her position at Stora Enso on 15 January 2020.

Proposal for the distribution of dividend

The Board of Directors proposes to the AGM that a dividend of EUR 0.50 per share be distributed on the basis of the balance sheet adopted for the year 2019.

The Parent Company distributable shareholders' equity on 31 December 2019 amounted to EUR 1 309 630 306.42, including the profit for the period of EUR 230 302 677.26. The Board of Directors proposes to the Annual General Meeting of the Company that the distributable funds be used as follows:

Dividend of EUR 0.50 per share from the distributable shareholders' equity to be distributed on 788 619 987 shares, not to exceed EUR 394 309 993.50

Remaining in distributable shareholders' equity EUR 915 320 312.92

Distributable shareholders' equity on 31 December 2019, total EUR 1 309 630 306.42

The dividend would be paid to shareholders who on the record date of the dividend payment, 23 March 2020, are recorded in the shareholders' register maintained by Euroclear Finland Oy or in the separate register of shareholders maintained by Euroclear Sweden AB for Euroclear Sweden registered shares. Dividends payable to Euroclear Sweden registered shares will be forwarded by Euroclear Sweden AB and paid in Swedish crowns. Dividends payable to ADR holders will be forwarded by Citibank N.A. and paid in US dollars.

The Board of Directors proposes to the AGM that the dividend be paid on or about 30 March 2020.

Annual General Meeting

Stora Enso Oyj's Annual General Meeting (AGM) will be held on Thursday 19 March 2020 at 4.00 p.m. Finnish time at the Marina Congress Center, Katajanokanlaituri 6, Helsinki, Finland.

Non-IFRS measures

The Group's key non-IFRS performance metric is operational EBIT, which is used to evaluate the performance of its operating segments and to steer allocation of resources to them. Operational EBIT comprises the operating profit excluding items affecting comparability (IAC) and fair valuations from the segments and Stora Enso's share of the operating profit of equity accounted investments (EAI), also excluding items affecting comparability and fair valuations.

Items affecting comparability are exceptional transactions that are not related to recurring business operations. The most common IAC are capital gains and losses, impairments or impairment reversals, disposal gains and losses relating to Group companies, provisions for planned restructurings, environmental provisions, changes in depreciation due to restructuring and penalties. Items affecting comparability are normally disclosed individually if they exceed one cent per share.

Fair valuations and non-operational items include CO₂ emission rights, valuations of biological assets and the Group's share of income tax and net financial items of EAI. Until the end of 2018, fair valuations and non-operational items also included equity incentive schemes and related hedges. The previous periods have not been restated due to immateriality.

Cash flow from operations (non-IFRS) is a Group specific way to present operative cash flow starting from operational EBITDA instead of operating profit.

Cash flow after investing activities (non-IFRS) is calculated as follows: cash flow from operations (non-IFRS) excluding cash spent on intangible assets, property, plant and equipment, and biological assets and acquisitions of EAI.

The full list of the non-IFRS measures is presented at the end of this report.

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Calculation of key figures

| | | |
|--|-------|---|
| Operational return on capital employed, operational ROCE (%) | 100 × | $\frac{\text{Annualised operational EBIT}}{\text{Capital employed}^{1, 2}}$ |
| Operational return on operating capital, operational ROOC (%) | 100 × | $\frac{\text{Annualised operational EBIT}}{\text{Operating capital}^2}$ |
| Return on equity, ROE (%) | 100 × | $\frac{\text{Net profit/loss for the period}}{\text{Total equity}^2}$ |
| Net interest-bearing liabilities | | Interest-bearing liabilities – interest-bearing assets |
| Net debt/equity ratio | | $\frac{\text{Net interest-bearing liabilities}}{\text{Equity}^3}$ |
| Earnings per share (EPS) | | $\frac{\text{Net profit/loss for the period}^3}{\text{Average number of shares}}$ |
| Payout ratio, excl. IAC, % | 100 × | $\frac{\text{Dividend distribution / share}}{\text{EPS excl. IAC}}$ |
| Dividend and distribution yield, % | 100 × | $\frac{\text{Dividend distribution / share}}{\text{Closing price of share}}$ |
| Price/earnings ratio (P/E), excl. IAC | | $\frac{\text{Closing price of share}}{\text{EPS excl. IAC}}$ |
| Operational EBIT | | Operating profit/loss excluding items affecting comparability (IAC) and fair valuations of the segments and Stora Enso's share of operating profit/loss excluding IAC and fair valuations of its equity accounted investments (EAI) |
| Operational EBITDA | | Operating profit/loss excluding operational decrease in the value of biological assets, fixed asset depreciation and impairment, IACs and fair valuations. The definition includes the respective items of subsidiaries, joint arrangements and equity accounted investments. |
| Net debt/last 12 months' operational EBITDA ratio | | $\frac{\text{Net interest-bearing liabilities}}{\text{LTM operational EBITDA}}$ |
| Fixed costs | | Maintenance, personnel and other administrative type of costs, excluding IAC and fair valuations |
| Last 12 months (LTM) | | 12 months prior to the end of reporting period |
| TRI rate | | Total recordable incident rate = number of incidents per one million hours worked |

¹ Capital employed = Operating capital – Net tax liabilities

² Average for the financial period

³ Attributable to owners of the Parent

List of non-IFRS measures

Operational EBITDA
Operational EBITDA margin
Operational EBIT
Operational EBIT margin
Capital expenditure
Capital employed
Operational ROCE
Earnings per share (EPS), excl. IAC
Operational ROOC
Net debt/last 12 months' operational EBITDA ratio
Cash flow from operations
Cash flow after investing activities

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Consolidated income statement

| EUR million | Note | Year ended 31 December | |
|---|------|------------------------|---------------|
| | | 2019 | 2018 |
| Sales | 3 | 10 055 | 10 486 |
| Other operating income | 5 | 165 | 92 |
| Changes in inventories of finished goods and work in progress | | -102 | 125 |
| Materials and services | | -5 964 | -6 157 |
| Freight and sales commissions | | -904 | -932 |
| Personnel expenses | 6 | -1 331 | -1 330 |
| Other operating expenses | 5 | -686 | -526 |
| Share of results of equity accounted investments | 13 | 229 | 181 |
| Change in net value of biological assets | 12 | 442 | -68 |
| Depreciation, amortisation and impairment charges | 10 | -597 | -479 |
| Operating profit | 3 | 1 305 | 1 390 |
| Financial income | 8 | 8 | 27 |
| Financial expense | 8 | -176 | -207 |
| Profit before Tax | | 1 137 | 1 210 |
| Income tax | 9 | -281 | -221 |
| Net profit for the year | | 856 | 988 |
| Attributable to: | | | |
| Owners of the Parent | 18 | 880 | 1 013 |
| Non-controlling Interests | 19 | -24 | -24 |
| Net profit for the year | | 856 | 988 |
| Earnings per share | | | |
| Basic and diluted earnings per share, EUR | 32 | 1.12 | 1.28 |

Consolidated statement of comprehensive income

| EUR million | Note | Year ended 31 December | |
|---|------|------------------------|------------|
| | | 2019 | 2018 |
| Net profit for the year | | 856 | 988 |
| Other Comprehensive Income (OCI) | | | |
| Items that will not be reclassified to profit and loss | | | |
| Equity instruments at fair value through other comprehensive income | 14 | 109 | 97 |
| Actuarial losses/gains on defined benefit plans | 20 | -78 | -24 |
| Income tax relating to items that will not be reclassified | 9 | 6 | 5 |
| | | 37 | 78 |
| Items that may be reclassified subsequently to profit and loss | | | |
| Share of OCI of equity accounted investments that may be reclassified | 27 | 11 | 4 |
| Currency translation movements on equity net investments (CTA) | 28 | 206 | -36 |
| Currency translation movements on non-controlling interests | 19 | 0 | 0 |
| Net investment hedges and loans | 28 | -9 | -14 |
| Cash flow hedges | 27 | -17 | -24 |
| Cost of hedging - time value of options | 27 | 3 | -2 |
| Non-controlling interests' share of cash flow hedges | 19 | 0 | -2 |
| Income tax relating to items that may be reclassified | 9 | 2 | 7 |
| | | 196 | -68 |
| Total comprehensive income | | 1 089 | 999 |
| Attributable to: | | | |
| Owners of the Parent | | 1 113 | 1 025 |
| Non-controlling interests | 19 | -24 | -27 |
| Total comprehensive income | | 1 089 | 999 |

The accompanying Notes are an integral part of these Consolidated financial statements.

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Consolidated statement of financial position

| EUR million | Note | As at 31 December | |
|--|------|-------------------|---------------|
| | | 2019 | 2018 |
| Assets | | | |
| Goodwill | O 11 | 302 | 243 |
| Other intangible assets | O 11 | 169 | 254 |
| Property, plant and equipment | O 11 | 5 610 | 5 234 |
| Right-of-use assets | | 508 | 0 |
| | 11 | 6 590 | 5 731 |
| Biological assets | O 12 | 3 627 | 457 |
| Emission rights | O | 37 | 26 |
| Equity accounted investments | O 13 | 483 | 1 729 |
| Listed securities | I 14 | 12 | 13 |
| Unlisted securities | O 14 | 526 | 422 |
| Non-current interest-bearing receivables | I 25 | 72 | 54 |
| Deferred tax assets | T 9 | 81 | 120 |
| Other non-current assets | O 15 | 37 | 48 |
| Non-current assets | | 11 463 | 8 601 |
| Inventories | O 16 | 1 391 | 1 567 |
| Tax receivables | T | 11 | 9 |
| Operative receivables | O 17 | 1 289 | 1 487 |
| Interest-bearing receivables | I 25 | 23 | 55 |
| Cash and cash equivalents | I | 876 | 1 130 |
| Current assets | | 3 590 | 4 248 |
| Total assets | | 15 053 | 12 849 |

| EUR million | Note | As at 31 December | |
|--|------|-------------------|---------------|
| | | 2019 | 2018 |
| Equity and liabilities | | | |
| Share capital | 18 | 1 342 | 1 342 |
| Share premium | | 77 | 77 |
| Fair value reserve | | 397 | 290 |
| Cumulative translation adjustment | 28 | -136 | -335 |
| Invested non-restricted equity fund | | 633 | 633 |
| Retained earnings | | 4 236 | 3 694 |
| Net profit for the year | | 880 | 1 013 |
| Equity attributable to owners of the Parent | | 7 429 | 6 714 |
| Non-controlling Interests | 19 | -7 | 18 |
| Total equity | | 7 423 | 6 732 |
| Post-employment benefit provisions | O 20 | 458 | 401 |
| Other provisions | O 22 | 110 | 101 |
| Deferred tax liabilities | T 9 | 875 | 168 |
| Non-current interest-bearing liabilities | I 26 | 3 232 | 2 265 |
| Other non-current operative liabilities | O 23 | 40 | 34 |
| Non-current liabilities | | 4 713 | 2 970 |
| Current portion of non-current debt | I 26 | 376 | 403 |
| Interest-bearing liabilities | I 26 | 572 | 675 |
| Bank overdrafts | I 26 | 13 | 1 |
| Other provisions | O 22 | 55 | 16 |
| Other operative liabilities | O 23 | 1 854 | 1 960 |
| Tax liabilities | T 9 | 48 | 92 |
| Current liabilities | | 2 917 | 3 147 |
| Total liabilities | | 7 630 | 6 117 |
| Total equity and liabilities | | 15 053 | 12 849 |

Items designated "O" comprise Operating Capital, items designated "I" comprise Interest-bearing Net Liabilities, items designated "T" comprise Net Tax Liabilities.
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Consolidated cash flow statement

| EUR million | Year ended 31 December | | |
|--|------------------------|---------------|--------------|
| | Note | 2019 | 2018 |
| Cash flow from operating activities | | | |
| Net profit for the year | | 856 | 988 |
| Adjustments and reversal of non-cash items: | | | |
| Taxes | 9 | 281 | 221 |
| Depreciation and impairment charges | 10 | 597 | 479 |
| Change in value of biological assets | 12 | -442 | 68 |
| Change in fair value of share awards and total return swaps | | 0 | 2 |
| Share of results of equity accounted investments | 13 | -229 | -181 |
| CTA and profits and losses on sale of fixed assets and investments ¹ | 5 | 172 | 20 |
| Net financial items | 8 | 168 | 180 |
| Other adjustments | | -6 | -9 |
| Dividends received from equity accounted investments | 13 | 343 | 24 |
| Interest received | | 7 | 3 |
| Interest paid | | -150 | -116 |
| Other financial items, net | | -10 | -9 |
| Income taxes paid | 9 | -178 | -152 |
| Change in net working capital, net of businesses acquired or sold | | 240 | -428 |
| Net cash provided by operating activities | | 1 649 | 1 092 |
| Cash flow from investing activities | | | |
| Acquisition of subsidiary shares and business operations, net of acquired cash | 4 | -464 | -4 |
| Acquisition of shares in equity accounted investments | 13 | -7 | -29 |
| Acquisition of unlisted securities | 14 | 0 | -3 |
| Cash flow on disposal of subsidiary shares and business operations, net of disposed cash | 4 | -19 | 42 |
| Cash flow on disposal of shares in equity accounted investments | 13 | 0 | 3 |
| Cash flow on disposal of unlisted securities | 14 | 6 | 1 |
| Cash flow on disposal of intangible assets and property, plant and equipment | 11 | 12 | 9 |
| Capital expenditure | 3, 11 | -510 | -442 |
| Investment in biological assets | 12 | -77 | -83 |
| Proceeds from/payment of non-current receivables, net | | -18 | 8 |
| Net cash used in investing activities | | -1 077 | -497 |

| EUR million | Year ended 31 December | | |
|--|------------------------|-------------|--------------|
| | Note | 2019 | 2018 |
| Cash flow from financing activities | | | |
| Proceeds from issue of new long-term debt | 26 | 870 | 578 |
| Repayment of long-term debt and lease liabilities | 26 | -1 284 | -358 |
| Change in short-term borrowings | 26 | -33 | 39 |
| Dividends paid | | -394 | -323 |
| Buy-out of interest in subsidiaries from non-controlling interests | 19 | -8 | -2 |
| Equity injections from, less dividends to, non-controlling interests | 19 | -4 | -2 |
| Purchase of own shares | | -3 | -5 |
| Net cash used in financing activities | | -856 | -73 |
| Net change in cash and cash equivalents | | -285 | 521 |
| Translation adjustment | | 19 | 4 |
| Net cash and cash equivalents at beginning of year | | 1 128 | 603 |
| Net cash and cash equivalents at year end | | 863 | 1 128 |
| Cash and cash equivalents at year end² | | 876 | 1 130 |
| Bank overdrafts at year end | | -13 | -1 |
| Net cash and cash equivalents at year end | | 863 | 1 128 |

¹ CTA = Cumulative Translation Adjustment

² Cash and cash equivalents comprise cash-in-hand, deposits held at call with banks and other liquid investments with original maturity of less than three months. Bank overdrafts are included in current liabilities.

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Consolidated cash flow statement

Supplemental cash flow information

| | | Year ended 31 December | |
|--|------|------------------------|--------------|
| EUR million | Note | 2019 | 2018 |
| Change in net working capital consists of: | | | |
| Change in inventories | | 161 | -267 |
| Change in interest-free receivables: | | | |
| Current | | 205 | -183 |
| Non-current | | 13 | -1 |
| Change in interest-free liabilities: | | | |
| Current | | -127 | 36 |
| Non-current | | -12 | -13 |
| Change in net working capital, net of businesses acquired or sold | | 240 | -428 |
| Cash and cash equivalents consist of: | | | |
| Cash on hand and at banks | | 676 | 801 |
| Cash equivalents | | 199 | 328 |
| Cash and cash equivalents | | 876 | 1 130 |
| Non-cash investing activities | | | |
| Total capital expenditure | | 550 | 491 |
| Amounts paid | | -510 | -442 |
| Non-cash part of additions to intangible assets and property, plant and equipment | | 40 | 49 |
| Cash flow on acquisitions of subsidiaries and business operations | | | |
| Purchase consideration on acquisitions, cash part | 4 | -527 | 5 |
| Cash and cash equivalents in acquired companies, net of bank overdraft | 4 | 64 | -1 |
| Net cash flow on acquisition | | -464 | 4 |
| Cash flow on disposals of subsidiaries and business operations | | | |
| Cash part of the consideration | 4 | -15 | 44 |
| Cash and cash equivalents in divested companies | 4 | -4 | -2 |
| Net cash flow from disposal | | -19 | 42 |

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Statement of changes in equity

| EUR million | Share Capital | Share Premium and Reserve Fund | Invested Non-Restricted Equity Fund | Treasury Shares | Step Acquisition Revaluation Surplus | Fair Valuation Reserve | | | OCI of Equity Accounted Investments | CTA and Net Investment Hedges and Loans | Retained Earnings | Attributable to Owners of the Parent | Non-controlling Interests | Total |
|--|---------------|--------------------------------|-------------------------------------|-----------------|--------------------------------------|--------------------------------|--------------------------------|------------------|-------------------------------------|---|-------------------|--------------------------------------|---------------------------|-------|
| | | | | | | Equity instruments through OCI | Available for Sale Investments | Cash Flow Hedges | | | | | | |
| Balance at 31 December 2017 | 1 342 | 77 | 633 | — | 4 | — | 205 | 15 | -14 | -288 | 4 034 | 6 008 | 47 | 6 055 |
| Adoption of IFRS 2 and IFRS 9 | | | | | | 205 | -205 | | | | 8 | 8 | | |
| Balance at 1 January 2018 | 1 342 | 77 | 633 | — | 4 | 205 | — | 15 | -14 | -288 | 4 042 | 6 016 | 47 | 6 063 |
| Profit/loss for the year | — | — | — | — | — | — | — | — | — | — | 1 013 | 1 013 | -24 | 988 |
| OCI before tax | — | — | — | — | — | 97 | — | -26 | 4 | -50 | -24 | — | -2 | -2 |
| Income tax relating to components of OCI | — | — | — | — | — | 1 | — | 5 | — | 3 | 4 | 13 | — | 13 |
| Total Comprehensive Income | — | — | — | — | — | 98 | — | -22 | 4 | -47 | 993 | 1 026 | -27 | 999 |
| Dividend | — | — | — | — | — | — | — | — | — | — | -323 | -323 | -2 | -326 |
| Acquisitions and Disposals | — | — | — | — | — | — | — | — | — | — | — | — | -2 | -2 |
| NCI buy-out | — | — | — | — | — | — | — | — | — | — | -2 | -2 | 2 | — |
| Purchase of treasury shares | — | — | — | -5 | — | — | — | — | — | — | — | -5 | — | -5 |
| Share-based payments | — | — | — | 5 | — | — | — | — | — | — | -3 | 2 | — | 2 |
| Balance at 31 December 2018 | 1 342 | 77 | 633 | — | 4 | 304 | — | -7 | -11 | -335 | 4 706 | 6 714 | 18 | 6 732 |
| Profit/loss for the year | — | — | — | — | — | — | — | — | — | — | 880 | 880 | -24 | 856 |
| OCI before tax | — | — | — | — | — | 109 | — | -14 | 11 | 197 | -78 | 225 | — | 225 |
| Income tax relating to components of OCI | — | — | — | — | — | — | — | 1 | — | 1 | 6 | 9 | — | 9 |
| Total Comprehensive Income | — | — | — | — | — | 109 | — | -13 | 11 | 198 | 808 | 1 113 | -24 | 1 089 |
| Dividend | — | — | — | — | — | — | — | — | — | — | -394 | -394 | -1 | -395 |
| Acquisitions and disposals | — | — | — | — | — | — | — | — | — | — | — | — | 1 | 1 |
| Purchase of treasury shares | — | — | — | -4 | — | — | — | — | — | — | — | -4 | — | -4 |
| Share-based payments | — | — | — | 4 | — | — | — | — | — | — | -3 | — | — | — |
| Balance at 31 December 2019 | 1 342 | 77 | 633 | — | 4 | 413 | — | -20 | — | -136 | 5 116 | 7 429 | -7 | 7 423 |

CTA = Cumulative Translation Adjustment, NCI = Non-controlling Interests, OCI = Other Comprehensive Income, EAI = Equity Accounted Investments

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Note 1 Accounting principles

Principal activities

Stora Enso Oyj ("the Company") is a Finnish public limited liability company organised under the laws of the Republic of Finland and with its registered address at Kanavaranta 1, 00160 Helsinki. Its shares are currently listed on Nasdaq Helsinki and Stockholm. The operations of Stora Enso Oyj and its subsidiaries (together "Stora Enso" or "the Group") are organised into the following divisions: Consumer Board, Packaging Solutions, Biomaterials, Wood Products, Paper and the segment Other. The segment Other includes Nordic forest equity accounted investments, Stora Enso's shareholding in Pohjolan Voima, operations supplying wood to Nordic and Baltic mills, plantations not connected to any mill site, and group shared services and administration. The Group's main market is Europe, with an expanding presence in Asia and South America.

The Financial Statements were authorised for issue by the Board of Directors on 29 January 2020.

Basis of preparation

The Consolidated Financial Statements of Stora Enso Oyj have been prepared in accordance with International Financial Reporting Standards (IFRS), as adopted by the European Union, including International Accounting Standards (IAS) and interpretations issued by the IFRS Interpretations Committee (IFRIC). The Consolidated Financial Statements of Stora Enso Oyj have been prepared according to the historical cost convention, except as disclosed in the accounting policies. The detailed accounting principles are explained in the related notes with a few exceptions where the accounting principles are presented in this note. The Consolidated financial statements are presented in euros, which is the parent company's functional currency.

All figures in this Annual Report have been rounded to the nearest million, unless otherwise stated. Therefore, figures in this report may not add up precisely to the totals presented and may vary from previously published financial information.

New and amended standards and interpretations adopted in 2019

The Group has applied the following standards and amendments which are effective from 1 January 2019:

- **IFRS 16 Leases.** The new leasing standard replaced the guidance in IAS 17 and related interpretations and is a significant change in accounting by lessees in particular. IFRS 16 requires lessees to recognize a lease liability reflecting future lease payments and a right-of-use (ROU) asset for virtually all lease contracts. The distinction between operating and finance lease is removed for lessees. Before the transition to IFRS 16, the Group mainly had contracts classified as operating leases, which were not capitalised and Stora Enso did not have any material finance lease contracts in effect at the end of 2018.

Stora Enso is mainly acting as a lessee and does not have any material lease agreements where it would act as a lessor.

In accordance with IFRS 16, at inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. The change in lease definition mainly relates to the concept of control and the amendment in the definition of lease has no material effect on the Group.

Stora Enso adopted IFRS 16 on 1 January 2019, using the modified retrospective approach and therefore the comparative information will not be restated and continues to be reported under IAS 17 and IFRIC 4. The effect of the initial application of IFRS 16 is recognised in the balance sheet at 1 January 2019. At transition, lease liabilities are measured at the present value of the remaining lease payments, discounted at the Group's incremental borrowing rate. ROU assets are measured at an amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments. The Group allocates the consideration in the contract to each lease component and will separate non-lease components if these are identifiable.

ROU assets are initially measured at cost, which comprises the initial amount of the lease liability adjusted mainly for lease payments made at or before the commencement date. The ROU assets are subsequently depreciated using the straight-line method from the commencement date to the earlier of the end of the lease term or the end of the useful life of the ROU asset. In addition, the ROU asset is adjusted for certain remeasurements of the lease liability. ROU assets are tested for impairment in accordance with IAS 36 Impairment of Assets.

Lease liabilities are initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the Group's incremental borrowing rate. The lease term applied corresponds to the non-cancellable period except in cases where the Group is reasonably certain to exercise a renewal option or prolong the contract. The lease liabilities are measured at amortised cost using the effective interest method. Lease liabilities are remeasured mainly when there is a change in future lease payments arising from a change in an index or rate, or if there is a change in the Group's assessment whether it will exercise an extension option. When a lease liability is remeasured, a corresponding adjustment is generally made to the carrying amount of the ROU asset.

The Group has elected not to recognise ROU assets and lease liabilities for those short-term leases that have a lease term of 12 months or less and leases of low value assets. The Group has also applied the exemption not to recognise contracts which are ending in 2019. The Group has defined the low value asset exemption to include leases in which the underlying asset is not material to Stora Enso. The assessment of whether the underlying asset is material and is within the scope or excluded from the recognition requirements of IFRS 16 is based on the concept of materiality in the Conceptual Framework

and IAS 1. Leases of low value assets mainly include IT and office equipment, certain vehicles and machinery, and other low value items. The Group recognises the lease payments associated with these leases as an expense on a straight-line basis over the lease term. In addition, the Group has applied hindsight in the determination of a lease term if the lease contract includes extension options.

On the transition to IFRS 16, leases previously classified as operating leases under IAS 17 resulted in the recognition of ROU assets and lease liabilities. This also resulted in a decrease in operative expenses and an increase in depreciation charges and interest expenses. Under IFRS 16, cash paid for the interest portion of a lease liability is presented as part of the operating activities, and cash payments for the principal portion of a lease liability is presented as part of financing activities. The adoption of IFRS 16 does not have an impact on the total net cash flow. Stora Enso's most material lease agreements capitalised at the implementation consist of land leases (~55%), operative machinery and equipment (~30%), and properties (~15%).

Undiscounted operating lease commitments at the end of 2018 totalled EUR 731 million. On transition to IFRS 16, the Group recognised an additional EUR 525 million of lease liabilities. No adjustment to the opening balance of retained earnings has been made due to the IFRS 16 transition. The weighted average discount rate was 4.1%.

| EUR million | 1 Jan 2019 |
|---|------------|
| Operating lease commitments at 31 December 2018 | 731 |
| Discounted using the incremental borrowing rates at 1 January 2019 | 544 |
| Finance lease liabilities recognised as at 31 December 2018 | 1 |
| Short term leases | -9 |
| Leases of low-value assets | -16 |
| Other* | 5 |
| Lease liabilities recognised at 1 January 2019 | 526 |
| Finance lease liabilities recognised as at 31 December 2018 | -1 |
| Additional lease liabilities as a result of the initial application of IFRS 16 | 525 |

* Lease period adjustments (e.g. extension options), exclusion of non-lease components and variable rents not included in the measurement of the lease liability

As at 1 January 2019, the Group recognised an additional EUR 530 million of ROU assets. This amount includes prepaid expenses of EUR 5 million, presented as accrued expenses in the balance sheet before the transition and reclassified to ROU assets at IFRS 16 implementation. In addition, certain land use contracts, amounting to EUR 80 million, accounted as intangible assets before the IFRS 16 transition, were classified as leases on the transition to IFRS 16. All the liabilities related to the arrangements have already been settled in previous periods and therefore there is no effect on the lease liability or income statement. See [Note 11](#) Intangible assets and property,

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plant and equipment for more detailed information on ROU assets and leases arrangements, [Note 26](#) Interest-bearing liabilities for more detailed information on lease liabilities and [Note 5](#) Other operating income and expense for more detailed information on lease expenses.

- Other amended IFRS standards and interpretations do not have a material effect on the Group.

Consolidation principles

The Consolidated financial statements include the parent company, Stora Enso Oyj, and all companies controlled by the Group. Control is defined as when the Group:

- has power over the investee,
- is exposed, or has rights, to variable returns from its involvement with the investee; and
- has the ability to use its power to affect its returns.

If facts and circumstances indicate that there are changes to the three elements of control listed above the Group reassess whether or not it controls an investee. Acquired companies are accounted for under the acquisition method whereby they are included in the consolidated financial statements from the date the control over the subsidiary is obtained, whereas, conversely, divestments are included up to the date when the control is lost. The principal subsidiaries and joint operations are listed in [Note 30](#) Principal subsidiaries and joint operations.

All intercompany transactions, receivables, liabilities and unrealised profits, as well as intragroup profit distributions, are eliminated. Accounting policies for subsidiaries, joint arrangements and all equity accounted investments are adjusted where necessary to ensure consistency with the policies adopted by Stora Enso. Non-controlling interests are presented as a separate component of equity.

Associated companies over which Stora Enso exercises significant influence are accounted for using the equity method, which involves recognising the Group's share of the equity accounted investment profit or loss for the year less any impaired goodwill in the consolidated income statement. These companies are undertakings in which the Group has significant influence, but which it does not control. Significant influence means the power to participate in the financial and operating policy decisions of the company without control or joint control over those policies. The most significant of such companies are listed in [Note 13](#) Equity accounted investments.

The Group's interest in an associated company is carried in the consolidated statement of financial position at an amount that reflects its share of the net assets of the associate together with any remaining goodwill upon acquisition. When the Group share of losses exceeds the carrying amount of an investment, the carrying amount is reduced to zero and any recognition of further losses ceases unless the Group is obliged to satisfy obligations of the investee that it has guaranteed or which it is otherwise committed to.

Joint control is the contractually agreed sharing of control of the joint arrangement, which exists only when decisions on relevant activities require the unanimous consent of the parties sharing control.

Joint operations are joint arrangements whereby the partners who have joint control of the arrangement have rights to the assets, and

obligations for the liabilities, relating to the arrangement. A joint venture is a joint arrangement whereby the partners who have joint control of the arrangement have rights to the net assets of the joint arrangement.

The Group has two joint operations: Veracel and Montes del Plata. In relation to its interest in joint operations, as a joint operator, the Group recognises assets, liabilities, revenues and expenses using the line-by-line method.

- Veracel is a joint owned (50%/50%) company of Stora Enso and Suzano located in Brazil. The pulp mill produces 1.2 million tonnes of bleached eucalyptus hard wood pulp per year and both owners are entitled to half of the mill's output. The eucalyptus is sourced mostly from the company's own forestry plantations. The mill commenced production in May 2005 and the group's share of the pulp shipments are sent primarily to Stora Enso mills in Europe and China.
- Montes del Plata is a joint owned (50%/50%) company of Stora Enso and Arauco located in Uruguay. The Montes del Plata Pulp Mill's annual capacity is 1.4 million tonnes of bleached eucalyptus hard wood pulp and Stora Enso's part, 700 000 tonnes, is sold entirely as market pulp. The eucalyptus is sourced mostly from the company's own forestry plantations. The mill started in June 2014.

Revenue recognition

Sales comprise products, raw materials and services less indirect sales tax and discounts, and are adjusted for exchange differences on sales in foreign currencies. Sales are recognised after Stora Enso has transferred the control of goods and services to a customer and the Group retains neither a continuing right to dispose of the goods, nor effective control of those goods; usually, this means that sales are recorded upon the delivery of goods to customers in accordance with the agreed terms of delivery.

Stora Enso's terms of delivery are based on Incoterms 2010, which are the official rules for the interpretation of trade terms as issued by the International Chamber of Commerce (ICC). The main categories of the terms covering Group sales are:

- "D" terms, under which the group is obliged to deliver the goods to the buyer at the agreed place in the manner specified in the chosen rule, in which case the Point of Sale is the moment of delivery to the buyer.
- "C" terms, whereby the Group arranges and pays for the external carriage and certain other costs, though the Group ceases to be responsible for the goods once they have been handed over to the carrier in accordance with the relevant term. The Point of Sale is thus the handing over of the goods to the carrier contracted by the seller for the carriage to the agreed destination.
- "F" terms, being where the buyer arranges and pays for the carriage, thus the Point of Sale is the handing over of the goods to the carrier contracted by the buyer at the agreed point.

Where local rules may result in invoices being raised in advance of the above, the effect of this revenue advancement is quantified, and an adjustment is made accordingly. Stora Enso's sales mainly comprise sales of products and the revenue is typically recognised at a point in time when Stora Enso transfers control of these products to a customer. Revenues from services are recognised over time once the service has

been performed. More detailed information regarding Stora Enso's principal activities from which the Group generates its revenue and disaggregation of revenue is presented in [Note 3](#) Segment information.

Foreign currency transactions

Transactions in foreign currencies are recorded at the rate of exchange prevailing at the transaction date, but at the end of the month foreign-currency-denominated receivables and liabilities are translated using the month-end exchange rate. Foreign exchange differences for operating items are recorded in the appropriate income statement account in the operating profit, and, for financial assets and liabilities, they are entered in the financial items of the consolidated income statement, except when deferred in equity as qualifying cash flow hedges, net investment hedges or net investment loans. Translation differences on non-monetary financial assets, such as equities classified at fair value through other comprehensive income (FVTOCI), are included in equity.

Foreign currency translations

The Group operates internationally and is thus exposed to currency risks arising from exchange rate fluctuations on the value of its net investment in non-euro area foreign subsidiaries and equity accounted investments. The Income Statements of subsidiaries with functional and presentational currencies other than the euro are translated into the Group reporting currency using the average exchange rates for the year, whereas the statements of the financial position of these subsidiaries are translated using the exchange rates at the reporting date. Exchange differences arising from the retranslation of net investments in foreign entities that are non-euro foreign subsidiaries, joint arrangements or equity accounted investments, and of financial instruments that are designated as and are hedges of such investments, are recorded directly in the shareholders' equity in the cumulative translation adjustment (CTA), as shown in the consolidated statement of comprehensive income and [Note 28](#) Cumulative translation adjustments and equity hedging. The cumulative translation differences of divestments and liquidations are combined with their gain or loss on disposal. The CTA is also recycled in the consolidated income statement upon any partial disposal of a business unit.

Future standard changes endorsed by the EU but not yet effective in 2019

- Amendments to IAS 1 and IAS 8: Definition of Material. Amendments will clarify the definition of material and align the definition used in the Conceptual Framework and the standards themselves. The effective date for these amendments is 1 January 2020. The Group is assessing the impact of these amendments.
- Amendments to References to the Conceptual Framework in IFRS Standards. The revised Conceptual Framework includes: a new chapter on measurement; guidance on reporting financial performance; improved definitions and guidance - in particular the definition of a liability; and clarifications in important areas, such as the roles of stewardship, prudence and measurement uncertainty in financial reporting. The effective date for these amendments is 1 January 2020. The amendments are not expected to have a material effect on the Group.

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Future standard changes not yet effective and not yet endorsed by the EU in 2019

- Amendments to IFRS 3 Business combinations. The amendments will help companies determine whether an acquisition made is of a business or a group of assets. The amended definition emphasises that the output of a business is to provide goods and services to customers, whereas the previous definition focused on returns in the form of dividends, lower costs or other economic benefits to investors and others. The effective date for these amendments is 1 January 2019. The amendments are not expected to have a material effect on the Group.
- Amendments to IFRS 9, IAS 39 and IFRS 7. The amendments are related to Interest Rate Benchmark Reform and require qualitative and quantitative disclosures to enable users of financial statements to understand how an entity's hedging relationships are affected by the uncertainty arising from interest rate benchmark reform. The effective date for these amendments is 1 January 2020. The amendments are not expected to have a material effect on the Group.
- IFRS 17 Insurance Contracts: This standard replaces IFRS 4, which currently permits a wide variety of practices in accounting for insurance contracts. The effective date for these amendments is 1 January 2021. The standard is not relevant to the Group.
- Other published standard changes or interpretations are not expected to have a significant effect on the Group's consolidated financial statements or disclosures.

Note 2 Critical accounting estimates and judgements

Use of estimates

The preparation of consolidated financial statements conforming to IFRS requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, as well as the disclosure of contingent assets and liabilities at the dates of the financial statements and the reported amounts of revenues and expenses during the period. The estimates are based on historical experience and various other assumptions that are believed to be reasonable, though actual results and timing could differ from the estimates. Management believes that the accounting policies below represent those matters requiring the exercise of judgement where a different opinion could result in the greatest changes to reported results.

Intangible assets and property, plant and equipment

The carrying amounts of Intangible assets and property, plant and equipment are assessed at each reporting date to determine whether there is any indication that an asset may be impaired. If an indicator of impairment exists, the asset's recoverable amount is determined and compared with its carrying amount. The recoverable amount of an asset is estimated as the higher of fair value less the cost of disposal and the value in use, with an impairment charge recognised whenever the carrying amount exceeds the recoverable amount. The value in use is calculated using a discounted cash flow model which is most sensitive to the discount rate as well as the expected future cash flows. The key assumptions used in the impairment testing, including

sensitivity analysis, are explained further in [Note 10](#) Depreciation, amortisation and impairment charges.

Management believes that the assigned values and useful lives, as well as the underlying assumptions, are reasonable, though different assumptions and assigned lives could have a significant impact on the reported amounts. For material intangible assets and property, plant and equipment in an acquisition, an external advisor makes a fair valuation of the acquired intangible assets and property, plant and equipment and assists in determining their remaining useful life.

Goodwill

Goodwill is tested per Cash Generating Unit (CGU) or by a group of CGUs at least on an annual basis and any impairment is measured using the discounted cash flow valuation method (value in use). This method uses future projections of cash flows from each of the reporting units in a CGU or a group of CGUs and includes, among other estimates, projections of future product pricing, production levels, product costs, market supply and demand, projected maintenance capital expenditures and an assumption of the weighted average cost of capital. A pre-tax discount rate used for the net present value calculation of projected cash flows reflects the weighted average cost of capital.

The Group has evaluated the most sensitive estimates which when changed could have a material effect on the fair value of the assets or goodwill and therefore could lead to an impairment. These estimates are expected sales prices, expected operating costs and discount rate. The key assumptions used in the impairment testing, including the sensitivity analysis, are explained further in [Note 10](#) Depreciation, amortisation and impairment charges.

Biological assets

The Group has biological assets in subsidiaries, joint operations and equity accounted investment companies. Biological assets, in the form of standing trees, are accounted for under IAS 41, which requires that the assets are measured at fair value less the costs to sell. Fair value is determined using discounted cash flows from continuous operations based on sustainable forest management plans taking into account the growth potential of one cycle. These discounted cash flows require estimates of growth, harvest, sales price and costs, discount rate, and changes in these premises are included in the consolidated income statement, for directly owned interests and for joint operations, on the line for Change in Net Value of Biological assets. For those assets shown in the Consolidated statement of financial position of equity accounted investments, changes are included on the line for Share of results of equity accounted investments. In determining the value of biological assets the management of subsidiaries, joint operation companies and equity accounted investments need to make appropriate estimates of future price levels and trends for sales and costs, and to undertake regular surveys of the forest to establish the volumes of wood available for cutting and their current growth rates. See [Note 12](#) Biological assets for more detailed information.

Control assessment of joint operations and associates

[Note 1](#) Accounting principles describe Veracel and Montes del Plata as joint operations. In both companies Stora Enso's ownership is

50%. The interpretations as joint operations are based on shareholders' agreements which give Stora Enso rights to a share of returns and make the Group liable indirectly for the liabilities, as our ability to pay for the pulp is used to finance debts. Joint operations are consolidated with the proportionate line-by-line method.

Equity accounted investments are accounted for using the equity method. Stora Enso does not control the companies alone or jointly with other parties and thus retains its significant minority interest as equity accounted investments. These companies are presented in [Note 13](#) Equity accounted investments.

Fair value of financial instruments

Where the fair value of financial assets and liabilities cannot be derived directly from publicly quoted market prices, other valuation techniques, such as discounted cash flow models, transaction multiples, the Black and Scholes model and the Gordon model, are employed. The key judgements include future cash flows, credit risk, volatility and changes in assumptions about these factors which could affect the reported fair value of the financial instruments. Investments in debt and equity instruments of unlisted entities, such as Pohjolan Voima Oy (PVO), represent a significant portion of the group's assets and require significant management judgement, as explained in more detail in [Notes 14](#) Equity instruments and [24](#) Financial risk management.

Income taxes

Tax assets and liabilities are reviewed on a periodic basis and balances are adjusted appropriately. Management considers that adequate provision has been made for future tax consequences based on the current facts, circumstances and tax law. However, should any tax positions be challenged and not prevail, different outcomes could result and have a significant impact on the amounts reported in the consolidated financial statements. See [Note 9](#) Income taxes for more detailed information.

Post-retirement benefits

The determination of the Group pension obligation and expense is subject to the selection of certain assumptions used by actuaries in calculating such amounts, including, among others, the discount rate, the annual rate of increase in future compensation levels and estimated lifespans. Amounts charged in the Income statement are determined by independent actuaries; however, where actual results differ from the initial estimates, together with the effect of any change in assumptions or other factors, these differences are recorded directly in equity, as disclosed in the statement of comprehensive income. See [Note 20](#) Post-employment benefits for detailed information on the assumptions used in the pension liability calculations.

Environmental provisions

The Group has made provisions for known environmental liabilities where legal or constructive obligation exist, based on the management's best estimate of the remediation costs. There is some uncertainty regarding the timing and amount of these costs and therefore the final liability could differ significantly from the original estimate. See [Note 22](#) Other provisions for more detailed information on provisions.

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Note 3 Segment information

Stora Enso's reportable segments are formed by five divisions, Consumer Board, Packaging Solutions, Biomaterials, Wood Products, Paper and the segment Other. Operating segments reflect the Group's management structure and the way financial information is regularly reviewed by Stora Enso's CEO who is responsible for allocating resources and assessing the performance of the operating segments. Costs, revenues, assets and liabilities are allocated to business segments on a consistent basis. Transactions between operating segments are based on arm's length terms, and they are eliminated on consolidation. The activities of the reportable segments are:

Consumer Board

The ambition of the Consumer Board division is to be the global leader in high-quality virgin fiber cartonboard. We aim to be the preferred partner of customers and brand owners in premium end-use packaging and graphical segments. Our wide board and barrier coating selection is suitable for consumer packaging for liquid, food, pharmaceutical and luxury goods.

Packaging Solutions

The Packaging Solutions division provides fiber-based board materials and corrugated packaging products and services that are designed for a wide array of applications. Our renewable high-end packaging solutions serve leading converters, brand owners and retailers – including those in e-commerce that are looking to optimise performance, drive innovation and improve their sustainability.

Biomaterials

The Biomaterials division offers a variety of pulp grades to meet the demands of paper, board, tissue, textile and hygiene product producers. We maximise the business potential of the by-products extracted in our processes from biomass, such as tall oil and turpentine. Based on our strong innovation approach, all fractions of biomass, like sugars and lignin, hold potential for use in various applications.

Wood Products

The Wood Products division is a leading provider of innovative wood-based solutions. The product range covers all areas of construction, including massive wood elements and wood components. It also includes a variety of sawn timber goods and pellets for sustainable heating. The emerging product range of biocomposites addresses the opportunities to reduce plastics in broad range of industrial and consumer goods and creates potential in various demanding exterior applications.

Paper

Stora Enso is the second largest paper producer in Europe with an established customer base and a wide product portfolio for print and office use. Customers benefit from Stora Enso's broad selection of papers made from recycled and virgin fiber as well as our valuable industry experience, know-how and customer support.

Other

The segment Other includes the Group's Swedish forest holdings, the Finnish forest equity-accounted investment Tornator, Stora Enso's shareholding in the energy company Pohjolan Voima (PVO), operations supplying wood to the Nordic and Baltic mills, plantations not connected to any mill site, and the Group's shared services and administration.

Sales by segment

| | External | Internal | Total | External | Internal | Total |
|-------------------------------|---------------|----------|---------------|---------------|----------|---------------|
| EUR million | 2019 | | | 2018 | | |
| Consumer Board | 2 547 | 16 | 2 563 | 2 608 | 14 | 2 622 |
| Packaging Solutions | 1 223 | 24 | 1 247 | 1 318 | 26 | 1 344 |
| Biomaterials | 1 193 | 271 | 1 464 | 1 233 | 402 | 1 635 |
| Wood Products | 1 457 | 112 | 1 569 | 1 497 | 125 | 1 622 |
| Paper | 2 800 | 56 | 2 856 | 3 004 | 62 | 3 066 |
| Other | 835 | 2 561 | 3 396 | 826 | 2 599 | 3 425 |
| Elimination of internal sales | | -3 040 | -3 040 | | -3 228 | -3 228 |
| Total | 10 055 | 0 | 10 055 | 10 486 | 0 | 10 486 |

Disaggregation of revenue

| EUR million | 2019 | 2018 |
|---------------|---------------|---------------|
| Product sales | 9 935 | 10 346 |
| Service sales | 120 | 140 |
| Total | 10 055 | 10 486 |

Product and Service sales by segment

| EUR million | 2019 | 2018 |
|---------------------|---------------|---------------|
| Consumer board | Product sales | 2 551 |
| | Service sales | 12 |
| Packaging solutions | Product sales | 1 244 |
| | Service sales | 3 |
| Biomaterials | Product sales | 1 436 |
| | Service sales | 28 |
| Wood Products | Product sales | 1 550 |
| | Service sales | 19 |
| Paper | Product sales | 2 842 |
| | Service sales | 14 |
| Other | Product sales | 2 459 |
| | Service sales | 937 |
| Inter-segment sales | Product sales | -2 146 |
| | Service sales | -894 |
| Total | 10 055 | 10 486 |

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Segment share of operating profit/loss

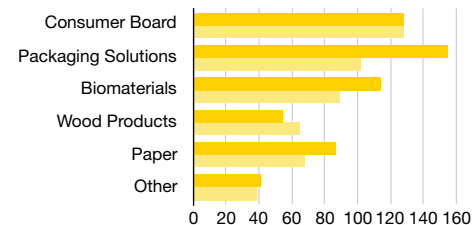
| EUR million | Year Ended 31 December | |
|--------------------------|------------------------|--------------|
| | Operating Profit/Loss | |
| | 2019 | 2018 |
| Consumer Board | 247 | 230 |
| Packaging Solutions | 141 | 244 |
| Biomaterials | 180 | 425 |
| Wood Products | 92 | 164 |
| Paper | 154 | 234 |
| Other | 491 | 93 |
| Total | 1 305 | 1 390 |
| Net financial items | -168 | -180 |
| Profit before Tax | 1 137 | 1 210 |
| Income tax expense | -281 | -221 |
| Net Profit | 856 | 988 |

Intangible asset, property, plant and equipment (PPE) and right-of-use asset (ROU), depreciation, impairments and impairment reversals, disposal gains and losses, and capital expenditure by segment

| EUR million | Year Ended 31 December | | | | | |
|---------------------|--------------------------------|--------------|--|------------|---------------------|------------|
| | Intangible Assets, PPE and ROU | | Depreciation/ Impairments/ Impairment reversals/ Disposal gains and losses | | Capital Expenditure | |
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Consumer Board | 1 765 | 1 557 | 164 | 154 | 128 | 128 |
| Packaging Solutions | 924 | 799 | 59 | 67 | 155 | 102 |
| Biomaterials | 1 929 | 1 857 | 144 | 94 | 114 | 89 |
| Wood Products | 517 | 454 | 55 | 34 | 54 | 65 |
| Paper | 888 | 901 | 125 | 111 | 87 | 68 |
| Other | 567 | 163 | 49 | 19 | 41 | 39 |
| Total | 6 590 | 5 731 | 597 | 479 | 579 | 491 |

Capital expenditure by segment*

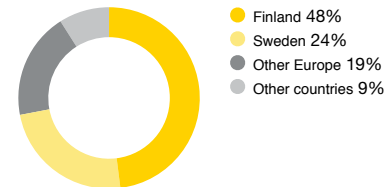
EUR million



● 2019
● 2018

*excluding bioasset capex

Capital expenditure by location*



*excluding bioasset capex

Goodwill by segment

| EUR million | Year Ended 31 December | | | |
|---------------------|------------------------|------------|------------|----------|
| | Goodwill | | Impairment | |
| | 2019 | 2018 | 2019 | 2018 |
| Consumer Board | 18 | 0 | 0 | 0 |
| Packaging Solutions | 19 | 19 | 0 | 0 |
| Biomaterials | 49 | 34 | 0 | 0 |
| Wood Products | 117 | 107 | 0 | 0 |
| Paper | 100 | 83 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 |
| Total | 302 | 243 | 0 | 0 |

Average personnel

| Segment | Year Ended 31 December | |
|---------------------|------------------------|---------------|
| | 2019 | 2018 |
| Consumer Board | 4 129 | 4 156 |
| Packaging Solutions | 7 617 | 7 750 |
| Biomaterials | 1 752 | 1 731 |
| Wood Products | 4 106 | 4 038 |
| Paper | 4 861 | 4 957 |
| Other | 3 631 | 3 435 |
| Total | 26 096 | 26 067 |

| Location | Year Ended 31 December | |
|-------------------------|------------------------|---------------|
| | 2019 | 2018 |
| Austria | 999 | 970 |
| Baltic States | 1 362 | 1 270 |
| Belgium | 529 | 525 |
| Czech Republic | 941 | 929 |
| Finland | 6 615 | 6 596 |
| France | 33 | 34 |
| Germany | 975 | 990 |
| Poland | 2 136 | 2 103 |
| Russia | 1 125 | 1 108 |
| Spain | 14 | 15 |
| Sweden | 5 215 | 5 168 |
| Other Europe | 230 | 222 |
| Total Europe | 20 175 | 19 930 |
| Brazil | 418 | 431 |
| China (incl. Hong Kong) | 4 890 | 5 092 |
| India | 0 | 0 |
| USA | 95 | 89 |
| Uruguay | 314 | 317 |
| Other countries | 205 | 208 |
| Total | 26 096 | 26 067 |

| Year-End Personnel | As at 31 December | |
|--------------------|-------------------|--------|
| | 2019 | 2018 |
| | 25 141 | 26 129 |

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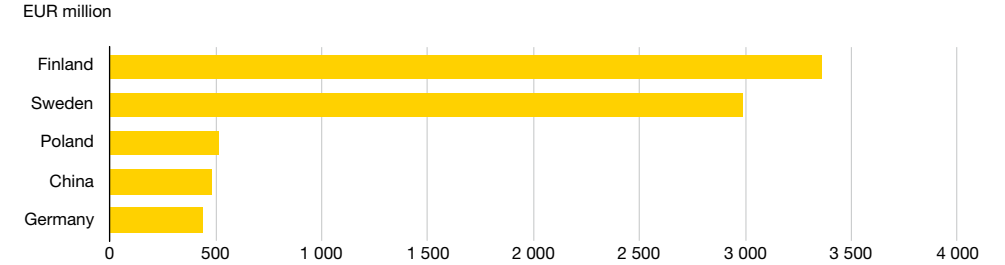
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External sales by destination and origin

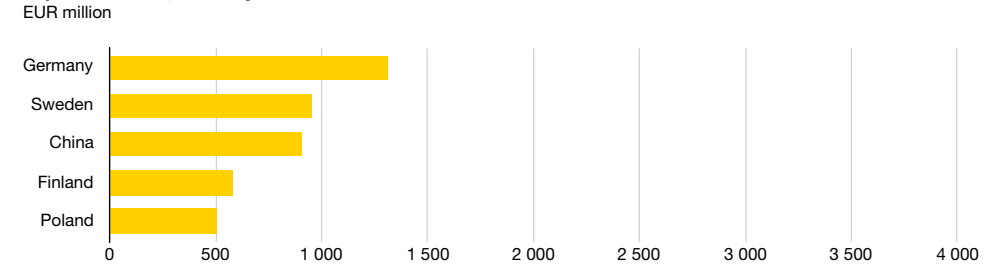
| EUR million | Sales by Destination | | Sales by Origin | | Balance of Trade | |
|-------------------------|----------------------|---------------|-----------------|---------------|------------------|--------------|
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Austria | 276 | 295 | 393 | 408 | 117 | 113 |
| Baltic States | 256 | 258 | 274 | 316 | 18 | 58 |
| Belgium | 120 | 140 | 256 | 259 | 136 | 119 |
| Czech Republic | 159 | 149 | 241 | 262 | 82 | 113 |
| Denmark | 105 | 133 | 19 | 21 | -86 | -112 |
| Finland | 580 | 583 | 3 357 | 3 511 | 2 776 | 2 928 |
| France | 460 | 506 | 15 | 16 | -445 | -490 |
| Germany | 1 317 | 1 385 | 439 | 461 | -878 | -924 |
| Italy | 418 | 400 | 0 | 0 | -418 | -400 |
| Netherlands | 276 | 282 | 0 | 0 | -276 | -282 |
| Poland | 504 | 552 | 510 | 579 | 6 | 27 |
| Russia | 305 | 300 | 230 | 222 | -75 | -78 |
| Spain | 239 | 282 | 0 | 0 | -239 | -282 |
| Sweden | 956 | 1 003 | 2 987 | 3 037 | 2 030 | 2 034 |
| UK | 458 | 491 | 16 | 15 | -442 | -476 |
| Other Europe | 876 | 903 | 99 | 83 | -777 | -820 |
| Total Europe | 7 308 | 7 662 | 8 835 | 9 190 | 1 527 | 1 528 |
| Australia / New Zealand | 168 | 192 | 36 | 2 | -132 | -190 |
| Brazil | 70 | 70 | 300 | 360 | 230 | 290 |
| China (incl. Hong Kong) | 904 | 932 | 483 | 498 | -421 | -434 |
| Japan | 290 | 285 | 0 | 0 | -290 | -285 |
| Middle East | 241 | 261 | 0 | 0 | -241 | -261 |
| Uruguay | 25 | 23 | 371 | 424 | 346 | 401 |
| USA | 281 | 236 | 27 | 12 | -254 | -224 |
| Other countries | 768 | 825 | 3 | 0 | -765 | -825 |
| Total | 10 055 | 10 486 | 10 055 | 10 486 | 0 | 0 |

Major markets

Top 5 countries, sales by origin 2019



Top 5 countries, sales by destination 2019



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Total assets and capital employed by location

| EUR million | As at 31 December | | | |
|-------------------------|-------------------|---------------|------------------|--------------|
| | Total Assets | | Capital Employed | |
| | 2019 | 2018 | 2019 | 2018 |
| Austria | 174 | 169 | 102 | 96 |
| Baltic States | 136 | 121 | 113 | 108 |
| Belgium | 223 | 235 | 130 | 143 |
| Czech Republic | 151 | 148 | 126 | 121 |
| Finland | 4 378 | 4 347 | 2 715 | 2 623 |
| Germany | 337 | 362 | -15 | 15 |
| Poland | 573 | 585 | 436 | 435 |
| Russia | 192 | 161 | 126 | 104 |
| Sweden | 5 129 | 2 958 | 3 546 | 1 992 |
| Other Europe | 98 | 111 | 51 | 77 |
| Total Europe | 11 390 | 9 197 | 7 330 | 5 714 |
| Brazil | 387 | 377 | 357 | 353 |
| China (incl. Hong Kong) | 1 359 | 1 433 | 1 212 | 1 082 |
| Uruguay | 1 735 | 1 609 | 1 624 | 1 543 |
| USA | 109 | 147 | 62 | 115 |
| Other countries | 73 | 86 | 48 | 17 |
| Total | 15 053 | 12 849 | 10 632 | 8 824 |

Total capital employed represents operating capital less net tax liabilities.

Reconciliation of operating capital to total asset

| EUR million | As at 31 December | |
|------------------------------|-------------------|---------------|
| | 2019 | 2018 |
| Operating Capital | 11 462 | 8 955 |
| Operative liabilities | 2 516 | 2 512 |
| Interest-bearing receivables | 982 | 1 252 |
| Tax receivables | 92 | 129 |
| Total Assets | 15 053 | 12 849 |

Operating capital ("O" items) is designated thus in the Balance Sheet and represents the sum of Intangible Asset and Property, Plant and Equipment, right-of-use assets, biological assets, emission rights, unlisted shares, other non-current assets, inventories, current operative receivables and liabilities, provisions and other non-current operative liabilities.

Intangible asset, property, plant and equipment (PPE) and right-of-use asset (ROU), depreciation, impairments and impairment reversals, disposal gains and losses, and capital expenditure by location

| EUR million | Year Ended 31 December | | | | | |
|-------------------------|--------------------------------|--------------|--|------------|---------------------|------------|
| | Intangible Assets, PPE and ROU | | Depreciation/ Impairments/ Impairment reversals/ Disposal gains and losses | | Capital Expenditure | |
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Austria | 121 | 104 | 8 | 6 | 9 | 5 |
| Baltic States | 67 | 47 | 7 | 6 | 24 | 11 |
| Belgium | 172 | 183 | 27 | 25 | 8 | 6 |
| Czech Republic | 119 | 111 | 6 | 4 | 4 | 2 |
| Finland | 1 492 | 1 364 | 179 | 183 | 278 | 230 |
| Germany | 280 | 273 | 27 | 26 | 25 | 9 |
| Poland | 415 | 406 | 31 | 28 | 25 | 24 |
| Russia | 80 | 64 | 8 | 6 | 13 | 13 |
| Sweden | 1 292 | 815 | 120 | 88 | 136 | 142 |
| Other Europe | 10 | 3 | 0 | 2 | 0 | 0 |
| Total Europe | 4 048 | 3 370 | 414 | 374 | 523 | 442 |
| Brazil | 179 | 185 | 19 | 20 | 11 | 6 |
| China (incl. Hong Kong) | 953 | 790 | 70 | 49 | 15 | 23 |
| Uruguay | 1 324 | 1 268 | 44 | 33 | 27 | 19 |
| USA | 77 | 117 | 47 | 3 | 3 | 1 |
| Other countries | 9 | 1 | 3 | 0 | 0 | 0 |
| Total | 6 590 | 5 731 | 597 | 479 | 579 | 491 |

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Note 4 Acquisitions and disposals



Accounting principles

Acquired companies are accounted for under the purchase method whereby they are included in the Consolidated financial statements from the date the control over the subsidiary is obtained, whereas, conversely, divestments are included up to the date when the control is lost.

Acquisition of Group companies

| EUR million | 2019 | 2018 |
|--|--------------|-----------|
| Net assets acquired | | |
| Cash and cash equivalents | 64 | 1 |
| Intangible assets and Property, plant and equipment | 332 | 0 |
| Biological assets | 2 598 | 0 |
| Working capital | -28 | 0 |
| Tax assets and liabilities | -598 | 1 |
| Interest-bearing assets and liabilities | -793 | 0 |
| Fair value of Net Assets Acquired | 1 575 | 2 |
| Purchase consideration, cash part | 527 | 5 |
| Purchase consideration, non-cash | 1 106 | 0 |
| Total Purchase Consideration | 1 633 | 5 |
| Fair value of Net Assets Acquired | -1 575 | -2 |
| Fair value of already held equity shares | 0 | 2 |
| Goodwill | 57 | 5 |
| Cash outflow with purchase consideration on acquisitions | -527 | -5 |
| Cash and cash equivalents of acquired subsidiaries | 64 | 1 |
| Cash flow on acquisition, net of acquired cash | -464 | -4 |

Acquisitions – Bergvik Skog AB restructuring

On 31 May 2019, Bergvik Väst AB, a subsidiary of Bergvik Skog AB, was distributed as dividends to the shareholders of Bergvik Skog AB. On the same date the Group acquired an additional 20% of shares in Bergvik Väst AB from other shareholders resulting in a total holding in Bergvik Väst AB of 69.8%. Simultaneously, Bergvik Väst AB was demerged and Stora Enso became the 100% owner of a new subsidiary holding around 69.8% of the former Bergvik Väst AB assets and liabilities. The acquisition date of the new subsidiary was 31 May 2019.

As a result of the transaction, Stora Enso's direct forest holdings in Sweden are 1.4 million hectares, of which 1.15 million hectares is productive forest land.

The fair values of the identifiable assets and liabilities as of the acquisition date are presented in the table below:

| EUR million | Acquisition of 69.8% of Bergvik Väst AB |
|--|---|
| Cash and cash equivalents | 64 |
| Land | 305 |
| Other property, plant and equipment | 8 |
| Biological assets | 2 598 |
| Working capital | -35 |
| Tax liabilities | -598 |
| Interest-bearing liabilities | -793 |
| Fair value of Net Assets Acquired | 1 550 |
| Purchase consideration on acquisition, cash part | 500 |
| Fair value of 49.8% of shares in Bergvik Väst AB, non-cash | 1 106 |
| Total Purchase Consideration | 1 605 |
| Fair value of Net Assets Acquired | -1 550 |
| Goodwill | 56 |
| Cash out flow with purchase consideration on acquisitions | -500 |
| Cash and cash equivalents, net of bank overdrafts of acquired subsidiaries | 64 |
| Cash flow on acquisition of subsidiary shares and business operations, net of acquired cash | -436 |

The fair value of the shares received as dividends was determined based on the acquired net assets value of Bergvik Väst AB, whereby the fair values of the biological assets and land were estimated through a discounted cash flow model. A deferred tax liability was also included in the acquisition balances.

The fair values of the acquired assets, liabilities and goodwill as at 31 December 2019 have been determined on a provisional basis pending finalisation of the post-combination review of the fair value of the acquired assets mainly with respect to biological assets valuation and related deferred tax liabilities. The provisional goodwill represents the value of securing a competitive raw material supply for the long term in Sweden. With direct ownership, Stora Enso will have better visibility of its wood supply and the acquisition provides better opportunities to further develop sustainable forest management and strengthening of the Group's competitiveness. The goodwill has been allocated to those Divisions benefiting from the acquisition. Measurement period adjustments in 2019 are including increase of EUR 75 million in biological assets, increase of EUR 8 million in tax liabilities, decrease of EUR 21 million in goodwill, increase of EUR 48 million in non-cash consideration and decrease of EUR 1 million in cash consideration. The measurement period adjustments are mainly due to updates in biological asset valuation to better reflect the conditions existing at acquisition date.

Almost all the revenues of the acquired entity are internal from Stora Enso Group point of view. The acquired entity's net profit has been reported for the first five months of the year in the Group result as part of the Share of results of the equity accounted investments. Therefore, even if the acquisition had taken place from 1 January 2019, it would not have had a significant impact on the Group sales and net profit figure for 2019. Related transaction costs during 2019 amounted to EUR 3 million and were recorded to Other operating expenses. In connection to the restructuring, a cumulative translation adjustment (CTA) of EUR -171 million was released from equity through profit and loss. In addition, a net gain of EUR 129 million on the transaction was presented in Share of results of equity accounted investments.

The Group owns 49.8% of shares in Bergvik Skog AB which continue to be reported as an equity accounted investment. See [Note 13](#) Equity accounted investments for more details.

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Acquisitions - Other

In September 2019, Stora Enso bought out non-controlling interests in Stora Enso China Packaging. Stora Enso previously owned 90% of the parent company of the China Packaging Group and with the purchase, the Group's ownership increased to 100%. China Packaging is included in the Packaging Solutions division. The transaction did not have a material impact on the Group.

In May 2019, and separately from Bergvik Skog AB restructuring, Stora Enso also acquired 100% of the nursery business Bergvik Skog Plantor AB from Bergvik Skog AB, three wind turbine projects, and a real estate company. These acquired entities are included in the segment Other. These transactions did not have a material impact on the Group.

In December 2018, Stora Enso bought out non-controlling interests in VLAR Papier NV. Stora Enso previously owned 65% of the company and with the purchase, the Group's ownership increased to 100%. The transaction did not have a material impact on the Group.

In October 2018, Stora Enso increased its ownership up to 100% in the Sweden-based company Cellutech AB. The company specialises in the development of new materials and applications based on cellulose, micro-fibrillated cellulose and other wood-based components. Stora Enso previously owned 22% of the shares. Cellutech is included in the Biomaterials division. The transaction did not have a material financial impact on the Group.

Disposal of Group companies and business operations

| EUR million | Year Ended 31 December | |
|---|------------------------|------------|
| | 2019 | 2018 |
| Net Assets Sold | | |
| Cash and cash equivalents | 4 | 2 |
| Intangible assets and Property, plant and equipment | 8 | 38 |
| Working capital | 3 | -2 |
| Interest-bearing assets and liabilities | -43 | 0 |
| Non-controlling interest | 11 | -1 |
| Net Assets in Divested Companies and Businesses | -16 | 38 |
| Total Disposal Consideration | -15 | 44 |
| CTA release | 3 | -27 |
| Transaction costs | 0 | -1 |
| Total Net Gain/loss | 4 | -22 |
| Attributable to the owners of the parent | 4 | -22 |
| Attributable to the non-controlling interest holders | 0 | 0 |

On 25 July 2019, Stora Enso signed an agreement to divest its 60% shareholding in the Dawang Mill in China, to its joint venture partner, Shandong Huatai Paper. Stora Enso Huatai (Shandong) Paper Co Ltd operated the Dawang paper mill in China and started operation in 2008. The disposal was completed in October 2019. During the third quarter of 2019 the Group recorded an impairment in fixed assets amounting to EUR 5 million in order to reduce the value of the net assets disposed to the recoverable value. The final consideration paid by Stora Enso for the divestment of the shares was EUR 17 million. In addition, a cumulative translation adjustment (CTA) gain of EUR 3 million was released from equity through profit and loss at closing. Stora Enso Huatai Paper was part of the Paper division.

In October 2019, Stora Enso divested 100% of shares of its Swedish subsidiary Skaftåsen Vindkraft AB. The company was acquired in May 2019 in connection to Bergvik Skog AB restructuring. Skaftåsen Vindkraft AB was part of the segment Other. The transaction did not have a material impact on the Group.

In December 2018, Stora Enso divested 100% of shares of its Swedish subsidiary June Emballage AB to its current management. June Emballage is a manufacturer specialized in small-batch custom-made

transport packaging in corrugated board and was part of the Packaging Solutions division. The transaction did not have a material impact on the Group.

On 8 August 2018, Stora Enso disposed shares in Dongguan E-creative Industrial Co. Ltd to Dongguan An Shen Investment Co. Ltd. Stora Enso previously had 51% ownership of the company. The transaction did not have a material impact on the Group.

On 28 March 2018, Stora Enso signed an agreement to divest its entire 100% shareholding in the wood supply company in Rio Grande do Sul, Brazil to Copa Florestal III FIP Multiestrategia. The final consideration for the divestment of the shares was EUR 30 million. In 2017 the Group recorded an impairment in fixed assets amounting to EUR 5 million in order to reduce the value of the net assets disposed to the recoverable value. The disposal was completed in the second quarter of 2018. The transaction resulted in a loss of EUR 28 million, due to cumulative translation adjustment (CTA) released from equity through profit and loss at closing. Rio Grande do Sul was part of the segment Other.

Note 5 Other operating income and expense



Accounting principles

Research and development

Research costs are expensed as incurred in other operating expenses in the consolidated income statement. Development costs are also expensed as incurred unless it is probable that future economic benefits will flow to the Group, in which case they are capitalised as intangible assets, and depreciated over the period of the income streams.

Government grants

Government grants relating to the purchase of property, plant and equipment are deducted from the carrying value of the asset, while the net cost is capitalised. Other government grants are recognised as income on a systematic basis over the periods necessary to match them with the related costs which they were intended to compensate.

Emission rights and trading

The Group's participation in the European Emissions Trading Scheme, in which it has been allocated allowances to emit a fixed tonnage of carbon dioxide over a fixed period of time, gives rise to an intangible asset for allowances, a government grant and a liability for the obligation to deliver allowances equal to those emissions that have been made during the compliance period. Emission allowances recorded as intangible assets are recognised when the Group is able to exercise control and are measured at level 1 fair value at the date of initial recognition. If the market value for the emission allowances falls significantly below the carrying amount, the decrease is considered permanent. At that point an impairment charge is booked for allowances which the Group will not use internally. The liability to deliver allowances is recognised based on actual emissions; this liability will be settled using allowances on hand and measured at the carrying amount of those allowances, with any excess emissions measured at the market value of the allowances at the period end.

In the consolidated income statement, the Group will expense emissions made at the fair value of the rights at their grant date, under materials and services, together with purchased emission rights at their purchase price. Such costs will be offset under other operating income by the income from the original grant of the rights used at their fair value at the grant date, together with income from the release or sale of surplus rights. The consolidated income statement will thus be neutral in respect of all the rights consumed that were within the original grant. Any net effect represents the costs of purchasing additional rights to cover excess emissions, or the sale of unused rights in case that the realised emissions are below the allowances received free of charge or the impairment of allowances that are not required for internal use.

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Green certificates

Stora Enso is part of the local green energy production system which entitles selected mills in Sweden, Belgium and Poland to receive green certificates based on megawatt hours of green energy produced. Green certificates represent the environmental value of renewable energy generated. The certificates can be traded separately from the energy produced. Several countries use green certificates as a means to bring green electricity generation closer to a market economy instead of more bureaucratic investment support and feed-in tariffs. The certificates are typically received free of charge and they can be traded in the local market to offset part of the production costs. Green certificates are often sold to electricity distributors which have a quota obligation to buy a certain percentage of their electricity from renewable sources. Green certificates validate that the electricity has been produced from sustainable sources.

All certificates received are recognized at grant date market value only in the Balance Sheet. Certificates are posted to prepaid costs and accrued income, and a corresponding liability is entered into accrued liabilities and deferred income. As such, fluctuation in market prices does not have an impact on the Income statement. The income is recognised only when the certificate is sold.

Other operating income and expense

| EUR million | Year Ended 31 December | |
|--|------------------------|-----------|
| | 2019 | 2018 |
| Other operating income | | |
| Emission rights granted and disposal gains | 50 | 32 |
| Sale of green certificates | 26 | 32 |
| Capital gains on sale of intangible assets and property, plant and equipment | 2 | 4 |
| Dividend and gain on sale of unlisted shares | 2 | 0 |
| Insurance compensation | 7 | 4 |
| Rent and other | 68 | 14 |
| Government grants | 9 | 6 |
| Total | 165 | 92 |
| Other operating expenses include | | |
| Lease expenses | 34 | 96 |
| Research and development | 100 | 104 |
| Credit losses, net of reversals | 9 | 8 |
| CTA release | 185 | 28 |
| Materials and services include | | |
| Emissions rights to be delivered and disposal losses | 33 | 23 |

The Group has recorded an other operating income of EUR 50 (EUR 32) million related to emissions. Under materials and services an expense of EUR 33 (EUR 23) million has been booked related to the cost of CO₂ emissions from production. Actual realised profits amounted to EUR 17 (EUR 8) million on the disposal of surplus rights and EUR 4 (EUR 3) million is the value of excess emission rights held at the year end.

The Group also generates income from its renewable power generation in Belgium, Sweden and Poland. Based on this, the Group is entitled to Green certificates related to our investment s in green energy production in these countries. Green certificates are sold onwards to electricity retailers for fulfilling their renewable quota obligations. The income from the sale of green certificates amounted to EUR 26 (EUR 32) million.

As from 1 January 2019, lease expenses include expenses relating to short-term leases of EUR 13 million, low-value asset of EUR 19 million, and variable lease payments not included in the measurement of lease liabilities of EUR 3 million. Lease expenses also include service payments included in lease contracts, which are not included in the measurement of lease liabilities. More details regarding CTA are presented in [Note 4](#) Acquisition and disposals.

Auditor's fees and services

| EUR million | Year Ended 31 December | |
|---------------|------------------------|----------|
| | 2019 | 2018 |
| Audit fees | 4 | 4 |
| Audit-related | 0 | 0 |
| Tax fees | 0 | 0 |
| Other fees | 0 | 1 |
| Total | 4 | 5 |

Aggregate fees for professional services rendered to the Group principal auditor PwC amounted to EUR 4 (EUR 5) million. Audit fees relate to the auditing of the annual financial statements or ancillary services normally provided in connection with statutory and regulatory filings. Audit-related fees are incurred for assurance and associated services that are reasonably related to the performance of the audit or for the review of financial statements.

Note 6 Personnel expenses

Personnel expenses

| EUR million | Year Ended 31 December | |
|------------------------------------|------------------------|--------------|
| | 2019 | 2018 |
| Wages and salaries | 1 004 | 1 000 |
| Pensions (see below) | 166 | 170 |
| Share-based remuneration (Note 21) | 3 | 7 |
| Other statutory employer costs | 136 | 134 |
| Other voluntary costs | 21 | 19 |
| Total | 1 331 | 1 330 |

Pensions

| EUR million | Year Ended 31 December | |
|----------------------------|------------------------|------------|
| | 2019 | 2018 |
| Defined benefit plans | 10 | 10 |
| Defined contribution plans | 156 | 160 |
| Total | 166 | 170 |

The average number of employees in 2019 amounted to 26 096 compared with 26 067 in 2018. Pension costs are discussed further in [Note 20](#) Post-employment benefits.

In 2019, the expense of the share-based remuneration was EUR 3 (EUR 7) million. Share-based remuneration comprising of share awards and related hedges are described in more detail in [Note 21](#) Employee variable compensation and equity incentive schemes. Remuneration of the Group Leadership Team and Board are described in [Note 7](#) Board and executive remuneration.

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Note 7 Board and executive remuneration

Board and committee remuneration

| EUR thousand (before taxes) | Year Ended 31 December | | | | |
|--|------------------------|------------------------------|--------------------|------------|---|
| | 2019 | | 2018 | | |
| | Cash | Value of shares ¹ | Total ⁴ | Total | Committee memberships |
| Board members at 31 December 2019 | | | | | |
| Jorma Eloranta, Chair | 140 | 77 | 217 | 200 | Remuneration, Nomination ^{2,3} , Financial and Audit |
| Hans Stråberg, Vice Chair | 71 | 44 | 115 | 109 | Remuneration, Nomination ^{2,3} |
| Elisabeth Fleuriot | 58 | 30 | 88 | 78 | Financial and Audit |
| Hock Goh | 50 | 30 | 80 | 78 | Sustainability and Ethics |
| Mikko Helander | 44 | 30 | 74 | 0 | |
| Christiane Kuehne | 54 | 30 | 84 | 86 | Sustainability and Ethics |
| Antti Mäkinen | 50 | 30 | 80 | 86 | Remuneration |
| Richard Nilsson | 65 | 30 | 95 | 93 | Financial and Audit |
| Göran Sandberg | 50 | 30 | 80 | 78 | Sustainability and Ethics |
| Former Board members | | | | | |
| Anne Brunila (until 14 March 2019) | 0 | 0 | 0 | 82 | |
| Total remuneration as Directors¹ | 582 | 331 | 913 | 891 | |

¹ 40% of the Board remuneration, excluding Committee remuneration, in 2019 was paid in Stora Enso R shares purchased from the market and distributed as follows: to Chair 6 695 R shares, Vice Chair 3 801 R shares, and members 2 580 R shares each. The Company has no formal policy requirements for the Board members to retain shares received as remuneration.

² Stora Enso's Shareholders' Nomination Board has been appointed by the AGM in 2016 to exist until otherwise decided. The Shareholders' Nomination Board according to its Charter as approved by the AGM comprises of four members: the Chair and Vice Chair of the Board of Directors, as well as two members appointed by the two largest shareholders (one each) as of 31 August each year. No separate remuneration is paid to members of the Shareholders' Nomination Board.

³ Marcus Wallenberg, appointed by FAM AB, is Chair of the Nomination Board. Harri Sallas is the member of the Shareholders' Nomination Board appointed by Solidium Oy. Jorma Eloranta and Hans Stråberg were appointed as members of the Shareholders' Nomination Board in their roles as Chair and Vice Chair of the Board of Directors.

⁴ The Company additionally pays the transfer tax for share purchases for each member, in line with AGM decision, which amount is considered also taxable income for each member.

Shareholders at the Annual General Meeting (AGM) have established a Shareholders' Nomination Board to exist until otherwise decided and to annually prepare proposals for the AGM's approval concerning the number of members of the Board of Directors, the Chair, Vice Chair and other members of the Board, as well as the remuneration for the Chair, Vice Chair and members of the Board and its committees.

Board share interests at 31 December 2019

| | Shares held ¹ | |
|--|--------------------------|----------------|
| | A | R |
| Board members at 31 December 2019 | | |
| Jorma Eloranta, Chair | 1 150 | 27 076 |
| Hans Stråberg, Vice Chair | | 41 291 |
| Elisabeth Fleuriot | | 23 731 |
| Hock Goh | | 28 484 |
| Mikko Helander | | 4 298 |
| Christiane Kuehne | | 8 292 |
| Antti Mäkinen | | 4 717 |
| Richard Nilsson | | 20 834 |
| Göran Sandberg | | 6 792 |
| Total shares held | 1 150 | 165 515 |

¹ Board members' related parties hold no Stora Enso shares.

The following Board members also served in 2019

| | Shares held when Board membership ended | Effective date of Board membership ending |
|--------------|---|---|
| Anne Brunila | 20 121 | 14 March 2019 |

Group Leadership Team (GLT) remuneration and share interests

The table below includes the remuneration paid to GLT members during the year, including those shares vested in that year. The company recommends and expects the CEO and GLT members to hold Stora Enso shares at a value corresponding to at least one annual base salary. Stora Enso shares received as remuneration are therefore recommended not to be sold until this level has been reached.

The aggregate cost of remuneration for GLT in 2019 amounted to EUR 11.7 (EUR 12.2) million. The total number of GLT members was eleven (twelve) at year end in 2019.

In accordance with their respective pension arrangements, GLT members may retire at sixty-five years of age with pensions consistent with local practices in their respective home countries. Contracts of employment provide for six months' notice prior to termination with severance compensation of twelve months basic salary if the termination is at the Company's request.

The outcome of the financial targets relating to the Short term incentive programmes for the performance year 2018, and Long term incentive programmes for the performance years 2016 to 2018 were reviewed and confirmed by the Remuneration Committee in the ordinary February meeting, and approved by the Board of Directors in February.

Note 21 Employee variable compensation and equity incentive schemes includes details of incentive schemes and share opportunity programmes for the management and staff of Stora Enso.

Group Leadership Team remuneration

| EUR thousand | Year Ended 31 December | | | | | | |
|---|------------------------|---------------------------|---------------------|---------------|--------------|--------------|---------------|
| | 2019 | | | | 2018 | | |
| | CEO ¹ | Former CEO ^{2,4} | Others ³ | GLT Total | CEO | Others | GLT Total |
| Remuneration⁷ | | | | | | | |
| Annual salary | 75 | 887 | 3 756 | 4 717 | 905 | 3 589 | 4 494 |
| Local housing (actual costs) | 0 | 0 | 0 | 0 | 0 | 22 | 22 |
| Other benefits | 2 | 19 | 373 | 394 | 20 | 385 | 405 |
| Termination benefits | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Short term incentive programme ⁶ | 0 | 571 | 1 467 | 2 039 | 611 | 1 089 | 1 700 |
| Long term incentive programme ⁶ | 0 | 566 | 1 508 | 2 073 | 845 | 2 431 | 3 276 |
| | 77 | 2 043 | 7 104 | 9 224 | 2 381 | 7 516 | 9 897 |
| Pension Costs | | | | | | | |
| Mandatory plans | 23 | 62 | 1 396 | 1 481 | 66 | 1 296 | 1 362 |
| Stora Enso voluntary plans ⁵ | 0 | 464 | 539 | 1 003 | 478 | 447 | 925 |
| | 23 | 526 | 1 934 | 2 484 | 544 | 1 743 | 2 287 |
| Total Compensation | 100 | 2 569 | 9 038 | 11 708 | 2 925 | 9 259 | 12 184 |

¹ CEO remuneration consists of remuneration delivered to Annica Bresky from her appointment as President and CEO on 1 December 2019.

² Former CEO remuneration consists of remuneration delivered to Karl-Henrik Sundström for the period up until his last day as CEO (30 November 2019).

³ Amounts include payments related to Annica Bresky until 30 November 2019 and Gilles van Nieuwenhuyzen until 6 December 2019. Payments related to the new GLT member Hannu Kasurinen have been included from 4 December 2019.

⁴ For the former CEO, Short term incentives for the financial year 2019 will be paid out on the normal payout date in March 2020.

The former CEO did not receive any other termination benefits such as severance pay.

⁵ The former CEO participates in the Swedish Executive Pension Plan where pension accruals are unfunded for all participants, the liability is calculated and insured in accordance with Swedish legislation. The liability for the former CEO amounts to EUR 3 052 thousand.

⁶ The pay-outs for Short term incentive in March 2019 were based on 2018 results and for Long term incentive payouts in March 2019 were based on 2016-2018 results. Disclosed amounts are included for the executives who were GLT members at the time of the payment.

⁷ Remuneration for executives is disclosed only for the period during which they were GLT members.

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Executives other than CEO

Short term incentive (STI) programmes for management

In 2019, GLT members have STI programmes with up to a maximum of 50% or 60% of their annual fixed salary, payable the year after the performance period. 70% of the STI for 2018 and 2019 was based on financial measures and 30% on Individual Key Targets.

Long term incentive (LTI) programmes for management

Since 2014, the LTI programmes have had three-year targets and vest in one portion only after three years, and the absolute maximum vesting level is 100% of the number of shares granted. Three quarters (75%) of the opportunity under the 2016-2017 programmes is in Performance Shares, where the shares are vested in accordance with performance criteria proposed by the Remuneration Committee and approved by the Board of Directors. One quarter (25%) of the opportunity under the 2016-2017 programmes is in Restricted Shares, for which vesting is only subject to continued employment.

The 2018 LTI programme was changed so that GLT members will receive only Performance shares, and no Restricted shares.

Under the 2019 LTI programme, GLT members (in GLT at year end) can potentially receive a value corresponding to 196 273 shares before taxes, assuming the maximum vesting level during the three-year vesting period (2019-2021) is achieved. The total number of shares actually transferred will be lower because a portion of shares corresponding to the tax obligation will be withheld to cover income tax.

The fair value of employee services received in exchange for share-based compensation payments is accounted for in a manner that is consistent with the method of settlement and is either cash or equity settled as described in more detail in [Note 21](#). For the equity settled part, it is possible that the actual cash cost does not agree with the accounting charges because the share price is not updated at the time of the vesting. The figures in the Group Leadership Team Remuneration table refer to individuals who were executives at the time of settlement.

During the year, the 2016 programme vested in one portion after three years, dependent on Economic Value Added (EVA) for the Stora Enso Group. The number of shares settled on executives (GLT members at settlement date) from previous Restricted Share programmes and Performance Share programmes amounted to 128 076, with a cash value of EUR 1 560 947 before taxes, based on the share price of EUR 12.19 on the 1 March 2019 settlement date.

President & Chief Executive Officer – Annica Bresky

The CEO has been employed by Stora Enso since 1 May 2017 and assumed the position as CEO on 1 December 2019. She has a notice period of six months with a severance payment of twelve months salary on termination by the company but with no contractual payments on any change of control. The CEO's benefits include pension provisions. The CEO's pension plan has contributions equal to the collectively agreed pension plan in Sweden (ITP1), with a pensionable salary consisting of annual base salary, vacation pay, and actual paid STI. The retirement age is sixty-five years.

Short term incentive (STI) programme for CEO

In 2019, the CEO is entitled to an STI programme decided by the Board each year giving a maximum of 75% of the annual fixed salary. The STI for 2018 and 2019 was 70%, based on financial measures, and 30%, based on Individual Key Targets.

Long term incentive (LTI) programmes for CEO

The CEO participates in 2017, 2018 and 2019 share based LTI programmes. The programmes have three-year targets and vest in only one portion after three years. The 2017 programme is related to performance periods 2017-2019, the 2018 programme is related to performance periods 2018-2020 and the 2019 programme is related to performance periods 2019-2021. Three quarters (75%) of the opportunity in the 2017 programme is in performance shares, where shares will vest in accordance with performance criteria proposed by the Remuneration Committee and approved by the Board of Directors. One quarter (25%) of

the opportunity is in restricted shares, for which vesting is only subject to continued employment. In the 2018 and 2019 programme, the CEO was granted all (100%) of the opportunity in performance shares.

The CEO has the potential to receive a value corresponding to a maximum of 27 160 shares before taxes under the 2019 LTI programme. The grant value of EUR 331 018 is based on the share price at the grant date and assuming a maximum vesting level during the three-year vesting period is achieved. During the year, the 2016 programme vested in one portion after three years, dependent on Economic Value Added (EVA) for the Stora Enso Group. There has been no settlement of shares to the CEO during the year. The actual gross number of shares before taxes settled for the former CEO amounted to 46 649 with a cash value of EUR 568 544 before taxes, based on the share price EUR 12.19 on the 1 March 2019 settlement date. The total number of shares actually transferred was lower because a portion of shares corresponding to the tax obligation was withheld to cover income tax.

Group Leadership Team share interests

| Executives in office at the year end | R shares held ¹ | Performance share opportunity ² | Restricted share opportunity ² |
|--|----------------------------|--|---|
| Annica Bresky | 0 | 76 561 | 8 397 |
| Seppo Parvi | 32 202 | 63 149 | 6 454 |
| Malin Bendz | 19 162 | 44 776 | 4 539 |
| Johanna Hagelberg | 16 039 | 48 164 | 5 091 |
| Kati ter Horst | 38 772 | 81 011 | 8 043 |
| Hannu Kasurinen | 31 486 | 17 903 | 5 967 |
| Ulrika Lilja | 25 732 | 42 304 | 4 471 |
| Per Lyrvall ³ | 59 362 | 60 516 | 6 450 |
| Markus Mannström | 18 392 | 52 084 | 3 601 |
| Noel Morrin | 33 756 | 49 256 | 5 382 |
| Jari Suominen | 37 985 | 59 337 | 6 121 |
| Total, serving officers⁴ | 312 888 | 595 061 | 64 516 |

¹ None of the GLT members holds A shares.

² Potential shares to GLT members listed here are gross of taxes for the LTI programmes started in 2017, 2018, and 2019 covering three year periods during 2017-2021, with vesting in 2020, 2021 and 2022 respectively.

³ Spouse holds 1 257 of the shares.

⁴ The Company recommends and expects GLT members to hold Stora Enso shares at a value corresponding to at least one annual base salary. Stora Enso shares received as remuneration are therefore recommended not to be sold until this level has been reached.

| The following Executive Officers also served in 2019 | R shares held when GLT membership ended | Performance share awards when GLT membership ended ² | Restricted share awards when GLT membership ended ² | Effective date of GLT membership ending |
|--|---|---|--|---|
| Karl-Henrik Sundström ¹ | 166 011 | 204 343 | 20 350 | 30 November 2019 |
| Gilles van Nieuwenhuyzen | 19 610 | 82 042 | 8 797 | 6 December 2019 |

¹ 41 700 of the shares are held by a related party (Alma Patria AB).

² These shares are forfeited at end of employment, except for the LTI 2017 shares which have been earned at the time employment ended and vest at the normal vesting date in March 2020.

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Note 8 Net financial items



Accounting principles

Net financial items comprise net interest expenses, foreign exchange gains and losses and other financial income and expenses mainly arising from interest-bearing assets and liabilities.

Financial income and expense

| EUR million | Year Ended 31 December | |
|--|------------------------|-------------|
| | 2019 | 2018 |
| Net financial expense in the Income Statement | | |
| Financial income | 8 | 27 |
| Financial expense | -176 | -207 |
| Total | -168 | -180 |
| Represented by | | |
| Interest expense | | |
| Interest expense from borrowings measured at amortised cost | -121 | -126 |
| Net interest from interest rate derivatives measured at fair value through OCI | -13 | -6 |
| Interest expense on leases (IFRS 16) | -20 | 0 |
| Interest expense on finance leases (IAS 17) | 0 | -1 |
| Interest income on loans and receivables measured at amortised cost | 7 | 4 |
| Net interest expense | -147 | -129 |
| Foreign exchange gains and losses | | |
| Currency derivatives | 0 | 22 |
| Borrowings, deposits and lease liabilities | -6 | -55 |
| Net foreign exchange gains and losses | -6 | -33 |
| Other financial income | 0 | 1 |
| Other financial expense | | |
| Financial fees | -8 | -10 |
| Fair valuation losses | 0 | -3 |
| Net interest on net defined benefit liabilities | -7 | -6 |
| Net other financial expense | -15 | -19 |
| Total | -168 | -180 |

Gains and losses on derivative financial instruments are shown in Note 27 Derivatives.

In 2019, the net interest expense increased mainly as a result of higher gross debt level and the implementation of IFRS 16 standard, partly offset by lower average interest expense rate on borrowings. The capitalised borrowing costs were EUR 0 million in 2019 (EUR nil). Costs on long-term debt issues capitalised as part of non-current debt amounted to EUR 12 (EUR 14) million in the Statement of financial position. During the year, EUR 5 (EUR 5) million was amortised through interest expense by using the effective interest rate method.

Exchange gains and losses for currency derivatives mainly relate to non-hedge accounted instruments fair valued in the Income statement. The amount reported under financial fees in the table above mainly relates to net financial fees for unused committed credit facilities, guarantees and rating agencies.

Note 9 Income taxes



Accounting principles

The Group income tax expense/benefit includes taxes of group companies based on taxable profit/loss for the period, together with tax adjustments for previous periods and the change in deferred income taxes. Tax assets and liabilities reflect uncertainty related to income taxes, if any.

Deferred income taxes are provided using the liability method, as measured with enacted, or substantially enacted, tax rates, to reflect the net tax effects of all temporary differences between the tax bases and the accounting bases of assets and liabilities. No deferred tax is recognised for the initial recognition of goodwill and the initial recognition of an asset or liability in a transaction which is not a business combination, and at the time of the transaction this affects neither accounting profit nor taxable profit. Deferred tax assets reduce income taxes payable on taxable income in future years. The deferred tax assets, whether arising from temporary differences or from tax losses, are recognised only to the extent that it is probable that future taxable profits will be available against which the assets can be utilised.

Tax expense

| EUR million | Year Ended 31 December | |
|------------------|------------------------|-------------|
| | 2019 | 2018 |
| Current Tax | -132 | -166 |
| Deferred Tax | -149 | -55 |
| Total Tax | -281 | -221 |

Income tax rate reconciliation

| EUR million | Year Ended 31 December | |
|--|------------------------|--------------|
| | 2019 | 2018 |
| Profit before tax | 1 137 | 1 210 |
| Tax at statutory rates applicable to profits in the country concerned ¹ | -235 | -247 |
| Non-deductible expenses and tax exempt income ² | -41 | 13 |
| Valuation of deferred tax assets | -53 | -17 |
| Taxes from prior years | 2 | -23 |
| Changes in tax rates and tax laws | -2 | 9 |
| Profits from equity accounted investments | 48 | 39 |
| Other | 0 | 3 |
| Total tax | -281 | -221 |
| Effective tax rate | 24.7% | 18.3% |
| Statutory tax rate (blended) | 20.7% | 20.4% |

¹ Includes a EUR 17 million impact from countries with tax holidays and tax benefits in 2019 and a EUR 21 million impact from tax holidays and other tax benefits in 2018.

² The tax value of non-deductible expenses of EUR 50 million has been netted against a tax exempt income of EUR 9 million in 2019, and the tax value of non-deductible expenses of EUR 26 million has been netted against a tax exempt income of EUR 39 million in 2018.

The statutory tax rate is a weighted average of the statutory tax rates prevailing in jurisdictions where Stora Enso operates.

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Change in deferred taxes in 2019

| EUR million | Value at 1 Jan 2019 | Income Statement | OCI | Acquisitions/ disposals | Translation difference | Value at 31 Dec 2019 |
|--|------------------------|---------------------|----------|----------------------------|---------------------------|-------------------------|
| Fixed assets and biological assets | -175 | -158 | 0 | -605 | -1 | -939 |
| Financial instruments | -1 | 0 | 2 | 0 | 0 | 1 |
| Untaxed reserves | -19 | 16 | 0 | -1 | 2 | -2 |
| Pensions and provisions | 62 | 2 | 6 | 0 | -1 | 69 |
| Tax losses and tax credits carried forward | 90 | -5 | 0 | 0 | -1 | 84 |
| Other deferred taxes | -5 | -2 | 0 | 0 | 0 | -7 |
| Total | -48 | -147 | 8 | -606 | -1 | -794 |
| Equity hedges (CTA) | | -1 | 1 | | | |
| Change in deferred tax | -48 | -148 | 9 | -606 | -1 | -794 |
| Assets ¹ | 120 | | | | | 81 |
| Liabilities ¹ | -168 | | | | | -875 |

¹ Deferred tax assets and liabilities have been offset in accordance with IAS 12.

Change in deferred taxes in 2018

| EUR million | Value at 1 Jan 2018 | Income Statement | OCI | Acquisitions/ disposals | Translation difference | Value at 31 Dec 2018 |
|--|------------------------|---------------------|-----------|----------------------------|---------------------------|-------------------------|
| Fixed assets and biological assets | -163 | -14 | 0 | 0 | 2 | -175 |
| Financial instruments | -7 | 0 | 6 | 0 | 0 | -1 |
| Untaxed reserves | -15 | -6 | 0 | 0 | 2 | -19 |
| Pensions and provisions | 46 | 13 | 4 | 0 | -1 | 62 |
| Tax losses and tax credits carried forward | 127 | -39 | 0 | 1 | 1 | 90 |
| Other deferred taxes | 0 | -6 | 0 | 0 | 1 | -5 |
| Total | -12 | -52 | 10 | 1 | 5 | -48 |
| Equity hedges (CTA) | | -3 | 3 | | | |
| Change in deferred tax | -12 | -55 | 13 | 1 | 5 | -48 |
| Assets ¹ | 154 | | | | | 120 |
| Liabilities ¹ | -166 | | | | | -168 |

¹ Deferred tax assets and liabilities have been offset in accordance with IAS 12.

The recognition of deferred tax assets is based on the Group's estimations of future taxable profits available against which the group can utilise the benefits.

Tax losses

| EUR million | As at 31 December | | | | | |
|--------------------------|----------------------------|--------------|-----------------------|-----------|-------------------------|------------|
| | Tax losses carried forward | | Recognised tax values | | Unrecognised tax values | |
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Expiry within five years | 786 | 703 | 63 | 71 | 79 | 58 |
| Expiry after five years | 20 | 131 | 4 | 5 | 0 | 27 |
| No expiry | 1 212 | 1 030 | 11 | 13 | 242 | 202 |
| Total | 2 018 | 1 864 | 78 | 89 | 321 | 287 |

Tax losses of EUR 328 (EUR 332) million relate to Finland. A deferred tax asset of EUR 66 (EUR 66) million has been recognized relating to these tax losses, as it is evident considering the recent history of profit in Finland, the outlook and tax planning opportunities that the full amount of tax losses in Finland will be utilized before its expiration.

Non-recognised deferred tax assets on deductible temporary differences amounted to EUR 50 (EUR 39) million. There is no expiry date for these differences. Taxable temporary differences in respect of investments in subsidiaries, branches and associates and interests in joint ventures, for which deferred tax liabilities have not been recognised amounted to EUR 330 (EUR 224) million.

Uncertain tax positions

At balance sheet date there were on-going tax audits in several jurisdictions. It is not expected that any significant additional taxes in excess of those already recorded for will arise as a result of these audits.

The tax liabilities of EUR 48 (EUR 92) million include an amount of EUR 33 (EUR 32) million for an uncertain tax position in Sweden due to a dispute concerning the deduction of interest expense.

Note 10 Depreciation, amortisation and impairment charges



Accounting principles

Depreciation, amortisation and impairment charges

Depreciation or amortisation of an asset begins when it is available for use in the location and condition necessary for it to be operated in the manner intended by management. Depreciation or amortisation ceases when the asset is derecognised or classified as held for sale in accordance with IFRS 5. Depreciation or amortisation does not cease when the asset becomes idle. Tangible and intangible assets are depreciated and amortised on a straight-line basis during their useful lives. Useful lives are reviewed periodically. If an asset is disposed of, proceeds exceeding the carrying value of the asset up to its historical cost are netted against depreciation, amortisation and impairment charges. Only disposal proceeds exceeding the historical cost of an asset are presented as other operating income (Note 5). If the asset's book value is higher than the disposal proceeds, the difference is recognised as an impairment in the period when a binding sales contract is signed. Right-of-use (ROU) assets are depreciated using the straight line method from the commencement date of the contract to the earlier of the end of the lease term or the end of the useful life of the ROU assets.

The carrying amounts of intangible assets, property, plant and equipment and ROU assets are reviewed at each reporting date to determine whether there is any indication of impairment, whereas goodwill is tested annually. If any such indication exists, the recoverable amount is estimated as the higher of the fair value less costs of disposal and the value in use, with an impairment loss being recognised whenever the carrying amount exceeds the recoverable amount.

A previously recognised impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount, however, not to an extent higher than the carrying amount that would have existed had no impairment loss been recognised in prior years. For goodwill, however, a recognised impairment loss is not reversed.

Whilst intangible assets, property, plant and equipment and ROU assets are subject to impairment testing at the cash generating unit (CGU) level, goodwill is subject to impairment testing at the CGU level for groups of CGUs, which represents the lowest level within the group at which goodwill is monitored for internal management purposes.

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Depreciation, amortisation and impairment charges

| EUR million | Year ended 31 December | |
|--|------------------------|------------|
| | 2019 | 2018 |
| Depreciation and amortisation | | |
| Intangible assets | 27 | 23 |
| Buildings and structures | 83 | 78 |
| Plant and equipment | 356 | 368 |
| Right-of-use assets | 70 | 0 |
| Other tangible assets | 10 | 10 |
| Total | 546 | 479 |
| Impairment | | |
| Goodwill | 0 | 0 |
| Intangible assets | 4 | 0 |
| Buildings and structures | 5 | 0 |
| Plant and equipment | 66 | 1 |
| Right-of-use assets | 3 | 0 |
| Other tangible assets | 0 | 0 |
| Total | 78 | 1 |
| Reversal of impairment | | |
| Intangible assets | 0 | 0 |
| Buildings and structures | -21 | 0 |
| Plant and equipment | 0 | 0 |
| Total | -21 | 0 |
| Disposal gains/losses | | |
| Gain on sale of assets | -7 | -4 |
| Loss on sale of assets | 2 | 4 |
| Total | -5 | -1 |
| Depreciation, amortisation and impairment charges | 597 | 479 |

Depreciation and amortisation

The total depreciation and amortisation charge amounted to EUR 546 million and was EUR 67 million more than in 2018 due to depreciation of ROU assets. A breakdown of depreciation, amortisation and impairment charges by divisions is set out in [Note 3](#) Segment information.

Disposal gains and losses

There were no material disposal gains or losses relating to fixed assets in 2019 or 2018.

Impairment testing

The recoverable amount for the cash generating units (CGUs) has been determined based on a value in use calculation using cash flow projections from financial estimates approved by the Board of Directors and management. The pre-tax discount rates are calculated for each CGU taking into account the business environment of the CGU and the tax and risk profile of the country in which the cash flow is generated. The table in the goodwill impairment testing section below sets out the pre-tax discount rates used for goodwill impairment testing, which are similar to those used in the impairment testing of other intangible assets, property, plant and equipment, and ROU assets.

Impairments were tested using a value in use method for each CGU based on the following main assumptions:

- Sales price estimates in accordance with internal and external specialist analysis
- Cash flows and discount rates were prepared in real terms
- Current cost structure to remain unchanged
- For goodwill testing a five-year future period was used after which the perpetuity value was based on zero growth rates, whereas for intangible assets, property, plant and equipment and ROU assets testing the period was the remaining expected economic life of the assets.

Property, plant and equipment, other intangible assets and ROU assets impairments

The total impairment charges on property, plant and equipment, other intangible assets and ROU assets in 2019 amounted to EUR 78 (EUR 1) million and resulted from business restructurings, Group company disposals and impairment testing.

Impairment reversals amounted to EUR 21 (EUR 0) million. In 2019, and in connection to Oulu Mill conversion project, Containerboard CGU in Packaging Solutions division was tested for fixed asset impairment reversal and a reversal of EUR 21 million was recognised. In 2019, certain assets in Nordic and Innovation CGU in the Biomaterials division were tested for fixed asset impairment and an impairment charge of EUR 43 million was recognised.

Goodwill impairment testing

In 2019 or 2018, the Goodwill testing did not result in any impairment.

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The most material groups of cash generating units containing goodwill

| EUR million | 2019 | | | | | 2018 | | | | |
|--------------------------------------|----------------------|---|--------------------|-------------------|-----------------------|----------------------|--|--------------------|-------------------|-----------------------|
| | Goodwill at year end | Intangible assets, property, plant and equipment and ROU assets at year end | Recoverable amount | Impairment charge | Pre-tax discount rate | Goodwill at year end | Intangible assets, property, plant and equipment at year end | Recoverable amount | Impairment charge | Pre-tax discount rate |
| Wood Products - Central Europe | 108 | 163 | 1 182 | 0 | 5.4% | 107 | 155 | 1 155 | 0 | 5.7% |
| Paper - Newsprint and Book Paper | 52 | 235 | 769 | 0 | 5.7% | 43 | 238 | 492 | 0 | 5.7% |
| Paper - Uncoated Magazine Paper | 40 | 231 | 667 | 0 | 5.7% | 40 | 242 | 477 | 0 | 5.7% |
| Biomaterials - Nordic and Innovation | 49 | 376 | 2 888 | 0 | 5.9% | 34 | 369 | 2 927 | 0 | 6.2% |
| Other CGUs ¹ | 54 | | | 0 | | 19 | | | 0 | |
| Total | 302 | 1 005 | 5 506 | 0 | | 243 | 1 004 | 5 051 | 0 | |

¹ Other CGUs line is including Packaging Solutions - Europe, Consumer Board operations in Sweden, Wood Products - Northern Europe and Office Paper cash generating units.

Impairment and impairment reversals per division

| EUR million | Year ended 31 December | |
|---|------------------------|----------|
| | 2019 | 2018 |
| Consumer Board | 7 | 0 |
| Packaging Solutions | -17 | 0 |
| Biomaterials | 43 | 0 |
| Wood Products | 8 | 0 |
| Paper | 11 | 1 |
| Other | 4 | 0 |
| Total (impairment +) / (impairment reversal -) | 56 | 1 |

The calculation of value-in-use is highly sensitive to discount rates, sales prices and costs. The Sensitivity Analysis table below summarises what effect a 1% change in the discount rate, 1% decrease in sales prices and 1% increase in costs would have had on the recoverable amounts of the groups of CGUs carrying most of the group's total goodwill.

Goodwill testing sensitivity analysis, impact on recoverable amount

| EUR million | Wood Products - Central Europe | Paper - Newsprint and Book | Paper - Uncoated Magazine Paper | Biomaterials - Nordic and Innovation |
|--|--------------------------------|----------------------------|---------------------------------|--------------------------------------|
| 1% increase in the discount rate | -272 | -157 | -128 | -687 |
| 1% annual decrease in the sales prices | -211 | -189 | -111 | -221 |
| 1% annual increase in the costs | -188 | -174 | -100 | -171 |

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Note 11 Intangible assets, property, plant and equipment and right-of-use assets



Accounting principles

Computer software development costs

The cost of development or acquisition of new software clearly associated with an identifiable and unique product that will be controlled by the Group and has a probable benefit exceeding its cost beyond one year is recognised as an intangible asset and will be amortised over the expected useful life of the software between 3 to 10 years. Website costs are expensed as incurred.

Goodwill

Goodwill represents future economic benefits arising from assets that are not capable of being individually identified and separately recognised by the Group on an acquisition. Goodwill is computed as the excess of the cost of an acquisition over the fair value of the Group's share of the fair value of net assets of the acquired subsidiary at the acquisition date, and is allocated to those groups of cash generating units expected to benefit from the acquisition for the purpose of impairment testing. In compliance with IFRS 3, the cost of an acquisition is equal to the sum of the consideration transferred, the value of the non-controlling interest in the acquisition, and the fair value of the previously held interest in the acquired subsidiary. Goodwill arising on the acquisition of non-euro foreign entities is treated as an asset of the foreign entity denominated in the local currency and translated at the closing rate.

Goodwill is not amortised but tested for impairment on an annual basis, or more frequently if there is an indication of impairment. Gains and losses on the disposal of a Group entity include any goodwill relating to the entity sold.

Goodwill arising from the acquisition of an equity accounted investment or joint arrangement is included in the carrying amount of the investment and is assessed for impairment as part of that investment. Any excess of the Group's share of the net fair value over the cost of the acquisition, after reassessment, is recognised immediately in the income statement.

Intangible assets

Intangible assets are stated at their historical cost and amortised on a straight-line basis over their expected useful lives, which usually varies from 3 to 10 years and up to 20 years for patents. An adjustment is made for any impairment. Intangible items acquired must be recognised as assets separately from goodwill if they meet the definition of an asset, are either separable or arise from contractual or other legal rights, and their fair value can be measured reliably.

Intangible assets recognised separately from goodwill in acquisitions consist of marketing and customer-related or contract and technology-based intangible assets. Typical marketing and customer-related assets include trademarks, trade names, service marks, collective marks, certification marks, customer lists, order or production backlogs, customer contracts and the related customer relationships. Contract and technology-based intangible assets are normally licensing and royalty agreements or patented technology and trade secrets, such as confidential formulas, processes or recipes. The fair value determination of customer contracts and related relationships is derived from expected retention rates and cash flow over the customers' remaining estimated lifetime. The value of trademarks is derived from a discounted cash flow analysis using the relief from royalty method.

Property, plant and equipment

Property, plant and equipment acquired by Group companies are stated at their historical cost, which are augmented where appropriate by asset retirement costs. Assets arising on the acquisition of a new subsidiary are stated at fair value at the date of acquisition. Depreciation is computed on a straight-line basis, and adjusted for any impairment and disposal charges. The Consolidated statement of financial position value represents the cost deducted by received grants and subsidies and less the accumulated

depreciation and any impairment charges. Interest costs on borrowings to finance the construction of these assets are capitalised as part of the cost during the construction period when the requirements are fulfilled.

Land and water areas are not depreciated, as these are deemed to have an indefinite life, but otherwise depreciation is based on the following expected useful lives:

| Asset class | Depreciation years |
|--|--------------------|
| Buildings, industrial | 10-50 |
| Buildings, office & residential | 20-50 |
| Groundwood mills | 15-20 |
| Hydroelectric power | 40 |
| Paper, board and pulp mills, main machines | 20-30 |
| Heavy machinery | 10-20 |
| Converting factories | 10-15 |
| Sawmills | 10-15 |
| Computers | 3-5 |
| Vehicles | 5 |
| Office equipment | 3-5 |
| Railway, harbours | 20-25 |
| Forest roads | 10-15 |
| Roads, fields, bridges | 15-20 |

Ordinary maintenance and repair charges are written as expensed as incurred, but the costs of significant renewals and improvements are capitalised and depreciated over the remaining useful lives of the related assets. Retirements, sales and disposals of property, plant and equipment are recorded by deducting the cost and accumulated depreciation from the accounting records with any resulting terminal depreciation adjustments reflected in impairment charges in the Consolidated income statement. Capital gains are shown in other operating income.

Spare parts are accounted for as property, plant and equipment if they are major and used over more than one period, or if they are used only in connection with an item of property, plant and equipment. In all other cases, spare parts are carried as part of the inventory and recognised in profit or loss as consumed items.

Right-of-use (ROU) assets

As from 1 January 2019 and in accordance with IFRS 16, at inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. ROU assets are initially measured at cost, which comprises the initial amount of the lease liability adjusted mainly for lease payments made at or before the commencement date. The Group allocates the consideration in the contract to each lease component and will separate non-lease components if these are identifiable. Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions.

The ROU assets are subsequently depreciated using the straight line method from the commencement date to the earlier of the end of the lease term or the end of the useful life of the ROU asset. In addition, the ROU asset is adjusted for certain remeasurements of the lease liability. ROU assets are tested for impairment in accordance with IAS 36.

The Group has elected not to recognise ROU assets for short-term leases that have a lease term of 12 months or less and leases of low value assets. Leases of low value assets mainly include IT and office equipment, certain vehicles and machinery and other low value items. The Group recognises the lease payments associated with these leases as an expense on a straight-line basis over the lease term (Note 5).

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Intangible assets

| EUR million | Year ended 31 December | | | | |
|--|------------------------|-------------------------|--------------------|--------------|--------------|
| | Computer software | Other intangible assets | Assets in progress | Goodwill | Total |
| Acquisition cost | | | | | |
| At 1 January 2018 | 249 | 176 | 39 | 1 190 | 1 654 |
| Translation difference | -1 | 0 | 0 | -1 | -2 |
| Reclassifications | 26 | -1 | -28 | 0 | -3 |
| Additions ² | 13 | 21 | 16 | 5 | 55 |
| Disposals ¹ | -62 | -19 | 0 | 0 | -81 |
| At 31 December 2018 | 225 | 177 | 27 | 1 194 | 1 623 |
| Translation difference | 0 | 4 | 0 | 3 | 7 |
| Reclassifications | 6 | -75 | -10 | 0 | -78 |
| Additions ² | 8 | 3 | 11 | 57 | 78 |
| Disposals ¹ | -4 | -6 | 0 | 0 | -10 |
| At 31 December 2019 | 236 | 102 | 29 | 1 253 | 1 620 |
| Accumulated amortisation and impairment | | | | | |
| At 1 January 2018 | 209 | 26 | 0 | 953 | 1 188 |
| Translation difference | -1 | -1 | 0 | -2 | -4 |
| Disposals ¹ | -62 | -19 | 0 | 0 | -81 |
| Amortisation | 12 | 11 | 0 | 0 | 23 |
| At 31 December 2018 | 158 | 17 | 0 | 951 | 1 126 |
| Translation difference | 0 | 0 | 0 | 0 | 1 |
| Disposals ¹ | -4 | -6 | 0 | 0 | -10 |
| Amortisation | 16 | 12 | 0 | 0 | 27 |
| Impairment | 0 | 4 | 0 | 0 | 4 |
| At 31 December 2019 | 170 | 27 | 0 | 951 | 1 148 |
| Net Book Value at 31 December 2019 | 65 | 75 | 29 | 302 | 471 |
| Net Book Value at 31 December 2018 | 67 | 160 | 27 | 243 | 497 |

¹ Company disposals are included in Disposals line. Company disposals are discussed in more detail in [Note 4 Acquisitions and disposals](#).

² Company acquisitions are included in the Additions line. Company acquisitions are discussed in more detail in [Note 4 Acquisitions and disposals](#).

Property, plant and equipment

| EUR million | Year ended 31 December | | | | |
|--|------------------------|--------------------------|---------------------|-----------------------|--------------------|
| | Land and water | Buildings and structures | Plant and equipment | Other tangible assets | Assets in progress |
| Acquisition cost | | | | | |
| At 1 January 2018 | 361 | 3 349 | 13 346 | 428 | 441 |
| Translation difference | -1 | -29 | -201 | -8 | -1 |
| Reclassifications | 0 | 43 | 207 | 2 | -249 |
| Reclassifications to biological assets | 0 | -1 | -2 | 0 | 0 |
| Additions ² | 0 | 19 | 171 | 2 | 249 |
| Disposals ¹ | -31 | -46 | -108 | -4 | 0 |
| At 31 December 2018 | 329 | 3 335 | 13 413 | 420 | 440 |
| Translation difference | 6 | 11 | -49 | 1 | 9 |
| Reclassifications | -1 | 61 | 322 | 17 | -403 |
| Reclassifications to biological assets | 0 | -1 | -2 | 0 | 0 |
| Additions ² | 306 | 42 | 228 | 28 | 299 |
| Disposals ¹ | -2 | -73 | -476 | -6 | -1 |
| At 31 December 2019 | 638 | 3 376 | 13 438 | 459 | 345 |
| Accumulated depreciation and impairment | | | | | |
| At 1 January 2018 | 10 | 2 040 | 10 196 | 360 | 9 |
| Translation difference | -1 | -32 | -177 | -6 | 0 |
| Disposals ¹ | -5 | -41 | -103 | -4 | 0 |
| Depreciation | 0 | 77 | 368 | 11 | 0 |
| Impairments and reversals | 0 | 0 | 1 | 0 | 0 |
| At 31 December 2018 | 4 | 2 044 | 10 285 | 361 | 9 |
| Translation difference | 0 | -3 | -54 | 0 | 2 |
| Additions ² | 0 | 7 | 17 | 19 | 0 |
| Disposals ¹ | -1 | -68 | -469 | -6 | 0 |
| Depreciation | 0 | 81 | 356 | 11 | 0 |
| Impairments and reversals | 0 | -16 | 66 | 0 | 0 |
| At 31 December 2019 | 4 | 2 044 | 10 201 | 386 | 11 |
| Net Book Value at 31 December 2019 | 634 | 1 332 | 3 237 | 73 | 334 |
| Net Book Value at 31 December 2018 | 325 | 1 291 | 3 128 | 59 | 431 |

¹ Net Book Value at 31 December 1 Company disposals are included in the Disposals line. Company disposals are discussed in more detail in [Note 4 Acquisitions and disposals](#).

² Company acquisitions are included in the Additions line. Company acquisitions are discussed in more detail in [Note 4 Acquisitions and disposals](#).

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Right-of-use assets

| EUR million | Year ended 31 December | | | Total |
|--|------------------------|--------------------------|-------------------------------|------------|
| | Land and water | Buildings and structures | Plant and equipment and other | |
| Acquisition cost | | | | |
| At 1 January 2019 | 292 | 80 | 158 | 530 |
| Translation difference | 3 | 2 | 0 | 5 |
| Reclassifications | 80 | 2 | 0 | 81 |
| Reclassifications to biological assets | -12 | 0 | 0 | -12 |
| Additions | 7 | 6 | 15 | 29 |
| Disposals | 0 | 0 | -2 | -2 |
| Other changes | -19 | 0 | -34 | -53 |
| At 31 December 2019 | 352 | 89 | 138 | 579 |
| Accumulated depreciation and impairment | | | | |
| At 1 January 2019 | 0 | 0 | 0 | 0 |
| Disposals | 0 | 0 | -2 | -2 |
| Depreciation | 10 | 20 | 40 | 70 |
| Impairment | 3 | 0 | 0 | 3 |
| Other changes | 0 | 0 | 0 | 1 |
| At 31 December 2019 | 13 | 20 | 38 | 71 |
| Net Book Value at 31 December 2019 | 340 | 69 | 99 | 508 |

Stora Enso's most material right-of-use assets capitalised consist of land areas used in forestry and industrial operations, various machinery and equipment leases including operative machinery, vessels and other logistic equipment and properties including offices, warehouses and other operative properties. Some of the leases contain renewal options and extension options that are considered in the lease term if the Group is reasonably certain to exercise the option.

As at 1 January 2019 certain land use contracts, amounting to EUR 80 million, before IFRS 16 transition accounted as intangible assets were classified on transition to IFRS 16 as leases.

Intangible assets and property, plant and equipment, and right-of-use asset additions

The total capital expenditure for the year in Stora Enso Oyj and its subsidiaries amounted to EUR 579 (EUR 491) million. Details of ongoing projects and future plans are discussed in more detail in the Report of the Board of Directors.

Note 12 Biological assets

Accounting principles

The biological assets of Stora Enso consist of standing trees to be used as raw material in pulp and mechanical wood production and as biofuels.

IAS 41 Agriculture standard requires that biological assets are shown in the Consolidated Statement of financial position at fair value. Group forests are thus accounted for at level 3 of fair value less the estimated point-of-sale costs at harvest, there being a presumption that fair values can be measured for these assets.

The valuation of forest assets is based on discounted cash flow models whereby the fair value of the biological assets is calculated using cash flows from continuous operations, that is, based on sustainable forest management plans taking into account growth potential. The yearly harvest from the forecasted tree growth is multiplied by wood prices and the cost of silviculture and harvesting is then deducted. The fair value of the biological assets are measured as the present value of the harvest from one growth cycle based on the productive forestland, taking into consideration environmental restrictions and other reservations. Young standing timber less than two years old (less than three years in Montes del Plata) is considered to be an immature asset and is accounted at cost. At harvesting, biological assets are transferred to the inventory.

Fair value is deemed to approximate the cost when little biological transformation has taken place or the impact of the transformation on the price is not expected to be material, which varies according to the location and species of the assets.

Stora Enso also ensures that the Group's share of the valuation of forest holdings in equity accounted investments and joint operations are consistent with Group accounting policies.

The Group has biological assets in its own subsidiaries in Sweden, China and Laos, as well as in joint operations in Brazil and Uruguay and in equity accounted investments in Finland and Brazil.

The value of biological assets disclosed in the group Consolidated statement of financial position from subsidiary companies and from joint operations amounts to EUR 3 627 (EUR 457) million as shown below. The Group's indirect share of biological assets held by equity accounted investments amounts to EUR 753 (EUR 2 871) million.

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Biological assets

| EUR million | Year Ended 31 December | |
|---|------------------------|--------------|
| | 2019 | 2018 |
| Subsidiaries and Joint Operations | | |
| Fair Value at 1 January | 457 | 448 |
| Translation differences ² | 40 | -2 |
| Unrealized change in fair value ^{1 2} | 546 | 17 |
| Additions ³ | 2 675 | 83 |
| Change due to harvesting ¹ | -98 | -79 |
| Other operative changes ¹ | -6 | -7 |
| Other changes | -1 | -7 |
| Reclassification from Property, plant and equipment | 14 | 2 |
| Fair Value of biological assets at 31 December | 3 627 | 457 |
| Equity accounted investments | | |
| Bergvik Skog Ab (49.79%) ² | 0 | 2 262 |
| Tornator Oyj (41%) | 740 | 595 |
| Arauco Florestal Arapoti S.A. (20%) | 14 | 14 |
| Fair value of biological assets of Associated companies at 31 December | 753 | 2 871 |

¹ Items are recorded in the profit and loss lines.

² The impact in 2019 was mainly due to fair valuation increase of Swedish forests, which was mostly driven by lower discount rates.

³ Assets mainly acquired through Bergvik Skog AB restructuring in 2019.

Valuation and standing stock of forest assets in main subsidiaries, joint operations and equity accounted investment

| | | | As at 31 December 2019 | | | | | |
|-------------------------|-------------------------------|--|------------------------|-----------------|---------------|-----------|----------------|--------------------|
| | | | Guangxi | Swedish forests | Veracel (50%) | MdP (50%) | Tornator (41%) | Total ⁴ |
| Land area | Total area | ha | 81 000 | 1 408 000 | 112 000 | 131 000 | 286 000 | 2 019 000 |
| | - of which owned | | 0 | 1 408 000 | 107 000 | 95 000 | 286 000 | 1 897 000 |
| | - of which leased | | 81 000 | 0 | 5 000 | 36 000 | 0 | 123 000 |
| | Productive area | ha | 76 000 | 1 140 000 | 50 000 | 86 000 | 262 000 | 1 614 000 |
| Total area | Standing stock ⁶ | million m ³ fo. ¹ | 4.3 | 146.3 | 3.8 | 10.0 | 31.5 | 195.8 |
| | Standing stock ⁶ | million m ³ u.b. ² | 3.5 | 121.5 | 3.1 | 8.2 | 25.4 | 161.8 |
| Productive Forest land | Standing stock | million m ³ fo. ¹ | 4.2 | 143.2 | 3.8 | 10.0 | 31.0 | 192.1 |
| | Standing stock | million m ³ u.b. ² | 3.4 | 120.3 | 3.1 | 8.2 | 25.1 | 160.1 |
| | Estimated Growth ³ | million m ³ u.b. ² /p.a. | 0.7 | 4.7 | 0.8 | 1.6 | 1.1 | 8.9 |
| | Harvesting ³ | million m ³ u.b. ² /p.a. | 1.0 | 3.4 | 0.9 | 1.4 | 1.0 | 7.8 |
| Fair value ⁵ | | EUR million | 181 | 3 133 | 86 | 222 | 740 | 4 362 |
| | Productive land area | EUR/ha | 2 385 | 2 749 | 1 716 | 2 608 | 2 824 | 2 703 |

¹ forest cubic metres

² solid under bark cubic metres

³ Swedish forests harvesting volume is annualised based on June-December outcome. Estimated Growth is a full year estimate.

⁴ Total figures exclude minor forest ownerships in Laos and equity accounted investment Arauco Florestal Arapoti S.A. in Brazil

⁵ Biological asset fair value, excluding land values. The corresponding forest land value was EUR 548 million at end 2019.

⁶ Non-productive natural forest area is not included to Veracel's total area standing stock

Subsidiaries and joint operations:

On 31 May 2019, Bergvik Väst AB, a subsidiary of Bergvik Skog AB, was distributed as dividend to the shareholders of Bergvik Skog AB. On the same date, the Group acquired an additional 20% of shares in Bergvik Väst AB from other shareholders, resulting in a total holding in Bergvik Väst AB of 69.8%. Simultaneously, Bergvik Väst AB was demerged and Stora Enso became the 100% owner of a new subsidiary holding around 69.8% of the former Bergvik Väst AB assets and liabilities. The acquisition date of the new Swedish forest was 31 May 2019. As a result of the transaction Stora Enso's direct forest holdings in Sweden are 1 408 thousand hectares, of which 1 140 thousand hectares is productive forest land. Details on the Bergvik Skog AB restructuring are shown in Note 4 Acquisitions and disposals.

At 31 December 2019 biological assets were located by value, in Sweden 86% (0%), China 5% (36%), Brazil 2% (16%), Uruguay 6% (44%) and other areas less than 1% (4%). The land area comes to 1 732 (325) thousand hectares of which 7% (37%) is leased and under 1% (2%) is restricted. From Stora Enso's total forest holdings 1 344 thousand hectares is productive forest land. The harvested wood amounted to 7 (4) million m³. These changes are mainly driven by the acquisition of Swedish forests. The Montes del Plata and Veracel amounts are taken into account in the ownership share and number of hectares.

At the end of 2019, the fair value of the biological assets in Swedish forests amounted to EUR 3 133 (EUR 0) million. The discount rate of 4.2% used in the discounted cash flows (DCF) is determined using the weighted average cost of capital method. The productive land in Swedish forests, totals 1 140 thousand hectares with a standing stock of 120.3 million m³ solid under bark (sub). The annual harvesting is on average 3.4 million m³ sub.

At the end of 2019, the fair value of the biological assets in Guangxi, China, amounted to EUR 181 (EUR 166) million. The biological assets included young standing timber with a value of EUR 34 (EUR 29) million. This increase is driven by higher sales prices and volumes. The discount rate of 8.9% (8.7%) used in the discounted cash flows (DCF) is determined using the weighted average cost of capital method increased slightly. The productive land in Guangxi, China, totals 76 (77) thousand hectares with a standing stock of 3.1 (6.4) million m³ solid under bark (sub). The annual harvesting is on average 1.0 (1.1) million m³ sub.

Veracel Celulose S.A. (Veracel), a 50% joint operation company in Brazil, had biological assets fair valued at EUR 172 (EUR 150) million, of which Stora Enso's share was EUR 86 (EUR 75) million. This increase is driven by higher sales prices and volumes. The biological assets included young standing timber with a value of EUR 33 (EUR 33) million. The discount rate of 9.0% (8.3%) used in the DCF is determined using the weighted average cost of capital method. Stora Enso's share (50%) of the land area is 112 (113) thousand hectares.

Stora Enso's 50% share of the productive land in Veracel, Brazil totals 50 (44) thousand hectares with a share of standing stock of 3.1 (2.9) million m³ sub. The ownership share of annual harvesting is on average 0.9 (1.7) million m³ sub.

Montes del Plata (MdP), a 50% joint operation company in Uruguay, had biological assets with a fair value of EUR 445 (EUR 398) million, of which Stora Enso's share was EUR 222 (EUR 199) million. The biological assets included young standing timber with a value of EUR 55 (EUR 55) million. The discount rate of 8.0% (8.0%) used in the DCF is determined using the weighted average cost of capital method. Stora Enso's share (50%) of the land area is 131 (126) thousand hectares.

Stora Enso's 50% share of the productive land in Montes del Plata, Uruguay totals 86 (81) thousand hectares with a share of standing stock of 8.2 (8.1) million m³ sub. The ownership share of annual harvesting is on average 1.4 (1.4) million m³ sub.

Equity accounted investments:

The Group has two equity accounted investments holding biological assets:

- Tornator Oyj (Tornator), a 41 % owned Finnish associated company, had biological assets with a fair value of EUR 1 805 (EUR 1 451) million, of which Stora Enso's share was EUR 740 (EUR 595) million. The increase in fair value is mainly due to increased harvesting volume and long term sales prices. Growing costs had a slight reducing impact on the fair value. Stora Enso's 41% share of the productive forest land in Tornator totals 262 (223) thousand hectares with a share of standing stock of 25.1 (24.6) million m³ sub. The ownership share of annual harvesting is on average 1.0 (1.2) million m³ sub.

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- Arauco Florestal Arapoti S.A., the 20% owned Southern Brazilian associated company, had biological assets with a fair value of EUR 67 (EUR 73) million, of which Stora Enso's share was EUR 14 (EUR 14) million.
- The Group owns 49.79% of shares in Bergvik Skog AB which continue to be reported as an equity accounted investment, but there are no biological assets to be reported anymore at the end of 2019.

Sensitivities of significant assumptions of a +/- 10% movement

| | Wood market prices | Growth rate | Discount rate |
|------------------|--------------------|-------------|---------------|
| Guangxi | +/-35 | +/-19 | +/-3 |
| Swedish Forests | +/-502 | +/-116 | +381/-320 |
| Veracel | +/-7 | +/-9 | +/-2 |
| Montes del Plata | +/-21 | +/-21 | +/-6 |

Note 13 Equity accounted investments



Accounting principles

Consolidation principles

Associated companies over which Stora Enso exercises significant influence are accounted for using the equity method, which involves recognising the Group's share of the equity accounted investment profit or loss for the year in the Consolidated income statement. The Group's interest in an associated company is carried in the Consolidated statement of financial position at an amount that reflects its share of the net assets of the associate.

The Group's share of results in equity accounted investments is reported in the operating profit to reflect the operational nature of these investments, especially those in wood supply. There is no material goodwill in the Statements of financial position for equity accounted investments.

Principal equity accounted investments

| Company | Reportable segment | Domicile and principal place of operations | As at 31 December | | | |
|---|--------------------|--|---|-------------|-------------|--------------|
| | | | Proportion of ownership interest/voting rights held % | | EUR million | |
| | | | 2019 | 2018 | 2019 | 2018 |
| Bergvik Skog AB: forest ¹ | Other | Sweden | 49.79/36.70 | 49.79/36.70 | 54 | 1 400 |
| Tornator Oyj: forest | Other | Finland | 41 | 41 | 381 | 288 |
| Arauco Florestal Arapoti S.A.: plantation | Other | Brazil | 20 | 20 | 19 | 19 |
| Others | | | | | 29 | 23 |
| Carrying Value at 31 December | | | | | 483 | 1 729 |

¹ The group's shareholding in Bergvik Skog AB is 49.79%, however, the voting rights are limited to 36.7%.

Group share of equity accounted investments income statements

| EUR million | Year Ended 31 December | |
|-------------------------------------|------------------------|------------|
| | 2019 | 2018 |
| Sales | 170 | 249 |
| Net operating expenses | -121 | -119 |
| Other operating income ¹ | 129 | 0 |
| IAS 41 valuation | 127 | 90 |
| Operating Profit | 305 | 220 |
| Net financial items | -55 | -37 |
| Net Profit before Tax | 249 | 183 |
| Income tax | -21 | -2 |
| Net Profit for the Year | 229 | 181 |

¹ Other operating income relates to Bergvik Skog AB restructuring, see Note 4 Acquisitions and disposals

All the above companies are accounted for using the equity method in the Consolidated financial statements.

The average number of personnel in the equity accounted investments was 1637 in 2019, compared with 1 727 in 2018.

A summary of the financial information in respect of the Group's material associates, Bergvik Skog AB and Tornator Oyj, is set out below. The Group's share of these associated companies is reported under the segment Other and covers the majority of the Group's total share of results of equity accounted investments. The summarised financial information below represents amounts shown in the associate's financial statements prepared in accordance with IFRS.

Bergvik Skog AB

| EUR million | 2019 | 2018 |
|--|-----------|--------------|
| Current assets | 478 | 152 |
| Non-current assets | 0 | 4 705 |
| Current liabilities | 0 | 157 |
| Non-current liabilities | 369 | 971 |
| Tax liabilities | 0 | 955 |
| Sales | 92 | 245 |
| Net profit for the year | 243 | 295 |
| Other comprehensive income | 27 | 7 |
| Total comprehensive income | 270 | 302 |
| Dividends received from the associate during the financial year ¹ | 1 434 | 11 |
| Net assets of the associate | 109 | 2 774 |
| Proportion of the Group's ownership interest in Bergvik Skog AB | 49.79% | 49.79% |
| Goodwill | 0 | 19 |
| Carrying amount of the Group's interest in Bergvik Skog AB | 54 | 1 400 |

¹ amount relates to Bergvik Skog AB restructuring, of which EUR 331 million was paid in cash

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On 31 May 2019, Bergvik Väst AB, a subsidiary of Bergvik Skog AB, was distributed as dividends to the shareholders of Bergvik Skog AB. On the same date the Group acquired an additional 20% of shares in Bergvik Väst AB from other shareholders resulting in a total holding in Bergvik Väst AB of 69.8%. Simultaneously, Bergvik Väst AB was demerged and Stora Enso became the 100% owner of a new subsidiary holding around 69.8% of the former Bergvik Väst AB assets and liabilities. The Group owns 49.79% of shares in Bergvik Skog AB which continue to be reported as an equity accounted investment. Details on the Bergvik Skog AB restructuring are shown in Note 4 Acquisitions and disposals.

Stora Enso's shareholding in the company was valued at EUR 54 (EUR 1 400) million at the year-end in 2019. In 2019, the Group's share of Bergvik Skog's net profit was EUR 121 (EUR 147) million.

Tornator Oyj

| EUR million | 2019 | 2018 |
|---|------------|------------|
| Current assets | 43 | 34 |
| Non-current assets | 1 918 | 1 557 |
| Current liabilities | 672 | 376 |
| Non-current liabilities | 144 | 351 |
| Tax liabilities | 216 | 161 |
| Sales | 112 | 113 |
| Net profit for the year | 262 | 79 |
| Other comprehensive income | -1 | 0 |
| Total comprehensive income | 261 | 79 |
| Dividends received from the associate during the financial year | 14 | 12 |
| Net assets of the associate | 929 | 702 |
| Proportion of the Group's ownership interest in Tornator Oyj | 41.00% | 41.00% |
| Carrying amount of the Group's interest in Tornator Oyj | 381 | 288 |

Stora Enso's Finnish forest holdings were divested into an equity accounted investment, Tornator, in 2002. The Group's current 41% ownership is valued at EUR 381 (EUR 288) million at the year-end for 2019. In 2018, the Group's share of Tornator's net profit was EUR 107 (EUR 32) million, including a forest valuation gain of EUR 128 (gain EUR 13) million.

Aggregate information of equity accounted investments that are not individually material

| | As at 31 December | |
|---|-------------------|--------------|
| EUR million | 2019 | 2018 |
| PPE ¹ , goodwill and other intangible assets | 26 | 21 |
| Biological assets | 13 | 14 |
| Operative receivables: | | |
| Non-current | 0 | 0 |
| Current | 21 | 16 |
| Inventories | 1 | 1 |
| Cash | 5 | 8 |
| Total Assets | 66 | 61 |
| Operative Liabilities: | | |
| Non-current | 1 | 2 |
| Current | 12 | 11 |
| Debt: | | |
| Non-current | 1 | 1 |
| Current | 1 | 0 |
| Tax liabilities | 4 | 4 |
| Total Liabilities | 18 | 19 |
| Net Equity in the Group Statement of Financial Position | 48 | 42 |
| Represented by | | |
| Capital and Reserves | 48 | 42 |
| OCI | 0 | 0 |
| Equity Accounting Value | 48 | 42 |
| Equity Accounting Value for Bergvik Skog AB | 54 | 1 400 |
| Equity Accounting Value for Tornator Oyj | 381 | 288 |
| Total Equity Accounting Value | 483 | 1 729 |

¹ PPE = Property, Plant and Equipment

Equity accounted investment company balances

| | As at 31 December | |
|--|-------------------|-----------|
| EUR million | 2019 | 2018 |
| Receivables from Equity Accounted Investments | | |
| Non-current loan receivables | 2 | 2 |
| Trade receivables | 0 | 6 |
| Liabilities due to Equity Accounted Investments | | |
| Trade payables | 38 | 39 |

Equity accounted investment transactions

| | Year Ended 31 December | |
|---|------------------------|------|
| EUR million | 2019 | 2018 |
| Sales to equity accounted investments | 28 | 53 |
| Purchases from equity accounted investments | 109 | 219 |

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The Group engages in transactions with equity accounted investments such as sales and purchases of wood. All agreements are negotiated at arm's length and are conducted on terms that the Group considers customary in the industry and generally no less favourable than would be available from independent third parties. Equity accounted investment company trade receivables and both sales to equity accounted investments and purchases from equity accounted investments decreased due to Bergvik Skog AB restructuring.

Total loans including interest receivable to equity accounted investments at the year-end 2019 amounted to EUR 2 (EUR 2) million.

Note 14 Equity instruments



Accounting principles

The Group has elected to classify its equity investments in Pohjolan Voima shares and certain listed shares held by the Group at fair value through other comprehensive income (FVTOCI) under IFRS 9 by applying the irrevocable election for equity instruments under the standard due to the long-term nature of the ownership. The gains and losses resulting from changes in the fair value of equity investments under FVTOCI are not recycled to the Income Statement upon impairment or disposal, only the dividend income is recognised in the income statement. In addition, the Group also has certain equity investments in unlisted shares that are classified as fair value through income statement.

Summary of values

| EUR million | Year Ended 31 December | |
|---|------------------------|------------|
| | 2019 | 2018 |
| Acquisition cost at 1 January | | |
| Listed shares | 4 | 4 |
| Unlisted shares | 125 | 126 |
| Investments classified as equity instruments | 129 | 130 |
| OCI in opening balance | 306 | 209 |
| Equity Instruments at 1 January | 435 | 339 |
| Translation difference | 0 | -1 |
| Additions | 1 | 3 |
| Change in fair values accounted for as OCI | 109 | 97 |
| Disposals | -6 | -1 |
| Income Statement - gains and losses | 0 | -2 |
| Carrying Amount at 31 December | 538 | 435 |

Unrealised gains and losses on listed and unlisted shares

| EUR million | Year Ended 31 December | |
|---|------------------------|------------|
| | 2019 | 2018 |
| Net unrealised holding gains (OCI) | 415 | 306 |
| Cost | 123 | 129 |
| Fair Value | 538 | 435 |
| Net unrealised holding gains (OCI) | 415 | 306 |
| Deferred tax | -2 | -2 |
| Net Unrealised Holding Gains Shown in Equity as OCI | 413 | 304 |
| Change in Net Unrealised Holding Gains Shown in Equity as OCI | 109 | 98 |

PVO shares

The Group holds a 15.6% (15.6%) interest in Pohjolan Voima Oy (PVO), a privately-owned group of companies in the energy sector that produces electricity and heat for its shareholders in Finland. Each subsidiary of the PVO group has its own class of shares that entitle the shareholder to the energy produced in proportion to its ownership of that class of share. The shareholders then have an obligation to cover the costs of production, which are generally lower than market prices. Stora Enso did not receive actual dividend payments from PVO during 2019. The holding is fair valued quarterly using an average of two methods: the discounted cash flow model and trading multiples. The valuation is categorised at level 3 in the fair value hierarchy according to IFRS 13; levels are explained in Note 25 Fair values.

The electricity prices in the model are based on Nordpool prices. Liquid future derivative prices are used for the available years in the model and thereafter increased by an inflation factor. The historical financial statements provide the basis for the cost structure for each of the power assets, which are adjusted by the inflation factor in future years. The discount rate of 3.18% used in the DCF is determined using the weighted average cost of capital method. The trading multiples are derived from a peer group of European companies operating power assets similar to PVO's. A +/- 5% change in the electricity price used in the DCF would change the valuation by EUR +98 million and EUR -77 million, respectively. A +/- 1% absolute change in the discount rate would change the valuation by EUR -75 million and EUR +185 million, respectively.

As an outcome of the arbitration proceedings, a settlement agreement was signed during 2018 between the plant owner Teollisuuden Voima Oyj (TVO) and the plant supplier AREVA-Siemens Consortium concerning the costs and losses caused by the delay of the Olkiluoto 3 project. As a result, the plant supplier agreed to compensate EUR 450 million to the plant owner TVO. In December 2019 TVO announced that the project is further delayed, with the regular electricity generation expected to start in March 2021. The updated schedule and the arbitration proceeding outcome have been taken into account in the Q4 2019 valuation. Stora Enso's indirect share of the capacity of Olkiluoto 3 is approximately 8.9%, through its PVO B2 shares.

PVO shareholding at 31 December 2019

| EUR million | Share Series | % Holding | Asset Category | Fair Value 2019 | Fair Value 2018 |
|------------------------|--------------|-----------|----------------------------|-----------------|-----------------|
| PVO-Vesivoima Oy | A | 20.6 | Hydro | 221 | 166 |
| Teollisuuden Voima Oyj | B | 15.7 | Nuclear | 275 | 243 |
| Teollisuuden Voima Oyj | B2 | 14.8 | Nuclear under construction | 22 | 0 |
| Other | C,C2,V,M | Various | Various | 4 | 6 |
| Total | | | | 522 | 415 |

The valuation in 2019 amounted to EUR 522 (EUR 415) million against a cost value of EUR 117 (EUR 118) million, with the revaluation of EUR 405 (EUR 297) million being taken to other comprehensive income. The change in PVO's value is mainly caused by an increase in electricity market prices and a decrease in the discount rate. No deferred tax is appropriate, as under Finnish tax regulations holdings above 10% are exempt from tax on disposal proceeds.

Principal equity instruments

| EUR million | Holding % | 31 December 2019 | | |
|---|-----------|------------------|------------------|------------|
| | | Number of Shares | Acquisition Cost | Fair Value |
| Packages Ltd, Pakistan - listed shares | 6.4 | 5 396 650 | 3 | 12 |
| Total Listed Shares | | | 3 | 12 |
| Pohjolan Voima Oy - unlisted shares | 15.6 | 5 073 972 | 117 | 522 |
| Others - unlisted shares | | | 3 | 3 |
| Total Unlisted Shares | | | 120 | 526 |
| Total Equity instruments at 31 December 2019 | | | 123 | 538 |
| Total Equity Instruments at 31 December 2018 | | | 129 | 435 |

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Note 15 Other non-current assets

| EUR million | As at 31 December | |
|-------------------------------------|-------------------|-----------|
| | 2019 | 2018 |
| Prepaid expenses and accrued income | 17 | 19 |
| Tax credit | 5 | 16 |
| Other non-current operative assets | 15 | 13 |
| Total | 37 | 48 |

Note 16 Inventories



Accounting principles

Inventories are reported at lower of cost and net realisable value with the cost determined by the first-in first-out (FIFO) method or, alternatively, by the weighted average cost where it approximates FIFO. The cost of finished goods and work in progress comprises raw material, direct labour, depreciation, other direct costs and related production overheads, but excludes interest expenses. Net realisable value is the estimated selling price in the ordinary course of business, less the costs of completion and sale.

Where market conditions result in the manufacturing costs of a product exceeding its net realisable value, a valuation allowance is made. Valuation allowances are also made for old, slow moving and obsolete finished goods and spare parts. Such valuation allowances are deducted from the carrying value of the inventories in the consolidated statement of financial position.

| EUR million | As at 31 December | |
|--|-------------------|--------------|
| | 2019 | 2018 |
| Materials and supplies | 372 | 438 |
| Work in progress | 84 | 98 |
| Finished goods | 672 | 752 |
| Spare parts and consumables | 317 | 298 |
| Other inventories | 17 | 17 |
| Advance payments and cutting rights | 53 | 83 |
| Obsolescence allowance - spare parts and consumables | -101 | -98 |
| Obsolescence allowance - finished goods | -16 | -15 |
| Net realisable value allowance | -6 | -5 |
| Total | 1 391 | 1 567 |

EUR 4 693 (EUR 4 872) million of inventories have been expensed during the year, which are included in the materials and supplies line and relate to materials. EUR 14 (EUR 16) million of inventory write-downs have been recognised as an expense. EUR 8 (EUR 3) million have been recognised as a reversal of previous write-downs.

Note 17 Operative receivables



Accounting principles

Trade receivables

Trade receivables are recognised initially at fair value and subsequently at their anticipated realisable value with an estimate made for loss allowance on expected credit losses based on a forward-looking and objective review of all outstanding amounts at period end. A simplified approach under IFRS 9 has been implemented for trade receivables and loss allowances are recognised based on expected lifetime credit losses in the Consolidated income statement within other operating expenses. For non-defaulted receivables, expected credit losses are estimated based on externally generated customer level probability of default data that is used in the forward-looking loss allowance calculation model. The rebuttable presumption that default does not occur later than when a financial asset is 90 days past due has been applied in the calculation model and a default is normally estimated to occur when trade receivables are at least 90 days overdue or there is otherwise objective evidence supporting the conclusion that a default has occurred. Trade receivables are presented in current assets under Operative receivables in the Consolidated statement of financial position.

Trade receivables under factoring arrangements

Stora Enso uses factoring arrangements as one of the working capital management tools. Sold trade receivables are derecognised once significant related risks and rewards of ownership have been transferred to the buyer. Outstanding balances for trade receivables that were not yet sold at period end but qualify to be sold under factoring programs in the next period, are classified as trade receivables fair valued through other comprehensive income in accordance with the business model and contractual cash flow characteristics tests under IFRS 9. Please refer to [Note 25](#) Fair values for further details.

Current operative receivables

| EUR million | As at 31 December | |
|--|-------------------|--------------|
| | 2019 | 2018 |
| Trade receivables - gross carrying amount | 1 006 | 1 172 |
| Loss allowance | -38 | -36 |
| Prepaid expenses and accrued income | 96 | 96 |
| Other receivables | 224 | 254 |
| Total | 1 289 | 1 487 |

Age analysis of trade receivables

| EUR million | As at 31 December | |
|---------------------------|-------------------|--------------|
| | 2019 | 2018 |
| Not overdue | 865 | 1 027 |
| Less than 30 days overdue | 65 | 77 |
| 31 to 60 days overdue | 9 | 7 |
| 61 to 90 days overdue | 2 | 2 |
| 91 to 180 days overdue | 3 | 4 |
| Over 180 days overdue | 63 | 55 |
| Total | 1 006 | 1 172 |

As at 31 December 2019, a gross amount of EUR 142 (EUR 145) million of trade receivables were overdue. These relate to a number of countries and unrelated customers that have no recent history of default. At 31 December 2019, lifetime expected credit losses for trade receivables amounted to EUR 38 (EUR 36) million. Loss allowances for trade receivables are estimated on an individual basis based on a forward-looking

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model where estimated probabilities of customer default are used in the calculation model. If the Group has concerns regarding the financial status of a customer, an advance payment or an irrevocable letter of credit drawn from a bank is required. At the year end, the letters of credit awaiting maturity totalled EUR 33 (EUR 62) million. Please refer to [Note 24](#) Financial risk management for details of customer credit risk management.

Age analysis of loss allowance

| EUR million | As at 31 December | |
|---|-------------------|-----------|
| | 2019 | 2018 |
| Not overdue and less than 90 days overdue | 1 | 3 |
| More than 90 days overdue | 37 | 33 |
| Total | 38 | 36 |

Reconciliation of loss allowance

| EUR million | As at 31 December | |
|--|-------------------|-----------|
| | 2019 | 2018 |
| Opening balance at 1 January | 36 | 28 |
| Adoption of IFRS 9 standard | 0 | 3 |
| Change in loss allowance booked through Income Statement | 9 | 8 |
| Write-downs | -6 | -3 |
| Other | 0 | 0 |
| Closing Balance at 31 December | 38 | 36 |

The actual credit losses during 2019 amounted to EUR 6 (EUR 3) million of trade receivables being written-off from the Group's balance sheet.

Stora Enso has entered into factoring agreements to sell trade receivables in order to accelerate cash conversion. These agreements resulted in full derecognition of trade receivables amounting to a nominal value of EUR 255 (EUR 240) million at the end of the year. The continuing involvement of Stora Enso in the sold receivables was estimated as being insignificant due to the non-recourse nature of the factoring arrangements involved.

Note 18 Shareholders' equity



Accounting principles

Dividend and capital repayments

Any dividend or capital repayment proposed by the Board is not deducted from distributable shareholders' equity until approved by the shareholders at the Annual General Meeting.

At 31 December 2019, shareholders' equity amounted to EUR 7 429 (EUR 6 714) million, compared to the market capitalisation on Nasdaq Helsinki of EUR 10 328 (EUR 8 123) million. The market values of the shares were EUR 13.55 (EUR 11.05) for A shares and EUR 12.97 (EUR 10.09) for R shares.

The A shares entitle the holder to one vote per share, whereas R shares entitle the holder to one vote per ten shares with a minimum of one vote, though the accountable par of both shares is the same. A shares may be converted into R shares at any time at the request of a shareholder. At 31 December 2019, the company's fully paid-up share capital, as entered in the Finnish Trade Register, was EUR 1 342 million (EUR 1 342 million). The current accountable par of each issued share is EUR 1.70 (EUR 1.70).

At 31 December 2019, Directors and Group Leadership Team members owned 1 150 (1 150) A shares and 478 403 (558 028) R shares representing 0.02% of the total voting rights of the company. Full details of Director and Executive interests are shown in [Note 7](#) Board and executive remuneration. A full description of company share award programmes is shown in [Note 21](#) Employee variable compensation and equity incentive schemes. However, none of these have any impact on the issued share capital.

Change in share capital and number of shares

| | A shares | R shares | Total |
|---|--------------------|--------------------|--------------------|
| At 1 January 2018 | 176 392 320 | 612 227 667 | 788 619 987 |
| Conversion of A shares to R shares | -79 648 | 79 648 | — |
| At 31 December 2018 | 176 312 672 | 612 307 315 | 788 619 987 |
| Conversion of A shares to R shares | -55 838 | 55 838 | — |
| At 31 December 2019 | 176 256 834 | 612 363 153 | 788 619 987 |
| Number of votes as at 31 December 2019¹ | 176 256 834 | 61 236 315 | 237 493 149 |
| Share Capital at 31 December 2019, EUR million | 300 | 1 042 | 1 342 |
| Share Capital at 31 December 2018, EUR million | 300 | 1 042 | 1 342 |

¹ R share votes are calculated by dividing the number of R shares by 10. The issued shares by 9 March 2020 will represent the total shares eligible to vote at the forthcoming Annual General Meeting.

Note 19 Non-controlling interests



Accounting principles

Non-controlling interests are presented within the equity of the Group in the Consolidated statement of financial position. The proportionate shares of profit or loss attributable to non-controlling interests and to equity holders of the parent company are presented in the Consolidated income statement after the profit for the period. Transactions between non-controlling interests and Group shareholders are transactions within equity and are thus shown in the Statement of changes in equity. The measurement type of non-controlling interests is decided separately for each acquisition.

Non-controlling interests

| EUR million | Year Ended 31 December | |
|-------------------------------------|------------------------|-----------|
| | 2019 | 2018 |
| At 1 January | 18 | 47 |
| Acquisitions | -7 | -2 |
| Disposals | 8 | -1 |
| NCI buy-out | 0 | 2 |
| Share of profit for the period | -24 | -24 |
| Share of other comprehensive income | 0 | -2 |
| Dividends | -1 | -2 |
| At 31 December | -7 | 18 |

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Principal non-controlling interests

| | | As at 31 December | | |
|--|-----------------------------|--|-------------|------|
| | | 2019 | 2019 | 2018 |
| Company | Principal Place of Business | Proportion of Ownership Interests Held by Non-controlling Interests, % | EUR million | |
| Stora Enso Pulp and Paper Asia AB Group ¹ | Sweden and China | See separate table below | -9 | 11 |
| Stora Enso Inpac Packaging Group ² | China | 0.00 | 0 | 8 |
| Stora Enso Huatai Paper Co Ltd ³ | China | 0.00 | 0 | -7 |
| Others | - | | 2 | 5 |
| | | | -7 | 18 |

¹ Consist of non-controlling interests in Guangxi Integrated Project and Operations

² In September 2019, Stora Enso bought out non-controlling interests in Stora Enso China Packaging. Stora Enso previously owned 90% of the parent company of the China Packaging Group and with the purchase, the Group's ownership increased to 100%.

³ In October 2019, Stora Enso divested its 60% shareholding in Stora Enso Huatai Paper Co Ltd, which operated the Dawang paper mill in China.

Non-controlling interests in Stora Enso Pulp and Paper Asia AB Group

| Company | Principal Place of Business | 31 December 2019 | | | 31 December 2018 | | |
|--|-----------------------------|------------------|-------------------|----------------|------------------|-------------------|----------------|
| | | Direct-% of NCI | Indirect-% of NCI | Total-% of NCI | Direct-% of NCI | Indirect-% of NCI | Total-% of NCI |
| Stora Enso Pulp and Paper Asia AB | Sweden and China | 5.79 | 0.00 | 5.79 | 5.79 | 0.00 | 5.79 |
| Guangxi Stora Enso Forestry Co Ltd | China | 5.00 | 5.50 | 10.50 | 5.00 | 5.50 | 10.50 |
| Stora Enso (Guangxi) Packaging Company Ltd | China | 15.00 | 4.92 | 19.92 | 15.00 | 4.92 | 19.92 |
| Stora Enso (Guangxi) Forestry Company Ltd | China | 15.00 | 4.92 | 19.92 | 15.00 | 4.92 | 19.92 |

In 2019 non-controlling interest in Stora Enso decreased by EUR 24 million mostly due to negative result in Stora Enso Pulp and Paper Asia AB Group. Net loss in Stora Enso Pulp and Paper Asia AB Group was EUR 111 (EUR 128) million.

Summarised financial information in respect of the subsidiaries that have material non-controlling interests is set out below.

Stora Enso Pulp and Paper Asia AB Group

| EUR million | 2019 | 2018 |
|---|-------------|-------------|
| Assets | 1 268 | 1 127 |
| Shareholders' equity attributable to the owners of the parent | -74 | 18 |
| Non-controlling interests ¹ | -9 | 11 |
| Total Equity | -82 | 29 |
| Liabilities | 1 350 | 1 097 |
| Net loss for the year | -111 | -128 |
| Attributable to: | | |
| Owners of the parent | -91 | -104 |
| Non-controlling interests | -20 | -24 |
| Net Loss for the Year | -111 | -128 |
| Net cash outflow from operating activities | -15 | -28 |
| Net cash outflow from investing activities | -32 | -61 |
| Net cash inflow from financing activities | 13 | 62 |
| Net Cash Outflow/Inflow | -34 | -27 |

¹ No dividends were paid to non-controlling interests in 2019 or 2018.

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Note 20 Post-employment benefits



Accounting principles

Employee benefits

The Group operates a number of defined benefit and contribution plans throughout the world, the assets of which are generally held in separate trustee administered funds. Such pension and post-retirement plans are generally funded by payments from employees and by the relevant group companies, taking into account the recommendations of independent qualified actuaries. Employer contributions to the defined contribution pension plans are charged to the Consolidated income statement in the year they relate to.

For defined benefit plans, accounting values are assessed using the projected unit credit method. Under this method, the cost of providing pensions is charged to the consolidated income statement to spread the regular cost over the service lives of employees in accordance with the advice of qualified actuaries who carry out a full valuation of the plan every year in all major pension countries. The pension obligation is measured as the present value of the estimated future cash outflows using interest rates of highly rated corporate bonds or government securities, as appropriate, that match the currency and expected duration of the related liability.

The Group immediately recognises all actuarial gains and losses arising from defined benefit plans directly in equity, as disclosed in its consolidated statement of comprehensive income. Past service costs are identified at the time of any amendments to the plans and are recognised immediately in the consolidated income statement regardless of vesting requirements. In the Group's consolidated statement of financial position, the full liability for all plan deficits is recorded.

The Group has established a number of pension and other benefit plans for its operations throughout the world, the cost amounted to EUR 166 (EUR 170) million in 2019, as shown in Note 6 Personnel expenses. The majority of the plans are defined contribution schemes and the charge amounted to EUR 156 (EUR 160) million.

In accordance with their respective pension arrangements, Group Leadership Team members may retire at 65 years of age with pensions consistent with local practices in their respective home countries. The retirement age for other management teams in companies in the Stora Enso Group follows local law and practices, though some management team members have older agreements with the right to retire earlier, between 60 and 65 years. The retirement age for other staff either follows national retirement ages or is determined by local labour agreements. In the latter case, there may be certain pre-retirement liabilities accruing to the company to cover the income of the early retirees between the age at which they ceased working and the national retirement age.

Stora Enso's total defined benefit obligations for current and former members of staff amount to EUR 1 219 (EUR 1 115) million, though assets of EUR 761 (EUR 714) million have been put aside in various pension schemes to cover these liabilities. The net funding position of the defined benefit plans is shown in full in the statement of financial position and amounted to EUR 458 million in 2019, an increase of EUR 57 million on the previous year's liability of EUR 401 million. This increase is mainly caused by the actuarial losses which result from the change in financial assumptions regarding present value of the defined benefit obligations. Interest costs are entered under financial costs. The 2019 defined benefit expense in the income statement amounts to EUR 17 million and the actuarial losses recorded in other comprehensive income amount to EUR 77 million. The 2018 defined benefit expense in the income statement amounted to EUR 16 million and the actuarial gains recorded in other comprehensive income amounted to EUR 24 million.

Actuarial gains/losses recognised directly in equity

| EUR million | Year ended 31 December | |
|------------------------|------------------------|------------|
| | Total operations | |
| | 2019 | 2018 |
| Actuarial gains/losses | -77 | -24 |
| Deferred tax thereon | 6 | 4 |
| Total | -71 | -20 |

The Group policy for funding deficits is intended to satisfy local statutory funding requirements for tax deductible contributions together with adjusting the discount factors used in the actuarial calculations for market rates. However, the emphasis of the Group is to provide defined contribution schemes for its post-employment benefits, thus all aspects of the provision and accounting for defined benefit schemes are evaluated. The net liability in the Group statement of financial position reflects the actual deficits in the defined benefit plans. Details of the pension arrangements, assets and investment policies in the Group's main operating countries are shown below.

Finland

The Group funds its Finnish pension obligations mainly through defined contribution schemes, the charge in the income statement being EUR 69 (EUR 73) million. By contrast, the remaining obligations covered by defined benefit schemes resulted in a charge of EUR 0 (EUR 1) million excluding finance costs. Pension cover since 2001 has been organised entirely through local insurance companies. As state pensions in Finland provide by far the greatest proportion of pensions, Group liabilities are proportionately much smaller than in comparable countries.

Plan assets in Finland are managed by insurance companies. Details of the exact structure and investment strategy surrounding plan assets are not available to participating employers, as the assets actually belong to the insurance companies themselves. The assets are managed in accordance with EU regulations, and also national requirements, under which there is an obligation to pay guaranteed benefits irrespective of market conditions.

Germany

German pension costs amounted to EUR 9 (EUR 8) million, of which EUR 8 (EUR 7) million related to defined contribution schemes and EUR 1 (EUR 1) million to defined benefits excluding finance costs. The net liability increased from EUR 238 million to EUR 259 million. The increase in net liability arose mainly from an decrease in the discount rate and changes in experience. Defined benefit pension plans are mainly accounted for in the statement of financial position through book reserves with some minor plans using insurance companies or independent trustees. Retirement benefits are based on years worked and salaries received during the pensionable service and the commencement of pension payments are linked to the national pension scheme's retirement age. Pensions are paid directly by the companies themselves to their former employees, the security for the pensioners is provided by the legal requirement that the book reserves held in the statement of financial position are insured up to certain limits.

Sweden

In Sweden, most blue-collar workers are covered by defined contribution schemes, the charge in the Income statement being EUR 55 (EUR 56) million. Defined benefit schemes are covering mainly white-collar staff and resulted in a charge of EUR 8 (EUR 7) million excluding finance costs.

Total defined benefit obligations amounted to EUR 411 (EUR 370) million and the assets totalled EUR 284 (EUR 278) million, leaving a net liability of EUR 127 million at the year end, compared with a net liability of EUR 92 million the year before. This increase in net liability arose from a decrease in the discount rate and changes in financial assumptions and experience. Stora Enso has undertaken to pay all local legal pension liabilities for the main ITP scheme to the foundation, thus the remaining liability relates to other small schemes.

The long-term investment return target for the foundation is a 3% real return after tax. Stora Enso's Swedish pension fund conducts an annual asset/liability study to optimise its risk parameters.

Other countries

Obligations and assets in the remaining countries were material only in the United Kingdom, at EUR 146 (EUR 132) million and EUR 136 (EUR 121) million, respectively, leaving a net liability of EUR 10 (EUR 11) million at the end of 2019. This reduction in net liability arose from changes in actuarial assumptions.

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Group

Net defined benefit obligation reconciliation

| EUR million | Year ended 31 December | |
|--|------------------------|--------------|
| | 2019 | 2018 |
| Present value of defined benefit obligation | | |
| Defined benefit obligation at 1 January | 1 115 | 1 139 |
| Translation difference | 0 | -15 |
| Interest on liabilities | 20 | 21 |
| Current service cost | 11 | 11 |
| Past service cost | -1 | -2 |
| Actuarial gains and losses on defined benefit obligation arising from changes in demographic assumptions | -22 | -3 |
| Actuarial gains and losses on defined benefit obligation arising from changes in financial assumptions | 118 | 27 |
| Actuarial gains and losses on defined benefit obligation arising from experience adjustments | 38 | 2 |
| Benefit payments | -58 | -61 |
| Net disposals/acquisitions | -6 | -1 |
| Other | 3 | -2 |
| Defined benefit obligation at 31 December | 1 219 | 1 115 |
| Fair value of plan asset | | |
| Fair value of plan asset at 1 January | -714 | -762 |
| Translation difference | -1 | 13 |
| Expected return on plan assets | -13 | -15 |
| Actuarial gain/loss on plan assets | -57 | -1 |
| Employer contributions | -23 | 3 |
| Benefit payments | 48 | 45 |
| Net disposals/acquisitions | 2 | 0 |
| Other | -3 | 3 |
| Fair value of plan asset at 31 December | -761 | -714 |
| Net defined benefit obligation | 458 | 401 |

Amounts recognised on the statement of financial position – defined benefit plans

| EUR million | As at 31 December | | | | | |
|---|-----------------------------|--------------|-------------------------------|--------------|--------------------------------|-----------|
| | Total defined benefit plans | | Defined benefit pension plans | | Other post-employment benefits | |
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Present value of funded obligations | 922 | 841 | 922 | 841 | 0 | 0 |
| Present value of unfunded obligations | 298 | 274 | 271 | 249 | 27 | 25 |
| Defined benefit obligations (DBO) | 1 219 | 1 115 | 1 193 | 1 090 | 27 | 25 |
| Fair value of plan assets | 761 | 714 | 761 | 714 | 0 | 0 |
| Net liability in defined benefit plans | 458 | 401 | 432 | 376 | 27 | 25 |

Amounts recognised in the income statement

| EUR million | Year ended 31 December | | | | | |
|---|-----------------------------|-----------|-------------------------------|-----------|--------------------------------|----------|
| | Total defined benefit plans | | Defined benefit pension plans | | Other post-employment benefits | |
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Operating costs | | | | | | |
| Current service cost | 11 | 11 | 10 | 10 | 1 | 1 |
| Past service cost | -1 | -1 | 2 | -1 | -3 | 0 |
| Finance cost | | | | | | |
| Net interest on net defined benefit liability | 7 | 6 | 6 | 6 | 1 | 0 |
| Cost recognised in Income Statement | 17 | 16 | 18 | 15 | -1 | 1 |

Statement of actuarial gains and losses

| EUR million | Year ended 31 December | |
|---|------------------------|------------|
| | 2019 | 2018 |
| Gain/loss on pension scheme assets | 57 | 1 |
| Gain/loss arising on pension scheme liabilities | -134 | -25 |
| Total gain/loss | -77 | -24 |

Defined benefit plans: Country assumptions used in calculating benefit obligations

| | Year ended 31 December | | | | | |
|----------------------------------|------------------------|------|---------|------|--------|------|
| | Finland | | Germany | | Sweden | |
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Discount rate % | 0.4 | 1.2 | 0.8 | 1.6 | 1.5 | 2.3 |
| Future salary increase % | 2.2 | 2.7 | 2.5 | 2.5 | 2.9 | 2.9 |
| Future pension increase % | 1.3 | 1.8 | 1.8 | 1.8 | 2.0 | 2.0 |
| Average current retirement age | 64.0 | 64.0 | 65.0 | 63.0 | 65.0 | 65.0 |
| Weighted average life expectancy | 87.0 | 87.0 | 85.0 | 87.0 | 88.4 | 89.3 |
| Duration of pension plans | 10.0 | 10.0 | 13.8 | 12.6 | 17.4 | 16.0 |

Sensitivity of the defined benefit pension obligation

| | Impact on defined benefit obligation | | |
|---------------------|--------------------------------------|------------------------|------------------------|
| | Change in assumption | Increase in assumption | Decrease in assumption |
| Discount rate | 0.50% | Decrease by 7.3% | Increase by 8.0% |
| Salary growth rate | 0.50% | Increase by 1.9% | Decrease by 1.8% |
| Pension growth rate | 0.50% | Increase by 5.8% | Decrease by 5.3% |

| | Increase by 1 year in assumption | Decrease by 1 year in assumption |
|-----------------|----------------------------------|----------------------------------|
| Life expectancy | Increase by 4.7% | Decrease by 4.6% |

Interest rate risk: The obligations are assessed using market rates of high-quality corporate or government bonds to discount the obligations and are therefore subject to any volatility in the movement of the market rate. The net interest income or expense recognised in profit and loss are also calculated using the market rate of interest.

Mortality risk: In the event that members live longer than assumed, the obligations may be understated originally and a deficit may emerge if funding has not adequately provided for the increased life expectancy.

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Defined benefit plan summary by country as at 31 December 2019

| EUR million | 31 December 2019 | | | | |
|--|------------------|------------|------------|------------|--------------|
| | Finland | Germany | Sweden | Other | Total |
| Present value of funded obligations | 286 | 16 | 389 | 230 | 922 |
| Present value of unfunded obligations | 0 | 246 | 22 | 29 | 298 |
| Defined benefit obligations (DBO) | 286 | 263 | 411 | 259 | 1 219 |
| Fair value of plan assets | -264 | -4 | -284 | -209 | -761 |
| Net liability in the defined benefit plans | 22 | 259 | 127 | 50 | 458 |
| Net liability in the Balance Sheet | 22 | 259 | 127 | 50 | 458 |
| Represented by | | | | | |
| Defined benefit pension plans | 22 | 259 | 127 | 24 | 432 |
| Other post-employment benefits | 0 | 0 | 0 | 27 | 27 |
| Net liability in the Balance Sheet | 22 | 259 | 127 | 50 | 458 |

Defined benefit plan summary by country as at 31 December 2018

| EUR million | 31 December 2018 | | | | |
|--|------------------|------------|------------|------------|--------------|
| | Finland | Germany | Sweden | Other | Total |
| Present value of funded obligations | 302 | 20 | 349 | 170 | 841 |
| Present value of unfunded obligations | 0 | 225 | 21 | 28 | 274 |
| Defined benefit obligations (DBO) | 302 | 245 | 370 | 198 | 1 115 |
| Fair value of plan assets | 278 | 7 | 278 | 151 | 714 |
| Net liability in the defined benefit plans | 25 | 238 | 92 | 46 | 401 |
| Net liability in the Balance Sheet | 25 | 238 | 92 | 46 | 401 |
| Represented by | | | | | |
| Defined benefit pension plans | 25 | 238 | 92 | 21 | 376 |
| Other post-employment benefits | | | | 25 | 25 |
| Net liability in the Balance Sheet | 25 | 238 | 92 | 46 | 401 |

Plan assets

| EUR million | As at 31 December | | | |
|----------------------------------|-------------------|--------------|------------|--------------|
| | 2019 | | 2018 | |
| | Value | % | Value | % |
| Equity | 255 | 33.5 | 237 | 33.2 |
| Government bonds | 21 | 2.7 | 49 | 6.8 |
| Corporate bonds | 163 | 21.5 | 199 | 27.9 |
| Debt | 184 | 24.2 | 248 | 34.7 |
| Property | 64 | 8.5 | 71 | 10.0 |
| Cash | 50 | 6.6 | 39 | 5.4 |
| Others | 207 | 27.3 | 119 | 16.7 |
| Total pension fund assets | 761 | 100.0 | 714 | 100.0 |

Plan assets do not include any real estate or other assets occupied by the group or the Company's own financial instruments. The breakdown of Finnish pension assets EUR 264 (278) million is not disclosed separately as actual asset allocations can only be estimated based on known target values published by the insurance companies concerned.

The two main financial factors affecting group pension liabilities are changes in interest rates and inflation expectations, so the aim of asset investment allocations is to neutralise these effects and maximise returns.

In 2020, contributions of EUR 22 million are expected to be paid.

In 2019, reimbursements of EUR 23 (EUR 3) million were paid.

Note 21 Employee variable compensation and equity incentive schemes



Accounting principles

Share awards

The costs of all employee-related share-based payments are charged to the consolidated income statement as personnel expenses over the vesting period. The share programmes may be hedged using Total Return Swaps (TRS) which are settled with cash payments, allowing the company to receive cash compensation to partially offset any change in the share price between the grant and settlement dates. Group TRS instruments do not qualify for hedge accounting and therefore periodic changes to their fair value are recorded in the Income statement in operative costs alongside the share-based programme costs to which they relate.

As a result of the IFRS 2 amendment; Classification and Measurement of Share-based Payment Transactions, effective from 1 January 2018, all share-based payment transactions are classified as equity-settled share awards. Please refer to the Note 1 Accounting principles for further details. The equity-settled share awards (net of tax), are measured at the fair value of the equity instruments on the grant date, and are adjusted for the present value of expected dividends. The fair value of the equity-settled share-based payments determined on the grant date is expensed on a straight-line basis over the vesting period, based on the estimate of equity instruments that will eventually vest, with a corresponding increase in equity.

Short term incentive (STI) programmes

Salaries for senior management are negotiated individually. Stora Enso has incentive plans that take into account the performance, development and results of both business units and individual employees. This performance-based variable compensation system is based on profitability as well as on attaining key business targets.

Group Executives, as well as division and business unit management have STI programmes in which the payment is calculated as a percentage of the annual base salary with a maximum level ranging from 8% to 75%. Non-management employees participate in an STI programme with a maximum incentive level of 7%. All incentives are discretionary. These performance-based programmes cover most employees globally, where allowed by local practice and regulations. For the performance years 2018 and 2019, the annual incentive programmes were based on financial targets as well as individually set key targets. The financial success metrics in the STI programme are: Operational EBITDA and Operative Working Capital to sales.

Long term incentive (LTI) programmes

Since 2005, new share based programmes for executives have been launched every year. The 2016 programme that vested in 2019 as well as the current outstanding programmes including the programme that was launched during 2019 have three year targets and vest in one portion after three years.

Three quarters (75%) of the opportunity under the 2016 to 2017 programmes are in performance shares, where shares will vest in accordance with performance criteria proposed by the Remuneration Committee and approved by the Board of Directors. The financial success metric is 3-year Economic Value Added (EVA) for the Stora Enso Group. One quarter (25%) of the opportunity under the programmes are in Restricted Shares, for which vesting is only subject to continued employment.

Since 2018, all (100%) of the opportunity for members of the GLT has been awarded in performance shares. The financial success metrics in the 2019 performance share plan is 3-year Economic Value Added (EVA) and Earnings Per Share (EPS) for the Stora Enso Group. Others than the GLT were granted three quarters (75%) of the opportunity in performance shares and one quarter (25%) of the opportunity in restricted shares, as in previous years.

Outstanding restricted and performance share opportunities before taxes are shown in the table below. The total number of shares actually transferred will be less than that shown below because a portion of shares corresponding to employees' tax obligation will be withheld to cover income tax.

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Share awards at 31 December 2019

Estimated delivery of outstanding restricted and performance share awards at year end

| Number of shares | 2020 | 2021 | 2022 | Total |
|------------------|------------------|----------------|----------------|------------------|
| 2017 programme | 1 050 559 | | | 1 050 559 |
| 2018 programme | | 816 745 | | 816 745 |
| 2019 programme | | | 978 543 | 978 543 |
| Total | 1 050 559 | 816 745 | 978 543 | 2 845 847 |

The costs of the Stora Enso share-based programmes are recognised as costs over the vesting period, which is the period between the grant and vesting. The total impact of share-based programmes in the Income statement amounted to an expense of EUR 3 (EUR 7) million, all of which were related to restricted and performance share awards. There were no Total Return Swaps (TRS) in use at the end of 2019.

Note 22 Other provisions



Accounting principles

Provisions

Provisions are recognised when the Group has a present legal or constructive obligation as a result of past events, and it is probable that an outflow of resources will be required to settle the obligation, and a reliable estimate of the amount of the obligation can be made. Provisions for dismantling, removal or site restoration are measured at the management's best estimate. The expenditure required to settle the obligation is added to the carrying amount of the assets at acquisition date and depreciated over the useful life of the asset. Provisions are discounted back to their current net present value if the effect of the time value of money is material. As provisions are based on management's best estimate, there is some uncertainty regarding the timing and amount of the costs.

Environmental obligations

Environmental expenditures resulting from the remediation of an existing condition caused by past operations, and which do not contribute to current or future revenues, are expensed as incurred. Environmental liabilities are recorded when it is probable, based on current interpretations of environmental laws and regulations, that a present obligation has arisen and the amount of such liability can be reliably estimated.

Restructuring obligations

A restructuring provision is recognised in the period in which the Group becomes legally or constructively committed to the plan. The relevant costs are those that are incremental to, or incurred as a direct result of, the exit plan, or are the result of a continuing contractual obligation with no ongoing economic benefit, or represent a penalty incurred to cancel the obligation.

Other obligations

Other obligatory provisions are recognised regarding different legal or constructive obligations as guarantees to customers, ongoing lawsuits, claims, or similar.

Other provisions

| EUR million | Environmental | Restructuring | Other obligatory | Total provisions |
|---|---------------|---------------|------------------|------------------|
| Carrying Value at 1 January 2018 | 108 | 17 | 9 | 134 |
| Translation difference | -3 | 0 | -1 | -3 |
| Charge in Income Statement | | | | |
| New provisions | 3 | 2 | 1 | 6 |
| Increase in existing provisions | 1 | 0 | 3 | 4 |
| Reversal of existing provisions | -3 | -1 | -1 | -5 |
| Payments | -7 | -10 | -2 | -19 |
| Carrying Value at 31 December 2018 | 99 | 8 | 10 | 117 |
| Translation difference | -1 | 0 | 0 | -1 |
| Acquisitions | 0 | 0 | 18 | 18 |
| Charge in Income Statement | | | | |
| New provisions | 7 | 40 | 5 | 51 |
| Increase in existing provisions | 6 | 0 | 1 | 8 |
| Reversal of existing provisions | -1 | -2 | -1 | -4 |
| Payments | -12 | -5 | -7 | -24 |
| At 31 December 2019 | 97 | 41 | 26 | 165 |
| Allocation between current and non-current liabilities | | | | |
| Current liabilities: Payable within 12 months | 6 | 33 | 16 | 55 |
| Non-current liabilities: Payable after 12 months | 91 | 8 | 10 | 110 |
| Total at 31 December 2019 | 97 | 41 | 26 | 165 |

Environmental obligation

Provisions for environmental remediation amounted to EUR 97 million at 31 December 2019, which was a net decrease of EUR 2 million compared with 31 December 2018.

Details of the principal provisions are:

- Following an agreement between Stora Enso and the City of Falun, the Group is obliged to purify runoff from the Kopparberg mine before releasing the water into the environment. The provision at year end amounted to EUR 37 (EUR 39) million.
- The total environmental provision in Finland amounted to EUR 21 (EUR 24) million. The largest provision relates to the dismantling provision of EUR 16 (EUR 13) million for a closed operation at Oulu Mill.
- The Skoghall Mill site contains ground pollutants that must be removed. The provision for this at year end amounted to EUR 15 (EUR 15) million.
- Hylte Mill and the Hylte Commune have a contract on the restoration and leakage water handling. This provision amounted to EUR 5 (EUR 6) million.
- Baienfurt Mill real estate in Germany was divested during 2010 and there is a remaining environmental obligation related to landfills that were not disposed. This environmental provision amounted to EUR 4 (EUR 5) million.

Restructuring provisions

The Group has undergone major restructuring in recent years, from divestments to mill closures and administrative cost-saving programmes. The liability at the end of 2019 for restructuring provisions amounted to EUR 41 (EUR 8) million and covered the costs of closing down operations, demolition, clearance and redundancy costs for reducing staff numbers. The net increase of the provision was due to new restructuring programmes mainly in the Paper division that are part of Group's profit protection

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programme. The total cash payments made during the year in respect of established restructuring provisions amounted to EUR 5 (EUR 10) million.

In May 2019 Stora Enso announced a plan to convert the Oulu paper into packaging board mill. The plan includes converting paper machine 7 into kraftliner production and closing down paper machine 6 and the sheeting plant. Provision of the conversion related restructuring amounts to EUR 19 million.

Other obligatory provisions

Other obligatory provisions amounted to EUR 26 million at 31 December 2019, which is an increase of EUR 16 million compared with 31 December 2018. The net increase is mainly due to replanting provision from the acquired balances as part of the Bergvik Skog restructuring.

Stora Enso is legally obligated to take care of reforestation in the Swedish long rotation forests after final harvesting. Provisions for replanting amounted to EUR 15 million. The provision is related to replanting of already harvested areas and is not part of the fair valuation of biological assets.

Note 23 Operative liabilities

Non-current operative liabilities

| EUR million | As at 31 December | |
|------------------------------------|-------------------|------------|
| | 2019 | 2018 |
| Post-employment benefit provisions | 458 | 401 |
| Other provisions | 110 | 101 |
| Share-based payments | 2 | 2 |
| Other payables | 37 | 32 |
| Total | 607 | 536 |

Current operative liabilities

| EUR million | As at 31 December | |
|---|-------------------|--------------|
| | 2019 | 2018 |
| Trade payables | 1 332 | 1 382 |
| Payroll and staff-related accruals | 242 | 245 |
| Accrued liabilities and deferred income | 194 | 217 |
| Current portion of provisions | 55 | 16 |
| Advances received | 20 | 22 |
| Other payables | 67 | 94 |
| Total | 1 909 | 1 976 |

Note 24 Financial risk management

Risk management principles and process

Stora Enso is exposed to several financial market risks that the Group is managing under the policies approved by the Board of Directors. The objective is to ensure cost-effective funding of Group companies and manage financial risks effectively. The Stora Enso Group Financial Risk Policy governs all financial transactions in Stora Enso. This policy and any future amendments take effect once they are approved by the Board of Directors and all policies covering the use of financial instruments must comply with it. The Group's joint operations companies operate under their own financial risk policies, which may not be fully similar to the Group's policies.

The major financial market risks are detailed below with the main exposures for the Group being interest rate risk, foreign exchange risk, liquidity and refinancing risk, and commodity price risk, especially for fiber, pulp, and energy.

Interest rate risk

The Group is exposed to an interest rate risk that is the risk of fluctuating interest rates affecting the interest expense of the Group and value of its assets and liabilities. Stora Enso is exposed to the interest rate risk through interest-bearing assets and liabilities, such as loans, financial instruments and lease liabilities, but also through commercial agreements and operative assets and liabilities such as biological assets. The Group's aim is to keep interest costs stable. The Group's aggregate duration should not exceed the average loan maturity, but should aim towards a longer duration. A duration above the average loan maturity is approved by the Board of Directors.

The Group may use interest-rate swaps and cross-currency swaps to manage the interest-rate risk by synthetically converting floating-rate loans into fixed-rate loans through the use of derivatives. The Group's floating and fixed rate interest-rate position as per the year-end was as shown in the following table:

Floating and fixed interest-rate position

| EUR million | As at 31 December 2019 | | As at 31 December 2018 | |
|--|------------------------|---------------|------------------------|---------------|
| | Floating rate | Fixed rate | Floating rate | Fixed rate |
| Non-current interest-bearing receivables | 0 | 74 | 1 | 54 |
| Current interest-bearing receivables | 0 | 0 | 1 | 0 |
| Cash and cash equivalents | 876 | 0 | 1 130 | 0 |
| Interest-bearing liabilities ¹ | -1 509 | -2 603 | -1 118 | -2 118 |
| Interest-bearing assets and liabilities excluding derivatives | -633 | -2 530 | 14 | -2 065 |
| Interest-rate and cross-currency swaps | 810 | -810 | 384 | -384 |
| Interest-bearing assets and liabilities, net of derivatives | 177 | -3 339 | 398 | -2 449 |

¹ Excluding derivative liabilities and interest payable

The average interest reset period for the Group's net interest-bearing liabilities, including all interest rate derivatives but excluding cash and cash equivalents, is some 4.2 (4.9) years.

As of 31 December 2019, one percentage point parallel change up or down in interest rates would impact annual net interest expenses by approximately EUR 5 (EUR 4) million, assuming that the duration and the funding structure of the Group remain constant throughout the year. This simulation calculates the interest effect of a 100 basis point parallel shift in interest rates on all floating rate instruments excluding cash and cash equivalents from their next reset date to the end of the year. In addition, all short-term loans maturing during the year are assumed to be rolled over on maturity to year end using the new higher or lower interest rate.

A one percentage point parallel change up or down in interest rates would also result in fair valuation gains or losses of EUR 31 (EUR 20) million before taxes in the cash flow hedge reserve in OCI regarding interest rate and cross-currency swaps under cash flow hedge accounting. Note 27 Derivatives summarises the nominal and fair values of the outstanding interest rate derivative contracts.

Foreign exchange risk - transaction risk

The Group operates globally and is exposed to a currency risk arising from exchange rate fluctuations against its reporting currency euro. Foreign exchange transaction exposure comprises both the geographical location of Stora Enso production facilities around the world, sourcing of raw materials and sales of end products outside the euro area, mainly denominated in Swedish crowns, US dollars and British pounds.

The currency transaction risk is the impact of exchange rate fluctuations on the Group's Income statement, which is the effect of currency rates on expected future cash flows and subsequent trade receivables or payables. The Group's standard policy to mitigate the risk is to hedge 45–55% of the highly probable forecast cash flows in major currencies for the next 12 months by using derivative financial instruments, such as foreign exchange forwards and currency options. The Group may also hedge periods between 12 months and 36 months, or change the above mentioned hedging ratio for the next 12 months upon the discretion of the Group's management.

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For operative receivables and payables in foreign currencies, the objective of the Group is to hedge 50-100% of the outstanding net receivable balance in major currency pairs.

The table below presents the estimated net operative foreign currency exposures for the main currencies for the next 12 months and the related foreign-currency hedges in place as at 31 December, retranslated using year end exchange rates. The net operative receivables and payable exposures, representing the balances as at 31 December, include foreign currency exposures generated by external and intercompany transactions in line with the requirements of IFRS 7. However, in practice mainly external exposures have been hedged through foreign currency hedges. A positive amount of exposure in the table below represents an estimated future inflow or receivable of a foreign currency amount.

Operative foreign currency exposure

| EUR million | As at 31 December 2019 | | | | | | As at 31 December 2018 | | | | | |
|--|------------------------|-------------|------------|-------------|------------|------------|------------------------|-------------|------------|-------------|-------------|-------------|
| | SEK | USD | GBP | BRL | CZK | CNY | SEK | USD | GBP | BRL | CZK | CNY |
| Estimated annual net cash flow exposure in hedged flows ¹ | -894 | 1 141 | 300 | 0 | -168 | 0 | -990 | 1 840 | 380 | 0 | -190 | 0 |
| Cash flow hedges for the next 12 months ² | 557 | -600 | -136 | 0 | 78 | 0 | 630 | -930 | -190 | 0 | 90 | 0 |
| Estimated annual net cash flow exposure, net of hedges | -337 | 541 | 164 | 0 | -90 | 0 | -360 | 910 | 190 | 0 | -100 | 0 |
| Hedging percentage as at 31 December for next 12 months | 62% | 53% | 45% | 0 | 46% | 0 | 64% | 51% | 50% | 0 | 47% | 0 |
| Weighted-average hedged rate against EUR ³ | 10.55 | 1.17 | 0.91 | 0.00 | 26.19 | 0.00 | 10.26 | 1.22 | 0.91 | 0.00 | 25.92 | 0.00 |
| Translation exposure in Income Statement⁴ | 162 | -202 | 6 | -158 | 24 | -42 | -160 | -180 | 10 | -120 | 30 | -110 |
| Operative receivables and payables net exposure | 1 | 170 | 31 | -28 | -18 | -1 | 40 | 250 | 33 | -24 | -24 | -13 |
| Net receivable currency hedges | 24 | -110 | -43 | 0 | 4 | 0 | 93 | -209 | -60 | 0 | 0 | 0 |
| Net operative receivables exposure, net of hedges | 25 | 59 | -13 | -28 | -14 | -1 | 133 | 41 | -27 | -24 | -24 | -13 |
| Estimated annual operative exposure, net of hedges | -150 | 399 | 158 | -187 | -80 | -43 | -387 | 771 | 173 | -144 | -94 | -123 |

¹ In SEK the underlying net cash flow exposure represents EUR denominated transaction risk in Swedish subsidiaries. In CZK, the underlying net cash flow exposure represents EUR, USD, GBP and AUD denominated transaction risk in Czech subsidiaries.
² In 2018, in SEK there were also additional cash flow hedges for months 13-18 (19% of estimated exposure was hedged) that are not included in the table above.
³ The weighted-average exchange rate against EUR is calculated based on bought leg of option collar structure and forward contracts' forward rate and therefore represents the weighted-average hedged rate based on the least favourable hedged rate from the Group's point-of-view.
⁴ Includes unhedged sales, costs and depreciation invoiced or expensed in the domestic currency of non-euro based entities, retranslated using year end exchange rates.

The following table includes the estimated effect on annual operating profit of a strengthening in EUR versus SEK, USD, GBP, CZK and CNY by 5% and versus BRL by 10%, as reasonably possible changes in rates, measured against year-end closing rates. A corresponding decrease in the exchange rates would have an approximately equal opposite impact. A negative amount in the table reflects a potential net loss in the income statement or equity and, conversely, a positive amount reflects a potential net gain. In practice, the actual foreign currency results may differ from the sensitivity analysis presented below, since the income statements of subsidiaries with functional currencies other than the euro are translated into the Group reporting currency using the average exchange rates for the year, whereas the statements of the financial position of such subsidiaries, including currency hedges, trade receivables and payable, are translated using the exchange rates at the reporting date.

The calculation includes currency hedges and assumes that no changes other than a single currency exchange rate movement have taken place in the underlying risk exposure. The currency effects are based on estimated operative foreign currency flows for the next twelve months, hedging levels at the year end, and the assumption that the currency cash flow hedging levels, translation exposure in the Income statement and all other variables will remain constant during the next twelve months. Hedging instruments include foreign exchange forward contracts and foreign exchange options. Indirect currency effects with an impact on prices and product flows, such as a product becoming cheaper to produce elsewhere, have not been considered in this calculation.

Estimated currency effects of strengthening of euro

| EUR million | As at 31 December 2019 | | | | | | As at 31 December 2018 | | | | | |
|--|------------------------|------------|-----------|-----------|----------|----------|------------------------|------------|-----------|-----------|----------|----------|
| | SEK | USD | GBP | BRL | CZK | CNY | SEK | USD | GBP | BRL | CZK | CNY |
| Currency change versus EUR | -5% | -5% | -5% | -10% | -5% | -5% | -5% | -5% | -5% | -10% | -5% | -5% |
| Effect on estimated annual net cash flow and translation exposure | 37 | -47 | -15 | 16 | 7 | 2 | 58 | -83 | -20 | 12 | 8 | 6 |
| Effect on hedging reserve before taxes as at year end ¹ | -28 | 30 | 7 | 0 | -4 | 0 | -32 | 47 | 10 | 0 | -5 | 0 |
| EBIT impact as at year end ² | -1 | -3 | 1 | 3 | 1 | 0 | -7 | -2 | 1 | 2 | 1 | 1 |
| Estimated annual EBIT impact³ | 8 | -20 | -7 | 19 | 4 | 2 | 19 | -38 | -9 | 14 | 4 | 7 |

¹ The effect on hedging reserve (other comprehensive income) before taxes at year end is related to the fair value change in derivative contracts qualifying as cash flow hedges of highly probable forecast transactions.
² The Operating Profit impact as at year end represents the estimated currency effect related to net operative receivables or payables, and related hedges.
³ The estimated annual Operating Profit impact includes currency effects in respect of operative exposures in the Statement of Financial Position, forecast cash flows and related hedges as well as translation exposure in Income Statement.

The following table presents the financial foreign currency exposure and the related hedges in place as at 31 December for the main currencies. Net debt includes foreign-currency external and internal loan payables, net of loan receivables, cash and cash equivalents and loans designated as net investment loans under IAS 21. The currency derivatives mainly hedge financial exposures in the statement of financial position and from time to time they may also hedge forecast cash flows not qualifying under hedge accounting in accordance with IFRS 9. These forecast cash flows are not included in the table below. A negative amount of exposure in the table represents a net payable of a foreign currency amount.

Additionally, the table includes the estimated effect on the income statement of a strengthening in the EUR versus SEK, USD, CNY and PLN by 5%, as reasonably possible changes in rates, measured against year-end closing rates. A corresponding decrease in the exchange rates would have an approximately equal opposite impact. A negative amount in the table reflects a potential net loss in the Income statement and, conversely, a positive amount reflects a net potential gain. In practice, the actual foreign currency results may differ from the sensitivity analysis below as the exposure amounts may change during the year.

Financial foreign currency exposure and estimated currency effects in income statement

| EUR million | As at 31 December 2019 | | | | As at 31 December 2018 | | | |
|--|------------------------|-------------|------------|-----------|------------------------|-------------|------------|------------|
| | SEK | USD | CNY | PLN | SEK | USD | CNY | PLN |
| Net debt excluding hedges ¹ | -36 | -142 | 472 | 100 | 130 | -213 | 602 | 112 |
| Currency hedges | 0 | -24 | -249 | -4 | -187 | -47 | -283 | -4 |
| Net financial exposure | -36 | -166 | 223 | 96 | -57 | -260 | 319 | 108 |
| Currency change versus EUR | -5% | -5% | -5% | -5% | -5% | -5% | -5% | -5% |
| Effect in the Income Statement | 2 | 8 | -11 | -5 | 3 | 13 | -16 | -5 |

¹ The Group has designated certain internal loans to Chinese subsidiaries as net investment loans under IAS 21. The loans are denominated in EUR, USD and CNY. The underlying foreign currency gain or loss will be posted as part of CTA in Equity.

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Foreign exchange risk - translation risk

Translation risk results from fluctuations in exchange rates affecting the value of Stora Enso's net foreign currency denominated assets and liabilities. Translation risk is reduced by funding assets, whenever economically possible, in the same currency as the asset itself. The Group may also enter into foreign exchange forwards, foreign exchange options or foreign currency denominated loans to hedge its net investments in foreign entities.

The balance sheets of foreign subsidiaries, equity accounted investments and foreign currency denominated equity instruments in the scope of IFRS 9 are translated into euros using exchange rates prevailing on the reporting date, thus exposing consolidated group equity to fluctuations in currency rates. The resulting translation differences, along with other movements such as the translation rate difference in the income statement, are recorded directly in shareholders' equity. These cumulative differences materialise through the Income statement on the disposal, in whole or in part, of the foreign entity. The next table shows the translation exposure for geographical areas for which the Group has applied net investment hedging techniques to reduce the translation foreign-currency exposure in the consolidated equity. In practise, the Group also incurs material unhedged translation risk exposures in other geographical areas such as Sweden and China. The exposures used in the calculations are based on the foreign currency denominated equity and the hedging levels as at 31 December. Full details of actual CTA movements and hedging results are given in [Note 28](#) Cumulative translation adjustment and equity hedging.

Translation risk and hedges:

| EUR million | As at 31 December | |
|---|-------------------|--------------|
| | 2019 | 2018 |
| Translation exposure on equity in USD area¹ | 1 425 | 1 345 |
| EUR/USD equity hedges ² | -267 | -306 |
| Translation exposure after hedges | 1 157 | 1 039 |
| Sensitivity before hedges - EUR strengthening 5% | -71 | -67 |
| Sensitivity after hedges - EUR strengthening 5% | -58 | -52 |

¹ Includes the joint operation Montes del Plata in Uruguay, which has USD as its functional currency.

² USD denominated bonds classified as hedges of net investments in foreign assets.

The above sensitivity analysis includes the effects of currency hedges of net investments in foreign entities and assumes that no changes take place other than a single currency exchange rate movement on 31 December each year.

Liquidity and refinancing risk

Funding risk arises from the difficulty of obtaining finance for operations at a given point in time. Stora Enso's funding policy states that the average maturity of outstanding loans and committed credit facilities covering short-term borrowings should be at least four years. The policy further states that the Group must have cash equivalents and undrawn committed credit facilities to cover all debt maturing within the next 12 months, including supply chain financing and factoring. At 31 December 2019, unused committed credit facilities were at EUR 600 (EUR 600) million. The EUR 600 million committed credit facility agreement with a syndicate of 13 banks matures in January 2023. The facility is used as a backup for general corporate purposes. In addition, Stora Enso has access to various long-term sources of funding up to EUR 950 (EUR 1 000) million. These mainly relate to available funding sources from Finnish pension funds.

Refinancing risk, or the risk that maturing debt is not refinanced in the markets, is mitigated by Stora Enso's target of maintaining an even maturity profile of outstanding debt. The table below shows maturity analysis for the Group's contractual financial liabilities classified under principal headings based on the remaining period to contractual maturity at the reporting date. Forward interest rates as at the year-end were used for estimating contractual finance charges.

Contractual maturity repayments of financial liabilities, settlement net: 2019

| EUR million | 2020 | 2021 | 2022 | 2023 | 2024 | 2025+ | Total |
|---|--------------|------------|------------|------------|------------|--------------|--------------|
| Bond loans | 0 | 287 | 0 | 299 | 287 | 1 106 | 1 978 |
| Loans from credit institutions | 295 | 214 | 194 | 401 | 37 | 20 | 1 162 |
| Lease liabilities | 80 | 67 | 51 | 42 | 34 | 167 | 440 |
| Other non-current liabilities | 0 | 5 | 0 | 0 | 0 | 0 | 5 |
| Non-current borrowings including current portion | 375 | 573 | 245 | 742 | 358 | 1 292 | 3 584 |
| Less fair value adjustments to carrying amounts | 0 | 0 | 0 | 1 | 1 | 7 | 9 |
| Estimated contractual finance charges | 109 | 96 | 85 | 71 | 57 | 355 | 773 |
| Contractual repayments on non-current borrowings | 483 | 670 | 330 | 814 | 416 | 1 654 | 4 366 |
| Short-term borrowings, carrying amounts | 516 | 0 | 0 | 0 | 0 | 0 | 516 |
| Gross-settled derivative liabilities - receipts | 1 618 | 0 | 0 | 0 | 0 | 0 | 1 618 |
| Gross-settled derivative liabilities - payments | -1 621 | 0 | 0 | 0 | 0 | 0 | -1 621 |
| Net-settled derivative liabilities | -20 | -15 | -14 | -10 | -2 | -1 | -62 |
| Trade payables | 1 331 | 0 | 0 | 0 | 0 | 0 | 1 331 |
| Bank overdrafts | 13 | 0 | 0 | 0 | 0 | 0 | 13 |
| Estimated contractual finance charges | 12 | 0 | 0 | 0 | 0 | 0 | 12 |
| Total Contractual Repayments at 31 December 2019 | 2 333 | 655 | 316 | 804 | 414 | 1 653 | 6 174 |

Contractual maturity repayments of financial liabilities, settlement net: 2018

| EUR million | 2019 | 2020 | 2021 | 2022 | 2023 | 2024+ | Total |
|---|--------------|------------|------------|------------|------------|--------------|--------------|
| Bond loans | 220 | 0 | 0 | 0 | 298 | 1 005 | 1 523 |
| Loans from credit institutions | 181 | 213 | 167 | 142 | 399 | 38 | 1 140 |
| Lease liabilities | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Financial lease liabilities | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Other non-current liabilities | 0 | 4 | 0 | 0 | 0 | 0 | 4 |
| Non-current borrowings including current portion | 401 | 217 | 167 | 142 | 697 | 1 044 | 2 668 |
| Less fair value adjustments to carrying amounts | -2 | 0 | 0 | 0 | 1 | 7 | 6 |
| Estimated contractual finance charges | 121 | 81 | 72 | 64 | 52 | 318 | 708 |
| Contractual repayments on non-current borrowings | 520 | 298 | 239 | 206 | 750 | 1 369 | 3 382 |
| Short-term borrowings, carrying amounts | 566 | 0 | 0 | 0 | 0 | 0 | 566 |
| Gross-settled derivative liabilities - receipts | 2 411 | 71 | 0 | 0 | 0 | 0 | 2 482 |
| Gross-settled derivative liabilities - payments | -2 444 | -70 | 0 | 0 | 0 | 0 | -2 514 |
| Net-settled derivative liabilities | -22 | -13 | -11 | -10 | -7 | 0 | -63 |
| Trade payables | 1 383 | 0 | 0 | 0 | 0 | 0 | 1 383 |
| Bank overdrafts | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Estimated contractual finance charges | 14 | 0 | 0 | 0 | 0 | 0 | 14 |
| Total Contractual Repayments at 31 December 2018 | 2 429 | 286 | 228 | 196 | 743 | 1 369 | 5 251 |

Financial transactions counterparty credit risk

Financial counterparty risk is the risk of fluctuations in the value of the Group's assets as a result of counterparties being unable to meet their obligations arising from financial contracts. The exposure to a financial counterparty risk is measured as the maximum loss that Stora Enso can suffer directly in the event of a single counterparty's credit default. This risk is minimised by:

- entering into transactions only with leading financial institutions and with industrial companies that have a good credit rating;
- only investing in liquid funds and deposits with financial institutions or companies that have a minimum credit rating of BBB-.
- at least the higher of 50% of cash and cash equivalents, or EUR 150 million, of cash equivalents to be held at counterparties with a minimum rating of A- or equivalent using credit ratings from main rating agencies;

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- investing at least EUR 75 million of the Group's cash and cash equivalents at counterparties other than the counterparty at which most of Stora Enso's cash and cash equivalents are held;
- equiring parent company guarantees when dealing with any subsidiary of a rated company.

The Group Financial Risk Policy defines the limits for accepted counterparty risk, based on the tenor of inancial contract and counterparty's credit rating.

At the year end in 2019, there were no significant concentrations of risk with respect to counterparties of derivative contracts, with the highest counterparty mark-to-market exposure being at EUR 5 (EUR 8) million and credit rating of A- (A+) using Standard and Poor's credit rating symbols.

Customer credit risk

Customer credit risk is Stora Enso's exposure to contracts arising from deterioration in the financial health of its customers. The Group uses various measures to reduce customer credit risks, including, but not limited to, letters of credit, prepayments and bank guarantees. The Group has also obtained export guarantees, covering both political and commercial risks, which are used in connection with individual customers outside the OECD area. Management considers that no significant concentration of credit risk with any individual customer, counterparty or geographical region exists for Stora Enso. The aging information of trade receivables and related loss allowances are given in [Note 17](#) Operative receivables.

Commodity price risk

Outstanding commodity hedges

| | As at 31 December 2019 | | | | 31 December 2018 | | | |
|---|---------------------------------------|--------------------------------|--------------------------------------|------------------------|---------------------------------------|--------------------------------|--------------------------------------|------------------------|
| | Underlying amount of commodity hedged | Average hedged commodity price | Nominal amount hedged in EUR million | Fair value EUR million | Underlying amount of commodity hedged | Average hedged commodity price | Nominal amount hedged in EUR million | Fair value EUR million |
| Coal component of natural gas purchases | 54 000 tonnes | USD 58.00 | 3 | — | 58 500 tonnes | USD 89.41 | 5 | — |
| Electricity purchases | | | | | | | | |
| - Nordic region | 1 361 040 MWh | EUR 36.99 | 50 | -5 | 1 588 555 MWh | EUR 31.06 | 49 | 27 |
| - Central Europe | 315 840 MWh | EUR 40.04 | 13 | 1 | 499 752 MWh | EUR 36.16 | 18 | 8 |
| Oil component of natural gas purchases | 59 400 barrels | USD 62.60 | 3 | — | 65 700 barrels | USD 69.33 | 4 | -1 |
| Oil purchases | 203 504 barrels | USD 58.92 | 11 | 1 | 204 249 barrels | USD 56.92 | 10 | -1 |

The Group is exposed to commodity and energy price volatility that will have an impact on the Group's profitability. Electricity hedge derivatives are part of energy price risk management in the Group, whilst other commodity risks are measured and hedged if economically possible. Currently the Group applies oil and coal risk component hedging for natural gas purchases as described in the table above. In addition to electricity hedge derivatives, the Group also manages energy price risk by entering into long-term physical fixed price purchase agreements, and by holding a 15.6% stake in Pohjolan Voima Oy (PVO), which is a privately owned group of companies in the energy sector in Finland. The fair value of the shares amounted to EUR 522 (EUR 415) million as per the year-end. The fair value of these shares is dependent on electricity market prices and discussed in more detail in [Note 14](#) Equity instruments.

A 10% movement in energy and raw material prices would result in a EUR 9 (EUR 13) million change in the fair value of energy and raw material hedging contracts described in the above table. The majority of these fair value changes, after taxes, are recorded directly in Equity under Hedging Reserves, until the contracts mature and the result is entered in the Income statement. These estimates only represent the sensitivity of commodity financial instruments to market risk and not the Group's full exposure to raw material and energy price risks as a whole, since the actual underlying purchases are not financial instruments within the scope of the IFRS 7 standard. At the end of 2019, the maturities of the energy and commodity contracts ranged between 2020 and 2024. In 2018, the maturities ranged between 2019 and 2024.

In an effort to mitigate other commodity price risk exposures in relation to wood fibre price risk, the Group is a significant owner of forest assets in the Nordic region. In 2019, Stora Enso finalised the restructuring of Bergvik Skog's forest holdings in Sweden and increased the Group's forest holdings in Sweden to 1.4 million hectares. The forest assets were placed in a fully owned subsidiary and consolidated line-by-line into Stora Enso's financial statements. The Group's biological assets are discussed in more detail in [Note 12](#) Biological assets. In addition, Stora Enso holds 41.00% share in Tornator Oyj, which is a significant forest owner in Finland. The Group's share in Tornator is reported as an equity-accounted investment and discussed in more detail in [Note 13](#) Equity accounted investments.

Equity price risk

The Group has certain investments in publicly traded securities. Currently these relate to Packages Ltd shares in Pakistan. The market value of these equity investments was EUR 12 (EUR 13) million at the year end. Market value changes in these investments are recorded, after taxes, directly under Shareholders' Equity in the Equity instruments through OCI reserve. Detailed discussion regarding the publicly traded securities can be found from [Note 14](#) Equity instruments.

Capital risk management

Stora Enso's debt structure is focused on capital markets and banks. Group objectives when managing capital are to safeguard the ability to continue as a going concern in order to provide returns for shareholders and benefits for other stakeholders, as well as to maintain an optimal capital structure to reduce the cost of capital. In order to maintain or adjust the capital structure, the Group may, subject to shareholder approval as appropriate, vary the dividends paid to shareholders, buy its own shares on financial markets, return capital to shareholders, issue new shares or sell assets to reduce debt. The Group strives to pay stable dividends linked to the long-term performance with the aim of distributing 50% of the net income over the cycle.

The Group monitors its capital on the basis of a target net debt-to-equity ratio of 0.60 or less, and ensuring that Net-debt-to-Operational EBITDA ratio remains below 2.0, indicating a solid financial position, and financial flexibility.

Capital structure

| EUR million | As at 31 December | |
|--|-------------------|--------------|
| | 2019 | 2018 |
| Interest-bearing liabilities | 4 192 | 3 344 |
| Interest-bearing assets | 983 | 1 252 |
| Net debt | 3 209 | 2 092 |
| Equity attributable to owners of the parent | 7 429 | 6 714 |
| Operational EBITDA¹ | 1 542 | 1 878 |
| Net debt to equity ratio | 0.43 | 0.31 |
| Net debt to operational EBITDA | 2.08 | 1.10 |

¹ Operational EBITDA definition is included in the "Non-IFRS measures" chapter in the Report of the Board of Directors.

Montes del Plata, a joint operation of Stora Enso, and the Group's subsidiary Stora Enso (Guangxi) Packaging Company Ltd have complied with financial covenants related to debt-to-assets ratio during the reported periods.

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Note 25 Fair values



Accounting principles

Financial assets

The Group classifies its financial assets into three categories, which are amortised cost, fair value through other comprehensive income and fair value through profit and loss. The classification is made according to the IFRS 9 standard and management determines the classification of investments at the time of the purchase.

With investments in debt instruments, the classification is made based on the business model and contractual cash flow characteristics of debt instruments. Investments in debt instruments, for which the business model objective is to hold the financial instruments to collect contractual cash flows and those cash flows are solely payments of principal and interest, are classified as amortised cost and presented in current and non-current assets. Investments in debt instruments, for which the business model objective is to hold the financial instruments for both to collect contractual cash flows and sell financial instruments and the cash flows are solely payments of principal and interest, are classified as fair value through other comprehensive income and presented in current and non-current assets.

The Group's investments into equity securities, such as listed and unlisted securities, are classified as fair value through profit and loss unless the Group has at inception decided to apply the irrevocable election under IFRS 9 to classify the investments as fair value through other comprehensive income with only dividend income from the investments being recognised in the Income Statement.

Investments that are not measured at amortised cost or at fair value through other comprehensive income are classified as fair value through profit and loss and are therefore fair valued through the Consolidated Income Statement and presented in current and non-current assets.

Financial liabilities

The Group's financial liabilities are classified into amortised cost or fair value through profit and loss categories. Financial liabilities are measured at amortised cost unless the Group has decided to apply a fair value option to designate a financial liability to be measured at fair value through profit and loss.

Derivatives

Derivative financial assets and liabilities are measured at fair value and classified as fair value through profit and loss or, if the Group has applied hedge accounting, at fair value through other comprehensive income according to the IFRS 9 standard. Derivative financial instruments and hedge accounting are discussed in more detail in [Note 27](#) Derivatives.

Loan receivables

Loan receivables are debt instruments with fixed or determinable payments that are not quoted on an active market. They are recorded initially at fair value and subsequently measured at amortised cost. Loss allowance for expected credit losses is calculated based on the general approach under IFRS 9, where loss allowance is recognised based on 12-month expected credit losses if there has not been a significant increase in credit risk since the initial recognition. A significant increase in the credit risk will be evaluated based on comparison of the risk of a default occurring on the financial instrument as at the reporting date with the risk of default occurring on the financial instrument as at the date of initial recognition. The Group may use, for example, rates of credit default swaps (CDS) observable on financial markets to produce the risk assessment.

Interest income on loan receivables is included in Financial income and expense. Loan receivables with a maturity less than 12 months are included in current assets under interest-bearing receivables, and those with maturities greater than 12 months, in non-current interest-bearing receivables.

Fair value of financial instruments

The fair values of publicly traded derivatives and listed securities, are based on quoted market prices at the reporting date; the fair values of interest rate swaps are calculated as the present value of the estimated future cash flows, and the fair values of foreign exchange forward contracts are determined using forward exchange rates at the reporting date. The valuation principles for derivative financial instruments have been described in more detail in [Note 27](#) Derivatives.

In assessing the fair values of non-traded derivatives and other financial instruments, the Group uses a variety of methods and makes assumptions based on the market conditions at each reporting date. Quoted market prices or dealer quotes for identical or similar instruments are used for non-current debt. Other techniques, such as option pricing models and estimated discounted value of future cash flows, are used to determine fair values for the remaining financial instruments. The face values, less any estimated credit adjustments, for financial assets and liabilities with a maturity of less than one year are assumed to approximate their fair values. The fair values of financial liabilities for disclosure purposes are estimated by discounting the future contractual cash flows at the current market interest rates available to the Group for similar financial instruments.

Purchases and sales of financial instruments are recognised based on trade date accounting, which is the date on which the Group commits to purchasing or selling the financial instrument. Financial instruments are derecognised when the rights to receive or the cash flows from the financial instruments have expired or have been transferred and the Group has substantially transferred all risks, rewards and obligations of the ownership of the financial asset or liability.

Fair value hierarchy

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

- Level 1: quoted (unadjusted) prices in active markets for identical assets or liabilities;
- Level 2: other techniques, for which all inputs which have a significant effect on the recorded fair value are observable, either directly or indirectly;
- Level 3: techniques which use inputs which have a significant effect on the recorded fair values that are not based on observable market data.

The Group evaluates the categorisation of its fair value measurements within the fair value hierarchy on a regular basis at the end of the reporting period. There were no transfers recognised in the fair value hierarchy between Levels 1 and 2 and no transfers into or out of Level 3 fair value measurements during 2019 and 2018. See [Note 14](#) Equity instruments for more information on Level 3 fair value measurement of listed and unlisted securities.

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Carrying amounts of financial assets and liabilities by measurement and fair value categories: 2019

| EUR million | Amortised cost | Fair value through OCI | Fair value through Income Statement | Hedge accounted derivatives | Total carrying amount | Fair value | Note |
|--|----------------|------------------------|-------------------------------------|-----------------------------|-----------------------|--------------|------|
| Financial assets | | | | | | | |
| Listed securities | - | 12 | - | - | 12 | 12 | 14 |
| Unlisted securities | - | 522 | 3 | - | 526 | 526 | 14 |
| Non-current interest-bearing receivables | 71 | - | - | 1 | 72 | 72 | 25 |
| Trade and other operative receivables | 930 | 38 | - | - | 968 | 968 | 17 |
| Short-term interest-bearing receivables | 3 | - | 3 | 17 | 23 | 23 | 25 |
| Cash and cash equivalents | 876 | - | - | - | 876 | 876 | |
| Total | 1 879 | 573 | 7 | 18 | 2 477 | 2 477 | |

| EUR million | Amortised cost | Fair value through Income Statement | Hedge accounted derivatives | Total carrying amount | Fair value | Note |
|--|----------------|-------------------------------------|-----------------------------|-----------------------|--------------|------|
| Financial liabilities | | | | | | |
| Non-current interest-bearing liabilities | 3 207 | 4 | 21 | 3 232 | 3 549 | 26 |
| Current portion of non-current debt | 376 | - | - | 376 | 376 | 26 |
| Short-term interest-bearing liabilities | 546 | 1 | 24 | 572 | 572 | 26 |
| Trade and other operative payables | 1 574 | 25 | - | 1 598 | 1 598 | 23 |
| Bank overdrafts | 13 | - | - | 13 | 13 | |
| Total | 5 716 | 30 | 45 | 5 790 | 6 107 | |

Carrying amounts of financial assets and liabilities by measurement and fair value categories: 2018

| EUR million | Amortised cost | Fair value through OCI | Fair value through Income Statement | Hedge accounted derivatives | Total carrying amount | Fair value | Note |
|--|----------------|------------------------|-------------------------------------|-----------------------------|-----------------------|--------------|------|
| Financial assets | | | | | | | |
| Listed securities | - | 13 | - | - | 13 | 13 | 14 |
| Unlisted securities | - | 415 | 8 | - | 422 | 422 | 14 |
| Non-current interest-bearing receivables | 54 | - | - | - | 54 | 54 | 25 |
| Trade and other operative receivables | 1 092 | 44 | - | - | 1 136 | 1 136 | 17 |
| Short-term interest-bearing receivables | 1 | - | 5 | 49 | 55 | 55 | 25 |
| Cash and cash equivalents | 1 130 | - | - | - | 1 130 | 1 130 | |
| Total | 2 277 | 472 | 13 | 49 | 2 811 | 2 811 | |

| EUR million | Amortised cost | Fair value through Income Statement | Hedge accounted derivatives | Total carrying amount | Fair value | Note |
|--|----------------|-------------------------------------|-----------------------------|-----------------------|--------------|------|
| Financial liabilities | | | | | | |
| Non-current interest-bearing liabilities | 2 265 | - | - | 2 265 | 2 541 | 26 |
| Current portion of non-current debt | 403 | - | - | 403 | 403 | 26 |
| Short-term interest-bearing liabilities | 604 | 7 | 63 | 675 | 675 | 26 |
| Trade and other operative payables | 1 627 | 21 | - | 1 648 | 1 648 | 23 |
| Bank overdrafts | 1 | - | - | 1 | 1 | |
| Total | 4 901 | 28 | 63 | 4 992 | 5 268 | |

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In the previous tables, the fair value is estimated to be equal to the carrying amount for short-term financial assets and financial liabilities, such as trade receivables and payables due to their short time to maturity and limited credit risk. The fair value of non-current interest-bearing liabilities, considered as a level 2 fair value measurement, is estimated based on a discounted cash flow analysis in which the yield curves observable at commonly quoted intervals are used as a discount factor in the model.

In 2014, Stora Enso acquired 100% of shares in the US-based company Virdia Inc. The transaction included potential pay-outs depending on the completion of specific technical and commercial milestones. The present value of the estimated pay-outs, considered as a level 3 fair value measurement, is estimated based on certain probability criteria. At year end, the fair value amounted to EUR 25 (EUR 21) million and is presented in the table above under trade and other operative payables. In January 2020, the milestones were settled with an amount of approximately EUR 25 million.

Fair value measurements recognised in the statement of financial position: 2019

| EUR million | As at 31 December | | | Total |
|---|-------------------|-----------|------------|------------|
| | Level 1 | Level 2 | Level 3 | |
| Listed securities | | | | |
| Listed securities through OCI | 12 | - | - | 12 |
| Unlisted securities | | | | |
| Unlisted securities through OCI | - | - | 522 | 522 |
| Unlisted securities through profit and loss | - | - | 3 | 3 |
| Trade and other operative assets | | | | |
| Operative receivables through OCI | - | 38 | - | 38 |
| Derivative financial assets | | | | |
| Hedge accounted derivatives | - | 18 | - | 18 |
| Derivatives at fair value through profit and loss | - | 3 | - | 3 |
| Total financial assets | 12 | 59 | 526 | 597 |
| Trade and other operative liabilities | | | | |
| Operative payables through profit and loss | - | - | 25 | 25 |
| Derivative financial liabilities | | | | |
| Hedge accounted derivatives | - | 45 | - | 45 |
| Derivatives at fair value through profit and loss | - | 5 | - | 5 |
| Total financial liabilities | - | 50 | 25 | 75 |

Fair value measurements recognised in the statement of financial position: 2018

| EUR million | As at 31 December | | | Total |
|---|-------------------|-----------|------------|------------|
| | Level 1 | Level 2 | Level 3 | |
| Listed securities | | | | |
| Listed securities through OCI | 13 | - | - | 13 |
| Unlisted securities | | | | |
| Unlisted securities through OCI | - | - | 415 | 415 |
| Unlisted securities through profit and loss | - | - | 8 | 8 |
| Trade and other operative assets | | | | |
| Operative receivables through OCI | - | 44 | - | 44 |
| Derivative financial assets | | | | |
| Hedge accounted derivatives | - | 49 | - | 49 |
| Derivatives at fair value through profit and loss | - | 5 | - | 5 |
| Total financial assets | 13 | 98 | 422 | 533 |
| Trade and other operative liabilities | | | | |
| Operative payables through profit and loss | - | - | 21 | 21 |
| Derivative financial liabilities | | | | |
| Hedge accounted derivatives | - | 63 | - | 63 |
| Derivatives at fair value through profit and loss | - | 7 | - | 7 |
| Total financial liabilities | - | 70 | 21 | 91 |

Interest-bearing receivables

| EUR million | As at 31 December | |
|---|-------------------|------------|
| | 2019 | 2018 |
| Long-term derivative assets | 1 | 0 |
| Long-term deposits | 68 | 50 |
| Long-term loans to equity accounted investments | 2 | 2 |
| Other long-term loan receivables | 1 | 2 |
| Total non-current interest-bearing receivables | 72 | 54 |
| Short-term derivative assets | 20 | 54 |
| Short-term deposits | 3 | 0 |
| Other short-term loan receivables | 0 | 1 |
| Total current interest-bearing receivables | 23 | 55 |
| Total interest-bearing receivables | 95 | 110 |

The annual average interest rate for deposits and loan receivables at 31 December 2019 was approximately 0.6% (0.4%). Current interest-bearing receivables did not include any accrued interest at 31 December 2019. The Group has evaluated that there has not been a significant increase in credit risk related to interest-bearing receivables after the initial recognition. Accordingly, they are considered to have a low credit risk and loss allowance is recognised based on 12-month expected credit losses.

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Reconciliation of level 3 fair value measurement of financial assets and liabilities

| EUR million | 2019 | 2018 |
|---|------------|------------|
| Financial assets | | |
| Opening balance at 1 January | 422 | 318 |
| Gains/losses recognised in income statement | 0 | -2 |
| Gains/losses recognised in other comprehensive income | 109 | 104 |
| Additions | 0 | 3 |
| Disposals | -5 | -1 |
| Closing balance at 31 December | 526 | 422 |

| EUR million | 2019 | 2018 |
|---|------------|------------|
| Financial liabilities | | |
| Opening balance at 1 January | -21 | -20 |
| Gains/losses recognised in income statement | -4 | 0 |
| Translation difference | 0 | -1 |
| Closing balance at 31 December | -25 | -21 |

Note 26 Interest-bearing liabilities



Accounting principles

Interest-bearing liabilities

Interest-bearing liabilities are recognised initially at fair value, net of transaction costs incurred. In subsequent periods, interest-bearing liabilities are measured at amortised cost using the effective interest method. Any difference between the proceeds net of transaction costs and redemption value is recognised in the Consolidated income statement over the maturity period of the borrowings. Interest expenses are accrued for and recorded in the Consolidated Income statement for each period.

Interest-bearing liabilities with an original maturity greater than 12 months are classified as non-current interest-bearing liabilities in the Consolidated statement of financial position, though repayments falling due within 12 months are presented in current liabilities under the current portion of non-current debt. Short-term commercial paper, bank and other interest-bearing liabilities, for which the original maturity is less than 12 months, are presented in current liabilities under interest-bearing liabilities.

Lease liabilities

At inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. Lease liabilities are initially capitalised at the commencement of the lease and measured at the present value of the lease payments that are not paid at the commencement date, discounted using the Group's incremental borrowing rate. The lease term applied corresponds to the non-cancellable period except in cases where the Group is reasonably certain to exercise renewal option or prolong the contract. The Group allocates the consideration in the contract to each lease component and separates non-lease components if these are identifiable. Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions.

The lease liabilities are subsequently measured at amortised cost using the effective interest method. Lease payment is allocated between the capital liability and finance charges to achieve a constant interest rate on the outstanding liability balance. Lease liabilities are remeasured mainly when there is a change in future lease payments arising from a change in an index or rate, or if there is a change in the Group's assessment whether it will exercise an extension option. When lease liability is remeasured, a corresponding adjustment is generally made to the carrying amount of the ROU asset.

The Group has elected not to recognise lease liabilities for short-term leases that have a lease term of 12 months or less and leases of low value assets. Leases of low value assets mainly include IT and office equipment, certain vehicles and machinery and other low value items. The Group recognises the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

Before transition to IFRS 16 on 1 January 2019, the Group mainly had contracts classified as operating leases, which were not capitalised and Stora Enso did not have any material finance lease contracts in effect at the end of 2018.

Interest-bearing liabilities

| EUR million | As at 31 December | |
|---|-------------------|--------------|
| | 2019 | 2018 |
| Bond loans | 1 978 | 1 523 |
| Loans from credit institutions | 1 162 | 1 140 |
| Lease liabilities | 440 | 0 |
| Finance lease liabilities | 0 | 1 |
| Derivative financial liabilities (see Note 25) | 24 | 0 |
| Other non-current liabilities | 5 | 4 |
| Non-current interest-bearing liabilities including current portion | 3 608 | 2 668 |
| Short-term borrowings | 516 | 566 |
| Interest payable | 33 | 40 |
| Derivative financial liabilities (see Note 25) | 23 | 68 |
| Bank overdrafts | 13 | 1 |
| Total Interest-bearing Liabilities | 4 192 | 3 344 |

| EUR million | 2019 | 2018 |
|---|--------------|--------------|
| Carrying Value at 1 January | 3 344 | 3 016 |
| Additions in lease liabilities due to adoption of IFRS 16 | 525 | 0 |
| Acquisition of subsidiary companies | 793 | 0 |
| Proceeds of new long-term debt | 870 | 578 |
| Additions in lease liabilities | 29 | 0 |
| Repayment of long-term debt | -1 216 | -358 |
| Repayment of lease liabilities and interest | -88 | 0 |
| Change in short-term borrowings and interest payable | -58 | 46 |
| Change in derivative financial liabilities | -21 | 32 |
| Translation differences and other | 13 | 30 |
| Total Interest-bearing Liabilities | 4 192 | 3 344 |

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Events during 2019 and 2018

In 2018, Stora Enso launched a Green Bond Framework as part of its Sustainable Finance approach. The ambition is to offer a loan-format to support sustainability-focused fixed income investors and to report the direct environmental impacts of some investments and business activities. In February 2019, Stora Enso successfully issued its first Green Bonds with a total nominal value of SEK 6 000 million. The bonds consist of three tranches with SEK 3 000 million maturing in August 2021 and paying a floating coupon of STIBOR +0.85%, SEK 1 250 million maturing in February 2024 and paying a floating coupon of STIBOR +1.45%, and SEK 1 750 million maturing in February 2024 and paying a fixed coupon of 1.875%. There are no financial covenants for the bonds. Please refer to the Stora Enso Sustainability report 2019 for further information regarding the use of proceeds and Stora Enso's Sustainable Finance strategy.

In the second quarter of 2019, Stora Enso issued SEK 1 000 million loan in Green Bond format under the EMTN and Green Bond frameworks. The loan matures in 2026. In addition, Stora Enso entered into a new amortising credit-institution loan with the nominal of SEK 1 500 million. The loan matures in 2021.

During 2019, Stora Enso's total repayments of USD and EUR bond notes amounted to a nominal of EUR 219 (EUR bond notes of EUR 159) million.

In 2018, Stora Enso successfully issued a new EUR 300 million bond under its EMTN (Euro Medium Term Note) programme. The bond matures in March 2028 and pays a fixed coupon of 2.5%.

In the third quarter of 2018, Fitch Ratings assigned Stora Enso Oyj an investment grade credit rating of BBB- with a stable outlook highlighting Stora Enso's improved cash flow generation and strengthened

balance sheet. In the fourth quarter of 2018, Moody's Investors Service also assigned Stora Enso Oyj an investment grade credit rating by upgrading the long-term issuer rating from Ba1 to Baa3 with stable outlook.

Interest-bearing liabilities – maturities, interest rates and currency breakdown

Stora Enso's borrowings maturities range from 2020 to the longest borrowing maturing in 2036. Borrowings have either fixed or floating interest rates ranging from 0.5% (0.9%) to 7.3% (8.6%). The average interest rate on borrowings amounted to 3.5% (4.3%) at the year end. Part of Stora Enso's borrowings have been fixed through floating-to-fixed interest rate swaps and cross-currency swaps. The majority of Group loans are denominated in euros, US dollars, Swedish crowns or Chinese renminbis. Detailed maturity analysis of the Group's borrowings are set out in [Note 24](#) Financial risk management.

Net debt

In 2019, net interest-bearing liabilities increased by EUR 1 117 (decreased by EUR 161) million to EUR 3 209 (EUR 2 092) million. Net interest-bearing liabilities are equal to total interest-bearing liabilities less total interest-bearing assets such as cash and deposits. Cash and cash equivalents net of overdrafts decreased by EUR 265 (increased by EUR 525) million to EUR 863 (EUR 1 128) million as at 31 December 2019. In 2019, the total cash outflow for leases was EUR 88 million including interest component of EUR 20 million.

The ratio of net debt to the last 12 months' operational EBITDA was 2.1 (1.1). The net debt/equity ratio was 0.43 (0.31) as per the year-end.

Bond loans

| Issue/ Maturity Dates | Description of Bond | Interest Rate % | Currency of Bond | Nominal Value Issued | Outstanding As at 31 December | | Carrying Value As at 31 December | |
|--|------------------------------------|-----------------|------------------|----------------------|-------------------------------|-------------|----------------------------------|------|
| | | | | | 2019 | 2018 | 2019 | 2018 |
| All Liabilities are Held by the Parent Company | | | | Currency million | | EUR million | | |
| Fixed Rate | | | | | | | | |
| 1993-2019 | Series C Senior Notes 2019 | 8.6 | USD | 50 | 0 | 50 | 45 | |
| 2006-2036 | Global 7.250% Notes 2036 | 7.25 | USD | 300 | 300 | 264 | 259 | |
| 2012-2019 | Euro Medium Term Note | 5.5 | EUR | 500 | 0 | 175 | 175 | |
| 2016-2023 | Euro Medium Term Note | 2.125 | EUR | 300 | 300 | 300 | 298 | |
| 2017-2027 | Euro Medium Term Note | 2.5 | EUR | 300 | 300 | 300 | 298 | |
| 2018-2028 | Euro Medium Term Note | 2.5 | EUR | 300 | 300 | 300 | 298 | |
| 2019-2024 | Euro Medium Term Note (Green Bond) | 1.875 | SEK | 1 750 | 1 750 | 0 | 0 | |
| Total Fixed Rate Bond Loans | | | | | | 1 326 | 1 373 | |
| Floating Rate | | | | | | | | |
| 2015-2025 | Euro Medium Term Note | Euribor+2.25 | EUR | 125 | 125 | 125 | 125 | |
| 2015-2027 | Euro Medium Term Note | Euribor+2.35 | EUR | 25 | 25 | 25 | 25 | |
| 2019-2021 | Euro Medium Term Note (Green Bond) | Stibor+0.85 | SEK | 3 000 | 3 000 | 0 | 0 | |
| 2019-2024 | Euro Medium Term Note (Green Bond) | Stibor+1.45 | SEK | 1 250 | 1 250 | 0 | 0 | |
| 2019-2026 | Euro Medium Term Note (Green Bond) | Stibor+1.60 | SEK | 1 000 | 1 000 | 0 | 0 | |
| Total Floating Rate Bond Loans | | | | | | 651 | 150 | |
| Total Bond Loans | | | | | | 1 978 | 1 523 | |

Finance lease liabilities under IAS 17

At 31 December 2018, Stora Enso had a small number of finance leasing agreements for machinery and buildings for which capital costs of EUR 3 million were included in property, plant and equipment and buildings; the depreciation and impairment thereon was EUR 2 million in 2018. The aggregate leasing payments for the year 2018 amounted to EUR 28 million, the interest element being EUR 1 million. The present value of finance lease liabilities as per the year-end 2018 amounted to EUR 1 million. The Group adopted IFRS 16 Leases standard on 1st January 2019.

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Note 27 Derivatives

Accounting principles

Derivative financial instruments and hedge accounting

Financial derivatives are initially recognised in the consolidated statement of financial position at fair value and subsequently measured at their fair value at each reporting date, though the method of recognising the resulting gains or losses is dependent on the nature of the item being hedged. When derivative contracts are entered into, the Group designates them as either hedges of highly probable forecast transactions or firm commitments (cash flow hedges), hedges of the exposure to changes in the fair value of recognised assets or liabilities (fair value hedges), hedges of net investments in foreign entities, or derivative financial instruments not meeting the hedge accounting criteria in accordance with IFRS 9. Derivative contracts with maturity greater than 12 months are classified as non-current interest-bearing receivables and liabilities, and contracts maturing within 12 months are presented under current interest-bearing receivables and liabilities.

At the inception of a hedge, the Group documents the relationship between the hedging instrument and the hedged item, as well as its risk management objective and strategy for undertaking various hedging transactions. This process includes linking all financial instruments designated under hedge accounting to specific assets and liabilities or to specific firm commitments or highly probable forecast transactions in order to verify and document the hedge relationship between the hedged item and the hedging instrument as required by IFRS 9.

The hedge ratio used for hedging relationships is usually 1:1. For currency and commodity hedging purposes, the Group uses a hedge designation where the critical terms of the hedging instrument and the hedged item will coincide in terms of the notional amount and timing. In respect of interest rate hedging, the interest rate basis between swap contracts and underlying debt will coincide. Since the critical terms of the hedges and underlying risks match, the hedging instruments are considered to offset any changes related to the anticipated transactions. Potential source of ineffectiveness for all the above mentioned hedges is possible credit risk dominating value changes. Potential sources of ineffectiveness that may be expected to occur in relation to currency and commodity hedges are mainly related to the forecasted transaction not occurring in the amount or at the time expected. For interest rate hedges, cross-currency basis spread or initial fair value of the hedging instrument at the date of hedge designation may result in ineffectiveness.

The Group also documents its qualitative prospective assessment at the hedge inception of whether the derivatives used in a hedge relationship are highly effective in offsetting changes in fair value or cash flows of hedged items. Hedge effectiveness will be assessed in accordance with IFRS 9 requirements.

Cash flow hedges

Changes in the fair value of derivatives designated and qualifying as cash flow hedges, and which are effective, are recognised in the cash flow hedges reserve within OCI, the movements of which are disclosed in the consolidated statement of comprehensive income. For currency forwards, both the spot element and forward points have been included to the hedge designation. In case of currency options, the time value of an option is excluded from the hedge designation and only the intrinsic value component of an option is designated as the hedging instrument. The changes in option time value are recognised in a cost of hedging reserve within OCI. The cumulative gain or loss of a derivative deferred in equity is transferred to the consolidated income statement and classified as an income or expense in the same period in which the hedged item affects the consolidated income statement. Realised results of hedge accounted derivative instruments hedging foreign currency sales transactions or purchases are booked as adjustments to sales or materials and services, depending on the nature of the underlying hedged item.

In respect of hedges of exposures to foreign currency risk of future transactions resulting in the recognition of non-financial assets, the gains and losses deferred to the cash flow hedges reserve within

OCI are transferred from equity to be included in the initial acquisition cost of the non-financial asset at the time of recognition. The deferred amounts are ultimately recognised in the income statement through depreciation over the lifetime of the non-financial assets.

When a hedging instrument expires or is sold, terminated or exercised or no longer meets the hedge accounting criteria under IFRS 9, any cumulative gain or loss deferred in equity at that time remains in equity and is accounted for as an adjustment to income or expense when the committed or forecast transaction is ultimately recognised in the consolidated income statement. However, if the underlying forecasted transaction is no longer expected to occur, the cumulative gain or loss reported in equity from the period when the hedge was effective is immediately recognised in the consolidated income statement.

Fair value hedges

In case of fair value hedges, the Group uses either derivatives or borrowings as a hedging instrument to manage the risk associated with the fair value of a hedged item. The gains and losses on hedging instruments designated and qualifying as fair value hedges, and which are highly effective, are recorded in the consolidated income statement, along with any changes in the fair value of the hedged assets or liabilities attributable to the hedged risk.

Net investment hedges

For hedges of net investments in foreign entities, the Group uses either derivatives or foreign-currency borrowings for this purpose. If the hedging instrument is a derivative, any gain or loss thereon relating to the effective portion of the hedge is recognised in equity in CTA as disclosed in the consolidated statement of comprehensive income; the gain or loss relating to the ineffective portion is immediately recognised in the consolidated income statement. In addition, exchange gains and losses arising on the translation of a foreign-currency borrowing that hedges net investment in a foreign operation are also recognised in CTA, with any ineffective portion being immediately recognised in the consolidated income statement. The gains and losses recognised in CTA are recycled from equity to the consolidated income statement at the time when the underlying hedged net investment is disposed.

Fair value through profit and loss derivatives

Certain derivative transactions, while providing effective economic hedges under Group risk management policies, do not qualify for hedge accounting under the specific rules in IFRS 9 and therefore changes in the fair value of such non-qualifying hedges are accounted for at fair value in the consolidated income statement. For non-hedge accounted derivatives economically hedging net of operative receivables and payables in foreign currencies, the fair value changes are recognised in operating profit. For other non-hedge accounted derivatives, the fair value changes are recognised in the consolidated income statement under financial income and expense.

Valuation of derivatives

Derivative financial instruments are recorded in the statement of financial position at their fair values defined as the amount at which the instrument could be exchanged in an orderly transaction between market participants at the measurement date. The fair values of such financial items have been estimated on the following basis:

- Currency forward contract fair values are calculated using forward exchange rates at the reporting date.
- Currency option contract fair values are calculated using reporting date market rates together with common option pricing models.
- Commodity contract fair values are computed with reference to quoted market prices on futures exchanges or other reliable market sources.
- Interest rate swaps fair values are calculated using a discounted cash flow method.
- Cross-currency swaps fair values are calculated using a discounted cash flow method with the exchange of notionals being also included into the valuation model.

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Shareholders' equity – other comprehensive income

Outstanding derivatives designated under cash flow hedge accounting are measured at fair value with the fair value movements being recorded in the separate equity category of OCI: Cash Flow Hedges Reserve. The time value of options is excluded from the cash flow hedge designation and recognised separately in a cost of hedging reserve within OCI.

Cash flow hedge derivatives

Derivatives used in currency cash flow hedges are mainly forward contracts and options, with swaps mainly used for commodity and interest rate hedging purposes. In respect of commodity hedges, the Group also uses risk component hedging to hedge highly probable forecast purchases of natural gas. These purchases create natural gas price exposure which translates as coal and crude oil risk components that can be hedged by using API2 coal and Dated Brent crude oil linked swaps, which are expected to fully offset changes in the market value of the hedged risk components. Both of the risk components are separately identifiable and reliably measurable due to the pricing formula being specified in the natural gas purchase agreement.

In 2019, the group entered into new interest rate swap contracts with a total nominal value of SEK 4 000 million. The interest rate swaps have been designated as cash flow hedges of newly issued SEK denominated floating-rate Green Bonds maturing in 2021, 2024 and 2026. In 2018, the group entered into a new floating-to-fixed cross-currency swap contract in China with a total nominal value of EUR 200 million. The cross-currency swap has been designated under cash flow hedge accounting to hedge the underlying foreign currency and interest rate risks of Euro denominated floating-rate debt in China. The hedge will mature in 2023.

The unrealised gains and losses related to cash flow hedges are expected to be recycled through the Income Statement within one to three years with the longest hedging contract maturing in 2027 (2027), however the majority of the contracts are expected to mature in 2020. Cash flow hedging reserve and net investment hedges in equity are presented in more detail in the following table.

Breakdown of cash flow hedging reserve and net investment hedges in equity 2019

| EUR million | At 1 Jan 2019 | Change in fair value recognised in OCI/CTA | Reclassified from OCI to profit and loss | Tax impact | At 31 Dec 2019 |
|--|---------------|--|--|------------|----------------|
| Foreign exchange risk - Operational cash flow hedging | -17 | -67 | 86 | -4 | -2 |
| Commodity price risk - Commodity swaps | 25 | -23 | -12 | 9 | -2 |
| Interest rate risk - Interest rate swaps | -5 | -4 | 0 | 1 | -8 |
| Interest rate and foreign exchange risk - Cross-currency swaps | -10 | 1 | 1 | -3 | -11 |
| Cost of hedging reserve | -2 | 3 | 0 | -1 | 1 |
| Total cash flow hedge reserve in OCI | -9 | -90 | 75 | 1 | -22 |
| Foreign exchange risk - Net investment hedges | 20 | -6 | -4 | 1 | 12 |
| Total net investment hedges in CTA | 20 | -6 | -4 | 1 | 12 |
| Total hedging reserves | 11 | -96 | 72 | 3 | -10 |

Breakdown of cash flow hedging reserve and net investment hedges in equity 2018

| EUR million | At 1 Jan 2018 | Change in fair value recognised in OCI/CTA | Reclassified from OCI to profit and loss | Tax impact | At 31 Dec 2018 |
|--|---------------|--|--|------------|----------------|
| Foreign exchange risk - Operational cash flow hedging | 18 | -72 | 28 | 9 | -17 |
| Commodity price risk - Commodity swaps | 1 | 12 | 21 | -8 | 25 |
| Interest rate risk - Interest rate swaps | -4 | -1 | 0 | 0 | -5 |
| Interest rate and foreign exchange risk - Cross-currency swaps | 0 | -19 | 6 | 3 | -10 |
| Cost of hedging reserve | -1 | -1 | 0 | 0 | -2 |
| Total cash flow hedge reserve in OCI | 14 | -81 | 54 | 4 | -9 |
| Foreign exchange risk - Net investment hedges | 31 | -14 | 0 | 3 | 20 |
| Total net investment hedges in CTA | 31 | -14 | 0 | 3 | 20 |
| Total hedging reserves | 45 | -95 | 54 | 7 | 11 |

Equity accounted investments

Associate companies record hedges and pensions-related amounts directly in equity, and the Group also records its share of these amounts in equity in the "OCI of Equity Accounted Investments" classification.

OCI equity accounted investments

| EUR million | Year ended 31 December | |
|-----------------|------------------------|------------|
| | 2019 | 2018 |
| Bergvik Skog AB | 0 | -11 |
| Total | 0 | -11 |

Fair values of derivatives

Total foreign exchange gains and losses in the income statement excluding hedges

| EUR million | Year ended 31 December | |
|--|------------------------|------------|
| | 2019 | 2018 |
| Sales | 12 | 24 |
| Costs and expenses | -10 | -16 |
| Borrowings, deposits and lease liabilities | -6 | -55 |
| Total | -3 | -46 |

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Hedge gains and losses in operating profit

| EUR million | Year ended 31 December | |
|--|------------------------|------------|
| | 2019 | 2018 |
| Cash flow hedge accounted derivatives | | |
| Currency hedges | -83 | -28 |
| Commodity hedges | 12 | -21 |
| Total | -71 | -48 |
| As adjustments to Sales | -79 | -76 |
| As adjustments to Materials and services | 8 | 28 |
| Realised from OCI through Income Statement | -71 | -48 |
| Currency hedges ineffectiveness | -3 | 0 |
| Net losses from cash flow hedges | -74 | -48 |
| Non-hedge accounted derivatives | | |
| Currency derivatives | -17 | -16 |
| Net losses on non-hedge accounted derivatives | -17 | -16 |
| Net hedge losses in operating profit | -91 | -65 |

In 2019, certain forecasted future transactions were no longer expected to occur, and due to this hedge accounting was ceased for those transactions. This resulted in a loss of EUR 3 million being booked in the Group's operating profit, and the loss being presented in the table above as ineffectiveness from cash flow hedges. During 2018, there was no cash flow hedge ineffectiveness recorded in operating profit.

Hedge gains and losses in financial items

| EUR million | Year ended 31 December | |
|--|------------------------|-----------|
| | 2019 | 2018 |
| Cash flow hedge accounted derivatives | | |
| Currency hedges ineffectiveness | 0 | -1 |
| Interest rate hedges ineffectiveness | 0 | -3 |
| Net losses from cash flow hedges | -1 | -4 |
| Non-hedge accounted derivatives | | |
| Currency derivatives | 0 | 22 |
| Net gains/losses on non-hedge accounted derivatives | 0 | 22 |
| Net gains/losses in financial items | -1 | 18 |

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Nominal and fair values of derivative instruments

| EUR million | As at 31 December | | | | | | | |
|--|-------------------|----------------------|----------------------|-----------------|----------------|----------------------|----------------------|-----------------|
| | Nominal values | Positive fair values | Negative fair values | Net fair values | Nominal values | Positive fair values | Negative fair values | Net fair values |
| | 2019 | | | | 2018 | | | |
| Currency derivatives | | | | | | | | |
| Forwards: Operational cash flow hedging | 759 | 6 | -9 | -4 | 1 267 | 7 | -15 | -7 |
| Options: Operational cash flow hedging | 1 458 | 9 | -8 | 1 | 1 375 | 6 | -24 | -18 |
| Total cash flow hedge accounted | 2 217 | 15 | -17 | -2 | 2 642 | 13 | -38 | -25 |
| Forwards: Trade and loan receivables hedging | 414 | 3 | -1 | 3 | 686 | 4 | -6 | -2 |
| Total non-hedge accounted | 414 | 3 | -1 | 3 | 686 | 4 | -6 | -2 |
| Total currency derivatives | 2 631 | 18 | -18 | 0 | 3 328 | 17 | -44 | -27 |
| Commodity derivatives | | | | | | | | |
| Electricity swaps: Costs hedging | 63 | 1 | -5 | -4 | 67 | 35 | 0 | 35 |
| Oil swaps: Costs hedging | 14 | 1 | 0 | 1 | 15 | 0 | -2 | -2 |
| Coal swaps: Costs hedging | 3 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |
| Total cash flow hedge accounted | 80 | 2 | -5 | -3 | 87 | 35 | -2 | 33 |
| Electricity swaps: Closed contracts | 0 | 0 | 0 | 0 | 2 | 1 | -1 | 0 |
| Total non-hedge accounted | 0 | 0 | 0 | 0 | 2 | 1 | -1 | 0 |
| Total commodity derivatives | 80 | 2 | -5 | -3 | 89 | 37 | -4 | 33 |
| Interest rate derivatives | | | | | | | | |
| Interest rate swaps: Financial expenses hedging | 563 | 0 | -12 | -11 | 187 | 1 | -6 | -5 |
| Cross-currency swaps: Financial expenses hedging | 200 | 0 | -15 | -15 | 200 | 0 | -16 | -16 |
| Total cash flow hedge accounted | 763 | 0 | -27 | -27 | 387 | 1 | -23 | -22 |
| Total interest rate derivatives | 763 | 0 | -27 | -27 | 387 | 1 | -23 | -22 |
| Total cash flow hedge accounted | 3 060 | 18 | -49 | -32 | 3 116 | 49 | -63 | -14 |
| Total non-hedge accounted | 414 | 3 | -1 | 3 | 688 | 5 | -7 | -2 |
| Total derivatives | 3 474 | 21 | -50 | -29 | 3 804 | 54 | -70 | -16 |

Positive and negative fair values of financial derivative instruments are shown under Interest-bearing receivables and liabilities, and Non-current interest-bearing receivables and liabilities. The presented fair values in the table include accrued interest and option premiums.

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Changes in fair values of hedged items and hedging instruments 2019

| EUR million | Change in value of hedged item to determine hedge effectiveness | Change in value of outstanding hedging instruments | Ineffectiveness |
|---|---|--|-----------------|
| Foreign exchange risk - Forward and option contracts (excluding option time value) ¹ | 64 | -67 | -3 |
| Foreign exchange risk - Net investment hedges | 6 | -6 | 0 |
| Commodity price risk - Commodity swaps | 23 | -23 | 0 |
| Interest rate risk - Interest rate swaps | 4 | -4 | 0 |
| Interest rate and foreign exchange risk - Cross-currency swaps | -1 | 1 | 0 |

¹ Ineffectiveness booked in Operating profit.

Changes in fair values of hedged items and hedging instruments 2018

| EUR million | Change in value of hedged item to determine hedge effectiveness | Change in value of outstanding hedging instruments | Ineffectiveness |
|---|---|--|-----------------|
| Foreign exchange risk - Forward and option contracts (excluding option time value) ¹ | 71 | -72 | -1 |
| Foreign exchange risk - Net investment hedges | 14 | -14 | 0 |
| Commodity price risk - Commodity swaps | -12 | 12 | 0 |
| Interest rate risk - Interest rate swaps | 1 | -1 | 0 |
| Interest rate and foreign exchange risk - Cross-currency swaps ¹ | 12 | -15 | -3 |

¹ Ineffectiveness booked in Net financial items.

Financial impact of netting for instruments subject to an enforceable master netting agreement 2019

| EUR million | Not offset in the Statement of Financial Position | | | Net exposure |
|------------------------|---|--|--------------------------------------|--------------|
| | Gross amount of recognised financial instruments | Related liabilities (-) or assets (+) subject to master netting agreements | Collateral received (-) or given (+) | |
| Derivative assets | 21 | -14 | 0 | 7 |
| Derivative liabilities | -50 | 14 | 0 | -36 |

Financial impact of netting for instruments subject to an enforceable master netting agreement 2018

| EUR million | Not offset in the Statement of Financial Position | | | Net exposure |
|------------------------|---|--|--------------------------------------|--------------|
| | Gross amount of recognised financial instruments | Related liabilities (-) or assets (+) subject to master netting agreements | Collateral received (-) or given (+) | |
| Derivative assets | 54 | -24 | 0 | 30 |
| Derivative liabilities | -70 | 24 | 0 | -46 |

The Group enters into derivative transactions under master netting agreements agreed with each counterparty. In case of an unlikely credit event, such as default, all outstanding transactions under the agreements are terminated, and only a single net amount per counterparty is payable for settlement of all transactions. The agreements do not meet the criteria for offsetting in the statement of financial position, because offsetting is enforceable only in the occurrence of certain future events.

Note 28 Cumulative translation adjustment and equity hedging

Cumulative translation adjustment

| EUR million | Year ended 31 December | |
|---|------------------------|-------------|
| | 2019 | 2018 |
| At 1 January | | |
| CTA on net investment in non-euro foreign entities | -355 | -319 |
| Hedging | 27 | 41 |
| Net currency losses/gains in equity | -328 | -278 |
| Tax on hedging | -7 | -10 |
| Net CTA in Equity | -335 | -288 |
| CTA Movement for the Year Reported in OCI | | |
| Restatement of opening non-euro denominated equity | 7 | -70 |
| Difference in Income Statement translation | 13 | 1 |
| Internal equity injections and dividends | 5 | 6 |
| Other | 0 | -1 |
| CTA release through the Income Statement | 182 | 27 |
| CTA Movement in OCI | 206 | -36 |
| Net Investment Hedging and Loans for the year reported in OCI | | |
| Hedging and Loans | -9 | -14 |
| Tax on Hedging and Loans | 1 | 3 |
| Net Hedging and Loans Movement in OCI | -8 | -11 |
| At 31 December | | |
| CTA on net investment in non-euro foreign entities | -148 | -355 |
| Hedging and Loans | 18 | 27 |
| Cumulative net currency losses in equity | -130 | -328 |
| Tax on Hedging and Loans | -6 | -7 |
| Net CTA in Equity | -136 | -335 |
| Net Investment Hedging and Loans in foreign entities | | |
| Hedging and Loans | 18 | 27 |
| Tax on Hedging and Loans | -6 | -7 |
| Net Hedging and Loans Result in Equity | 12 | 20 |
| Realised gains | 37 | 45 |
| Unrealised gains/losses | -25 | -25 |
| Net Hedging and Loans Result in Equity | 12 | 20 |

The group is currently only hedging its equity exposure to the US dollar. The main movements in CTA in 2019 were a gain of EUR 158 (a loss EUR 53) million related to the Swedish crown, a gain of EUR 25 (EUR 61) million related to the US dollar, a gain of EUR 15 (a loss of EUR 16) million related to the Russian ruble and a gain of EUR 8 (a loss of EUR 4) million related to the Chinese renminbi. The most significant accumulated CTA balances are in Brazil, amounting to a loss of EUR 209 (EUR 204) million, in the US dollar area, amounting to a gain of EUR 164 (EUR 139) million, in Sweden, amounting to a loss of EUR 128 (EUR 286) million and in China, amounting to a gain of EUR 73 (EUR 65) million.

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The release of cumulative translation adjustments to the income statement amounted to a loss of EUR 182 (EUR 27) million in 2019; a loss of EUR 171 million was related to the Bergvik Skog restructuring in Sweden, a loss of EUR 8 million to the liquidation of Stora Enso Suzhou Paper in China, a loss of EUR 6 million to the liquidation of SE Försäkringsaktiebolag in Sweden and a gain of EUR 3 million to the disposal of Stora Enso Huatai Paper in China.

Amounts recognized in the statement of financial position - CTA and Net Investment Hedges and Loans

| EUR million | As at 31 December | | | | | |
|--------------------------|--|-------------|---------------------------------|-----------|--|-------------|
| | Cumulative Translation Adjustments (CTA) | | Net Investment Hedges and Loans | | Net CTA in the Statement of Financial Position | |
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Brazil | -209 | -204 | 0 | 0 | -209 | -204 |
| China | 73 | 65 | 0 | 0 | 73 | 65 |
| Czech Republic | 33 | 32 | -9 | -9 | 24 | 23 |
| Poland | -24 | -28 | 0 | 17 | -7 | -11 |
| Russia | -55 | -71 | 0 | 0 | -55 | -71 |
| Sweden | -128 | -286 | 47 | 50 | -82 | -236 |
| Uruguay | 158 | 135 | -37 | -31 | 122 | 105 |
| USA | 6 | 4 | 0 | 0 | 6 | 4 |
| Others | -1 | -1 | 0 | 0 | -1 | -1 |
| CTA before Tax | -148 | -355 | 18 | 27 | -130 | -328 |
| Taxes | 0 | 0 | -6 | -7 | -6 | -7 |
| Net CTA in Equity | -148 | -355 | 12 | 20 | -136 | -335 |

Amounts recognized in the statement of other comprehensive income - CTA and Net Investment Hedges and Loans

| EUR million | As at 31 December | | | | | |
|----------------------------------|--|------------|---------------------------------|------------|----------------|------------|
| | Cumulative Translation Adjustments (CTA) | | Net Investment Hedges and Loans | | Net CTA in OCI | |
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Brazil | -5 | -14 | 0 | 0 | -5 | -14 |
| China | 8 | -4 | 0 | 0 | 8 | -4 |
| Czech Republic | 1 | -1 | 0 | 0 | 1 | -1 |
| Poland | 4 | -10 | 0 | 0 | 4 | -10 |
| Russia | 15 | -16 | 0 | 0 | 15 | -16 |
| Sweden | 158 | -53 | -3 | 0 | 154 | -53 |
| Uruguay | 23 | 56 | -6 | -14 | 17 | 42 |
| USA | 2 | 5 | 0 | 0 | 2 | 5 |
| Others | 0 | 0 | 0 | 0 | 0 | 0 |
| CTA before Tax | 206 | -36 | -9 | -14 | 197 | -50 |
| Taxes | 0 | 0 | 1 | 3 | 1 | 3 |
| Amounts recognised in OCI | 206 | -36 | -8 | -11 | 198 | -47 |

Hedging of net investment in foreign entities

The Group policy for translation risk exposure is to minimise this by funding assets whenever possible and economically viable in the same currency, but if matching the assets and liabilities in the same currency is not possible, hedging of the remaining translation risk may take place. The gains and losses net of tax on all financial liabilities and instruments used for hedging purposes are offset in CTA against the respective

currency movements arising from the restatement of the net investments at current exchange rates on the reporting date; the net amount of losses included in CTA during the period as shown in the previous table amounted to EUR 8 (EUR 11) million.

Hedging instruments and unrealised hedge losses

| EUR million | As at 31 December | | | | | |
|----------------------|---------------------------|------|----------------------|------------|-------------------------|------------|
| | Nominal amount (Currency) | | Nominal amount (EUR) | | Unrealised Losses (EUR) | |
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Borrowings | | | | | | |
| USD area | 300 | 350 | 267 | 306 | -25 | -25 |
| Total Hedging | | | 267 | 306 | -25 | -25 |

Net investment loans

The Group has applied net investment loan accounting under IAS 21 for certain intragroup loans. At 31 December 2019 Net investment loans had an impact of EUR 0 million on CTA in Equity.

Note 29 Commitments and contingencies

Accounting principles

Guarantees

The guarantees entered into with financial institutions and other credit guarantors generally oblige the group to make payment in the event of default by the borrower. The guarantees have an off-balance sheet credit risk representing the accounting loss that would be recognised at the reporting date if the counterparties fail to perform completely as contracted. The credit risk amounts are equal to the contract sums, assuming the amounts are not paid in full and are irrecoverable from other parties.

Commitments

| EUR million | As at 31 December | |
|--|-------------------|------------|
| | 2019 | 2018 |
| On own behalf | | |
| Mortgages | 2 | 2 |
| Operating leases in next 12 months | 0 | 100 |
| Operating leases after next 12 months | 0 | 631 |
| Other commitments | 3 | 6 |
| On behalf of equity accounted investments | | |
| Guarantees | 4 | 4 |
| On behalf of others | | |
| Guarantees | 6 | 23 |
| Other commitments | 13 | 13 |
| Total | 28 | 779 |
| | | |
| Mortgages | 2 | 2 |
| Guarantees | 10 | 27 |
| Operating leases | 0 | 731 |
| Other commitments | 17 | 19 |
| Total | 28 | 779 |

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In 2019, the Group's commitments amounted to EUR 28 (EUR 779) million. In addition, the parent company Stora Enso Oyj has guaranteed the liabilities of many of its subsidiaries and joint operations up to EUR 1 508 (EUR 1 962) million as of 31 December 2019.

Operating lease obligations have been reported in the balance sheet in accordance with requirements of IFRS 16 Leases since 1 January 2019. More details regarding right-of-use assets are presented in [Note 11](#) Intangible assets and property, plant and equipment and regarding lease liabilities in [Note 26](#) Interest-bearing liabilities.

Repayment schedule of operating lease commitments

| EUR million | As at 31 December | |
|------------------|-------------------|------------|
| | 2019 | 2018 |
| Less than 1 year | 0 | 100 |
| 1–2 years | 0 | 92 |
| 2–3 years | 0 | 78 |
| 3–4 years | 0 | 57 |
| 4–5 years | 0 | 48 |
| Over 5 years | 0 | 356 |
| Total | 0 | 731 |

Capital commitments

| EUR million | As at 31 December | |
|--------------|-------------------|------------|
| | 2019 | 2018 |
| Total | 223 | 111 |

Capital expenditure commitments are not recognised in the balance sheet and these include the Group's share of direct capital expenditure contracts in joint operations. Commitments in relation to capital expenditure mainly relate to the Oulu mill conversion and other ongoing projects at the Imatra Mill in Finland and the Maxau Mill in Germany.

Contingent liabilities

Stora Enso has undertaken significant restructuring actions in recent years which have included the divestment of companies, sale of assets and mill closures. These transactions include a risk of possible environmental or other obligations the existence of which would be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group.

Stora Enso is party to legal proceedings that arise in the ordinary course of business and which primarily involve claims arising out of commercial law. The management does not consider that liabilities related to such proceedings before insurance recoveries, if any, are likely to be material to the Group's financial condition or results of operations.

Legal proceedings in Latin America

Veracel

On 11 July 2008, Stora Enso announced that a federal judge in Brazil had issued a decision claiming that the permits issued by the State of Bahia for the operations of Stora Enso's joint operations company Veracel were not valid. The judge also ordered Veracel to take certain actions, including reforestation with native trees on part of Veracel's plantations and a possible fine of BRL 20 (EUR 5) million. Veracel disputes the decision and has filed an appeal against it. Veracel operates in full compliance with all Brazilian laws and has obtained all the necessary environmental and operating licences for its industrial and forestry activities from the relevant authorities. In November 2008, a Federal Court suspended the effects of the decision. No provisions have been recorded in Veracel's or Stora Enso's accounts for the reforestation or the possible fine.

In June 2017, Veracel received a tax infringement note referring to year 2012 with a total amount of BRL 224 (EUR 50) million including interest and fines. The dispute was limited to fiscal year 2012 for which the tax authority applied another transfer pricing method due to a different interpretation of a transition rule. The total exposure at year end 2018 was BRL 241 (EUR 54) million considering interest until 31 December 2018. Stora Enso's share of the exposure was BRL 120 (EUR 27) million. Veracel has filed an administrative defense against the tax note in July 2017 which has been finally decided in favour of Veracel in May 2019. There will be no further reporting on this dispute.

The tax authority has claimed that an amount of BRL 139 million (EUR 31 million) of PIS (social integration program) and COFINS (contribution for the financing of social security) paid by Veracel on the purchase of raw materials and services for fiscal years 2006 until 2015 was not eligible for tax credit. Veracel has recorded a write-down related to PIS and COFINS credits of BRL 42 million (EUR 10 million) in relation tax authority claims that were closed in 2019. Stora Enso and Veracel consider the remaining pending claims of BRL 97 million (EUR 21 million) unjustified and no provisions have been recorded in Veracel's or Stora Enso's accounts for this matter. The dispute was still pending at balance sheet date. The remaining pending claim relating to Stora Enso's share in Veracel is BRL 49 million (EUR 11 million).

Legal proceedings in Sweden

Insurance claim

In July and August 2016, six Swedish insurance companies filed lawsuits in the Environmental Court and the District Court of Falun against Stora Enso, due to damage caused by the forest fire in Västmanland, Sweden, in 2014. The claimed amount is approximately SEK 300 (EUR 30) million, excluding interest. The environmental law case is closed based on that the environmental code was not applicable on damages caused by fire. The other case in the District Court of Falun has now been settled and the settlement amount in full has been covered by insurance and without financial impact for Stora Enso. Hence, there are no longer any open cases for compensation due to the forest fire. There will be no further reporting of these claims.

Company fine

In January 2018, a Swedish prosecutor filed a lawsuit against Stora Enso and its supplier, due to the forest fire in Västmanland, Sweden in 2014, claiming a company fine of SEK 5 million each. In December 2019, the court acquitted Stora Enso of responsibility for causing the fire. The verdict has been appealed to the Court of Appeal by the prosecutor and the supplier. The prosecutor has reduced the claim for company fine to SEK 2.5 million. There will be no further reporting of this case.

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Note 30 Principal subsidiaries and joint operations

The following is a list of the Company's fifty principal operating subsidiary undertakings ranked by external sales. These companies along with the parent account for 99% (99%) of Group external sales. The principal country in which each subsidiary operates is the country of incorporation. The group's effective interest in the undertakings is 100%, except where indicated, and is held in each case by a subsidiary undertaking, except for those companies marked with "+" which are held directly by the parent company. Subsidiaries operating outside the euro area are indicated by "◊".

Subsidiary companies (ranked by external sales)

| | | Country | Sales % | Consumer Board | Packaging Solutions | Biomaterials | Wood Products | Paper | Other |
|---|-----|----------------|--------------|----------------|---------------------|--------------|---------------|-------|-------|
| Stora Enso Oyj | | Finland | 16.20 | • | • | • | • | • | • |
| Stora Enso Paper AB | ◊ | Sweden | 7.42 | | | | | • | |
| Stora Enso International Oy | + | Finland | 7.12 | | | • | | | |
| Stora Enso AB ¹ | +/◊ | Sweden | 6.67 | | | | | | • |
| Stora Enso Oulu Oy | | Finland | 5.66 | | | | | • | |
| Stora Enso Veitsiluoto Oy | | Finland | 5.19 | | | | | • | |
| Stora Enso Amsterdam B.V. | | Netherlands | 4.51 | | | • | | | |
| Stora Enso Skog AB | ◊ | Sweden | 3.00 | | | | | | • |
| Stora Enso Fors AB | ◊ | Sweden | 2.98 | • | | | | | |
| Stora Enso Poland S.A. | +/◊ | Poland | 2.77 | | • | | | | |
| Stora Enso (Guangxi) Packaging Company Ltd. (80.1%) | ◊ | China | 2.75 | • | | | | | |
| Stora Enso Wood Products GmbH | | Austria | 2.72 | | | | • | | |
| Stora Enso Maxau GmbH | | Germany | 2.58 | | | | | • | |
| Stora Enso Langerbrugge NV | | Belgium | 2.46 | | | | | • | |
| Stora Enso Publication Papers Oy Ltd | | Finland | 2.30 | | | | | • | |
| Stora Enso Ingerois Oy | + | Finland | 1.98 | • | | | | | |
| Sydved AB (66.7%) | ◊ | Sweden | 1.94 | | | | | | • |
| Stora Enso Wood Products Oy Ltd | + | Finland | 1.72 | | | | • | | |
| Stora Enso Sachsen GmbH | | Germany | 1.54 | | | | | • | |
| Stora Enso Timber AB | ◊ | Sweden | 1.29 | | | | • | | |
| OOO Stora Enso Packaging BB | ◊ | Russia | 1.29 | | • | | | | |
| Stora Enso Eesti AS | + | Estonia | 1.22 | | | | • | | |
| Stora Enso Wood Products Zdirec s.r.o. | ◊ | Czech Republic | 1.02 | | | | • | | |
| Dongguan Stora Enso Inpac Packaging Co. Ltd | ◊ | China | 1.02 | | • | | | | |
| Stora Enso Narew Sp.z.o.o. | +/◊ | Poland | 0.95 | | • | | | | |
| Stora Enso Australia Pty Ltd | ◊ | Australia | 0.93 | | | | • | | |
| Stora Enso WP Bad St. Leonhard GmbH | | Austria | 0.90 | | | | • | | |
| Stora Enso Packaging AB | ◊ | Sweden | 0.89 | | • | | | | |
| Stora Enso Packaging Oy | + | Finland | 0.82 | | • | | | | |
| Stora Enso Wood Products Sp.z.o.o. | ◊ | Poland | 0.66 | | | | • | | |
| Stora Enso North American Sales, Inc. | +/◊ | USA | 0.64 | • | | | | | |
| Stora Enso Timber Deutschland GmbH | | Germany | 0.57 | | | | • | | |
| Stora Enso Bioenergi AB | ◊ | Sweden | 0.56 | | | | | | • |
| Stora Enso Wood Products Planá s.r.o. | ◊ | Czech Republic | 0.47 | | | | • | | |
| Stora Enso Inpac Packaging Co. Ltd | ◊ | China | 0.43 | | • | | | | |
| Guangxi Stora Enso Forestry Co Ltd (89.5%) | ◊ | China | 0.41 | • | | | | | |
| Stora Enso Wood Products d.o.o. Koper | | Slovenia | 0.37 | | | | • | | |
| AS Stora Enso Latvija | | Latvia | 0.36 | | | | • | | |

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| | | Country | Sales % | Consumer Board | Packaging Solutions | Biomaterials | Wood Products | Paper | Other |
|--|---|----------------|---------|----------------|---------------------|--------------|---------------|-------|-------|
| Stora Enso Bois SAS | | France | 0.35 | | | | • | | |
| UAB Stora Enso Lietuva | | Lithuania | 0.34 | | | | • | | |
| Stora Enso Huatai (Shandong) Paper Co Ltd ² | ◊ | China | 0.30 | | | | | • | |
| Stora Enso Timber DIY Products B.V. | | Netherlands | 0.29 | | | | • | | |
| Stora Enso UK Ltd | ◊ | UK | 0.26 | • | | | • | | |
| Stora Enso Packaging SIA | | Latvia | 0.19 | | • | | | | |
| Stora Enso Packaging UAB | | Lithuania | 0.18 | | • | | | | |
| Stora Enso WP HV s.r.o. | ◊ | Czech Republic | 0.18 | | | | • | | |
| OOO Setnovo | ◊ | Russia | 0.15 | | | | • | | |
| Stora Enso Paper GmbH | | Germany | 0.13 | | | | | • | |
| Stora Enso Packaging AS | | Estonia | 0.13 | | • | | | | |
| DanFiber A/S (51%) | ◊ | Denmark | 0.13 | | | | | • | |
| VLAR Papier NV | | Belgium | 0.11 | | | | | • | |

¹ Stora Enso Skoghall AB was merged to Stora Enso AB in 2019.

² Business operations of Stora Enso Huatai (Shandong) Paper Co Ltd (60.0%) were divested during 2019.

The following is a list of the Company's joint operations. The Company holds a 50% interest in joint operations which are consolidated into the Group's financial statements. The countries operating outside the euro area are indicated by "◊". Sales of the joint operations occur via subsidiaries.

Joint operations

| | | Country | Consumer Board | Packaging Solutions | Biomaterials | Wood Products | Paper | Other |
|---------------------------|---|---------|----------------|---------------------|--------------|---------------|-------|-------|
| Montes del Plata (50%) | ◊ | Uruguay | | | • | | | |
| Veracel Celulose SA (50%) | ◊ | Brazil | | | • | | | |

Note 31 Related party transactions

Balances and transactions between the Group and its subsidiaries and joint operations, which are classified as related parties, have been eliminated on consolidation and are not disclosed in this note.

The Group has classified Solidium Oy as a related party. This is entirely owned by the State of Finland, and owned 10.7% of Stora Enso shares and 27.3% of all votes on 31 December 2019. The group has applied an exemption, as stated in IAS 24 paragraph 25, not to disclose transactions and outstanding balances with government-related entities.

The Group has classified FAM AB as a related party. FAM AB owned 10.2% of Stora Enso shares and 27.3% of all votes on 31 December 2019. During 2019, the group has sold 2% of shares of Swetree Technologies AB, an equity accounted investment, to FAM AB for EUR 0.5 million in an arm's length based transaction.

The key management personnel of the Group are the members of the Group Leadership Team and the Board of Directors. The compensation of key management personnel is presented in [Note 7](#) Board and executive remuneration.

In the ordinary course of business, the Group engages in transactions on commercial terms with equity accounted investments and other related parties that are not any more favourable than those that would be available to other third parties – with the exception of Veracel. Stora Enso intends to continue with transactions on a similar basis with its equity accounted investments, further details of which are shown in [Note 13](#) Equity accounted investments.

The Group's principal subsidiary companies and joint operations are listed in [Note 30](#) Principal subsidiaries and joint operations.

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Paper for recycling

The Group owns non-controlling interests in several paper recyclers, from which paper for recycling is purchased at market prices.

Forest assets and wood procurement

The Group has a 41 % interest in Tornator with the remaining 59% being held mainly by Finnish institutional investors. Stora Enso has long-term purchase contracts with the Tornator Group for approximately 2 million cubic metres of wood annually at market prices, and in 2019 purchases of 2 (2) million cubic metres came to EUR 67 (EUR 78) million.

The group procures wood from Kopparfors Skogar AB, a company which is completely owned by FAM AB and which was founded during 2019. In 2019 the purchases from Kopparfors Skogar AB amounted to EUR 6 million and the sales of services by Stora Enso to the said related party amounted to EUR 4 million. At the end of 2019 the group had EUR 1 million of open payables to and EUR 1 million of open receivables from Kopparfors Skogar AB.

Stevedoring

The Group owns 34.4% of shares in Steveco Oy, a Finnish company engaged in loading and unloading vessels. The other shareholders in Steveco are UPM-Kymmene, Finnlines, Ahlström Capital, and Myllykoski. The stevedoring services are provided by Steveco at market prices and in 2019 amounted to EUR 25 (EUR 24) million.

Note 32 Earnings per share and equity per share



Accounting principles

Basic earnings per share, attributable to the owners of the parent company, are calculated by dividing the net profit attributable to shareholders by the weighted average number of ordinary shares in issue during the year, excluding ordinary shares purchased by the group and held as treasury shares. Diluted earnings per share are calculated by adjusting the weighted average number of ordinary shares plus the diluted effect of all potential dilutive ordinary shares, such as shares from share-based payments.

Earnings per share

| | Year Ended 31 December | |
|--|------------------------|-------------|
| | 2019 | 2018 |
| Net profit for the period attributable to the owners of the parent, EUR million | 880 | 1 013 |
| Total comprehensive income attributable to the owners of the parent, EUR million | 1 113 | 1 025 |
| Weighted average number of A and R shares | 788 619 987 | 788 619 987 |
| Weighted average number of share awards | 912 677 | 1 262 891 |
| Weighted diluted number of shares | 789 532 664 | 789 882 878 |
| Basic Earnings per Share, EUR | 1.12 | 1.28 |
| Diluted Earnings per Share, EUR | 1.12 | 1.28 |
| Total Recognised Income and Expense per Share, EUR | 1.41 | 1.30 |

Equity per share

| | As at 31 December | |
|--|-------------------|-------------|
| | 2019 | 2018 |
| Shareholders' equity, EUR million | 7 429 | 6 714 |
| Market value, EUR million | 10 328 | 8 123 |
| Number of A and R shares | 788 619 987 | 788 619 987 |
| Share awards | 768 706 | 1 056 648 |
| Diluted number of shares | 789 388 693 | 789 676 635 |
| Basic Shareholders' Equity per Share, EUR | 9.42 | 8.51 |
| Diluted Shareholders' Equity per Share, EUR | 9.41 | 8.50 |
| Dividend per Share Paid/Declared, EUR | 0.50 | 0.50 |
| Market Value per Share, EUR | | |
| A shares | 13.55 | 11.05 |
| R shares | 12.97 | 10.09 |

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Parent company income statement

| EUR million | Note | Year ended 31 December | |
|---|------|------------------------|--------------|
| | | 2019 | 2018 |
| Sales | 2 | 2 641 | 2 776 |
| Changes in inventories of finished goods and work in progress + / - | | -15 | 25 |
| Production for own use | | 1 | 1 |
| Other operating income | 3 | 191 | 192 |
| Materials and services | 4 | -1 899 | -1 926 |
| Personnel expenses | 5 | -229 | -224 |
| Depreciation and impairment | 6 | -118 | -159 |
| Other operating expenses | 7 | -478 | -471 |
| | | 2 546 | 2 562 |
| Operating Profit | | 95 | 213 |
| Financial income and expenses | 9 | 189 | 1 |
| Profit before Appropriations and Taxes | | 284 | 215 |
| Appropriations | 10 | -53 | 9 |
| Profit for the Period | | 230 | 223 |

Parent company statement of financial position

| EUR million | Note | As at 31 December | |
|-------------------------------------|------|-------------------|---------------|
| | | 2019 | 2018 |
| Assets | | | |
| Non-Current Assets | | | |
| Intangible assets | 12 | 79 | 90 |
| Tangible assets | 12 | 883 | 840 |
| Investments | 13 | 7 934 | 7 988 |
| Non-Current Assets Total | | 8 897 | 8 918 |
| Current Assets | | | |
| Inventories | 14 | 295 | 326 |
| Short-term receivables | 15 | 935 | 555 |
| Financial securities | 16 | 276 | 397 |
| Cash in hand and at bank | | 506 | 471 |
| Total Current Assets | | 2 012 | 1 750 |
| Total Assets | | 10 909 | 10 668 |
| Equity and Liabilities | | | |
| Equity | 17 | | |
| Share capital | | 1 342 | 1 342 |
| Share premium | | 3 639 | 3 639 |
| Fair value reserve | | -10 | -10 |
| Invested non-restricted equity fund | | 633 | 633 |
| Retained earnings | | 456 | 627 |
| Profit for the period | | 230 | 223 |
| Total Equity | | 6 291 | 6 454 |
| Accumulated Appropriations | 18 | 254 | 200 |
| Obligatory Provisions | 19 | 28 | 26 |
| Liabilities | | | |
| Non-current liabilities | 21 | 2 195 | 1 464 |
| Current liabilities | 22 | 2 141 | 2 523 |
| Total Liabilities | | 4 336 | 3 987 |
| Total Equity and Liabilities | | 10 909 | 10 668 |

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Parent company cash flow statement

| EUR million | Year ended 31 December | |
|--|------------------------|-------------|
| | 2019 | 2018 |
| Cash Provided by Operating Activities | | |
| Profit for the period | 230 | 223 |
| Adjustments and reversal of non-cash items: | | |
| Appropriations | 53 | -9 |
| Depreciation according to plan and impairment | 118 | 159 |
| Unrealised foreign exchange gains and losses | 57 | 6 |
| Other non-cash items | 0 | -3 |
| Financial income and expenses | -189 | -1 |
| Change in working capital: | | |
| Increase(-)/decrease(+) | | |
| in current non-interest-bearing receivables | 96 | -38 |
| Increase(-)/decrease(+) in inventories | 31 | -79 |
| Increase(+)/decrease(-) | | |
| in current non-interest-bearing liabilities | -94 | 30 |
| Cash flow from operating activities before financial items and taxes | 303 | 288 |
| Interest received from operating activities | 30 | 25 |
| Interest paid from operating activities | -73 | -64 |
| Dividends received from operating activities | 267 | 76 |
| Other financial items, net | 8 | -35 |
| Direct taxes paid | -2 | -1 |
| Cash Provided by Operating Activities | 533 | 289 |
| Net Cash Provided by Investing Activities | | |
| Investments in tangible and intangible assets | -155 | -185 |
| Capital gains from sale of tangible and intangible assets | 3 | 6 |
| Investments in subsidiary shares and other capital contributions | -2 | -61 |
| Proceeds from disposal of subsidiary shares and other repayment of capital | 7 | 2 |
| Proceeds from disposal of other investments | 2 | 1 |
| Payments of non-current loan receivables | -843 | -345 |
| Proceeds from non-current loan receivables | 371 | 350 |
| Net Cash Provided by Investing Activities | -617 | -232 |
| Cash Flow from Financing Activities | | |
| Proceeds from (issue of) long-term liabilities | 801 | 299 |
| Proceeds from (payment of) long-term liabilities | -101 | -226 |
| Change in short-term borrowings | -309 | -128 |
| Dividends paid | -394 | -323 |
| Cash Flow from Financing Activities | -3 | -378 |
| Net Change in Cash and Cash Equivalents | -87 | -321 |
| Translation differences | 1 | -1 |
| Cash and cash equivalents at start of year | 868 | 1 190 |
| Cash and Cash Equivalents at year end | 782 | 868 |
| Cash and Cash Equivalents at year end includes: | | |
| Financial securities | 276 | 397 |
| Cash in hand and at bank | 506 | 471 |
| Cash and Cash Equivalents total | 782 | 868 |

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Note 1 Accounting Principles

The financial statements of Stora Enso Oyj have been prepared in accordance with the Finnish Accounting Act and other current rules and regulations concerning financial statements in Finland.

Derivative contracts

Stora Enso is exposed to several financial market risks that the Group is responsible for managing under policies approved by the Board of Directors. The objective is to have cost-effective funding in Group companies and to manage financial risks using financial instruments in order to decrease earnings volatility. The main exposures for the Group are interest rate risk, currency risk, funding risk and commodity price risk, especially for fibre and energy. The parent company manages these risks centrally in the Group. The Group's risk management principles are presented in more detail in [Note 24](#) Financial Risk Management to the consolidated financial statements. Derivative contracts are measured at fair value on the balance sheet. Derivatives with external counterparties that are subject to hedge accounting are recognised as financial assets and liabilities at fair value through the income statement in the same manner as the parent company's derivatives with other Group companies as counterparties. The parent company's derivative contracts that are used to hedge the parent company's own cash flow are measured at fair value, and the change in fair value (effective part) is recognised, in line with hedge accounting principles, in the fair value reserve in equity on the balance sheet, while the ineffective part is recognised in the parent company's income statement. The fair value of derivatives not included in hedge accounting is entered immediately in the income statement.

Interest income and expenses related to derivatives that are used to manage the interest rate risk are allocated over the contract period and are used to adjust interest expenses related to hedged loans. Option premiums are recognised as advance payments until the options mature.

With regard to derivatives, more information about the measurement principles, fair values and changes in fair value is provided in [Note 24](#).

Pensions

Statutory pension security is arranged through employment pension insurance companies outside the Group. Some employees have additional pension security through life insurance companies outside the Group. Pension contributions are allocated in accordance with performance-based salaries and wages for the financial period.

Intangible and tangible assets and depreciation

The balance sheet value of intangible and tangible assets is their direct acquisition cost less depreciation according to plan and any impairment. Depreciation according to plan is recognised for intangible and tangible assets, based on their expected useful lives.

Depreciation is based on the following useful lives:

| | |
|------------------------------------|-------------|
| Buildings and structures | 10–50 years |
| Production machinery and equipment | 10–20 years |
| Light machinery and equipment | 3–5 years |
| Intellectual property rights | 3–20 years |

No depreciation is recognised for land and water areas.

Inventories

Inventories are measured at acquisition cost or at net realisable value if lower. Acquisition cost is determined using the FIFO method or the weighted average cost method. The cost of finished goods and work in progress comprises raw materials, direct labour, depreciation and other direct costs, as well as the related production overhead. Net realisable value is the estimated selling price less the costs of completion and sale.

Leasing

Leasing payments are recognised in other operating expenses. The remaining leasing payments under leasing agreements are presented in [Note 23](#) Commitments and Contingencies.

Expenditure on research and development

Expenditure on research and development is recognised as an expense for the financial period.

Income taxes

The tax expense on the income statement includes income taxes based on the taxable profit for the financial period and tax adjustments for previous periods. The parent company does not recognise deferred tax assets and liabilities, excluding derivatives, in its financial statements. Deferred tax assets and liabilities that can be recognised on the balance sheet are presented in [Note 20](#).

Obligatory provisions

Future costs and losses that no longer generate corresponding income, to which the company is committed or by which the company

is obligated, are recognised in the income statement according to their nature and in obligatory provisions on the balance sheet.

Emission rights

During 2019, the company was issued 0.4 million tonnes of free emission allowances in accordance with the EU Emissions Trading Directive. Emission allowances are recognised through a net cash cost basis, meaning that the difference between the actual emissions and the emission allowances received is recognised through profit or loss if the actual emissions are larger than the emission allowances received. During the financial period, the emissions emitted were 0.5 million tonnes. The emission rights purchased during the financial period are recognised in other operating expenses, and the emission rights sold during the financial period are recognised in other operating income.

At the end of the financial period, the market value of the emission rights was EUR 24.48 per tonne.

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Note 2 Net sales by division and market area

| EUR million | Year ended 31 December | |
|-------------------------------|------------------------|--------------|
| | 2019 | 2018 |
| By division | | |
| Consumer Board | 1 094 | 1 124 |
| Packaging Solutions | 384 | 414 |
| Biomaterials | 241 | 334 |
| Other | 923 | 904 |
| Total | 2 641 | 2 776 |
| Distribution by region | | |
| Finland | 1 258 | 1 340 |
| Other Europe | 925 | 962 |
| North and South America | 121 | 92 |
| Asia and Oceania | 263 | 298 |
| Africa | 29 | 31 |
| Others | 45 | 53 |
| Total | 2 641 | 2 776 |

Note 3 Other operating income

| EUR million | Year ended 31 December | |
|--|------------------------|------------|
| | 2019 | 2018 |
| Rent and equivalents | 4 | 5 |
| Gains on sale of fixed assets | 2 | 3 |
| Insurance compensation | 2 | 0 |
| Production and maintenance services | 4 | 8 |
| Subsidies, grants and equivalents | 2 | 2 |
| Administration services | 141 | 133 |
| Proceeds from sales of emission rights | 17 | 7 |
| Other operating income | 20 | 33 |
| Total | 191 | 192 |

Note 4 Materials and services

| EUR million | Year ended 31 December | |
|-------------------------------------|------------------------|--------------|
| | 2019 | 2018 |
| Materials and supplies | | |
| Purchases during the period | 1 376 | 1 449 |
| Change in inventories +/- | 15 | -60 |
| External services | 508 | 537 |
| Total Materials and Services | 1 899 | 1 926 |

Note 5 Personnel expenses and average number of employees

| EUR million | Year ended 31 December | |
|--------------------------|------------------------|------------|
| | 2019 | 2018 |
| Salaries and fees | 189 | 185 |
| Statutory employer costs | | |
| Pensions | 33 | 33 |
| Other personnel costs | 6 | 7 |
| Total | 229 | 224 |

Remuneration for the CEO and the members of the Board of Directors

Remuneration for the CEO and the members of the Board of Directors is presented in [Note 7](#) to the Consolidated financial statements.

Pension liabilities for the CEO

Pension liabilities for the CEO are presented in [Note 7](#) to the Consolidated financial statements.

Receivables from management

There were no loan receivables from the company's management.

| Average number of employees | 2019 | 2018 |
|---|-------|-------|
| Number of employees during the financial period | 3 021 | 2 930 |

Note 6 Depreciation and impairment

| EUR million | Year ended 31 December | |
|--------------------------------|------------------------|------------|
| | 2019 | 2018 |
| Depreciation according to plan | 115 | 159 |
| Impairment of fixed assets | 3 | 0 |
| Total | 118 | 159 |

Depreciation and amortisation on each item in the statement of financial position is included under intangible and tangible assets.

Note 7 Other operating expenses

| EUR million | Year ended 31 December | |
|------------------------------------|------------------------|------------|
| | 2019 | 2018 |
| Product freight | 149 | 159 |
| Sales commissions | 41 | 40 |
| Rental costs | 13 | 15 |
| Administration and office services | 209 | 207 |
| Insurance premiums | 7 | 6 |
| Other personnel expenses | 20 | 23 |
| Public and other relations | 3 | 3 |
| Emission rights expenses | 18 | 8 |
| Other operating expenses | 16 | 10 |
| Total | 478 | 471 |

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Note 8 Auditors' fees

| EUR million | Year ended 31 December | |
|--------------|------------------------|----------|
| | 2019 | 2018 |
| Audit fees | 1 | 1 |
| Total | 1 | 1 |

Note 9 Financial income and expenses

| EUR million | Year ended 31 December | |
|--|------------------------|-------------|
| | 2019 | 2018 |
| Dividend income | | |
| From Group companies | 253 | 65 |
| From equity accounted investments | 14 | 12 |
| Total | 267 | 76 |
| Interest income from non-current investments | | |
| From Group companies | 35 | 24 |
| Total | 35 | 24 |
| Other interest and financial income | | |
| From Group companies | 1 | 2 |
| From others | 14 | 13 |
| Total | 15 | 16 |
| Total Financial Income | 317 | 116 |
| Interest and other financial expenses | | |
| To Group companies | -1 | -1 |
| Other financial expenses | -111 | -113 |
| Total | -112 | -114 |
| Impairment on investments | | |
| Impairment on investments in non-current assets | -17 | 0 |
| Total Financial Expenses | -129 | -114 |
| Total Financial Income and Expenses | 189 | 1 |
| The item "Financial Income and Expenses" includes exchange rate gains/losses (net) | -27 | -31 |

Note 10 Appropriations

| EUR million | Year ended 31 December | |
|---|------------------------|----------|
| | 2019 | 2018 |
| Difference between depreciation according to plan and depreciation recognised in taxation | -54 | 9 |
| Group contributions received | 1 | 0 |
| Total Appropriations | -53 | 9 |

Note 11 Environmental expenses

| EUR million | Year ended 31 December | |
|---|------------------------|-----------|
| | 2019 | 2018 |
| Materials and services | 35 | 36 |
| Personnel expenses | 2 | 3 |
| Depreciation and impairment | 10 | 13 |
| Total | 48 | 51 |
| Air quality protection | 12 | 14 |
| Wastewater treatment | 22 | 22 |
| Waste management | 10 | 9 |
| Soil and groundwater protection | 0 | 1 |
| Other environmental protection measures | 3 | 5 |
| Total | 48 | 51 |

Note 12 Intangible and tangible assets

| EUR million | Intellectual property rights | Other non-current expenditure | Advance payments and acquisitions in progress | Total |
|---|------------------------------|-------------------------------|---|-------------|
| | | | | |
| Acquisition cost 1 Jan | 168 | 12 | 26 | 206 |
| Increases | 6 | 0 | 2 | 8 |
| Decreases | -3 | -4 | 0 | -8 |
| Reclassification | 5 | 4 | -9 | 0 |
| Acquisition cost 31 Dec | 176 | 11 | 18 | 206 |
| Accumulated depreciation and impairment 1 Jan | -108 | -7 | 0 | -116 |
| Accumulated depreciation on decreases and reclassifications | 3 | 4 | 0 | 8 |
| Depreciation for the period | -13 | -6 | 0 | -19 |
| Accumulated depreciation 31 Dec | -118 | -9 | 0 | -127 |
| Book value on 31 December 2019 | 58 | 3 | 18 | 79 |
| Book value on 31 December 2018 | 60 | 4 | 26 | 90 |

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Tangible assets

| EUR million | Land and water areas | Buildings and structures | Plant and equipment | Other tangible assets | Advance payments and acquisitions in progress | Total |
|---|----------------------|--------------------------|---------------------|-----------------------|---|------------|
| Acquisition cost 1 Jan | 18 | 506 | 2 266 | 178 | 121 | 3 089 |
| Increases | 0 | 9 | 90 | 0 | 45 | 144 |
| Decreases | 0 | -7 | -2 | -2 | 0 | -11 |
| Reclassification | 0 | 16 | 101 | 1 | -118 | 0 |
| Acquisition cost 31 Dec | 18 | 524 | 2 455 | 177 | 49 | 3 223 |
| Accumulated depreciation and impairment 1 Jan | 0 | -363 | -1 729 | -160 | 0 | -2 252 |
| Accumulated depreciation on decreases and reclassifications | 0 | 7 | 1 | 2 | 0 | 10 |
| Depreciation for the period | 0 | -12 | -80 | -4 | 0 | -96 |
| Impairment for the period | 0 | 0 | -3 | 0 | 0 | -3 |
| Accumulated depreciation 31 Dec | 0 | -368 | -1 811 | -162 | 0 | -2 341 |
| Increase in value 1 Jan | 2 | 0 | 0 | 0 | 0 | 2 |
| Increase in value 31 Dec | 2 | 0 | 0 | 0 | 0 | 2 |
| Book value on 31 December 2019 | 20 | 156 | 644 | 15 | 49 | 883 |
| Book value on 31 December 2018 | 20 | 143 | 538 | 18 | 121 | 840 |

Production plant and equipment

| | |
|---------------------------------------|-----|
| Book value on 31 December 2019 | 623 |
| Book value on 31 December 2018 | 514 |

Tangible assets includes capitalized interest costs EUR 2 million (EUR 2 million in 2018).

Advance payments and acquisitions in progress

| EUR million | Intangible assets | Buildings and structures | Plant and equipment | Other tangible assets | Total |
|-------------------------|-------------------|--------------------------|---------------------|-----------------------|-------|
| Acquisition cost 1 Jan | 26 | 12 | 108 | 1 | 147 |
| Increases | 2 | 0 | 44 | 1 | 47 |
| Reclassification | -9 | -12 | -105 | -1 | -126 |
| Acquisition cost 31 Dec | 18 | 0 | 48 | 1 | 67 |

| EUR million | As at 31 December | |
|--|-------------------|-----------|
| | 2019 | 2018 |
| Capitalised Environmental Expenditure | | |
| Acquisition cost 1 Jan | 83 | 76 |
| Increases 1 Jan - 31 Dec | 15 | 19 |
| Depreciation and impairment 1 Jan - 31 Dec | -10 | -13 |
| Acquisition Cost 31 Dec | 87 | 83 |
| Air quality protection | 50 | 50 |
| Wastewater treatment | 22 | 26 |
| Waste management | 3 | 4 |
| Soil and groundwater protection | 11 | 2 |
| Noise and vibration prevention | 1 | 1 |
| Total | 87 | 83 |

In 2019 and 2018, no environmentally based fines, charges or compensation were paid, and no subsidies or grants were received for environmental protection.

Note 13 Non-current investments in shares and loan receivables

| EUR million | Shares in Group companies | Loan receivables from Group companies | Shares in Associated companies | Loan receivables from Associated companies | Other shares | Other receivables | Total Investments |
|---------------------------------------|---------------------------|---------------------------------------|--------------------------------|--|--------------|-------------------|-------------------|
| Acquisition cost 1 Jan | 6 236 | 1 520 | 37 | 2 | 181 | 51 | 8 028 |
| Increases | 2 | 774 | 0 | 0 | 0 | 21 | 797 |
| Decreases | -7 | -839 | 0 | 0 | -2 | -3 | -851 |
| Acquisition cost 31 Dec | 6 231 | 1 455 | 37 | 2 | 180 | 68 | 7 973 |
| Impairments 1 Jan | -38 | 0 | 0 | 0 | -1 | 0 | -39 |
| Impairments 31 Dec | -38 | 0 | 0 | 0 | -1 | 0 | -39 |
| Book value on 31 December 2019 | 6 193 | 1 455 | 37 | 2 | 178 | 68 | 7 934 |
| Book value on 31 December 2018 | 6 199 | 1 520 | 37 | 2 | 180 | 51 | 7 988 |

Note 14 Inventories

| EUR million | As at 31 December | |
|------------------------|-------------------|------------|
| | 2019 | 2018 |
| Materials and supplies | 154 | 169 |
| Work in progress | 7 | 6 |
| Finished goods | 121 | 138 |
| Other inventories | 13 | 13 |
| Total | 295 | 326 |

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Note 15 Short-term receivables

| EUR million | As at 31 December | |
|--|-------------------|------------|
| | 2019 | 2018 |
| Short-term loan receivables | | |
| Receivables from Group companies | | |
| Loan receivables | 583 | 69 |
| Commodity derivative receivables | 5 | 0 |
| Interest receivables | 28 | 40 |
| Total | 615 | 109 |
| Receivables from others | | |
| Loan receivables | 3 | 0 |
| Commodity derivative receivables | 1 | 36 |
| Other receivables | 15 | 13 |
| Interest receivables | 4 | 5 |
| Total | 22 | 54 |
| Total current interest-bearing receivables | 637 | 163 |
| Current Non-Interest-Bearing Receivables | | |
| Receivables from Group companies | | |
| Trade receivables | 103 | 117 |
| Other receivables | 1 | 49 |
| Commodity derivative receivables | 1 | 5 |
| Accrued income | 0 | 4 |
| Total | 104 | 175 |
| Receivables from others | | |
| Trade receivables | 142 | 178 |
| Deferred tax assets | 2 | 2 |
| Other receivables | 21 | 11 |
| Accrued income | 28 | 26 |
| Total | 194 | 217 |
| Stora Enso may enter into factoring agreements to sell trade receivables in order to accelerate cash conversion. Nominally, such agreements led to the nominal derecognition of EUR 51.4 million (EUR 48.1 million in 2018) by the end of the financial period. The continuing involvement of Stora Enso in the sold receivables was estimated as being insignificant due to the non-recourse nature of the factoring arrangements involved. | | |
| EUR million | As at 31 December | |
| | 2019 | 2018 |
| Total current non-interest-bearing receivables | 298 | 392 |
| Total current receivables | 935 | 555 |
| Significant accruals | | |
| Other accruals from Group | 0 | 4 |
| Tax-equivalent receivables | 15 | 14 |
| Advances paid | 5 | 2 |
| Other accruals | 9 | 10 |
| Total | 28 | 30 |

Note 16 Financial securities

| EUR million | As at 31 December | |
|----------------------|-------------------|------------|
| | 2019 | 2018 |
| From Group companies | 86 | 82 |
| From others | 190 | 315 |
| Total | 276 | 397 |

Note 17 Shareholders' equity

| EUR million | As at 31 December | |
|---|-------------------|--------------|
| | 2019 | 2018 |
| Restricted Shareholders' Equity | | |
| Share capital 1 Jan | 1 342 | 1 342 |
| Share capital 31 Dec | 1 342 | 1 342 |
| Share premium fund 1 Jan | 3 639 | 3 639 |
| Share premium fund 31 Dec | 3 639 | 3 639 |
| Fair value reserve 1 Jan | -10 | 1 |
| Increase (-) / Decrease (+) | 0 | -11 |
| Fair value reserve 31 Dec | -10 | -10 |
| Total Restricted Equity | 4 971 | 4 971 |
| Change in share capital and number of shares are presented in Note 18 to the Consolidated financial statements. | | |
| Non-Restricted Shareholders' Equity | | |
| Invested unrestricted equity reserve 1 Jan | 633 | 633 |
| Invested unrestricted equity reserve 31 Dec | 633 | 633 |
| Retained earnings 1 Jan | 850 | 950 |
| Dividend distribution | -394 | -323 |
| Retained earnings 31 Dec | 456 | 627 |
| Profit for the period | 230 | 223 |
| Total Non-Restricted Equity | 1 319 | 1 483 |
| Total Shareholders' Equity | 6 291 | 6 454 |
| Calculation of Distributable Equity 31 Dec | | |
| Fair value reserve 31 Dec | -10 | -10 |
| Invested unrestricted equity reserve 31 Dec | 633 | 633 |
| Retained earnings 31 Dec | 456 | 627 |
| Profit for the period | 230 | 223 |
| Total | 1 310 | 1 473 |

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Note 18 Accumulated appropriations

| EUR million | As at 31 December | |
|--------------------------------|-------------------|------------|
| | 2019 | 2018 |
| Depreciation difference | | |
| Intellectual property rights | 2 | 2 |
| Other non-current expenditure | -1 | 0 |
| Buildings and structures | 25 | 26 |
| Plant and equipment | 227 | 170 |
| Other tangible assets | 1 | 2 |
| Total | 254 | 200 |

Note 19 Obligatory provisions

| EUR million | As at 31 December | |
|--------------------------|-------------------|-----------|
| | 2019 | 2018 |
| Restructuring provisions | 3 | 3 |
| Environmental provisions | 21 | 22 |
| Other provisions | 4 | 1 |
| Total | 28 | 26 |

Note 20 Deferred tax liabilities and receivables

| EUR million | As at 31 December | |
|---|-------------------|-----------|
| | 2019 | 2018 |
| Deferred tax liability due to depreciation difference | -35 | -25 |
| Deferred tax receivable due to derivatives | 2 | 2 |
| Deferred tax receivable due to loss | 61 | 61 |
| Deferred tax receivable due to provisions | 5 | 4 |
| Deferred tax receivables and liabilities due to other temporary differences | -9 | -13 |
| Total deferred tax receivable | 24 | 29 |

Deferred tax liabilities and receivables excluding derivatives have not been recognised on the balance sheet.

Note 21 Non-current liabilities

| EUR million | As at 31 December | |
|--|-------------------|--------------|
| | 2019 | 2018 |
| Non-current liabilities | | |
| Bonds | 1 983 | 1 308 |
| Loans from credit institutions | 212 | 157 |
| Total | 2 195 | 1 464 |
| Liabilities with maturities later than five years | | |
| Bonds | 1 109 | 1 008 |
| Total | 1 109 | 1 008 |

Specifications of Bond loans are presented in [Note 26](#) Interest-bearing liabilities in Consolidated financial statements.

Note 22 Current liabilities

| EUR million | As at 31 December | |
|--|-------------------|--------------|
| | 2019 | 2018 |
| Current Interest-Bearing Liabilities | | |
| Liabilities to Group companies | | |
| Other loans | 1 329 | 1 458 |
| Commodity derivative liabilities | 1 | 35 |
| Total | 1 330 | 1 493 |
| Liabilities to others | | |
| Other loans | 255 | 311 |
| Commodity derivative liabilities | 5 | 2 |
| Interest due | 22 | 33 |
| Bonds | 0 | 219 |
| Loans from credit institutions | 99 | 4 |
| Total | 381 | 568 |
| Total current interest-bearing liabilities | 1 712 | 2 061 |
| Current non-interest-bearing liabilities | | |
| Liabilities to Group companies | | |
| Trade payables | 89 | 62 |
| Commodity derivative liabilities | 1 | 3 |
| Accrued liabilities and deferred income | 1 | 1 |
| Total | 92 | 66 |
| Liabilities to equity accounted investments | | |
| Trade payables | 37 | 30 |
| Total | 37 | 30 |
| Liabilities to others | | |
| Advances received | 1 | 2 |
| Trade payables | 208 | 256 |
| Other loans | 14 | 28 |
| Accrued liabilities and deferred income | 77 | 80 |
| Total | 301 | 366 |
| Total Current Non-Interest-Bearing Liabilities | 429 | 462 |
| Total Current Liabilities | 2 141 | 2 523 |
| Substantial Accrued Liabilities and Deferred Income | | |
| Payroll payments accrued | 46 | 48 |
| Annual discounts | 17 | 17 |
| Other accrued liabilities and deferred income | 15 | 16 |
| Total | 79 | 81 |

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Note 23 Commitments and contingencies

| EUR million | As at 31 December | |
|---|-------------------|--------------|
| | 2019 | 2018 |
| For Group debt | | |
| Guarantees | 1 291 | 1 676 |
| For joint venture debt | | |
| Guarantees | 212 | 284 |
| On behalf of Group companies | | |
| Guarantees | 4 | 4 |
| On behalf of others | | |
| Guarantees | 0 | 16 |
| Other commitments, own | | |
| Leasing commitments, in next 12 months | 7 | 8 |
| Leasing commitments, after next 12 months | 10 | 16 |
| Mortgages | 2 | 2 |
| Lease commitments | 6 | 6 |
| Other commitments | 1 | 4 |
| Total | 1 533 | 2 017 |
| | | |
| Mortgages | 2 | 2 |
| Guarantees | 1 507 | 1 981 |
| Leasing commitments | 17 | 24 |
| Lease commitments | 6 | 6 |
| Other commitments | 1 | 4 |
| Total | 1 533 | 2 017 |

Contingent liabilities

Stora Enso Oyj has implemented significant restructuring measures in recent years. These measures have included divestments of business operations and production units, as well as mill closures. These transactions include a risk of possible environmental or other obligations, the existence of which would be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group. A provision has been recognised for obligations for which the related amount can be estimated reliably.

Stora Enso Oyj is party to legal proceedings that arise in the ordinary course of business and primarily involve claims arising out of commercial law. The company management does not believe that such processes as a whole, before any insurance compensation, would have significant impacts on the company's financial position or profit from operations. Some of the most significant legal proceedings are described in [Note 29](#) to the consolidated financial statements.

Note 24 Financial instruments

Valuation of derivatives

The fair value is defined as the amount at which a derivative instrument could be exchanged in an orderly transaction between market participants at the measurement date. The fair values of such instruments are determined on the following basis:

- Currency forward contract fair values are calculated using forward exchange rates on the reporting date.
- Currency option contract fair values are calculated using reporting date market rates together with common option pricing models.

- Commodity contract fair values are computed with reference to quoted market prices on futures exchanges or other reliable market sources.
- Interest rate swaps fair values are calculated using a discounted cash flow method.

Fair value hierarchy

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

- Level 1: quoted (unadjusted) prices in active markets for identical assets or liabilities;
- Level 2: other techniques, for which all inputs that have a significant effect on the recorded fair value are observable, either directly or indirectly;
- Level 3: techniques which use inputs that have a significant effect on the recorded fair values that are not based on observable market data.

The parent company's derivatives are classified as Level 2 in the fair value hierarchy.

Nominal and fair values of derivative instruments

| EUR million | As at 31 December 2019 | | | |
|---|------------------------|----------------------|----------------------|------------------|
| | Nominal values | Positive fair values | Negative fair values | Fair values, Net |
| Cash flow hedges entered on behalf of the parent company and its subsidiaries, for which hedge accounting is applied in target companies | | | | |
| Currency forwards | 1 401 | 13 | -14 | -1 |
| Currency options | 2 697 | 16 | -17 | -1 |
| Commodity contracts | 133 | 6 | -6 | 0 |
| Interest rate swaps | 533 | 0 | -12 | -11 |
| Non-hedge accounted derivatives | | | | |
| Currency forwards | 364 | 3 | -1 | 2 |
| Commodity contracts | 0 | 0 | 0 | 0 |
| Total | 5 127 | 38 | -49 | -11 |
| of which against subsidiaries | 1 968 | 19 | -15 | 4 |
| of which against external parties | 3 159 | 19 | -34 | -15 |

| EUR million | As at 31 December 2018 | | | |
|---|------------------------|----------------------|----------------------|------------------|
| | Nominal values | Positive fair values | Negative fair values | Fair values, Net |
| Cash flow hedges entered on behalf of the parent company and its subsidiaries, for which hedge accounting is applied in target companies | | | | |
| Currency forwards | 2 401 | 19 | -21 | -1 |
| Currency options | 2 463 | 24 | -28 | -4 |
| Commodity contracts | 147 | 35 | -36 | -1 |
| Interest rate swaps | 150 | 0 | -6 | -6 |
| Non-hedge accounted derivatives | | | | |
| Currency forwards | 1 555 | 8 | -9 | -1 |
| Commodity contracts | 2 | 1 | -1 | 0 |
| Total | 6 718 | 87 | -101 | -14 |
| of which against subsidiaries | 3 188 | 35 | -49 | -15 |
| of which against external parties | 3 530 | 53 | -52 | 1 |

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Fair value reserve

The net amount of the parent company's unrealised cash flow hedge losses in the fair value reserve was EUR 9.5 million, which was related to currency and interest rate derivatives. Currency and interest rate derivatives also include a loss of EUR 0.2 million related to the time value of options. These unrealised losses are recognised in the income statement upon the maturity of the hedging contracts. The longest hedging contract will mature in 2027. However, the majority of the contracts are expected to mature during 2020. The ineffective portions of hedges are recognised as adjustments to revenue or materials and services according to the hedged item. In 2019, a loss of EUR 0.2 million was booked as an adjustment to sales due to ineffectiveness from cash flow hedges. Derivatives used in currency cash flow hedges are mainly forward contracts and options. Swaps are mainly used in commodity hedges and interest rate cash flow hedges.

Hedge gains and losses in operating profit

| EUR million | Year ended 31 December | |
|---|------------------------|----------|
| | 2019 | 2018 |
| Cash flow hedge accounted derivatives | | |
| Currency hedges | -13 | 2 |
| Commodity hedges | -1 | 6 |
| Total | -14 | 8 |
| As adjustments to sales | -13 | 2 |
| As adjustments to materials and services | -1 | 6 |
| Items realised from the fair value reserve that are recognised in the income statement | -14 | 8 |
| Net gains/losses from cash flow hedges | -14 | 8 |

Hedge gains and losses in financial items

| EUR million | Year ended 31 December | |
|--|------------------------|------------|
| | 2019 | 2018 |
| Non-hedge accounted derivatives | | |
| Currency derivatives | -14 | -20 |
| Net losses in financial items | -14 | -20 |

Sensitivity of currency derivatives to strengthening of EUR

| EUR million | 31 December 2019 | | |
|--|------------------|-------|-------|
| | SEK | USD | GBP |
| Currency change against EUR | -5.0% | -5.0% | -5.0% |
| Currency derivatives hedging cash flow next 12 months in EUR | 0 | 158 | 16 |
| Estimated effect on fair value reserve in EUR | 0 | 6 | 1 |

Sensitivity of commodity derivatives to price risk

A 10% increase or decrease in the price of energy and raw materials would cause an estimated EUR 0.6 million change to the fair value of hedging contracts for energy and raw materials. Most of these changes in fair value are entered directly in the fair value reserve until the contracts mature and the result is entered in the income statement.

More detailed information about financial instruments are presented in [Note 24](#) Financial risk management, [Note 25](#) Fair values and [Note 27](#) Derivatives to the Consolidated financial statements.

Note 25 Related party transactions

| EUR million | 31 December | |
|---|-------------|------|
| | 2019 | 2018 |
| Related party transactions with associated companies and joint ventures: | | |
| Purchase of materials and supplies during the year | 10 | 57 |
| Non-current loan receivables at year end | 2 | 2 |
| Trade payables at year end | 37 | 30 |

During 2019 Stora Enso Oyj gave a significant additional loan to Stora Enso Ab for the purchase of Bergvik Skog Ab shares and the repayment of the transaction financing loan. Ordinary commercial terms were used in the loan agreement. The Group's principles for related party transactions are presented in [Note 31](#) to the Consolidated financial statements.

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Signatures for the financial statements

There have been no material changes in the Parent Company's financial position since 31 December 2019. The liquidity of the Parent Company remains good and the proposed dividend does not risk the solvency of the Company.

Helsinki, 29 January 2020

Jorma Eloranta
Chair

Hans Stråberg
Vice Chair

Elisabeth Fleuriot

Hock Goh

Mikko Helander

Christiane Kuehne

Antti Mäkinen

Richard Nilsson

Göran Sandberg

Annica Bresky
President and CEO

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Auditor's report

(Translation of the Finnish Original)

To the Annual General Meeting of Stora Enso Oyj

Report on the Audit of Financial Statements

Opinion

In our opinion

- the consolidated financial statements give a true and fair view of the group's financial position and financial performance and cash flows in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU
- the financial statements give a true and fair view of the parent company's financial performance and financial position in accordance with the laws and regulations governing the preparation of the financial statements in Finland and comply with statutory requirements.

Our opinion is consistent with the additional report to the Financial and Audit Committee.

What we have audited

We have audited the financial statements of Stora Enso Oyj (business identity code 1039050-8) for the year ended 31 December 2019. The financial statements comprise:

- the consolidated statement of financial position, income statement, statement of comprehensive income, statement of changes in equity, statement of cash flows and notes, including a summary of significant accounting policies
- the parent company's statement of financial position, income statement, statement of cash flows and notes.

Basis for Opinion

We conducted our audit in accordance with good auditing practice in Finland. Our responsibilities under good auditing practice are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

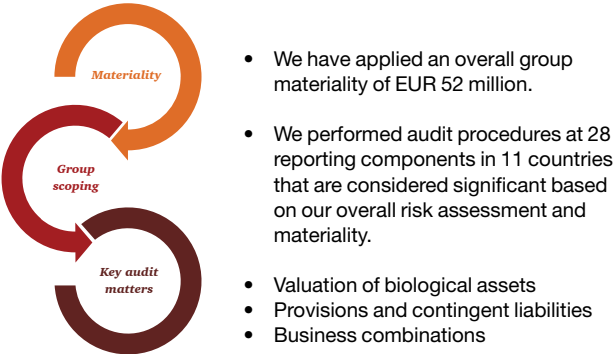
Independence

We are independent of the parent company and of the group companies in accordance with the ethical requirements that are applicable in Finland and are relevant to our audit, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

To the best of our knowledge and belief, the non-audit services that we have provided to the parent company and to the group companies are in accordance with the applicable law and regulations in Finland and we have not provided non-audit services that are prohibited under Article 5(1) of Regulation (EU) No 537/2014. The non-audit services that we have provided are disclosed in [Note 5](#) to the Financial Statements.

Our Audit Approach

Overview



As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements. In particular, we considered where management made subjective judgements; for example, in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain.

Materiality

The scope of our audit was influenced by our application of materiality. An audit is designed to obtain reasonable assurance whether the financial statements are free from material misstatement. Misstatements may arise due to fraud or error. They are considered material if individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

Based on our professional judgement, we determined certain quantitative thresholds for materiality, including the overall group materiality for the consolidated financial statements as set out in the table below. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures and to evaluate the effect of misstatements on the financial statements as a whole.

| | |
|---|---|
| Overall group materiality | EUR 52 million |
| How we determined it | Based on profit before tax |
| Rationale for the materiality benchmark applied | We chose operating profit and total assets as the benchmarks because, in our view, they are relevant benchmarks against which the performance of the group is commonly measured by users of the financial statements. |

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How we tailored our group audit scope

We tailored the scope of our audit, taking into account the structure of the group, the accounting processes and controls, and the industry in which the group operates.

The Group operates in a significant number of legal entities or “reporting components” globally. We determined the nature, timing and extent of audit work that needed to be performed at reporting components by us, as the group engagement team, or component auditors operating under our instruction. Where the work was performed by component auditors, we issued specific instructions to those auditors which included our risk analysis, materiality and global audit approach. We performed audit procedures at 28 reporting components in 11 countries that are considered significant based on our overall risk assessment and materiality. We have considered that the remaining reporting components do not present a reasonable risk of material misstatement for consolidated financial statements and thus our procedures related to these reporting components have been limited to targeted audit procedures over significant balances and to analytical procedures performed at group level.

By performing the procedures above at reporting components, combined with additional procedures at the group level, we have obtained sufficient and appropriate evidence regarding the financial information of the group as a whole to provide a basis for our opinion on the consolidated financial statements.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements of the current period. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

As in all of our audits, we also addressed the risk of management override of internal controls, including among other matters consideration of whether there was evidence of bias that represented a risk of material misstatement due to fraud.

| Key audit matter in the audit of the group | How our audit addressed the key audit matter |
|---|---|
| Valuation of Biological Assets Refer to Note 1 , Note 2 and Note 12 in the consolidated financial statements for the related disclosures The fair value of the Group's biological assets owned through subsidiaries, joint operations and associated companies amounts to EUR 4 380 million as of December 31, 2019. The value of biological assets is measured at fair value less costs to sell. The fair value is determined using discounted cash flows based on sustainable forest management plans taking into account the growth potential of one cycle. The one cycle varies depending on the geographic location and species. Determining the discounted cash flows requires estimates of growth, harvest, sales price and costs. Due to the level of judgment involved in the valuation of biological assets, complexity of the governance structure as well as the significance of biological assets to the Group's financial position, this is considered to be a key audit matter. | We obtained an understanding of management's biological asset valuation process, evaluated the design and tested the operating effectiveness of internal controls related to directly and indirectly owned biological assets. Our audit procedures over valuation of directly owned biological asset included: <ul style="list-style-type: none"> • Evaluation of the methodology adopted by management for the valuation; • Testing the mathematical accuracy of the model used for valuation; • Assessment of the discount rates applied in the valuation; • Assessment of the other key valuation assumptions; and • Validation of key inputs and data used in the valuation model including sales price assumptions, growth assumptions and cost assumptions. We involved valuation specialists in the audit work over valuation of directly owned biological assets. Related to indirectly owned biological assets we have communicated with the auditors of the three largest associates and joint operations. As part of the communication, among other things, we have evaluated the key audit procedures performed related to valuation of biological assets. |

| Key audit matter in the audit of the group | How our audit addressed the key audit matter |
|---|--|
| Provisions and contingent liabilities Refer to Note 2 , Note 22 and Note 29 in the consolidated financial statements for the related disclosures As of 31 December 2019, the Group had environmental, restructuring and other provisions totaling EUR 165 million. In addition, the Group has disclosed significant open legal cases and other contingent liabilities in Note 29 . The assessment of the existence of the present legal or constructive obligation, the analysis of the probability of the outflow of future economic benefits, and the analysis of a reliable estimate, require management's judgement to ensure appropriate accounting or disclosures. Due to the level of judgement relating to recognition, valuation and presentation of provisions and contingent liabilities, this is considered to be a key audit matter. | We obtained an understanding of management's process to identify new obligations and changes in existing obligations. We analysed significant changes in material provisions from prior periods and obtained a detailed understanding of these changes and assumptions applied. Our audit procedures related to material provisions recognized included: <ul style="list-style-type: none"> • Assessment of the recognition criteria for the liability; • Evaluation of the methodology adopted by management for the measurement of the liability; • Testing of the mathematical accuracy of the measurement calculation; • Assessment of the discount rates applied in the measurement; and • Assessment of the other key measurement assumptions and inputs. We obtained legal letters on the main outstanding legal cases. We reviewed minutes of the board meetings including sub committees. We assessed the appropriateness of the presentation of the most significant contingent liabilities in the consolidated financial statements. |
| Business combinations Refer to Note 4 in the consolidated financial statements for the related disclosures The Group acquired control in Bergvik Skog Väst AB on May 31, 2019. The acquisition was accounted for as a business combination. The purchase consideration included a cash part of EUR 500 million and a fair value of the previously indirectly owned shares of Bergvik Skog Väst AB of EUR 1 106 million. Most of the assets acquired were biological assets. The fair value of biological assets was estimated to be EUR 2 598 million. The acquisition resulted in recognition of goodwill of EUR 57 million. The accounting for the business combination is reported as provisional in the consolidated financial statements. Due to the level of judgment included in accounting for business combinations, and the valuation of the assets acquired and the non-cash purchase consideration, as well as the significance of the business combination to the Group's financial position this is considered to be a key audit matter. | We obtained an understanding of management's process related to purchase accounting. We assessed the appropriateness of the accounting treatment applied to the acquisition. Our audit procedures over valuation of non-cash part of the purchase consideration included: <ul style="list-style-type: none"> • Evaluation of the methodology adopted by management for the valuation; • Testing the mathematical accuracy of the model used for the valuation; • Assessment of the key valuation assumptions; and • Validation of key inputs and data used in the valuation model. We involved valuation specialists in the audit work over valuation of the non-cash purchase consideration. Our audit procedures related to valuation of biological assets were in-line with the procedures mentioned under key audit matter “Valuation of biological assets”. |
| We have no key audit matters to report with respect to our audit of the parent company financial statements. | |
| There are no significant risks of material misstatement referred to in Article 10(2c) of Regulation (EU) No 537/2014 with respect to the consolidated financial statements or the parent company financial statements. | |

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Responsibilities of the Board of Directors and the Managing Director for the Financial Statements

The Board of Directors and the Managing Director are responsible for the preparation of consolidated financial statements that give a true and fair view in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU, and of financial statements that give a true and fair view in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements. The Board of Directors and the Managing Director are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board of Directors and the Managing Director are responsible for assessing the parent company's and the group's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting. The financial statements are prepared using the going concern basis of accounting unless there is an intention to liquidate the parent company or the group or to cease operations, or there is no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with good auditing practice will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with good auditing practice, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the parent company's or the group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of the Board of Directors' and the Managing Director's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the parent company's or the group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the parent company or the group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events so that the financial statements give a true and fair view.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Other Reporting Requirements

Appointment

We were first appointed as auditors by the annual general meeting on 28 March 2018.

Other Information

The Board of Directors and the Managing Director are responsible for the other information. The other information comprises the report of the Board of Directors.

Our opinion on the financial statements does not cover the other information.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. Our responsibility also includes considering whether the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

In our opinion

- the information in the report of the Board of Directors is consistent with the information in the financial statements
- the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

If, based on the work we have performed, we conclude that there is a material misstatement of the report of the Board of Directors, we are required to report that fact. We have nothing to report in this regard.

Other Statements

We support the proposal that the financial statements are adopted. The proposal by the Board of Directors regarding the distribution of profits is in compliance with the Limited Liability Companies Act. We support that the Board of Directors and the Managing Director of the parent company should be discharged from liability for the financial period audited by us.

Helsinki 11 February 2020

PricewaterhouseCoopers Oy

Authorised Public Accountants

Samuli Perälä

Authorised Public Accountant (KHT)

Stora Enso in capital markets

Stora Enso ensures that all material information that has an impact on Stora Enso's share price is simultaneously available to the general public and financial community in order to ensure the right share price level in relation to the company's history, assets and future prospects. In its engagement with the capital markets, Stora Enso's Investor Relations aims to support the brand with accurate, consistent and credible financial communications.

Shares and shareholders

Shares and voting rights

The shares of Stora Enso Oyj (hereafter the "Company" or "Stora Enso") are divided into A and R shares, which entitle holders to the same dividend but different voting rights. Each A share and each ten R shares carry one vote at a shareholders' meeting. However, each shareholder has at least one vote.

On 31 December 2019, Stora Enso had 176 256 834 A shares and 612 363 153 R shares in issue, of which the Company held no A shares or R shares. The total number of Stora Enso shares in issue was 788 619 987 and the total number of votes was 237 493 149.

Share listings

Stora Enso shares are listed on the Nasdaq Helsinki and the Nasdaq Stockholm. Stora Enso shares are quoted in Helsinki in euros (EUR) and in Stockholm in Swedish crowns (SEK).

American Depositary Receipts (ADRs)

Stora Enso has a sponsored Level I American Depositary Receipts (ADR) facility. Stora Enso ADRs are traded over-the-counter (OTC) in the USA. The ratio between Stora Enso ADRs and R shares is 1:1, i.e. one ADR represents one Stora Enso R share. Citibank, N.A. acts as the depositary bank for the Stora Enso ADR programme. The trading symbol is SEOAY and the CUSIP number is 86210M106.

Share registers

The Company's shares are entered in the Book-Entry Securities System maintained by Euroclear Finland Oy, which also maintains the official share register of Stora Enso Oyj.

On 31 December 2019, 132 278 917 of the Company's shares were registered in Euroclear Sweden AB and 14 124 494 of the Company's R shares were registered in ADR form in Citibank, N.A.

Distribution by book-entry system, 31 December 2019

| Number of shares | Total | A shares | R shares |
|-------------------------------------|--------------------|--------------------|--------------------|
| Euroclear Finland Oy | 642 216 576 | 164 946 369 | 477 270 207 |
| Euroclear Sweden AB ¹ | 132 278 917 | 11 310 465 | 120 968 452 |
| Citi administered ADRs ¹ | 14 124 494 | - | 14 124 494 |
| Total | 788 619 987 | 176 256 834 | 612 363 153 |

¹ Shares registered in Euroclear Sweden and ADRs are both nominee registered in Euroclear Finland.

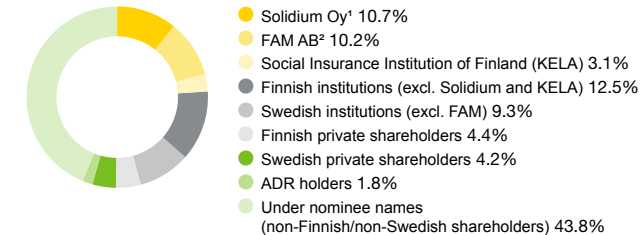
Ownership distribution, 31 December 2019

| | % of shares | % of votes | % of shareholders |
|--|-------------|------------|-------------------|
| Solidium Oy ¹ | 10.7% | 27.3% | 0.0% |
| FAM AB ² | 10.2% | 27.3% | 0.0% |
| Social Insurance Institution of Finland (KELA) | 3.1% | 10.1% | 0.0% |
| Finnish institutions (excl. Solidium and KELA) | 12.5% | 8.8% | 2.7% |
| Swedish institutions (excl. FAM) | 9.3% | 6.1% | 1.9% |
| Finnish private shareholders | 4.4% | 2.6% | 42.9% |
| Swedish private shareholders | 4.2% | 2.7% | 50.4% |
| ADR holders | 1.8% | 0.6% | 1.0% |
| Under nominee names (non-Finnish/non-Swedish shareholders) | 43.8% | 14.7% | 1.1% |

¹ Entirely owned by the Finnish state.

² As confirmed to Stora Enso.

Ownership distribution, % of shares held



¹ Entirely owned by Finnish state.

² As confirmed to Stora Enso.

Share capital

On 31 December 2019, the Company's fully paid-up share capital entered in the Finnish Trade Register was EUR 1 342 million. The current accountable par of each issued share is EUR 1.70.

Conversion

According to the Articles of Association, holders of Stora Enso A shares may convert these into R shares at any time. The conversion of shares is voluntary. The conversions of a total of 55 838 A shares into R shares were recorded in the Finnish Trade Register during the year 2019.

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Changes in share capital 2011-2019

| | No. of A shares issued | No. of R shares issued | Total no. of shares | Share capital (EUR million) |
|--|---------------------------|---------------------------|------------------------|--------------------------------|
| Stora Enso Oyj, 1 Jan 2011 | 177 149 784 | 612 388 715 | 789 538 499 | 1 342 |
| Conversion of A shares into R shares, Dec 2010–Nov 2011 | -1 012 | 1 012 | - | - |
| Stora Enso Oyj, 31 Dec 2011 | 177 148 772 | 612 389 727 | 789 538 499 | 1 342 |
| Conversion of A shares into R shares, Dec 2011–Nov 2012 | -1 000 | 1 000 | - | - |
| Stora Enso Oyj, 31 Dec 2012 | 177 147 772 | 612 390 727 | 789 538 499 | 1 342 |
| Cancellation of shares owned by the Company, 15 May 2013 | | -918 512 | 788 619 987 | - |
| Conversion of A shares into R shares, Dec 2012–Nov 2013 | -51 568 | 51 568 | - | - |
| Stora Enso Oyj, 31 Dec 2013 | 177 096 204 | 611 523 783 | 788 619 987 | 1 342 |
| Conversion of A shares into R shares, Dec 2013–Nov 2014 | -40 000 | 40 000 | - | - |
| Stora Enso Oyj, 31 Dec 2014 | 177 056 204 | 611 563 783 | 788 619 987 | 1 342 |
| Conversion of A shares into R shares, Dec 2014–Nov 2015 | -524 114 | 524 114 | - | - |
| Stora Enso Oyj, 31 Dec 2015 | 176 532 090 | 612 087 897 | 788 619 987 | 1 342 |
| Conversion of A shares into R shares, Dec 2015–Nov 2016 | -25 000 | 25 000 | - | - |
| Stora Enso Oyj, 31 Dec 2016 | 176 507 090 | 612 112 897 | 788 619 987 | 1 342 |
| Conversion of A shares into R shares, Dec 2016–Nov 2017 | -114 770 | 114 770 | - | - |
| Stora Enso Oyj, 31 Dec 2017 | 176 392 320 | 612 227 667 | 788 619 987 | 1 342 |
| Conversion of A shares into R shares, Dec 2017–Nov 2018 | -79 648 | 79 648 | - | - |
| Stora Enso Oyj, 31 Dec 2018 | 176 312 672 | 612 307 315 | 788 619 987 | 1 342 |
| Conversion of A shares into R shares, Dec 2018–Nov 2019 | -55 838 | 55 838 | - | - |
| Stora Enso Oyj, 31 Dec 2019 | 176 256 834 | 612 363 153 | 788 619 987 | 1 342 |

For more historical data about the share capital, please visit storaenso.com/investors/shares

Stora Enso's activities in capital markets during 2019

Stora Enso's Investor Relations activities cover equity and fixed-income markets to ensure full and fair valuation of the Company, continual access to funding sources and stable bond pricing. Investors and analysts are met on a regular basis in Europe and North America. In 2019, the Investor Relations (IR) team conducted several individual and group meetings with equity investors, whilst maintaining regular contact with equity research analysts at investment banks and brokerage firms.

All in all, the IR team met alone or with top management over 450 investors and arranged more than 340 meetings including one-on-one, group meetings, conference calls and site visits of which 20 included discussions related to environmental, social and governance (ESG) topics. There were also meetings with fixed-income analysts and investors. In addition, Stora Enso arranged a webinar for ESG investors and analysts on its sustainability strategy and activities.

The Group arranged site visits to several mills in Finland and Sweden as well as to an innovation centre in Stockholm. Senior management and the IR personnel also gave presentations at equity and fixed-income investor conferences in Scandinavia, Continental Europe, the United Kingdom and North America. During the year, the Group arranged four large group presentations for private investors in Sweden and two in Finland.

Stora Enso arranged an Investor day in September and provided an update to the strategy, including a detailed review of Wood Products division and Nordic forests, highlighting the new Forest division which was established from the beginning of 2020. At the event, the CEO, CFO and heads of Wood Products division and Wood Supply gave their presentations. The programme included visits to a forest logging site and Gruvön sawmill. The guests were able to see the close link between wood procurement and Wood Products division's business. The event was attended by 70 persons, and another 100 joined via live webcast.

Guidance policy

Stora Enso releases its guidance in the financial statements bulletin, in the half-year financial report and in the interim reports. The published guidance consists of general market outlook for the financial year and

quarterly result guidance. In the quarterly result guidance, Stora Enso releases an estimated absolute range for quarterly operational EBIT. Stora Enso may include quarterly maintenance impact for sequential quarter including comparison to the quarter year before and previous quarter in the same year.

Closed period

Stora Enso closed period starts when the reporting period ends or 30 days prior to the announcement of the results, whichever is earlier, and lasts until the results are announced. The dates are published in the financial calendar at storaenso.com/investors. During closed periods, Stora Enso persons discharging managerial responsibilities (PDMRs) or persons entered into the Company's Closed Period List are not allowed to trade in Company securities. In addition, there will be no discussions regarding financial issues with the capital markets or the financial media during the closed period. This applies to meetings, telephone conversations or other means of communication.

Shareholdings of other Group-related bodies at 31 December 2019

E.J. Ljungberg's Education Foundation owned 1 780 540 A shares and 2 336 224 R shares, E.J. Ljungberg's Foundation owned 39 534 A shares and 101 579 R shares, Mr. and Mrs. Ljungberg's Testamentary Foundation owned 5 093 A shares and 13 085 R shares and Bergslaget's Healthcare Foundation owned 626 269 A shares and 1 609 483 R shares.

Shareholders

At the end of 2019 the Company had approximately 112 446 registered shareholders, including about 59 694 Swedish shareholders and about 1 136 ADR holders. Each nominee register is entered in the share register as one shareholder.

The free float of shares excluding shareholders with holdings of more than 5% of shares or votes is approximately 599 million shares, which is 76% of the total number of shares issued. The largest shareholder in the Company is Solidium Oyj based in Finland.

Major shareholders as at 31 December 2019

| By voting power | A shares | R shares | % of shares | % of votes |
|---|--------------------|--------------------|--------------|--------------|
| 1 Solidium Oyj ¹ | 62 655 036 | 21 792 540 | 10.7% | 27.3% |
| 2 FAM AB ² | 63 123 386 | 17 000 000 | 10.2% | 27.3% |
| 3 Social Insurance Institution of Finland | 23 825 086 | 973 982 | 3.1% | 10.1% |
| 4 Varma Mutual Pension Insurance Company | 8 513 018 | 1 140 874 | 1.2% | 3.6% |
| 5 MP-Bolagen i Vetlanda AB | 4 826 020 | 1 110 000 | 0.8% | 2.1% |
| 6 Ilmarinen Mutual Pension Insurance Company | 3 055 000 | 16 570 000 | 2.1% | 2.0% |
| 7 Erik Johan Ljungberg's Education Foundation | 1 780 540 | 2 336 224 | 0.5% | 0.8% |
| 8 Swedbank Robur Funds | 0 | 16 729 037 | 2.1% | 0.7% |
| 9 Elo Mutual Pension Insurance Company | 0 | 7 909 000 | 1.0% | 0.3% |
| 10 Bergslaget's Healthcare Foundation | 626 269 | 1 609 483 | 0.3% | 0.3% |
| 11 AFA Insurance | 0 | 7 072 505 | 0.9% | 0.3% |
| 12 Nordea Investment Funds | 0 | 5 841 360 | 0.7% | 0.2% |
| 13 The State Pension Fund (Finland) | 0 | 5 813 755 | 0.7% | 0.2% |
| 14 SEB Investment Management | 0 | 5 769 313 | 0.7% | 0.2% |
| 15 Keva (Local Government Pensions Institution) | 0 | 4 793 208 | 0.6% | 0.2% |
| Total | 168 404 355 | 116 461 281 | 35.6% | 75.6% |
| Nominee-registered shares ³ | 74 608 072 | 467 705 419 | 68.8 % | 51.1 % |

¹ Entirely owned by the Finnish State.

² As confirmed to Stora Enso.

³ According to Euroclear Finland.

The list has been compiled by the Company on the basis of shareholder information obtained from Euroclear Finland, Euroclear Sweden and a database managed by Citibank, N.A (Citi). This information includes only directly registered holdings, thus certain holdings (which may be substantial) of shares held in nominee or brokerage accounts cannot be included. The list is therefore incomplete.

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Share price performance and volumes

Helsinki

The Stora Enso R (STERV) share price increased by 29% during 2019 (24% decrease in 2018). Over the same period, the OMX Helsinki Index increased by 13%, the OMX Helsinki Benchmark Index by 15% and the OMX Helsinki Basic Materials Index by 29%.

Stockholm

The Stora Enso R (STE R) share price increased by 31% during 2019 (20% decrease in 2018). Over the same period, the OMX Stockholm 30 Index increased by 26% and the OMX Stockholm Basic Materials Index increased by 32%.

OTC

Stora Enso ADR (SEOAY) share price increased by 26% during 2019 (27% decrease in 2018). Over the same period, the Standard & Poor's Global Timber and Forestry Index increased by 176%.

Share prices and volumes in 2019

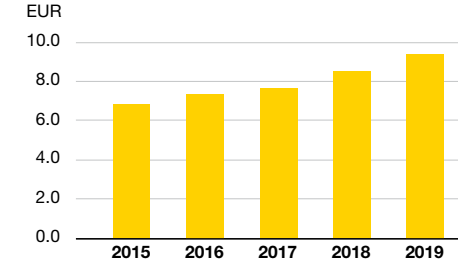
| | | Helsinki, EUR | Stockholm, SEK | OTC, USD |
|--|---------|---------------|----------------|------------|
| High | A share | 14.45 | 155.00 | |
| | R share | 13.05 | 139.40 | 14.55 |
| Low | A share | 10.85 | 111.00 | |
| | R share | 9.10 | 95.70 | 10.35 |
| Closing, 31 Dec 2019 | A share | 13.55 | 142.50 | |
| | R share | 12.97 | 135.90 | 14.55 |
| Change from previous year | A share | 23% | 23% | |
| | R share | 29% | 31% | 26% |
| Cumulative trading volume, no. of shares | A share | 1 298 814 | 1 991 894 | |
| | R share | 679 474 525 | 229 218 485 | 10 661 399 |

The volume-weighted average price of R shares over the year was EUR 11.05 in Helsinki (EUR 14.61 in 2018), SEK 116.91 in Stockholm (SEK 145.49 in 2018) and USD 12.36 on the OTC in the USA (USD 17.46 in 2018). The percentage of R shares traded was 57.9% (60.7% in 2018) in alternative trading venues, 31.1% (32.7% in 2018) in Helsinki, 10.5% (5.8% in 2018) in Stockholm and 0.5% (0.1% in 2018) on the OTC in the USA. Total market capitalisation on the OMX Helsinki at year-end was EUR 10.3 billion (EUR 8.1 billion).

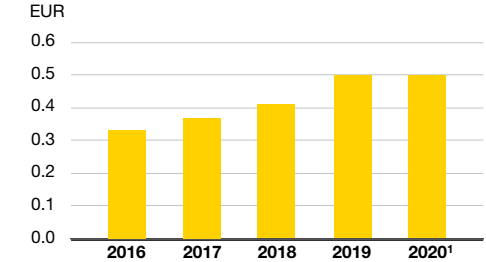
Alternative trading venues

Stora Enso shares can be traded outside Nasdaq Helsinki and Nasdaq Stockholm, where the shares are listed. During 2019, the largest alternative trading venues included Cboe APA, Cboe BXE and Cboe CXE. The alternative trading venues' market share of monthly volume in Stora Enso shares varied between 48% and 70%. Of the alternative trading venues, Cboe BXE had the biggest share of the volume with 30% on an annual basis (Cboe APA had the biggest share of the volume in 2018 with 35%).

Equity per share

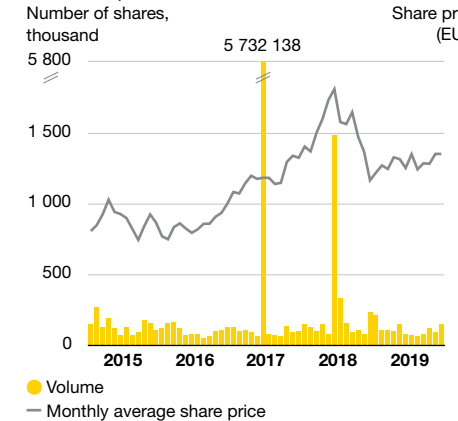


Dividend per share

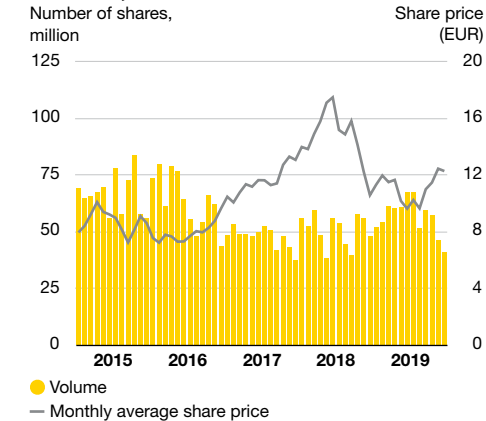


¹ Board of Directors' proposal to the AGM for the distribution of dividend.

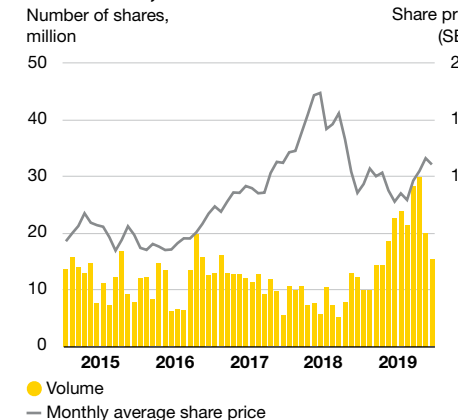
Helsinki, Stora Enso A



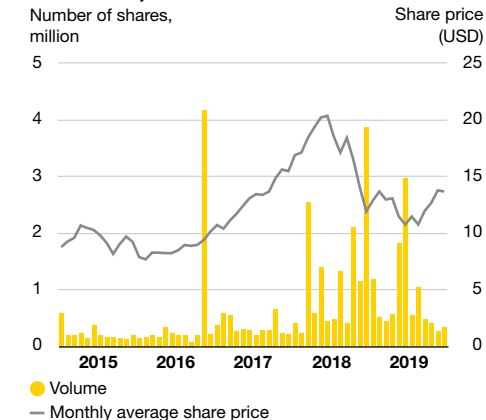
Helsinki, Stora Enso R



Stockholm, Stora Enso R



New York, Stora Enso ADR



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Stora Enso is included in at least the following indices

| OMX INDICES | STOXX INDICES | FTSE INDICES | MSCI INDICES | SUSTAINABILITY INDICES |
|--------------------------------|----------------------------|--------------------------|-----------------------|---|
| OMX Helsinki | STOXX Global 1800 | FTSE RAFI All-World 3000 | MSCI Finland | CDP's Climate A- list |
| OMX Helsinki 25 | STOXX Europe 600 | FTSE RAFI Developed 1000 | MSCI Nordic countries | FTSE4 Good Index |
| OMX Helsinki Large Cap | STOXX Europe Mid 200 | FTSE RAFI Europe | MSCI Europe | STOXX® Global ESG Leaders Indices |
| OMX Helsinki Benchmark | STOXX Nordic | FTSE Finland 25 Index | MSCI Europe Materials | ECPI EMU Ethical Equity index |
| OMX Helsinki Basic Materials | EURO STOXX | FTSE4Good Global | MSCI World | ECPI World ESG Equity Index |
| OMX Helsinki Basic Resources | EURO STOXX Basic Materials | | MSCI World Mid Cap | OMX GES Sustainability Finland |
| OMX Helsinki Forestry & Paper | EURO STOXX Basic Resources | | | Ethibel Sustainability Index (ESI) Excellence |
| OMX Stockholm | | | | Euronext Vigeo World, Europe and Eurozone 120 |
| OMX Stockholm Benchmark | | | | MSCI ESG indices |
| OMX Stockholm Large Cap | | | | |
| OMX Stockholm Basic Materials | | | | |
| OMX Stockholm Basic Resources | | | | |
| OMX Stockholm Forestry & Paper | | | | |
| OMX Nordic | | | | |
| OMX Nordic Large Cap | | | | |
| Nasdaq OMX Nordic Materials | | | | |
| VINX Basic Materials | | | | |
| VINX Basic Resources | | | | |

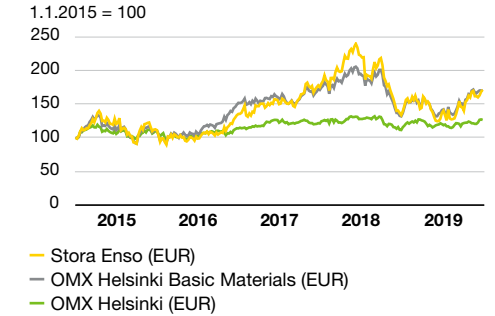
Read more about sustainability indexes in the **Sustainability 2019**.

In 2016, Stora Enso shifted its strategy regarding the provision of ESG information to its stakeholders. The emphasis is to keep sustainability information widely available on the Group website to benefit and serve different stakeholders in equal manner. As a consequence, Stora Enso simultaneously reduces the number of sustainability index survey questionnaires in which it participates. The Group is targeting its participation in those questionnaires and enquiries that it has assessed to be the most material. The Company continues with this chosen strategy also in 2020.

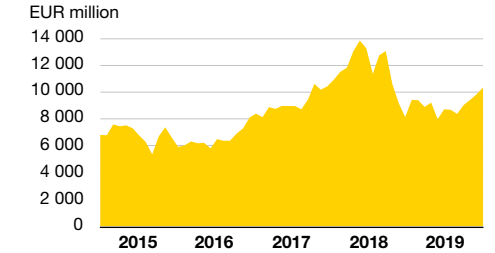
Trading codes and currencies

| | Helsinki | Stockholm | OTC |
|---------------|--------------|--------------|-----------------|
| A share | STEAV | STE A | - |
| R share | STERV | STE R | - |
| ADRs | - | - | SEOAY |
| Segment | Large Cap | Large Cap | - |
| Sector | Materials | Materials | - |
| Currency | EUR | SEK | USD |
| ISIN, A share | FI0009005953 | FI0009007603 | |
| ISIN, R share | FI0009005961 | FI0009007611 | |
| CUSIP | - | - | 86210M106 |
| Reuters | | | STERV.HE |
| Bloomberg | | | STERV FH Equity |

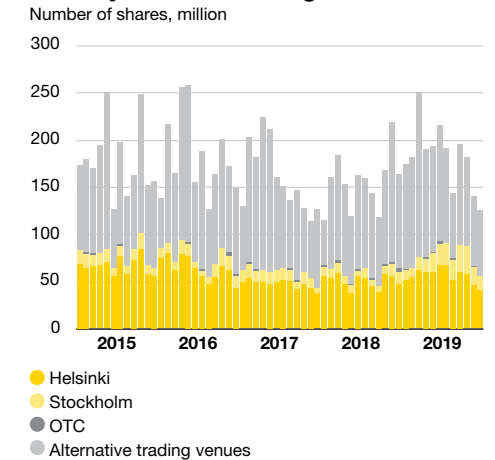
Stora Enso R Share vs Nasdaq Helsinki indices



Market capitalisation on Nasdaq Helsinki



Monthly R shares trading volumes



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Key share data 2010-2019, total operations (for calculations see Calculation of key figures)

| According to Nasdaq Helsinki | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 |
|--|-------------------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Earnings per share, EUR | 1.12 | 1.28 | 0.79 | 0.59 | 1.02 | 0.13 | -0.07 | 0.61 | 0.43 | 0.97 |
| – diluted, EUR | 1.12 | 1.28 | 0.79 | 0.59 | 1.02 | 0.13 | -0.07 | 0.61 | 0.43 | 0.97 |
| – excl. IAC, EUR | 1.34 | 1.29 | 0.89 | 0.65 | 1.24 | 0.40 | 0.40 | 0.33 | 0.63 | 0.79 |
| Equity/share, EUR | 9.42 | 8.51 | 7.62 | 7.36 | 6.83 | 6.43 | 6.61 | 7.32 | 7.45 | 7.87 |
| Dividend and distribution/share, EUR | 0.50 ¹ | 0.50 | 0.41 | 0.37 | 0.33 | 0.30 | 0.30 | 0.30 | 0.30 | 0.25 |
| Payout ratio, % | 45 | 39 | 52 | 63 | 32 | 231 | -429 | 49 | 70 | 26 |
| Dividend and distribution yield, % | | | | | | | | | | |
| A share | 3.7 | 4.5 | 3.1 | 3.56 | 3.9 | 4.0 | 4.1 | 5.3 | 5.9 | 3.2 |
| R share | 3.9 | 5.0 | 3.1 | 3.62 | 3.9 | 4.0 | 4.1 | 5.7 | 6.5 | 3.3 |
| Price/earnings ratio (P/E), excl. IAC | | | | | | | | | | |
| A share | 10.1 | 8.6 | 14.8 | 16.0 | 6.8 | 18.7 | 18.3 | 17.3 | 8.0 | 10.0 |
| R share | 9.7 | 7.8 | 14.9 | 15.7 | 6.8 | 18.6 | 18.3 | 15.9 | 7.3 | 9.7 |
| Share prices for the period, EUR | | | | | | | | | | |
| A share | | | | | | | | | | |
| – closing price | 13.55 | 11.05 | 13.20 | 10.40 | 8.40 | 7.48 | 7.31 | 5.70 | 5.03 | 7.90 |
| – average price | 12.88 | 16.36 | 11.93 | 8.50 | 8.87 | 7.29 | 6.82 | 6.15 | 7.73 | 6.47 |
| – high | 14.45 | 18.45 | 13.79 | 10.45 | 11.01 | 8.35 | 7.49 | 7.15 | 9.80 | 7.94 |
| – low | 10.85 | 10.75 | 10.26 | 6.56 | 6.70 | 5.73 | 5.42 | 5.10 | 4.70 | 5.30 |
| R share | | | | | | | | | | |
| – closing price | 12.97 | 10.09 | 13.22 | 10.21 | 8.39 | 7.44 | 7.30 | 5.25 | 4.63 | 7.69 |
| – average price | 11.05 | 14.61 | 11.54 | 7.88 | 8.70 | 7.16 | 5.79 | 5.08 | 6.28 | 6.03 |
| – high | 13.05 | 18.29 | 13.75 | 10.28 | 10.95 | 8.38 | 7.54 | 5.95 | 8.99 | 7.79 |
| – low | 9.10 | 9.92 | 9.70 | 6.50 | 6.58 | 5.71 | 4.76 | 4.14 | 3.73 | 4.15 |
| Market capitalisation at year-end, EUR million | | | | | | | | | | |
| A share | 2 388 | 1 948 | 2 328 | 1 836 | 1 483 | 1 324 | 1 295 | 1 010 | 891 | 1 400 |
| R share | 7 939 | 6 175 | 8 094 | 6 250 | 5 135 | 4 547 | 4 464 | 3 212 | 2 835 | 4 709 |
| Total | 10 328 | 8 123 | 10 422 | 8 085 | 6 618 | 5 871 | 5 756 | 4 222 | 3 726 | 6 109 |
| Number of shares at the end of period, (thousands) | | | | | | | | | | |
| A share | 176 257 | 176 313 | 176 392 | 176 507 | 176 532 | 177 056 | 177 096 | 177 148 | 177 149 | 177 150 |
| R share | 612 363 | 612 307 | 612 228 | 612 113 | 612 088 | 611 564 | 611 524 | 612 391 | 612 389 | 612 389 |
| Total | 788 620 | 788 620 | 788 620 | 788 620 | 788 620 | 788 620 | 788 620 | 789 538 | 789 538 | 789 538 |
| Trading volume, (thousands) | | | | | | | | | | |
| A share | 1 299 | 3 068 | 6 768 | 1 254 | 1 641 | 1 553 | 1 656 | 831 | 1 402 | 1 887 |
| % of total number of A shares | 0.7 | 1.7 | 3.8 | 0.7 | 0.9 | 0.9 | 0.9 | 0.5 | 0.8 | 1.1 |
| R share | 679 475 | 610 300 | 571 717 | 765 122 | 798 507 | 731 067 | 828 401 | 977 746 | 1 237 898 | 1 194 245 |
| % of total number of R shares | 111.0 | 99.7 | 93.4 | 125 | 130.5 | 119.5 | 135.5 | 159.7 | 202.1 | 195.0 |
| Average number of shares (thousands) | | | | | | | | | | |
| basic | 788 620 | 788 620 | 788 620 | 788 620 | 788 620 | 788 620 | 788 620 | 788 620 | 788 620 | 788 619 |
| diluted | 789 533 | 789 883 | 790 024 | 789 888 | 789 809 | 789 210 | 788 620 | 788 620 | 788 620 | 788 619 |

¹ Board of Directors' proposal to the AGM for distribution of dividend.
IAC = Items affecting comparability

Read more about incentive programmes in [Note 21](#) and Management interests in [Note 7](#).

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Debt investors

Funding strategy

Stora Enso's funding strategy is based on the Group's financial targets. Stora Enso should have access to sufficient and competitively priced funding at any time to be able to pursue its strategy and achieve its financial targets. Stora Enso's debt structure is focused on the capital markets and commercial banks. Stora Enso maintains consistent dialogue with fixed-income community with informative and transparent communication and meetings in conferences and road-shows.

Funding is obtained in the currencies of the Group's investments and assets (primarily USD, EUR, SEK and CNY). Commercial paper markets are used for short-term funding and liquidity management.

Public debt structure as at 31 December 2019

| | EUR | USD | SEK |
|--------------------|----------------------|----------------------|------------------------|
| Public issues | EUR 300 million 2023 | USD 300 million 2036 | SEK 3 000 million 2021 |
| | EUR 300 million 2027 | | SEK 3 000 million 2024 |
| | EUR 300 million 2028 | | |
| Private placements | EUR 125 million 2025 | | SEK 1 000 million 2026 |
| | EUR 25 million 2027 | | |

Debt programmes and credit facilities as at 31 December 2019

| | EUR | SEK |
|--|---|---|
| Commercial paper programmes | Finnish Commercial Paper Programme EUR 750 million | Swedish Commercial Paper Programme SEK 10 000 million |
| EMTN (Euro Medium-Term Note programme) | EUR 4 000 million | |
| Back-up facility | EUR 600 million sustainability linked revolving credit facility 2023 ¹ | |

¹ Undrawn committed credit facility EUR 600 million. Part of the pricing for the facility agreement is based on Stora Enso's Science Based Targets to combat global warming by reducing greenhouse gases, including CO₂.

Stora Enso has integrated sustainability agenda to its funding and financial services. The Group has the long-term aim to secure funding partners that have sustainability as a fundamental part of their agenda. We aim to influence and develop the financial markets to ensure that sustainability becomes an integral part of decisions and credit evaluation. For more information, please see Stora Enso's **Sustainability 2019**, section [Investors](#) or visit our website storaenso.com/investors.

Green Bonds

Stora Enso issued its first Green Bonds in February 2019. The bonds were issued under its EMTN (Euro Medium Term Note) programme, and the total aggregated principal amount of the transaction was SEK 6 000 million. The proceeds were used to finance acquisition of forest assets in Sweden. There are no financial covenants connected to the bonds. The bonds are listed on the Luxembourg Stock Exchange. Read more about acquisition of forest assets in Sweden in [Note 4](#), Acquisitions and disposals, and **Sustainability 2019**.

Rating strategy

Stora Enso Group's target is to have at least one public credit rating with the ambition to remain investment grade and sustain such metrics throughout business cycles. The present rating and outlook from Moody's and Fitch Ratings are shown below.

Ratings as at 31 December 2019

| Rating agency | Long/short-term rating | Valid from |
|---------------|------------------------|-----------------|
| Fitch Ratings | BBB- (stable) | 8 August 2018 |
| Moody's | Baa3 (stable) / P-3 | 1 November 2018 |

Stora Enso's current credit ratings are: Baa3 with stable outlook from Moody's and BBB- with stable outlook from Fitch Ratings. Both ratings correspond to an Investment Grade rating, and there were no changes in the ratings during 2019.

Stora Enso's goal is to ensure that rating agencies continue to be comfortable with Stora Enso's strategy and performance. The Company's strategy is to achieve liquidity well in line with the comfort level of the agencies. Review meetings are arranged with the Stora Enso management annually, and regular contact is maintained with the rating analysts.

Read more about debt and loans in [Note 26](#).

Stora Enso as a taxpayer

Stora Enso's operations generate value through taxes for governments around the world. In 2019, Stora Enso paid again more than EUR 1 billion into public sectors, including EUR 767 million in collected taxes.

Stora Enso aims to be transparent with respect to economic value generation. For this purpose, Stora Enso makes a voluntary commitment to openly provide details of the taxes paid by the group to governments in its main countries of operation. This commitment to our stakeholders is fully in line with Stora Enso's values to 'Do what's right' and 'Lead'.

Stora Enso's tax policy

As a responsible and prudent taxpayer, Stora Enso is committed to ensure that the Group observes all applicable tax laws, rules and regulations in all jurisdictions where it conducts its business activities. Stora Enso follows international transfer pricing guidelines and local legislation. In addition to our legal and regulatory requirements, our tax principles comply with our values. Furthermore, we seek to ensure that our tax strategy is aligned with our business and commercial strategy. We only undertake tax planning that is duly aligned to economic activity. This means that all tax decisions are made in response to commercial activity, and tax is only one of many factors that are taken into account when making business decisions.

As with any other business expense, however, we have an obligation to manage our tax costs as part of our financial responsibility to societies and shareholders. We are therefore willing to respond to tax incentives and exemptions granted by governments on reasonable grounds, and we currently have operations in countries that offer favourable tax treatments, where their location is also justified by sound commercial considerations.

Stora Enso has operations in the following locations that offer favourable tax treatments:

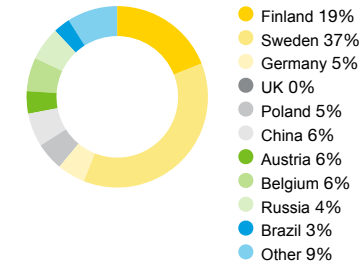
- The joint operation Montes del Plata operates a pulp mill in a Special Economic Zone in Uruguay.
- Stora Enso's two forestry companies in Guangxi, China are entitled to exemption from corporate income tax and value added tax on their sales, and our related industrial company is entitled to reduced tax rates until 2025.
- Stora Enso conducts business, mainly consisting of sales services, in the United Arab Emirates, Singapore and Hong Kong.
- For logistical and operational reasons, pulp from the Group's joint operations in Brazil and Uruguay is traded via a pulp sourcing and marketing company based in the Netherlands.
- AS Stora Enso Latvija has been granted a corporate income tax credit relating to an investment project. The credit is available for utilisation against tax arising on profit distribution in future years.

Our commitment to tax transparency is also reflected in our relationships with tax authorities and governments. We seek to work positively, proactively and openly with tax authorities on a global basis, aiming to minimise disputes and to build confidence wherever possible.

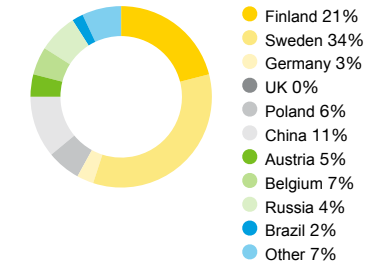
Stora Enso's tax footprint

In 2019, Stora Enso paid EUR 1 265 million (1 276 million in 2018) in taxes to governments in countries where the group has operations. A total of EUR 498 (489) million was paid directly by the group (taxes borne) while EUR 767 (787) million was collected on behalf of governments (taxes collected).

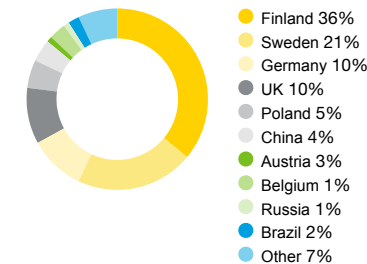
Total taxes borne 2019



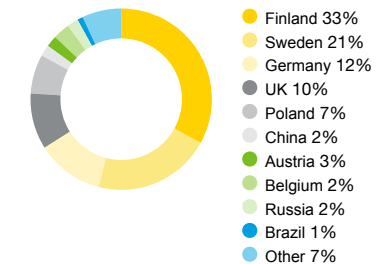
Total taxes borne 2018



Total taxes collected 2019



Total taxes collected 2018



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Taxes paid in major countries of operation

| | | Year Ended 31 December | | | | | | | |
|--------------|----------------------|------------------------|------------|------------------|------------|-------------------|-----------|------------|------------|
| | | Taxes borne | | | | | | | |
| | | Corporate income tax | | Employment taxes | | Operational taxes | | Total | |
| EUR million | Primary activity | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Finland | Production | 0 | 1 | 76 | 90 | 20 | 13 | 96 | 104 |
| Sweden | Production and sales | 84 | 71 | 93 | 89 | 7 | 7 | 184 | 167 |
| Germany | Production and sales | 10 | -1 | 11 | 12 | 4 | 5 | 25 | 16 |
| UK | Sales | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| Poland | Production and sales | 13 | 17 | 7 | 6 | 5 | 7 | 25 | 30 |
| China | Production and sales | 7 | 8 | 15 | 14 | 7 | 29 | 29 | 51 |
| Austria | Production and sales | 14 | 12 | 13 | 13 | 1 | 0 | 28 | 25 |
| Belgium | Production and sales | 17 | 18 | 10 | 10 | 4 | 4 | 31 | 32 |
| Russia | Production and sales | 10 | 11 | 3 | 3 | 7 | 5 | 20 | 19 |
| Brazil | Production | 3 | 2 | 3 | 3 | 8 | 3 | 14 | 8 |
| Other | | 20 | 13 | 20 | 19 | 5 | 4 | 45 | 36 |
| Total | | 178 | 152 | 252 | 260 | 68 | 77 | 498 | 489 |

| | | Year Ended 31 December | | | | | | | | | |
|--------------|----------------------|----------------------------|------------|---------------|------------|-------------|-----------|------------|------------|------------------|--------------|
| | | Taxes collected | | | | | | Total | | Total taxes paid | |
| | | VAT & similar ¹ | | Payroll taxes | | Other taxes | | Total | | | |
| EUR million | Primary activity | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Finland | Production | 37 | 35 | 143 | 143 | 96 | 78 | 276 | 256 | 372 | 360 |
| Sweden | Production and sales | 77 | 78 | 85 | 87 | 0 | 0 | 162 | 165 | 346 | 332 |
| Germany | Production and sales | 51 | 69 | 25 | 25 | 0 | 0 | 76 | 94 | 101 | 110 |
| UK | Sales | 73 | 79 | 2 | 2 | 0 | 0 | 75 | 81 | 76 | 82 |
| Poland | Production and sales | 25 | 42 | 10 | 10 | 0 | 0 | 35 | 52 | 60 | 82 |
| China | Production and sales | 20 | 8 | 10 | 11 | 0 | 1 | 30 | 20 | 59 | 71 |
| Austria | Production and sales | 11 | 9 | 16 | 16 | 0 | 0 | 27 | 25 | 55 | 50 |
| Belgium | Production and sales | 3 | 6 | 8 | 9 | 0 | 0 | 11 | 15 | 42 | 47 |
| Russia | Production and sales | 10 | 11 | 2 | 1 | 0 | 0 | 12 | 12 | 32 | 31 |
| Brazil | Production | 4 | 3 | 2 | 2 | 7 | 6 | 13 | 11 | 27 | 19 |
| Other | | 27 | 34 | 22 | 20 | 1 | 2 | 50 | 56 | 95 | 92 |
| Total | | 338 | 374 | 325 | 326 | 104 | 87 | 767 | 787 | 1 265 | 1 276 |

¹ VAT, goods and services taxes and similar turnover related taxes

Stora Enso did not pay any corporate income tax in Finland in 2019 because of tax losses carried forward from previous years. The tax losses of EUR 328 million (332 million) carried forward in Finland are the result of several factors including high closure and restructuring costs incurred in the past.

All companies within the scope of Stora Enso's tax footprint are consolidated or joint operations, which have been consolidated proportionally with Stora Enso's share amounting to at least 50%. Consolidation includes all companies that have either at least 10 employees or a turnover of EUR 5 million or above.

If a Stora Enso company was in a recovery position regarding VAT or energy taxation in a specific country, tax payments for this company have been reported at NIL.

Taxes borne include all tax and tax-like payments that Stora Enso has paid as own taxes. Tax-like payments include other forms of government revenue raised outside of the tax regime, such as payments for emission rights or social security payments.

Taxes collected include all tax and tax-like payments that Stora Enso has collected on behalf of the government, including e.g. payroll taxes as well as VAT and similar sales-related taxes paid by Stora Enso. The economic burden for such taxes ends up with the buyer or final consumer.

Stora Enso's tax footprint figures also reflect governmental incentives granted in the form of reduced tax rates or tax exemption, by reporting lower tax payments. However, governmental support is often granted in the form of subsidies, particularly in relation to energy consumption or favoured investments, which are not considered in our tax footprint calculations.

Capacities by mill in 2020

Packaging Materials

| Consumer board | Location | Grade | Capacity 1 000 t |
|----------------|----------|--------------------|------------------|
| Beihai | CHN | LPB, CKB, FSB, FBB | 470 |
| Fors | SWE | FBB | 455 |
| Imatra | FIN | SBS, FBB, LPB | 1 195 |
| Ingerois | FIN | FBB | 280 |
| Skoghall | SWE | LPB, CUK | 885 |
| Total | | | 3 285 |

| Containerboards | Location | Grade | Capacity 1 000 t |
|-----------------|----------|--|------------------|
| Heinola | FIN | SC fluting | 300 |
| Ostroleka | POL | Testliner, Pfr fluting, sack paper, wrapping paper | 725 |
| Varkaus | FIN | Kraftliner, white-top kraftliner | 390 |
| Total | | | 1 415 |

| Barrier coating | Location | Grade | Capacity 1 000 t |
|---------------------|----------|-----------------|------------------|
| Beihai | CHN | Barrier coating | 80 |
| Skoghall (Forshaga) | SWE | Barrier coating | 120 |
| Imatra | FIN | Barrier coating | 415 |
| Total | | | 615 |

Packaging Solutions

| Corrugated packaging | Grade | Capacity million m ² |
|----------------------|----------------------|---------------------------------|
| Baltic states | Corrugated packaging | 145 |
| Kaunas | | |
| Riga | | |
| Tallinn | | |
| Finland | Corrugated packaging | 150 |
| Lahti | | |
| Kristiinankaupunki | | |
| Poland | Corrugated packaging | 435 |
| Łódź | | |
| Mosina | | |
| Ostrolęka | | |
| Tychy | | |
| Russia | Corrugated packaging | 365 |
| Arzamas | | |
| Balabanovo | | |
| Balabanovo offset | | |
| Lukhovitsy | | |
| Sweden | Corrugated packaging | 275 |
| Jönköping | | |
| Skene | | |
| Vikingstad | | |
| Total | Corrugated packaging | 1 370 |

| China Packaging | Location | Grade | Capacity million pcs | Capacity million m ² |
|-------------------------------|----------|--------------------|----------------------|---------------------------------|
| Gaobu, Dongguan | CHN | Consumer packaging | 390 | 30 |
| Jiashan, Zhejiang | CHN | Consumer packaging | 145 | 20 |
| Qian'an, Hebei | CHN | Consumer packaging | 335 | 25 |
| Wu Jin, Jiangshu ¹ | CHN | Consumer packaging | 65 | 10 |
| Total | | | 935 | 85 |

¹ New plant, investment on-going

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Biomaterials

| Mill | Location | Grade | Division | Capacity 1 000 t |
|------------------------------|----------|---------------------------------------|--------------|------------------|
| Enocell | FIN | Short, long-fiber and dissolving pulp | Biomaterials | 490 |
| Skutskär | SWE | Short, long-fiber and fluff pulp | Biomaterials | 540 |
| Sunila | FIN | Long-fiber pulp | Biomaterials | 375 |
| Montes del Plata (50% share) | URU | Short-fiber pulp | Biomaterials | 730 |
| Veracel (50% share) | BRA | Short-fiber pulp | Biomaterials | 575 |
| | | | | 2 710 |

Chemical Pulp

| Mill | Location | Grade | Division | Capacity 1 000 t |
|---|----------|-------------------------------------|---------------------|------------------|
| Heinola | FIN | Neutral Sulphite Semi-Chemical Pulp | Packaging Materials | 285 |
| Kaukopää, Imatra | FIN | Short and long-fiber | Packaging Materials | 825 |
| Nymölla | SWE | Short and long-fiber | Paper | 340 |
| Ostrołęka | POL | Long-fiber | Packaging Materials | 120 |
| Oulu ¹ | FIN | Long-fiber | Paper | 265 |
| Skoghall | SWE | Long-fiber | Packaging Materials | 375 |
| Tainionkoski, Imatra | FIN | Short and long-fiber | Packaging Materials | 195 |
| Varkaus | FIN | Short and long-fiber | Packaging Materials | 310 |
| Veitsiluoto | FIN | Short and long-fiber | Paper | 375 |
| Chemical Pulp Total (incl. Biomaterials) | | | | 5 800 |
| of which market pulp ² | | | | 2 150 |

¹ Oulu Mill conversion into kraftliner production will start in September 2020

² market pulp defined as dried pulp shipped out from the mill to external customers.

Deinked Pulp (DIP)

| Mill | Location | Grade | Division | Capacity 1 000 t |
|--------------|----------|---------------------------|---------------------|------------------|
| Hylte | SWE | DIP | Paper | 290 |
| Langerbrugge | BEL | DIP | Paper | 680 |
| Maxau | GER | DIP | Paper | 295 |
| Ostrołęka | POL | Recycled fiber based pulp | Packaging Materials | 615 |
| Sachsen | GER | DIP | Paper | 430 |
| Total | | | | 2 310 |

CTMP

| Mill | Location | Grade | Division | Capacity 1 000 t |
|--------------|----------|-------|---------------------|------------------|
| Beihai | CHN | BCTMP | Packaging Materials | 210 |
| Fors | SWE | CTMP | Packaging Materials | 185 |
| Kaukopää | FIN | CTMP | Packaging Materials | 220 |
| Skoghall | SWE | CTMP | Packaging Materials | 270 |
| Total | | | | 885 |

Lignin

| Mill | Location | Product | Division | Capacity 1 000 t |
|---------------------|----------|---------|--------------|------------------|
| Sunila | FIN | Lignin | Biomaterials | 50 |
| Total Lignin | | | | 50 |

Xylose

| Mill | Location | Product | Division | Capacity 1 000 t |
|-----------------------|----------|---------|--------------|------------------|
| Raceland ¹ | USA | Xylose | Biomaterials | 10 |
| Total Xylose | | | | 10 |

¹ Demonstration plant

Wood Products

| Mill | Location | Sawing Capacity 1 000 m ³ | Further Processing Capacity 1 000 m ³ | Pellet capacity 1 000 t | CLT capacity 1 000 m ³ | LVL capacity 1 000 m ³ |
|---------------------------|----------|--------------------------------------|--|-------------------------|-----------------------------------|-----------------------------------|
| Ala | SWE | 400 | 50 | 100 | - | - |
| Alytus | LIT | 210 | 115 | - | - | - |
| Amsterdam | NLD | - | 80 | - | - | - |
| Bad St. Leonhard | AUT | 360 | 105 | - | 80 | - |
| Brand | AUT | 440 | 295 | - | - | - |
| Gruvön ¹ | SWE | 370 | 150 | 100 | 50 | - |
| Honkalahti | FIN | 310 | 70 | - | - | - |
| Imavere | EST | 340 | 160 | 100 | - | - |
| Impilahti | RUS | 160 | 10 | 25 | - | - |
| Launkalne ² | LAT | 250 | 60 | 30 | - | - |
| Murow | POL | 300 | 210 | - | - | - |
| Nebolchi | RUS | 180 | 45 | 40 | - | - |
| Näpi | EST | 50 | 180 | 25 | - | - |
| Pfarrkirchen ³ | GER | - | 145 | - | - | - |
| Planá | CZE | 390 | 220 | - | - | - |
| Uimaharju ⁴ | FIN | 240 | - | - | - | - |
| Varkaus | FIN | 210 | 35 | - | - | 75 |
| Veitsiluoto ⁵ | FIN | 200 | - | - | - | - |
| Ybbs | AUT | 700 | 450 | - | 110 | - |
| Zdírec | CZE | 580 | 220 | 80 | - | - |
| Total | | 5 690 | 2 600 | 500 | 240 | 75 |

¹ Gruvön CLT ramping up

² Launkalne pellets ramping up

³ Pfarrkirchen sawmill has been divested, the transaction is expected to be completed in the first quarter of 2020

⁴ Uimaharju sawmill belongs to division Biomaterials

⁵ Veitsiluoto sawmill belongs to division Paper

Biocomposites

| Mill | Location | Product | Division | Capacity 1 000 t |
|---------------------------|----------|--------------|---------------|------------------|
| Hylte | SWE | Biocomposite | Wood Products | 15 |
| Total Biocomposite | | | | 15 |

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Paper

| Mill | Location | Grade | Capacity 1 000 t |
|-------------------|----------|-----------------------------|------------------|
| Anjala | FIN | Impr. news, book, LWC | 435 |
| Hylte | SWE | News | 480 |
| Kvarnsveden | SWE | SC, news, impr. news | 565 |
| Langerbrugge | BEL | SC, news, impr. news, dir. | 555 |
| Maxau | GER | SC | 530 |
| Nymölla | SWE | WFU | 485 |
| Oulu ¹ | FIN | WFC | 810 |
| Sachsen | GER | News, impr. news, directory | 310 |
| Veitsiluoto | FIN | LWC, MWC, WFU | 790 |
| Total | | | 4 960 |

¹ Oulu Mill conversion into kraftliner production will start in September 2020.

Abbreviations used in the tables:

| | |
|-------|---------------------------------------|
| BCTMP | bleached chemi-thermo-mechanical pulp |
| CKB | coated kraft back board |
| CLT | cross-laminated timber |
| CTMP | chemi-thermo-mechanical pulp |
| CUK | coated unbleached kraftboard |
| DIP | deinked pulp |
| FBB | folding boxboard |
| LPB | liquid packaging board |
| LVL | laminated veneer lumber |
| LWC | light-weight coated paper |
| MWC | medium-weight coated paper |
| PfR | paper for recycling |
| SBS | solid bleached sulphate board |
| SC | super-calendered paper |
| WFC | wood free coated paper |
| WFU | wood free uncoated paper |

The formula: (Sum of net saleable production of two best consecutive months / Available time of these two consecutive months) × Available time of the year

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Annual General Meeting (AGM)

Stora Enso Oyj's Annual General Meeting (AGM) will be held on Thursday 19 March 2020 at 4.00 p.m. Finnish time at the Marina Congress Center, Katajanokanlaituri 6, Helsinki, Finland.

Nominee-registered shareholders wishing to attend and vote at the AGM must have shares that would entitle to being registered in the Company shareholders' register on the record date 9 March 2020 and must be temporarily registered in the Stora Enso shareholders' register by 16 March 2020. For shares registered through Euroclear Sweden and for holders of ADRs the timetable may vary and earlier dates apply. Instructions for submitting notice of attendance is given in the invitation to the AGM, which can be consulted on Stora Enso's website at storaenso.com/agm.

AGM and dividend in 2020

| | |
|----------|------------------------------|
| 9 March | Record date for AGM |
| 19 March | Annual General Meeting (AGM) |
| 20 March | Ex-dividend date |
| 23 March | Record date for dividend |
| 30 March | Dividend payment |

Dividend

The Board of Directors proposes to the AGM that a dividend of EUR 0.50 per share will be paid to the shareholders for the fiscal year ending 31 December 2019. The dividend payable on shares registered with Euroclear Sweden will be forwarded by Euroclear Sweden AB and paid in Swedish crowns. The dividend payable to ADR holders will be forwarded by Citibank N.A. (Citi) and paid in US dollars.

Publications dates for 2020

| | |
|------------|--------------------------------------|
| 30 January | Financial results for 2019 |
| Week 7 | Annual Report 2019 |
| 21 April | Interim report for January-March |
| 21 July | Half-year report for January-June |
| 20 October | Interim report for January-September |

Distribution of financial information

Stora Enso's **Annual Report 2019** consists of four sections: Strategy, Sustainability, Financials, and Governance. You can find the highlights of the year and all reports as downloadable PDF files at storaenso.com/annualreport.

Summary and Governance are available in English, Finnish and Swedish. Strategy, Sustainability and Financials are available in English. The official financial statements (in Finnish) and a list of principal subsidiaries (in English) can be found on the company's website.

Interim reports and **Half-year reports** are published in English, Finnish and Swedish at storaenso.com/press.

Information for holders of American Depositary Receipts (ADRs)

The Stora Enso dividend reinvestment and direct purchase plan is administered by Citibank N.A. The plan makes it easier for existing ADR holders and first-time purchasers of Stora Enso ADRs to increase their investment by reinvesting cash distributions or by making additional cash investments. The plan is intended for US residents only. Further information on the Stora Enso ADR programme is available at citi.com/DR.

Contact information for Stora Enso ADR holders

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Email: citibank@shareholders-online.com

Toll-free number: (877)-CITI-ADR
Direct dial: (781) 575-4555

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Annual Report 2019

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It should be noted that Stora Enso and its business are exposed to various risks and uncertainties and certain statements herein which are not historical facts, including, without limitation those regarding expectations for market growth and developments; expectations for growth and profitability; and statements preceded by “believes”, “expects”, “anticipates”, “foresees”, or similar expressions, are forward-looking statements. Since these statements are based on current plans, estimates and projections, they involve risks and uncertainties, which may cause actual results to materially differ from those expressed in such forward-looking statements. Such factors include, but are not limited to: (1) operating factors such as continued success of manufacturing activities and the achievement of efficiencies therein, continued success of product development, acceptance of new products or services by the Group’s targeted customers, success of the existing and future collaboration arrangements, changes in business strategy or development plans or targets, changes in the degree of protection created by the Group’s patents and other intellectual property rights, the availability of capital on acceptable terms; (2) industry conditions, such as strength of product demand, intensity of competition, prevailing and future global market prices for the Group’s products and the pricing pressures thereto, price fluctuations in raw materials, financial condition of the customers and the competitors of the Group, the potential introduction of competing products and technologies by competitors; and (3) general economic conditions, such as rates of economic growth in the Group’s principal geographic markets or fluctuations in exchange and interest rates. All statements are based on management’s best assumptions and beliefs in light of the information currently available to it and Stora Enso assumes no obligation to publicly update or revise any forward-looking statement except to the extent legally required.